HISTORICAL ARCHAEOLOGY
AT THE
GOLDEN EAGLE SITE

edited by

Mary Praetzellis, Adrian Praetzellis, Marley R. Brown III

technical editor

Suzanne B. Stewart

Cultural Resources Facility
Anthropological Studies Center
Sonoma State University

July 1980
(August 2010)

FRONTISPIECE
Trench E on the Golden Eagle site, looking toward the Corner of
7th and K Streets, Sacramento.

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Final Report

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PREFACE

Archaeological investigations of the Golden Eagle site (CA-SAC-394/H) on the J/K/6/7 block in Sacramento, California, were undertaken by the Sonoma State University's Anthropological Studies Center from 9 July to 14 August 1979. The contract for this work had been initiated by James Henley of the Sacramento Museum and History Department on behalf of the Redevelopment Agency of the City of Sacramento, as a part of the City's ongoing cultural resources program.

During testing, much of the site was found to have been severely disturbed through the demolition and site-clearance process that occurred on the block in 1963. The western portion of the half-block, however, remained in good condition, and it was in this area that several intact features were investigated. The deposits date from 1857 to 1878 and represent several commercial enterprises, including the Golden Eagle Hotel and the Golden Eagle Oyster Saloon.

This report details the techniques of the stratigraphic excavation of the Golden Eagle site, which included a combination of detailed recording and the application of the Harris-Winchester Matrix, providing discrete artifact associations. Descriptions of the wide variety of material remains recovered in this fashion are given in Part Two, including an analysis by artifact class of four temporally controlled features excavated.

Broader concerns of urban archaeology within the regulatory context are also considered on a number of levels. In the Urban Archaeology section, changes in the contracting agencies' planning processes are suggested which could maximize data recovery and save needless expenditures of funds. These recommendations address the value of both pre-investigation and concurrent historical research and the need for a city-wide, theory-oriented research design. The interpretive section that follows proposes a number of schemes relating to urban development that might be implemented in such a design.

The Golden Eagle Hotel site provides material correlates of an upper-middle-class restaurant and saloon for this period. As such, these data can be used as a base line from which to view cultural and economic diversity in other archaeological assemblages.

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ARCHAEOLOGY OF THE GOLDEN EAGLE SITE

HISTORY OF THE GOLDEN EAGLE HOTEL

by

Edith E. Pitti

Sacramento, California

Abridged by Mary Praetzellis

INTRODUCTION

A history of the Golden Eagle project area was researched and written by historian Edith Pitti under a separate contract with the Sacramento Museum and History Department. Her work will be distributed by the Department under separate cover from the archaeological report. While the reader is strongly encouraged to read the history and archaeology volumes together, it is realized that this may not be possible in all cases. Therefore, the following edited excerpts from Pitti's work have been included in this report to provide information which is essential to an understanding of the archaeological analysis. Her bibliographies, in history format, are also included here as a further aid to future research.

This section focuses primarily on the Golden Eagle Hotel due to the time limitations and contractual stipulations imposed on the historical research. Included also, however, is a tabular chart with information on other individuals, mainly barbers, blacksmiths and manufacturers, located at 175-179 K Street in the late 19th century and a description of the Golden Eagle Oyster Saloon and West Coast oyster industry during the years that William Cronin's establishment adjoined the Golden Eagle Hotel.

HISTORY OF THE GOLDEN EAGLE HOTEL
1851 - 1874

In 1851 Daniel E. Callahan established what was to become the Golden Eagle Hotel, one of Sacramento's first hostelries.[1] On 19 September 1850, Callahan had purchased James Robinson's lot, a 26'8" by 70' parcel on Oak Avenue;[2] six months later, he bought the adjoining lot to the east, which fronted on K Street, from Jonathan B. Logan. On these two parcels, Callahan erected what was probably a canvas structure.[3] Callahan's Place, as the establishment was apparently known, was probably both a bar and a hotel, which profited by its proximity to the Horse Market.

In 1851 Callahan contracted with the firm of Grant and Voorhies for the construction of a frame building, valued at $2,000, at 183 K Street.[4] This building, like the other structures on the block bounded by J, K, Sixth and Seventh streets, did not survive the fire of 1852.[5] Callahan quickly secured some canvas for a tent, where guests could obtain a bunk "similar to those found on river steamers."[6]

In June of 1853, Callahan mortgaged a portion of his property for $1,000; with this money, he purchased a parcel that joined his original lot.[7] On this lot, Callahan constructed the new Golden Eagle, this time out of brick.[8] The new building, with its granite front and marble lime plaster, reportedly measured 26-1/2' by 100' and contained 38 (perhaps 40) sleeping compartments, a private entrance to the upstairs rooms, and parlors on the second and third floors.[9] The Golden Eagle dining room, which measured 22' by 70', was reputedly "one of the largest and most spacious in the city."[10] Here, Callahan promised, the table would "be

supplied with the delicacies of the season."[11] The kitchen may have been under the direct supervision of the Callahan family, since there is no record that they employed a cook until 1859.[12]

This new brick Eagle was credited with stopping the second of the great Sacramento fires short of Seventh Street in 1854.[13] The hotel continued to grow. The dimensions given for the hotel in 1854 were 25' by 140'.[14] In 1855 Callahan purchased another adjoining parcel that extended from K Street to Oak Avenue and constructed "an ell on the rear of the hotel, extending eastward."[15] By 1856 the hotel measured 66' by 140'; it is clear from the 1866 Houseworth stereo (plate 1) of the Golden Eagle, however, that only the original brick structure with its 1854 addition extended the full 140 feet.[16]

By 1856 the Golden Eagle had increased its capacity to 200 guests and was cited by the Daily Alta California as one of the four hotels in Sacramento which was "unequalled in the State."[17] By this time, the first phase of the hotel's construction was essentially complete. Callahan had further expansion planned; depite his purchase of the adjoining lots needed to enlarge and transform his establishment into what would become a four-story Italianate building, he did not undertake this renovation for almost a decade.[18] The delay stemmed from the need to re-establish property boundaries which apparently had been blurred by the vagaries of two major floods in 1850 and 1852, as well as by the confusion which had resulted from the almost total destruction of the central city in the 1852 fire. The complicated purchase and mortgage sequence for the Golden Eagle property is detailed in appendix 1.

In addition to the renovations on his own property, Callahan, like many local residents, became involved in the city-wide movement to improve living conditions. The campaign for a comprehensive sewerage system was spearheaded by local physicians after the floods of December 1861 and January 1862, which had left pools of stagnant water, rotting offal, and other unsanitary matter scattered throughout the city. This disaster was followed in 1862-63 by a smallpox epidemic.[19] These two events highlighted the major problems, those of flood and disease, which had plagued Sacramento during the preceding decade. Both reasons were advanced to justify the expense involved in raising Sacramento's central district to a higher grade.[20] Sacramento's sewerage and drainage system, as it was laid down during the 1860s and 1870s, represented a coherent, integrated approach to urban sanitation in contrast to the frequently haphazard, individually inspired constructions which had been tolerated earlier.

Alteration of the city's topography was necessary to create a graduated southeastern slope which would channel liquid wastes and drainage water into a main ditch at Sixth and R streets. The establishment of the 6-inch, north to south declivity between alphabetical streets was undertaken. In addition, city specifications for this massive project required that even-numbered streets be raised 1 foot higher than odd-numbered streets, so sewage from the block bounded by J, K, Sixth,and Seventh streets, for example, would flow towards Seventh Street. A fully functioning sewerage system was not possible until the entire block was uniformly elevated and sloped according to plan.[21]

Plate 1

1866 Houseman Stereo Showing Corner of 7th and K Streets

There was considerable lag between the time of the raising of the perimeter of the block and the elevation of Oak Avenue. Work on Seventh Street began in the early 1860s and between 1863 and 1868 this thoroughfare underwent major alterations.[22] By 1866 at the latest, and possibly as early as 1863, Callahan had laid the fill necessary to elevate that portion of Seventh Street--from K Street to Oak Avenue--which adjoined the hotel.[23] The elevation of the Golden Eagle Hotel lots, which included the parcel containing Callahan's original brick structure with its pre-1856 additions and the property formerly owned by Randall, probably occurred at this time.[24]

North of Oak Avenue, however, the west side of Seventh Street dropped down to the old grade, posing serious problems for pedestrians.[25] Commenting on the dangers of some of the newly elevated sidewalks, the Sacramento Bee cited this sudden descent on Seventh Street as one example where the abrupt "termination to the sidewalk...would jar a man's cerebral column tremendously if he should walk off it unconsciously."[26]

The elevation of the block was also delayed on the back lots that bordered Oak Avenue between Sixth and Seventh streets. Callahan, for example, did not raise the back lot to the west of the original wing of the hotel when he brought the main part of the Golden Eagle and his own house across the alley up to grade.[27] By 1870 the back portion of this lot had been raised, as the lithograph of Sacramento that year clearly indicates.

During this period, Callahan again enlarged the Golden Eagle. In 1867 he extended the hotel to the northwest corner of Seventh and K streets. Two years later, the Italianate facade was completed and, with the paving of K Street that same year, the Golden Eagle assumed a stately, elegant air (see plate 2).[28] The main floor of the Golden Eagle contained a reading room, into which the K Street entrance opened, a billiard room, and a bar in the northwest corner of the building. The dining room to the south featured Franco-American cuisine, although guests continued to sit at extended tables such as might be found in a boarding house.[29]

The cost of these durable improvements, as well as the less overt costs generated by the supplies and services which guests expected to find in the newly renovated hotel, severely strained Callahan's financial resources. His financial position, although augmented by the hotel's success during the preceding decade, had nevertheless been taxed by the expenses associated with the elevation of the Golden Eagle and its ambits and by assessments for such municipal improvements as levees and increased fire and police protection (see table 1).[30] Other factors may also have contributed to the erosion of Callahan's financial position, although it is not clear whether these emanated from business investments, speculation in the Comstock, or from his avocation as a sportsman. There was little indication, however, that he was suffering from financial difficulties until he began to expand the Golden Eagle Hotel in 1867.

Despite the erosion of Callahan's finances, he managed to survive financially awhile longer. Although he was sued for non-payment by Oullahan & Co. during the summer of 1873, it was not until 28 March 1874,

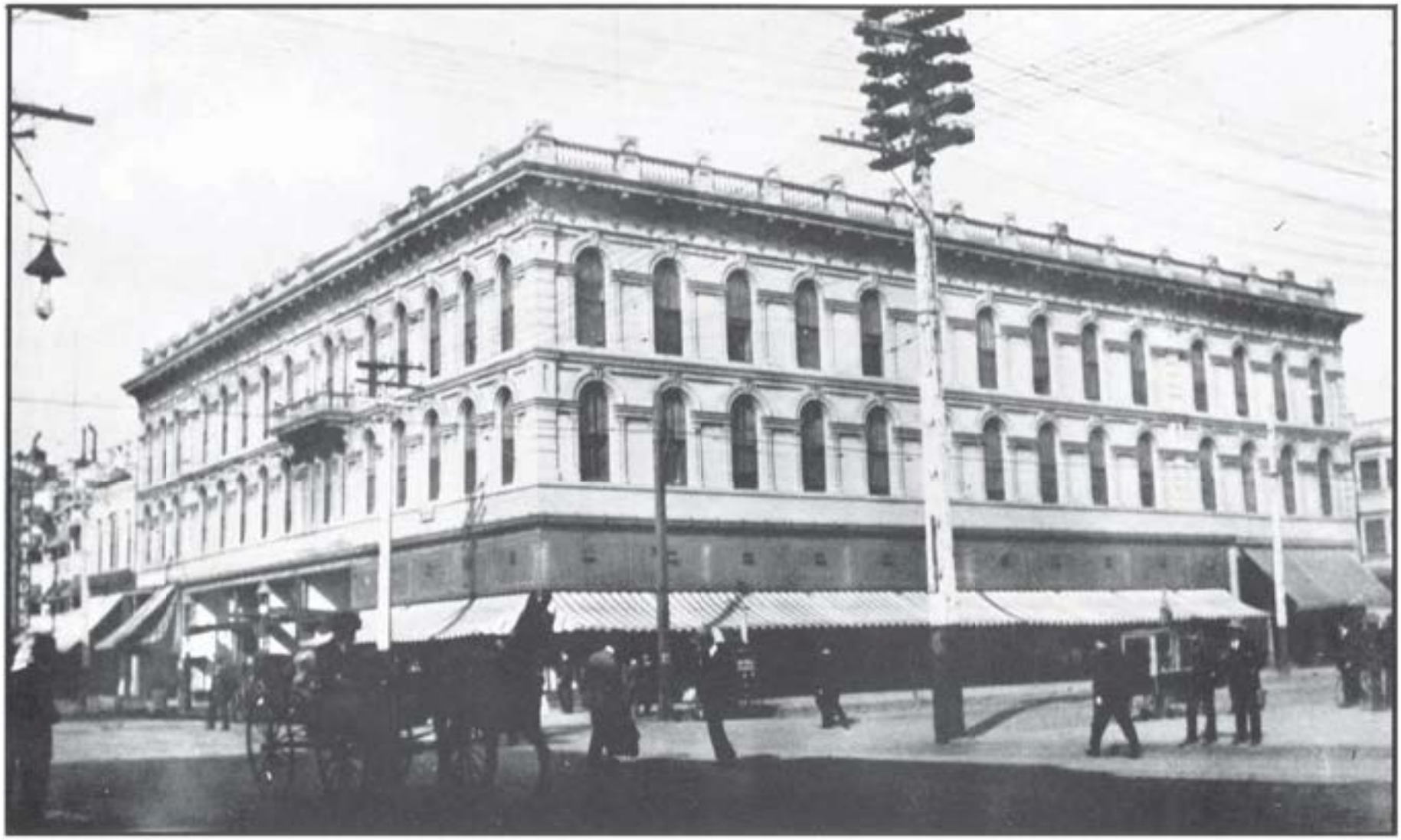

Plate 2 Golden Eagle Hotel ca. 1910–1915 (Camera Facing NNW).

TABLE 1

Tax Assessments on the Golden Eagle Hotel, 1866 - 1874

Tax	1866-67	1867-68	1868-69	1869-70	1870-71	1871-72	1872-73	1873-74
General	$169.50	$ 78.40	$ 35.20	$ 34.80 242.20*	$ 65.70 295.65*	$305.25	$213.75	$281.00
Fire Dept.	33.90	49.00	14.60	10.87 75.68*	10.95 49.27*	81.40	106.87	112.40
School	42.37	68.60	30.80	30.45 211.92*	25.55 114.97*	142.45	149.62	112.40
Levee	127.12	196.00	---	10.87 75.68*	5.00 22.99*	35.56	21.37	16.86
Redemption	16.95	---	---	---	4.38 19.71*	40.70	149.62	224.80
Street	---	---	---	17.40 121.10*	13.14 59.13*	81.40	128.25	123.64
Police	---	---	---	---	---	69.19	64.12	84.30
Special Water Works	---	---	---	---	---	---	---	22.48
Total	$389.85	$392.00	$ 83.60	$104.40 $726.60*	$124.83 $561.73*	$752.95	$833.62	$977.88

*Taxes paid by Clark and Cox

when John Breuner filed a complaint to recover money he had advanced Callahan, that other creditors began to clamor for payment also.[31] On 18 April 1874, Callahan filed for bankruptcy.[32]

On 14 August 1874, the Golden Eagle was put on the auction block and purchased by Creed Haymond and Jo Hamilton, on behalf of the Odd Fellows Bank, for $50,800, a mere $225 more than Callahan owed the bank.[33] During the next decade, several individuals were involved with the Golden Eagle until the legal question of ownership was finally resolved.

SOCIAL CONTEXT OF THE GOLDEN EAGLE HOTEL

From its beginnings, it was evident that changes in the surrounding neighborhood and the improvements undertaken at the hotel itself affected the type of clientele which was attracted. In the early 1850s, Callahan believed that his location "above the Horse Market" would attract immigrants and travelers.[34] The paucity of permanent residents at the Golden Eagle during this period suggests that he catered almost exclusively to transient visitors.[35] By 1854, however, perhaps due to the expansion of the Golden Eagle, nine people boarded at the hotel. Although no occupation was listed in the Sacramento City Directory for four of these individuals, four others were skilled craftsmen and one was a physician.[36]

Throughout the 19th century, single men and women who had left their families and who had not accumulated sufficient capital either to purchase a house or a business with living quarters, sought accommodations in boarding houses and hotels. Families also found such quarters convenient homes, particularly in areas like California, where the scarcity of labor made it difficult to obtain qualified servants at reasonable rates.[37] The perceived need for servants, even in middle-class homes, emanated from the labor requirements involved in such everyday matters as the preparation of food or the maintenance of a clean wardrobe. When help could not be obtained in private homes, some families moved into hotels or boarding houses to resolve the problem.

Aside from the greater leisure which hotel life permitted, such establishments also offered a constant variety of companions. Although some people claimed this environment undermined the family unit and threatened the emotional development of children, these cries of alarm were countered by the advantages which hotels could offer to those who enjoyed diverse social contacts.[38] Callahan had advertised as early as 1856 that his hotel offered "superior inducements...to FAMILIES,"[39] and several families were permanent residents at the Golden Eagle during the 1860s and 1870s. It appears from the Sacramento city directories, however, that the majority of the hotel's permanent residents were single men.

A variety of professions were represented by Golden Eagle residents, many of whom worked in the immediate neighborhood. After the fire of 1854 in which the Courthouse burned, several of the county offices moved to the brick building erected by W.R. and P.J. Toll on K Street, not far from the Golden Eagle.[40] Judge Conger and two of the deputy sheriffs subsequently moved into the hotel.[41]

A number of local merchants also moved into the Golden Eagle. Between 1851 and 1871, 21 out of the 28 merchants and proprietors who boarded at the hotel owned businesses either on the J-K, Sixth-Seventh Street block itself, or within a six-block radius. Bookkeepers and clerks formed the second largest group of the Golden Eagle's permanent residents during this same 20-year period, but only 7 out of the 16 individuals worked near the hotel. Eleven manufacturers and makers boarded at the Golden Eagle, 9 of whom maintained establishments within the six-block area, as did half of the doctors, druggists, and lawyers who lived at the hotel (6 out of 12) between 1851 and 1871. Only a little more than a third of the 20 skilled craftsmen living at the hotel were locally employed.

It was not until 1858-59 that the Golden Eagle attracted a significant number of permanent residents. While the number of individuals who indicated in the Sacramento city directories that they boarded at the Golden Eagle was never very great--not more than two dozen in one year, or just slightly more than 10 percent of the hotel's capacity after it was enlarged in 1867--an interesting numerical pattern emerges which appears to correspond roughly to the hotel's two major construction phases. The Golden Eagle's permanent population was greatest in 1858-59, when 17 people resided at the hotel, and in 1869, when 26 individuals lived there.

The Golden Eagle's permanent residents and any guests who regularly returned to the hotel must have been impressed with the signs of urban maturity which increasingly characterized the immediate neighborhood. By the 1860s, there was a general demand that the poundmaster confiscate horses and cattle whose owners permitted them to graze unattended within the city limits. There was also a strong move to banish the Horse Market from its K Street location,[42] partly due to K Street businessmen's objections to the practice of "test-driving" animals down the city's thoroughfares at breakneck speeds. Although the Horse Market remained until at least into the 1860s, many of its functions had already been absorbed by livery stables in the area. At least some, and perhaps most, of the stock was eventually moved from the city's business district to pastures adjacent to the city, but outside the corporate limits.[43]

Other improvements were implemented in the central district that benefited businesses in the area. The elevation of the streets, as well as the concommitant work on the levees and creation of a new channel for the American River, had reduced the danger of floods.[44] Stone paving and the decline of freighting by the mid-1860s diminished the amount of dust generated in the summer and the number of potholes, which had resulted from the combination of heavy wagon traffic and muddy streets, in the rainy season.[45] In addition to these improvements and the installation of a sewerage system, street lights, first erected in 1854, gradually increased both in number and in the number of hours that they were lit.[46] While it is difficult to measure the effect these general civic improvements had on the Golden Eagle and other businesses, there can be little doubt that they helped erase the rawness that characterized Sacramento's early years.

The Golden Eagle had benefited during the 1850s by its proximity to the Horse Market and to J Street, the main route to the central mining district; its location near the principal transportation lines in later years was also an asset.[47] The Golden Eagle was the staging point for the relatively small Sacramento and Napa Stage Line and Cacheville Tri-Weekly Line in the mid-1860s, but most of the stages departed from the Orleans Hotel, a half a mile away.[48] The length of this journey was shortened for the Golden Eagle's guests after 1860, when Callahan instituted an omnibus service to convey travelers to both stage and passenger depots.[49]

The juncture of the California Steamship Company, Sacramento Valley Railroad, and Central Pacific Railroad at the foot of K Street during the 1860s made K Street the most important commercial artery in the city, a fact which must have benefited the businesses which fronted it.[50] When a new railroad station was constructed in 1879 at Second and G Street, the Golden Eagle was still easily accessible to travelers, since the city's street railway, built in 1870, conveyed passengers along K Street past all the major hotels enroute to the depot.[51] The increased ease of travel engendered by the expanded transportation network undoubtedly increased the number of temporary guests at the Golden Eagle.

GOLDEN EAGLE OYSTER SALOON

The Golden Eagle Oyster Saloon was situated next door to the Golden Eagle Hotel and apparently catered to the same clientele. From the Gold Rush on, oysters were an extremely popular item on 19th-century California menus. They appear to have been served in a variety of social contexts, from "ladies restaurants" and ice cream parlors to chop houses. Banquets or fine meals usually began with a course of oysters. Appendices 3.1 and 4.1 give some indication of the styles and settings in which oysters were served. Research into the social, demographic, and political characteristics of the clientele of these various eating establishments should prove a useful endeavor. A brief history of the oyster industry, which supplied this market, is given below.

Eastern immigrants, attracted by the discovery of gold in California, carried the memory of large and delicately flavored oysters to their new homes. The demand for this familiar and favored food engendered the development of the California oyster industry. Since oysters can hermetically seal their valves and adapt to the limited amount of oxygen present by reducing their body functions, it was possible "to hold oysters out of water for shipping and marketing without serious injury."[52] Consequently, efforts were made to ship oysters around the Horn or across the Isthmus of Panama, but the journey proved too long; most of the oysters arrived in very poor condition.[53] While tinned or spiced oysters were shipped regularly to California from Baltimore, Boston, and New York during the 1850s, this trade satisfied neither the growing demand for oysters nor the desire for <u>fresh</u> oysters.[54]

There were fresh oysters in San Francisco Bay, but these were small and the flesh was dark and, some said, coppery tasting. While native oysters found some market in San Francisco and possibly in some of the interior communities, they were far from popular.[55]

Very early, therefore, oystermen began to explore the Pacific Coast in the hope of discovering a suitable oyster. The first acceptable Pacific Coast oyster was discovered in Shoalwater Bay (now Willapa Bay) in 1850.[56] The first shipload of oysters from Washington died enroute. The experiment was successfully repeated the following year, however, and subsequent expeditions led to the development of the Shoalwater Bay trade.[57] These Washington oysters, "shipped in the shell in 100-pound sacks or in baskets holding about 32 pounds," took approximately six days to reach San Francisco. Those that were not sold immediately either to wholesale or retail dealers were "laid out on beds in San Francisco Bay where the oysters remained fresh until needed in the market."[58]

Flood waters from the Sacramento and San Joaquin rivers inundated the oysters bedded in San Francisco Bay in 1862 and 1863 with mud and other debris, causing heavy losses. A severe winter along the Northwest Coast the preceding year had similarly decimated the oyster supply at Shoalwater Bay. These disasters prompted a search for other sources of supply, which led to the discovery of Nastard's Bay, 50 miles south of the Columbia River, and Yaquina Bay in the Yaquina Indian Reservation.[59]

After considerable dispute over the latter area, Winant & Co. finally obtained a lease to work the Yaquina beds in 1862, when they agreed to pay the Indian agent 15 cents per bushel for the oysters. Despite protests from other oystermen, Winant & Co. virtually captured the San Francisco market for a year or two. As with Shoalwater oysters, those from Yaquina Bay were held in San Francisco Bay until needed. Shoalwater oysters recovered during the interval, however, and, with the depletion of the Yaquina supply, again became the predominant West Coast oyster on the market.[60]

Despite attempts as early as 1857 to introduce oysters from the Gulf of California, these ventures never succeeded, primarily due to the lack of ice at Mazatlan.[61] By 1868, therefore, wholesale oyster trade in San Francisco depended primarily on the Northwest for fresh oysters. Winant & Co. appears to have supplied Sacramento retailers through the Arcade Oyster Saloon on Second Street and perhaps through the Bank Exchange, also on Second Street.[62]

Despite the success of the Washington oyster trade, Eastern oysters were still in demand. Not only was the flesh considered milder than that of the native oysters, but the Eastern oysters were considerably larger, primarily due to reproductive differences between the two species. Only 150 to 250 Eastern oysters could fill a one-gallon container, while 1,600 native oysters were required to fill a container of similar size.[63]

Changes in San Francisco Bay, attributed to an unknown cause, resulted in losses estimated at $40,000 in 1867; this set-back gave additional impetus to the desire to import Eastern oysters.[64] The first overland shipment of live Baltimore oysters had to await completion of the transcontinental railroad. On 20 October 1869, Sacramentans turned out to welcome "the Central Pacific passenger train, a 'Blue Line' refrigerating car of the Michigan Central Railroad, loaded with Baltimore oysters in the shell, in cans and kegs packed with ice...."[65]

The Sacramento Daily Union commented,

> If this venture succeeds, a car load will be forwarded hereafter weekly, although the cost of bringing them ($1,200 per car load) and their liability to spoil, makes the business one of considerable hazard.[66]

The following year, the paper reported that "the importation of Eastern oysters by rail has been abandoned as unprofitable, their quality was generally impaired and the freight made their cost too high."[67] The newspaper might have added that Eastern oysters of marketable size took up too much space to justify the cost.

While the importation of marketable Eastern oysters was discontinued, experiments in rebedding Eastern seed oysters or spats were initiated in 1870.[68] It was discovered that the central portion of San Francisco Bay was unsuitable for the relocation of these seed oysters, which led to the development of the southern bay, particularly along the western shore. The transplanted oysters grew more rapidly in California than they did in their native habitat, primarily due to the warmer water in San Francisco Bay.

For a number of years, it was believed that these seed oysters would not reproduce. It was found later that the reproduction of Eastern oysters was also related to water temperature; under ideal conditions, the imported spats matured and multiplied.[69] If the young managed to successfully drift with the tides until they reached a suitable bedding area, an untended oyster bed developed.[70] Since these beds were usually small, they were not important commercially.

For the most part, wholesale dealers relied on the yearly importation of seed oysters to supply the market. Large-scale shipments, which took about three weeks to reach San Francisco, were not undertaken until 1875, although a number of spats had been shipped and raised to maturity between 1869 and 1874.[71]

It was at the end of this experimental period, when it had been demonstrated that imported spats could supply the market, that William P. Cronin opened the Golden Eagle Oyster Saloon.[72] A native of Ireland, Cronin had worked as a butcher in London and as a salesman for the Singer Sewing Machine Company in New York; in 1858 he came to Sacramento, where he worked as a waiter at the Golden Eagle Hotel for 11 years.[73] According to Thompson and West, Cronin opened his oyster saloon in 1869, but the Golden Eagle Oyster Saloon was not listed as a separate business in the Sacramento city directories until 1874.[74] It is possible, since Cronin was listed simply as a barkeeper in 1873, that the oyster saloon originated in the Golden Eagle Hotel; Cronin may have rented the bar from Callahan before he moved into the adjoining structure owned by Samuel Cross.[75] Cronin was located at 179 K Street between 1874 and 1878, when he moved his establishment across the street.[76]

BARBERS, BOOTMAKERS, AND MANUFACTURERS

Information on the occupants of the remaining parcels investigated archaeologically is summarized in table 2. This table was compiled from Edith Pitti's research in Sacramento city directories.

TABLE 2

Summary of Occupants of 175, 177, and 179 K Street

Address	Year	Occupant	Place of Birth	No. of Employees	Other
175 K Street	1859	Herring/picks, iron doors	New York	2	
		Wells/horseshoer	Ohio		
	1861	Herring/blacksmith			
		Nixon/blacksmith	Ireland		
		Wells/horseshoer			
	1863	Nixon/blacksmith		1	
	1866	Nixon/horseshoer		1	
		Wright & Co./blacksmith	Tennessee	1	
	1868	Nixon/horseshoer			Lives at Golden Eagle
		Wright/blacksmith			
	1869	Nixon/horseshoer		1	
		Wright & Co./blacksmith			
	1871	Nixon/horseshoer	Ireland	1	
	1872	"			
	1890	"			
177 K Street	1854	Cole/sashmaker	Maine	1	
	1858	Hartwell & Cole/sashmaker	Mass./Maine	2	
	1863	Cole/sashmaker			
	1865	Hillebrand/bootmaker	Germany		
	1866	"		2	
	1868	"		6	
	1869	Aitkin & Luce/marble works	Scotland/N.Y.	6	Luce is Supt. of City Cemetery
	1871	"		4	
	1872	"			"Pioneer Marble Works"
	1890	Marble Works			

Table 2, continued

Address	Year	Occupant	Place of Birth	No. of Employees	Other
179 K Street	1856*	Cross/attorney	Ireland		
	1857*	"			
		George/barber			
	1858*	Cross/attorney	Ireland		
		George/barber			
	1859*	Cross/attorney	Ireland		
	1860*	"			Deacon of Congregational Church
	1866	Besser & Reno/barbers	Mass.		"Colored Barber"
	1869*	Hillebrand/bootmaker	Germany	4	
	1870	"			
		Dunlap/barber			
	1871	Hillebrand/bootmaker			Officer in the International Order of Red Men
	1872	"			
	1873*	Hillebrand/bootmaker	Germany		
	1874	Cronin/Golden Eagle Oyster Saloon	Ireland		
	1875	"			
	1876	"			
	1877	"			
	1878	"			
	1880	Roth/harnessmaker			

*Represents information interpreted from historical source by Mary Praetzellis

FOOTNOTES

[1]Daughters of the American Revolution. Typewritten copy of the California (State) Census of 1852. Vol. 5. San Diego and Sacramento Counties, p. 183; Thompson and West, History of Sacramento County, California with Illustrations (Oakland: Thompson and West, 1880. Reproduction with Introduction by Allan R. Ottley. Berkeley, 1960), p. 281.

[2]W. J. Davis, An Illustrated History of Sacramento County, California (Chicago: The Lewis Publishing Co., 1890), p. 452; Sacramento Bee, Sacramento Guide Book (Sacramento, n.d.; ca. 1939), p. 129; Sacramento County, Deeds, Vol. E, p. 65.

[3]_____, Deeds. Vol. F, p. 453; City of Sacramento, Map Book (1851), J-K, 6-7 Block and Tax Book (1851), "Callahan"; Sacramento Daily Record-Union (December 19, 1885), 8/4; Sacramento Bee (November 15, 1956), 6/2-3.

[4]City of Sacramento, Mechanic Liens. Book A, p. 110.

[5]Thompson and West, p. 76; Davis, p. 453; Sacramento Daily Record-Union (December 19, 1885), 8/4; Sacramento Bee (November 15, 1956), 1/8.

[6]Davis, p. 453.

[7]Sacramento County, Mortgages. Book D, p. 615; _____, Deeds. Book K, p. 531.

[8]Sacramento County, Mortgages. Book D, p. 605; Daily Democratic State Journal (July 26, 1853), 2/3; City of Sacramento, Tax Book (1853), "Callahan" and Assessment Book (1854), "Callahan"; Samuel Colville's City Directory of Sacramento for 1854-55. Collated, Compiled and Published by Samuel Colville (San Francisco: Monson & Valentine, Book & Job Printers, 1854), p. 15.

[9]Daily Democratic State Journal (July 26, 1853), 2/3; Sacramento Daily Union (August 6, 1853), 2/3 and 3/5.

[10]Daily Democratic State Journal (July 26, 1853), 2/3.

[11]Colville's Sacramento Directory. Vol. VI. For the Year Commencing May 1856. By Samuel Colville, Collator and Publisher (San Francisco: Printed by Monson, Valentine & Co., 1856), n.p.

[12]Sacramento City Directory, for 1860. Compiled and Published by D.S. Cutter & Co. (Sacramento: H.S. Crocker & Co., Book & Job Printers, 1859), pp. 3, 63.

[13]Thompson and West, p. 77; Sacramento Daily Union (July 14, 1854), 2/6.

[14]Daily Democratic State Journal (July 26, 1853), 2/3; Colville's City Directory of Sacramento, for 1854-55, p. 15.

[15]Sacramento County, Deeds. Book P, p. 244; Sacramento Daily Record-Union (December 19, 1885), 8/4.

[16]Colville's Sacramento Directory for 1856, p. 57.

[17]Daily Alta California (San Francisco) (November 12, 1856), 2/3.

[18]City of Sacramento, Museum and History Division, Copy of George C. Baker's 1857 Lithograph of Sacramento.

[19]Sacramento Board of Health. Report of the Board of Health, for the Year Ending March 31, 1863. Presented to the Supervisors of the City and County of Sacramento on the Eighth Day of April 1863 (Sacramento: James Anthony & Co., 1863), p. 8; Joseph Roy Jones, M.D., Memories, Men and Medicine (Published by the Sacramento Society for Medical Improvement, 1950), pp. 248, 250-251, 253; T.M. Logan, M.D., "Medical History of the Year 1868 in California" (San Francisco: Printed by F. Clark, 1869), p.6.
But as early as 1850, the Sacramento Transcript (October 25, 1850), 2/4, had warned that only the extreme cold of winter and sanitary measures would check the cholera epidemic.

[20]Barbara Lagomarsino, "Early Attempts to Save the Site of Sacramento By Raising Its Business District" (Unpublished M.A. Thesis, Sacramento State College, 1969), pp. 32, 91.
Raising the streets to improve the city's sanitary conditions was specifically recommended as early as 1851, again by the Sacramento Transcript (January 15, 1851), 2/1. Also see Henry Gibbons, M.D., "Annual Address Before the San Francisco County Medical Society," given January 27, 1857 (San Francisco: Whitton, Towne & Co.'s Excelsior Steam Press, 1857), p. 21 and City of Sacramento, Sacramento City Council Records. Vol. F (1853-54), p. 4.

[21]Sacramento Daily Record-Union (November 4, 1879), 3/3-3/5 and (January 27, 1881), 3/3; Sacramento Board of Health, Annual Report of Walter B. Ferral, Health Officer of the City of Sacramento, California. For the Fiscal Year Ending April 1, 1885 (Sacramento: H.S. Crocker & Co., 1885), p. 11; Sacramento Daily Record-Union (September 6, 1887), 2/3.

[22]City of Sacramento, Street Assessment Roll. (1863-1878), "Improving Seventh From I to M Streets by Grading Same," p. 13 and "Improving Seventh Street from J to K Streets by Grading Same," p. 120.

[23]The 1863 date is based on the newspaper account of sidewalks built to the new grade as reported in the Sacramento Bee (January 22, 1863), 3/1, while the 1866 date derives from the pictorial evidence offered by the 1866 Houseworth stereo of the Golden Eagle, St. Rose of Lima Church, and Toll's Stable.

[24]Callahan's mortgage in 1867 stipulated that Clark and Cox could collect payment, if forced to foreclose, for the "advances of money they make to raise the buildings," which indicates that there was more than one structure on the property. See Sacramento County, Mortgages. Book S, pp. 601-602.

This mortage, however, appears to have been a refinancing of an earlier mortgage, dating back to 1864. See Mortgages. Book R, pp. 127-128.

Callahan's elevation of the Golden Eagle and his section of the adjoining street explains why the newspaper, when reporting the buildings that were being raised, stated that "the Golden Eagle Hotel is in place." See The Daily Bee (Sacramento) (June 30, 1863), 3/2. Having raised his building, Callahan was a strong proponent of the high grade. See the Sacramento Daily Union (June 30, 1868), 4/1.

[25]City of Sacramento, Street Assessment Roll (1863-1878), "Improving Seventh Street from J to K Streets by Grading Same," p. 120.

[26]Sacramento Bee (January 22, 1863), 3/1.

[27]Street Assessment Roll, "Improving Oak Avenue from Sixth to Seventh Streets by Grading," p. 196.

[28]Sacramento Bee (November 15, 1956), 6/2-3; Sacramento Daily Record-Union (December 19, 1885), 8/4; City of Sacramento, Street Assessment Roll, "Improving K Street from Fourth to Seventh Street by Paving Same with Stone Pavement," p. 151; Thompson and Co., Historical and Descriptive Review of the Industries of San Francisco, 1887 (San Francisco: Thompson and Co., 1887), p. 91.

[29]Sacramento Daily Record-Union (May 19, 1881), 3/4.

[30]Sacramento County, Assessment Rolls for 1866-67, 1867-68, 1869-70, 1871-72, 1872-73, 1873-74.

[31]No. 14232. District Court of the Sixth Judicial District, State of California. Judgment Roll. Second Series, No. 7677. David Porter et. al. vs. D.E. Callahan. Filed August 13, 1873. Copy of letter from Maginnis to Oullahan and Porter enclosed; No. 14651. District Court. Sixth Judicial District. John Breuner vs. D.E. Callahan. Complaint Filed March 28, 1874.

[32]The District Court of the Sixth Judicial District advised Callahan's creditors that bankruptcy proceedings had been initiated on April 18, 1874, and, consequently, the sheriff had turned over all of Callahan's personal property that had been attached to Samuel J. Clark, U.S. Commissioner in Bankruptcy. Included in No. 14651. District Court. Sixth Judicial District, County of Sacramento. John Breuner vs. D.E. Callahan. Affidavit for Attachment. Filed March 28, 1874.

[33]Sacramento County, Deeds. Book 73, p. 483; Sacramento Daily Record-Union (August 12, 1874), 4/4 and (August 15, 1874), 5/1. No. 16492, Superior Court. Placer County. H.G. Smith vs. Odd Fellows Savings and Commercial Bank et. al. Deposition of George W. Jackson, E.L. Hawk and William F. Huntoon. Filed May 22, 1880.

[34]Daily Transcript (Sacramento) (August 31, 1850), 1/4.

[35]The 1852 California State Census did not record any permanent residents at the Golden Eagle (see California Census of 1852. Vol. V, p. 183), nor were any listed in The Sacramento Directory for 1853-54.

[36]Samuel Colville's City Directory of Sacramento, for 1854-55, pp. 22, 28, 51, 55, 68, 71, 77, 83.

[37]Daniel J. Boorstin, The Americans:The National Experience.(New York. Random House, 1966), pp. 145-146. In 1880, five families resided at the Golden Eagle, according to the 1880 Census. Vol. 8. San Benito, San Bernadino, Sacramento, and San Diego Counties. 1-636. Bureau of Census.

[38]Boorstin, pp. 145-146.

[39]Colville's Sacramento Directory for the Year 1856.

[40]Sacramento Bee (December 7, 1857), 3/1 and (December 10, 1857), 3/1-2 and (January 20, 1860), 3/3.

[41]Sacramento Directory and Gazetteer, for 1857 and 1858, p. 22; Taylor's Sacramento Directory for 1858-59, pp. 3, 57.

[42]Sacramento Bee (February 11, 1863), 3/1; (June 19, 1861), 3/1; (December 17, 1862), 3/1; (December 19, 1862).

[43]Ibid. (July 7, 1857), 3/1; (April 4, 1975), "100 Years Ago--1875," B6/5; (May 29, 1861), 2/2; (May 24, 1861), 3/4; (July 20, 1861), 3/1; (August 2, 1861), 4/4.

[44]Ibid. (November 8, 1862), 3/1.

[45]Ibid. (June 30, 1975), "100 Years Ago--1875," B6/5; Sacramento Transcript (December 5, 1850), 2/2; Joseph A. McGowan, History of The Sacramento Valley. Vol. I (New York: Lewis Historical Publishing Co., 1961), p. 89.

[46]Sacramento Bee (December 15, 1857), 2/2; (December 21, 1857), 3/1.

[47]Sacramento Transcript (December 5, 1850), 2/2.

[48]Sacramento Directory for 1866, Compiled and Published by Robert E. Draper (Sacramento: H.S. Crocker & Co., Book and Job Printers, 1866), pp. 34-35.

[49]Sacramento Bee (August 3, 1860), 2/4.

[50]Photograph in Aubrey V. Neasham and James E. Henley, The City of the Plains: Sacramento in the Nineteenth Century (Published by The Sacramento Pioneer Foundation in cooperation with The Sacramento Historic Landmarks Commission, Sacramento, Ca., May 10, 1969), p. 135.

[51]The Sacramento Directory, of Sacramento for 1853-54, pp. 3, 11; Mears' Sacramento Directory for the Years 1863-64, Compiled and Published by Leonard Mears (Sacramento: Printed by A. Badlam, 1863), p. 25. This was the fifth franchise given for a street railway and the third to run on K Street. See Thompson and West, p. 208.

[52]Elinore M. Barrett, The California Oyster Industry, Fish Bulletin 123 (The Resources Agency of California, Department of Fish and Game, 1963), p. 9.

[53]Ibid., p. 21.

[54]The Mercantile Gazette and Shipping Register (San Francisco), January 4, 1858 (3/3); January 19, 1858 (3/3); February 4, 1858 (2/6); February 19, 1858 (2/5); March 4, 1858 (2/5); March 27, 1858 (3/1); April 3, 1858 (3/3); April 19, 1858 (3/3); May 4, 1858 (3/2); May 19, 1858 (2/6); May 26, 1858 (3/2); June 4, 1858 (2/6); June 19, 1858 (2/6); June 26, 1858 (3/2); October 4, 1856 (3/1); January 20, 1863 (3/2); January 30, 1863 (3/2); February 28, 1863 (3/4); March 10, 1863 (3/4); March 21, 1863 (3/2); January 20, 1862 (3/5); January 31, 1862 (3/5); February 10, 1862 (3/5); February 20, 1862 (3/2-3/3); February 28, 1862 (3/4); March 10, 1862 (3/3); March 20, 1862 (3/2-3/3); March 31, 1862 (3/2); April 10, 1862 (3/1); April 19, 1862 (3/2); April 30, 1862 (3/2); May 7, 1862 (3/3); May 23, 1862 (3/2); May 30, 1862 (3/2); June 6, 1862 (3/3); June 13, 1862 (3/3); June 30, 1862 (3/3); November 21, 1863 (3/4); December 11, 1863 (3/4); Sacramento Union (July 23, 1939), reprint of a letter dated March 23, 1851 from Albert Leonard to his brother (magazine section, n.p., col. 1); The Daily Union (Sacramento) (April 16, 1851), 3/2 and (June 16, 1851), 3/3.

[55]John E. Skinner, "The Molluscan Fisheries," An Historical Review of the Fish and Wildlife Resources of the San Francisco Bay Area (The Resources Agency of California, Department of Fish and Game, Water Projects Branch, Water Projects Branch Report No. 1, June 1962), p. 97; The Daily Union (Sacramento) (December 13, 1851), 2/1; Barrett, p. 22; San Francisco Bulletin (March 13, 1868), 3/6.

[56]San Francisco Daily Bulletin (February 9, 1857), 3/3; Sacramento Daily Union (February 11, 1857), 3/2; San Francisco Bulletin (March 13, 1868), 3/6; San Francisco Chronicle (February 6, 1898), 1/1

[57]San Francisco Bulletin (March 13, 1868), 3/6; Barrett, p. 22; C.S. Sayce, "The Oyster Industry of Willapa Bay," Proceedings of the Symposium on Terrestrial and Aquatic Ecological Studies (Eastern Washington State, 1977), p. 349.

[58]Barrett, p. 23.

[59]Ibid., p. 22; San Francisco Bulletin (March 13, 1868), 3/6.

[60]Ibid.

[61]James G. Cooper, "Pacific Coast Oysters," Overland Monthly, V. 23 (June 1894), p. 653; Sayce, p. 97; San Francisco Bulletin (March 13, 1868), 3/6; San Francisco Daily Bulletin (February 9, 1857), 3/3; Barrett, p. 22.

[62]San Francisco Bulletin (March 13, 1868), 3/6; Sacramento Daily Union (December 5, 1868), 7/3; Sacramento City Directory for the Years 1861-62. Compiled by H.J. Bidleman (Sacramento: H.S. Crocker & Co., 1861), n.p.

[63]Barrett, p. 13.

[64]San Francisco Bulletin (March 13, 1868), 3/6.

[65]Sacramento Daily Union (October 21, 1869), 3/1.

[66]Ibid.

[67]Ibid. (December 9, 1870), 1/6.

[68]Barrett, p. 27; Sacramento Daily Union (May 7, 1870), 1/3 and (April 17, 1871), 3/1. The San Francisco Chronicle (February 6, 1898), 1/1, credited the Morgan Company with the importation of the first spats in 1869.

[69]Cooper, p. 654; Barrett, p. 15.

[70]Cooper, p. 654; The San Francisco Call (August 7, 1898), 25/1.

[71]Barrett, p. 27; Sacramento Daily Union (May 7, 1870), 1/3; (December 9, 1870), 1/6; (April 17, 1871), 3/1; Cooper, p. 653.

[72]The Sacramento Directory for the Year 1874. Compiled by John F. Uhlhorn (Sacramento: H.S. Crocker & Co., 1874), p. 99.

[73]Thompson and West, History of Sacramento County, California with Biographical Sketches (Oakland: Thompson and West, 1880. Reproduction with Introduction by Allan R. Ottley, Berkeley, 1960), p. 282.

[74]Ibid.; Sacramento Directory for 1874, p. 99.

[75]The Sacramento Directory for the Year Commencing January 1873. Compiled by John F. Uhlhorn (Sacramento: H.S. Crocker & Co., 1873), p.208.

[76]Sacramento Directory for 1874, p. 99; Dorothea J. Theodoratus and Kathleen C. McBride, "History of the Sacramento City Block: 6th and 7th, K and L Streets, 1848-1920" (City of Sacramento, Redevelopment Agency, January 1978), p. 33.

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APPENDIX 1

1850 - 1860

SUMMARY OF D.E. CALLAHAN'S ACQUISITIONS AND MORTGAGES
vis-a-vis THE GOLDEN EAGLE HOTEL

Date	Lot	Purchase	Mortgage	Amount	Satisfied	Dimensions	Grantor	Mortgager
9/19/50	6	x		$ 900		N 1/2 of E 1/3 26'8" on Oak Ave., extending 70' S	James Robinson (E/65)	
3/12/51	5	x		1000		1/4 Lot 5, commencing 60' from the northwest corner 7th & K, running towards J 140'; W along the alley 20'; S 140' to K; E along K 20'	Jonathan B. Logan (F/453)	
6/28/53	5		x	1000 4 /mo.	9/5/54	W 1/4 Lot 5; same dimensions as above		Sam'l. Brown, Sr. (D/615)
7/23/53	6	x		1000		E 1/3 Lot 6; 26'8" fronting on K to depth of 70'	George Fay by his attorney (HG & AH Smith) (K/531)	
8/3/53	5/6		x	3000 4 /mo.	7/23/55	E 1/3 Lot 6; 26'8" on K, running back 160' north to alley & W 1/4 Lot 5		Wm. J. Pardee (G/154-155)
12/10/53	5/6		x	2000 3 /mo (Day)	11/55	1/4 Lot 5, 60' from N.W. corner 7th & K, running 140' along I.S. Crock's line to alley; 20' along alley; 140' S to K & 20' E and E 1/3 Lot 6 fronting 26'8" on K, running back 140' & "being the same on which now stands the Golden Eagle Hotel"		F.W. Page in trust for Franklin O. Day and Chas. I.I. Leopold (E/438) Leopold assigned his mortgage to John Waters (12/10/53) for $2902; satisfied 8/3/55

APPENDIX 1, continued

Date	Lot	Purchase	Mortgage	Amount	Satisfied	Dimensions	Grantor	Mortgager
5/28/55	5	x		$ 900		E 1/2 of W 1/2 Lot 5, "commencing 40' from the corner of 7th & K & extending W along K St. 20' thence... N 140', thence E 20', & thence S 140'	Mark Foster & Chas. H. Mosley (P/244)	
7/27/55	5/6		x	3000 2 /mo.	8/20/56	W 1/2 or 40' Lot 5 & E 1/3 or 26 & 2/3' Lot 6		Wm. R. Smith (G/131-132)
2/5/56	5	Convey-ance		200		one "undivided half of the brick wall erected on the N 1/4 of the E 1/2 of Lot 5...to wit the wall on the W side thereof, the same being 40' in length..."	John Randall & Joseph Stoopes (Q/555)	
6/17/56	5	Agreement to Buy: $1000 down & $3000 w/n a year at 2/ mo. interest		4000		that part of Lot 5 running "W along the N side of K St. 40', thence N 100', thence E 40', thence S along the W side of 7th St. 100' "	John C. Drummond (R/349)	
9/10/56	5	Convey-ance				"whereas the S wall of a brick house now erected on the N part of Lot 5 ...belonging to [Randall] has been by mistake built partly on ground belonging	John Randall & Joseph Stoopes (S/29)	

APPENDIX 1, continued

Date	Lot	Purchase	Mortgage	Amount	Satisfied	Dimensions	Grantor	Mortgager
						... [Callahan] it is agreed that... [Randall]" conveys the said wall "commencing at a point on the W side of 7th St. 100' N of K St. & running thence W on said lot 40' for the thickness of 1' & of the height of two stories... [Randall & Stoopes] to enjoy the free...use of said wall as the South wall of the building...."		
4/15/57	5	x		$4000		Lot 5, commencing at the N.W. corner 7th & K, running W along the N side of K 40', thence N 100', thence E 40' thence S along the W side of 7th 100'	John C. Drummond (T/461)	
6/30/58	5/6		x	3000 2 /mo.	10/13/58	from the N.W. Corner of 7th & K, N along the W line of 7th 100'; then at right angles 40', then N 40' to Oak Ave. then along said ave. 93 1/3' to the intersection of the W line of the middle 1/3 of Lot 6; then N 70', then E 26 & 2/3', then S 70' to the N line of K; along K 106 & 3/2'		Addison C. Hinkson (L/599-601)

APPENDIX 1, continued

Date	Lot	Purchase	Mortgage	Amount Satisfied	Dimensions	Grantor	Mortgager
9/9/58	6	x		$ 800	N 20' of W 1/2 of E 2/3 of Lot 6, commencing on the S side 60' N of K St. & 106.8' W of 7th St., running N 80' to Oak Ave. then W on the S side of Oak Ave. 26'8", then S & parallel with K 26'8"	Sam'l & Mary A. Cross (W/484)	
10/7/58	5	x		3500	N.E. 45' of Lot 5, commencing on the W side of 7th 100' from K, running N on the W side 40' to Oak Ave., then W on the S side of Oak Ave. 40'; then S 40', then E 40'	John Randall (W/552	
10/12/58	5/6		x	6000 3/25/62 two promissory notes combined: (1) 6/30/58 for $3000 & (2) 10/12/58 for $3000 at 1 1/2 interest per month.	from the N.W. corner 7th & K, N along the W line of 7th 140' to Oak Ave., then W along S line of Oak Ave. 133 1/3' to intersection with the line of the middle 1/3 of Lot 6; then S 70', then E 26 2/3', then S 70' to the N line of K; then E along N line 106 2/3'		Addison C. Hinkson

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URBAN ARCHAEOLOGY AND THE REGULATORY CONTEXT

by

Marley R. Brown III

Sonoma State University

An Historical Overview

Problems and Prospects

The Golden Eagle Site

URBAN ARCHAEOLOGY AND THE REGULATORY CONTEXT

AN HISTORICAL OVERVIEW

Although American archaeologists have been excavating cities, or portions of them, for well over a century in many parts of the world, it is only recently that they have recognized the potential of urban archaeology in their own backyard. If interest in the archaeological study of the city in the United States grew rather slowly, it has now achieved almost celebrity status, as witnessed by the recent Newsweek article on the subject in their "Lifestyles" section (April 1979). Whether it is Ben Franklin's house in Philadelphia or a scuttled Gold Rush hulk in the fill of downtown San Francisco, the American public is being made aware of the potential importance of cities as archaeological sites. The current visibility of urban archaeology is the product of many factors, not the least of which is the increasingly effective implementation of federal laws pertaining to the preservation of historical and archaeological resources. The Golden Eagle Project is, in part, a response in one California city to these laws. Excavation of this site also reflects the City of Sacramento's commitment to preserving its history in tangible form--a commitment which began before the passage of the National Historic Preservation Act of 1966. As such, the Golden Eagle Project should be understood from the perspective of both earlier work in historical archaeology and more recent studies undertaken primarily within the regulatory context. When viewed in these terms, this project serves to illustrate not only some of the serious problems attending the present conduct of urban historical archaeology within California and the nation as a whole, but many of the genuine and significant prospects as well.

In a recent review article on the subject of urban archaeology, Bert Salwen (1978) presented an "updated assessment" of work that has been done since 1970. He noted that, although the number of urban-archaeology projects has increased dramatically, the overall significance of the results, as theoretical or substantive contributions to our understanding of processes of urban growth and related social and cultural change, has not yet been demonstrated (Salwen 1978:454). Salwen drew upon examples from the Northeast to support his case, but his assessment holds true for the rest of the country as well, and particularly the Far West and California.

It has been accurately observed many times that historical archaeology has been extremely slow to realize its supposed theoretical potential (Schuyler 1970; South 1977), and most reviewers attribute the lack of progress in theory-building to historical archaeology's close and long-standing association with the restoration-preservationist movement (Schuyler 1976). These observations regarding the general status of historical archaeology are especially true for urban projects, as is evident in the historical development of such work both nation-wide and in California. Until recently, most if not all excavations of urban historic sites were concerned with archaeology in the city, rather than with archaeology of the city (Ingersoll 1971a; Salwen 1973:152). The focus of most investigations has been, and continues to be, the individual site or site complex, often viewed as significant because of its age and architectural

affiliations or its association with important events and persons. Such sites are usually approached as units unto themselves, excavated largely for the purpose of clarifying restoration details, developing site-specific interpretation programs, or simply salvaging archaeological materials prior to their destruction. Often, sites chosen for study do not even relate directly to the period of urbanization, but rather to earlier, colonial-period settlement. This pattern of urban site selection emerged within California as early as the 1930s, with the restoration of Spanish- and Mexican-period adobes and other Spanish colonial settlements now located in urban areas (e.g., San Diego Presidio, Santa Barbara Presidio, Avila Adobe) and continues today.

An informative example of the problems associated with this approach to site selection was provided by Robert Schuyler (1975, 1976) in recent studies of the political context of historical archaeology: the excavation of the Hugo Reid Adobe in Los Angeles. The excavation of this site by William Wallace and his students was carefully done, and the artifactual and historical analysis were exemplary for the period (Wallace and Wallace 1958, 1959, 1961), yet the results were not well-received by those who sponsored the project, because they contradicted their preconceptions of both the man who lived there and the house he lived in. The restoration of the site bears little resemblance to the structure identified by archaeology (Schuyler 1975:189, 1976:30). The results of other restoration-based projects have, of course, provided valuable data regarding the material culture of the Spanish and Mexican period--both architectural and artifactual--as well as information regarding other aspects of colonial Spanish lifeways. Furthermore, the materials recovered from Spanish and Mexican sites located in cities may be profitably compared with data retrieved from rural sites. In many ways, this kind of archaeology in California resembles the work of historical archaeologists in New England who have investigated early colonial sites in what are now large urban areas.

The Hugo Reid Adobe excavation, like many others undertaken in California and the rest of the country, illustrates not only the constraints of pursuing historical archaeology primarily for restoration purposes, but also the shortcomings of the site-specific emphasis, particularly in the urban context. Whether the archaeologist is seeking details regarding an individual site's architectural characteristics or an understanding of an earlier colonial, pre-urban period, the results rarely exemplify what is meant by archaeology of the city. This is not to say that all archaeology associated with restoration has been so limited. In his work at Puddle Dock in Portsmouth, New Hampshire (owned by Strawberry Banke, Inc., a preservation- and restoration-oriented museum), Daniel Ingersoll (1971b) sought to examine the nature of Portsmouth's settlement history using the fill patterns of the former waterway as his data base. More recently, at an adjacent site in Strawberry Banke, Steven Pendery (personal communication 1978) was successful in using data excavated from a single lot, in conjunction with sophisticated documentary and cartographic analysis, to describe Portsmouth's process of growth and pattern of land use since the 17th century. This latter study in particular demonstrates that, to the extent an individual site is both representative and approached with well-defined research goals, it can produce generalizations about the city as a whole.

Another example of deriving behavioral generalizations from urban sites originally excavated for restoration-related or salvage purposes is Gibson's (1979) analysis of trash disposal within New England. Based on evidence accumulated from Plymouth, Boston, and Salem, Massachusetts, and Providence, Rhode Island, as well as historical data pertaining to public health and sanitation, Gibson defined an evolutionary model of trash disposal on historical sites.

The best illustration of integrating previous salvage archaeology, in this case conducted by the Smithsonian Institution in the early 1960s, with more recent problem-oriented research is the Alexandria Urban Archaeology Program in Virginia. Under the direction of Pamela Cressey, the Alexandria Project is clearly setting a standard for the rest of the country to follow in terms of goals, organization, and implementation (Cressey 1978, 1979). Most importantly, this project has developed a research design for the city as a whole and proposed specific strategies for retrieving archaeological and archival data in light of that design.

Little, if any, comparative research on previously excavated collections from urban historical sites has occurred in California, with the notable exception of the State Department of Parks and Recreation's Cultural Resource Management Unit, which has devoted several years to the analysis of collections from sites in Old Sacramento. These efforts and the history behind them have been nicely summarized in a further volume on Old Sacramento (Schulz et al. 1980). Other than this state-sponsored work in Sacramento, urban archaeology explicitly concerned with the Anglo-American period was almost totally lacking in California until the mid-1970s. Some limited salvage work had been accomplished in cities such as San Francisco, where, for example, Anglo-American materials were collected by Arnold Pilling during his career as a graduate student in anthropology at the University of California, Berkeley. Pilling, who later went on to do archaeological work in Detroit, was primarily concerned with acquiring a collection of English and American ceramics which he could compare with materials from other sites. The San Francisco materials were used for typological analysis, first by Pilling (1953) and later by Gordon Grosscup, another Berkeley graduate student (Bennyhoff personal communication 1980). Other historical deposits from San Francisco sites have also been salvaged over the years by students and faculty of San Francisco State College and by personnel of the Maritime Museum, but there are no reports available which describe or analyze these finds.

It has only been since the provisions of the National Historic Preservation Act of 1966, as implemented in the Advisory Council on Historic Preservation regulations (36 CFR 800), were recognized by the federal agencies responsible for urban redevelopment that large-scale projects in urban archaeology were initiated in California and the nation as a whole. Although some archaeology was accomplished in conjunction with the major redevelopment projects of the 1960s, such as the Arizona State Museum's salvage work in Old Tucson under the direction of James Ayres, most of the original urban redevelopment proceeded at the expense of both archaeological and architectural resources (Fleming 1971). While the situation has definitely improved, many federal agencies, and especially the city redevelopment agencies with whom they do business, have been slow to recognize their responsibilities.

Federal historic preservation laws first made their presence felt in California cities in a major way when the City of Ventura's redevelopment agency, with funding assistance from the United States Department of Housing and Urban Development (HUD) undertook archaeological investigations at the site of Mission San Buenaventura, a National Register-eligible property, in 1974-1975. With additional funding provided by a grant from the National Endowment to the Humanities, Roberta Greenwood and Associates were able to investigate a variety of structural features and trash deposits from the Spanish, Anglo, and Chinese occupations of the site. The reports on this work have set a standard by which other urban historical archaeology projects in California may be measured (Greenwood 1975, 1976). It is unfortunate that, since the Buenaventura investigations, there have been no excavations of comparable scope undertaken in areas of urban redevelopment--a result, in part, of a growing recalcitrance on the part of federal agencies and their state and city counterparts to responsibly address the problems of urban historical archaeology. The federal agencies in question, namely HUD, the Urban Mass Transit Authority, and the Environmental Protection Agency, either do not employ archaeologists or rely on staff with little or no expertise in the problems of urban historical archaeology. In most cases, the responsibility of the federal agency is passed down to the grant applicants--the cities themselves--many of whom also do not employ staff with expertise in archaeology.

The problems created by the present compliance posture of those federal agencies funding urban construction can be seen in several recent and ongoing projects within the state. Recent studies undertaken pursuant to the Advisory Council's regulations (36 CFR 800) in San Diego, Los Angeles, San Jose, Richmond, and San Francisco (Wirth Associates 1979, 1980; Cartier et al. 1978; Olmsted et al. 1979) have been concerned with identifying and evaluating both prehistoric and historic cultural resources. In some cases, these projects represent examples of the most sophisticated historical overviews presently being done in the country (see especially Wirth Associates 1979, 1980; Olmsted et al. 1979), but there has been precious little archaeological follow-up, even at the testing stage. Some test excavations have been conducted in San Francisco, most recently in the Wirth Associates second phase of the Potrero 7 Project and in San Diego's Marina/Columbia Redevelopment Area. Other projects, most notably the San Antonio Plaza Project in San Jose and the Yerba Buena Redevelopment Project in San Francisco, have not yet moved to the testing stage. In these latter cases, potentially significant archaeological data have been needlessly lost to bottle collectors. While the reasons for this destruction are varied and complex, they essentially reflect both agency policies regarding their legal responsibility for the identification of National Register-eligible properties and their unwillingness to provide proper guidance to the grant applicants who are held responsible. The result has been that, other than some test excavations in San Francisco and San Diego, the extensive excavation of urban sites as a form of mitigation has not progressed since the 1974-1975 work at Mission San Buenaventura by Greenwood and Associates--that is, until the excavation of the Golden Eagle site.

PROBLEMS AND PROSPECTS

The Golden Eagle Project, although selected for investigation by the Sacramento Redevelopment Agency as part of its archaeological study of some 20 blocks using City funds, also had a federal involvement in the form of an Urban Development Action Grant (UDAG). In its initial stages, the compliance procedure outlined in 36 CFR 800 was not followed, but during the course of field work, a compromise was reached with the State Historic Preservation Office, which provided a solution to the problem. A data-recovery program was initiated on the Golden Eagle site which met the Advisory Council on Historic Preservation's "Guidelines for No-Adverse Effect Determinations." Because the site had already been targeted for archaeological study by the Redevelopment Agency, and because both site-specific historical research and an archaeological research design had been completed, the Golden Eagle Project is not entirely comparable with other urban projects undertaken recently in California. The manner in which it was implemented, however, does illustrate many of the problems plaguing all urban archaeological studies being conducted within the regulatory context. At the same time, this project can serve as a basis for recommending solutions to these problems. Problems and solutions relate most directly to the following areas: historical research, research design, and sampling and field techniques.

Historical Research

Unlike many projects undertaken in relation to redevelopment, a detailed and explicit research design had been prepared for the Golden Eagle site prior to the initiation of field work. This research design was informed both by a thorough knowledge of Sacramento historical archaeology, as well as some site-specific historical research. In addition, the research design provided for some generalization through comparative studies involving sites already excavated in the city (Schulz 1979). Initial test excavations on the J/K/6/7 block revealed, however, that the historical research had not sufficiently accounted for recent impacts to the property, especially during demolition of the hotel itself (see Eisenman, this volume). A study of the Redevelopment Agency's own files, together with a limited program of oral history before excavation, would have revealed that the site of the Golden Eagle Hotel had been largely destroyed--information which should have been considered in the initial site-selection process. The fact that the hotel site was seriously lacking in integrity also rendered aspects of the original research design irrelevant to the subsequent investigation of those portions of the block which proved to be well-preserved.

Although the question of urban site integrity is by no means a simple one, especially within redevelopment areas where demolition occurred as many as 20 years ago and where bottle hunting has been widespread and intensive, it is possible to reconstruct many of these impacts to a project area through a variety of historical sources. It should be noted, however, that the fact that intact trash deposits and features were encountered in an area as disturbed as block J/K/6/7 demonstrates the danger of dismissing sites because of apparent disturbance at the hands of demolition, deep basement construction, and bottle hunting. These areas can, and often do, retain a surprisingly substantial, undisturbed archaeological record.

Another aspect of the problem of historical research may be seen in the relationship between archaeological field work at the Golden Eagle site and the completion of the historical report on the site. Although the initial study of the block (McGowan et al. 1978) reconstructed lot ownership and use from 1850 to 1920, specific details regarding the construction history of the Golden Eagle Hotel and other structures and outbuildings were not available. Well after the completion of field work, an extensive historical report (Pitti 1980) became available; this work, however, focused on the Golden Eagle Hotel. Divorcing the conduct of historical research from archaeological investigations on historical sites rarely produces the kind of integration of the two sources necessary for successful synthetic interpretation in historical archaeology.

It must also be stressed that in order to accomplish data recovery in the implementation of specific research designs, certain categories of historical data must be available. Depending on the research questions guiding the project, this historical data can be quite extensive, pertaining to a variety of problems, such as the local cost and availability of manufactured goods during the period under study; a demographic, economic, and social profile of site occupants; and a broad range of other contextual data on the historical growth of the city. Although it appears that there has been extensive historical research and analysis on a variety of topics relating to Sacramento which may bear directly on site interpretation, these studies have not been made available to the archaeologist. Such mitigation-level historical research and analysis, in line with the primary questions of the research design, is essential to the successful pursuit of any kind of historical archaeology, but particularly to that done in urban settings. Without such historical data, the evaluation and interpretation of single urban sites within a broader social-science framework is nearly impossible.

These problems relating to historical research may be addressed through the preparation of an historical overview for the City of Sacramento as a whole. The purpose of an overview is to provide a comparative framework within which to evaluate the significance of individual sites, in terms of such criteria as "representativeness" (Hickman 1977) and "information loss" (Brown 1979). In addition to summarizing the settlement, land use, social, and economic history of the city, the overview should discuss the nature and availability of primary historical sources in light of a general research design for the city. The research design should stress those areas of urban study which would most benefit from, if not require, archaeological materials for their investigation. As has been mentioned, several overviews have been prepared for California cities within the last two years. While only one considers the entire city--that done for Centre City Redevelopment Corporation by Wirth Associates (1980)--these documents demonstrate the value of overviews for assessing the significance of individual sites and providing a sound basis for testing recommendations. At the project-area level, overviews may even include mitigation-level historical research (Olmsted et al. 1979).

Research Design

As one of the essential components of the historical overview, the research design for urban archaeology must consider the city as a whole,

providing the means by which investigations of individual sites can be related to broader research questions. Recent research designs for California cities, including that prepared for the Golden Eagle, have stressed the problem of class and ethnic differences as they might be reflected archaeologically. These questions, in turn, have been related to processes such as assimilation and the rise of the urban proletariat (e.g., Pritchett in Olmsted et al. 1979:288-293). Other work has emphasized the testing of geographic models of urban development against specific California examples (e.g., Wirth Associates 1980). Whatever the particular approach taken, it is clear that research designs for urban historical archaeology must incorporate the work of geographers, sociologists, urban anthropologists, and social and economic historians (Salwen 1978:459). If the research design is to provide a broad theoretical framework which justifies future work, it must also postulate models which can explain the patterns observed in both the documentary and archaeological records. The kinds of archaeological data required for addressing various questions, as well as the historical data necessary for their investigation, must be specified. In considering these data categories, a broad range of archaeological evidence should be considered, including large-scale features, such as fill deposits, which are a valuable source of information for studying the process by which cities are created. Although few such research designs exist as guides, in view of the amount of historical research accomplished in Sacramento, as well as the City's long-established tradition of archaeology, it should be possible in the very near future to develop a research design incorporating the interests of historians, archaeologists, and other scholars. Once such a research design has been prepared, it will be possible to undertake archaeology <u>of</u> the City of Sacramento, rather than archaeology <u>in</u> the city.

Sampling and Field Techniques

With the completion of a research design and historical overview for the city as a whole, it should be possible to construct a sampling strategy which considers both the remaining redevelopment area and other relevant portions of Sacramento. The sampling strategy should specify the types of sites and related features which must be investigated in order to address specific research questions, as well as the field techniques appropriate for the preliminary examination of individual sites and more extensive data recovery. As the Golden Eagle project has demonstrated, these techniques must be appropriate to the scale of the sites involved, as well as sensitive to the complex stratigraphic context of most Sacramento sites. Field techniques pose a major problem for California urban historical archaeology, especially for that which occurs within the regulatory context. There simply are not enough archaeologists available who are sufficiently skilled in interpretation of complex stratigraphy to keep up with the present demand, and it is questionable whether contract archaeology should be a learning context at both the expense of the resource and the taxpayer.

In the sections which follow, many of the problems raised here are discussed in greater detail. The technique employed for the interpretation of stratigraphic relationships on the Golden Eagle site should prove helpful on other urban sites. A general model of urban formation process is outlined, as is the framework of a research design which emphasizes the archaeological study of urban spatial segregation according to class and ethnic differences. It is hoped that both approaches can receive refinement and perhaps broader application. Above all, this report attempts to demonstrate that it is possible, in the context of a site-specific project, to consider research questions and preservation goals which are explicitly directed towards the archaeology of the city.

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URBAN RENEWAL AND THE GOLDEN EAGLE SITE

by

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INTRODUCTION

Soon after the commencement of the archaeological field investigation of the Golden Eagle Hotel site in the summer of 1979, two problems became apparent. The first was the lack of adequate pre-field historical research that might have revealed more about the nature of the site in terms of the precise location of its architectural features, as well as expected associated features such as privies, trash pits, and cisterns. While limited historical data were gathered prior to commencing field work, extensive research into the documented history of the Golden Eagle was undertaken by contract separate from that of the archaeological study and was not initiated until well after the archaeological field investigation had been completed.

The second problem to emerge was the lack of adequate data detailing recent alterations of the archaeological record: What was the nature of post-depositional disturbance to the site, particularly during demolition of the hotel in 1963? Evidence for the fact that the site's integrity had been significantly altered during demolition came in two ways. Excavation of the hotel site resulted in a disappointing lack of intact features, such as privies and trash pits, in areas where historical documentation had suggested they would be located. In addition, visitors to the site who had been present during the hotel's demolition in 1963 recalled that the demolition contractor had been fond of historic relics; he was said to have used his backhoe in a highly sophisticated manner to excavate the same features that the archaeological crew was contracted to investigate, from which numerous bottles had been recovered (Fredrickson et al. 1979a:4). By the time archaeological field work was completed in August, there was no doubt that the Golden Eagle Hotel site, initially presumed to be in pristine condition, had in fact been significantly impacted during demolition. It was decided, therefore, that the demolition history of the Golden Eagle site building should be researched further in order to better understand the nature and degree of site disturbance.

The first step toward determining exactly what had taken place in 1963 was an attempt to contact those people who had either taken part in, or had witnessed, the demolition. This proved an impossible task, as those people who had visited the archaeological excavation and related their accounts of the event could not be relocated. The demolition contractor had long since departed Sacramento and could not be contacted.

The second step was to contact the Sacramento Housing and Redevelopment Agency in order to determine what pertinent information and documentation they had regarding the 1963 demolition project. Redevelopment Agency staff was extremely helpful and generously provided access to photographs, newspaper clippings, and demolition-contract files. They also provided pertinent information regarding the agency's early 1960s redevelopment policy, which had a significant effect on the fate of the Golden Eagle Hotel.

HISTORY OF SACRAMENTO REDEVELOPMENT

The story of the demolition of the Golden Eagle Hotel was shaped in part by the history of redevelopment in Sacramento, as executed by the Sacramento Housing and Redevelopment Agency, and more specifically by the concept of urban renewal. It is also the story of the interstate freeway system.

The Sacramento Housing and Redevelopment Agency emerged as two agencies, the Sacramento City and County Housing Authorities, as a result of the Public Housing Program created by the U.S. Housing Act adopted by Congress in 1937. Shortly thereafter, the State of California enacted the Housing Authorities Law in compliance with the 1937 act. Subsequent legislation (Housing and Urban Development Act, 1965; Housing and Community Development Act, 1974), expanded the Housing Authorities' programs.

Legislation by the State of California in 1945 and by the federal government in 1949 necessitated the creation of a second local agency responsible for urban redevelopment. According to an agency report, the Redevelopment Agency of the City of Sacramento was chartered in 1950 for the purpose of "restoring, redeveloping or clearing blighted areas; improving public facilities; providing relocation assistance to decent, safe and sanitary housing for persons displaced by redevelopment activities; revitalizing downtown and neighborhood areas; and providing property rehabilitation loans and grants to eligible homeowners."

By 1973 the Sacramento City and County Housing Authorities and the Sacramento Redevelopment Agency had combined operation to unify the administration of urban renewal and public-housing programs in the City and County of Sacramento.

Redevelopment in Sacramento was initiated in September of 1956 with the first acquisition of property within a 65-block portion of the central business district of Sacramento. Once prime commercial land, the area had greatly deteriorated by the mid-1950s, as the following description from an agency report makes clear:

> The area, bounded by the Sacramento River on the west and the State Capitol Building on the east, was abandoned to the forces of neglect and changed land use. It contained one of the worst skid rows west of Chicago. Run-down hotels, dance halls, pawn shops and bars made up much of the area. One 12-block area in particular had 167 bars and wine shops. Fights, stabbings, murders, prostitution and fires were daily occurrences.
>
> Commerce wise, the strong relationship between river traffic, railroads, industry and business no longer existed. Yet, the old prefabricated houses shipped by boat from the East Coast in the 1850s remained. They were dilapidated, occupied potentially valuable land, denied public access to a beautiful river, and seriously impaired the important western approach to California's capital city.

> Since the late 1920s, the commercial center of this colorful and historically rich city--largely a product of the gold rush days--had moved eastward away from the deteriorating core. While the public financial burden of serving the area was growing, tax revenue was decreasing each year.
>
> Containing eight percent of the total city area and 7.5 percent of the population, the area had 26 percent of its fires, 36 percent of the juvenile delinquency, 42 percent of the adult crime, and 76 percent of the tuberculosis cases.

Sacramento's west end was clearly a problem area--a "blighted" area--and in need of drastic reform. Unfortunately, as suggested above, the west end also contained the remnants of Sacramento's historic beginnings; buildings dating from the mid-1800s paralleled the river, reflecting the city's historic role as a major port and center for commerce and trade joining the East Coast to the West.

It was at this primary stage of redevelopment in Sacramento that development of Interstate 80 became a major influence. Freeways throughout the country tend to follow established trade routes, particularly waterways and railroad passages, and the oldest sections of cities tend to grow out from these established routes of commerce. The cost of condemnation of lands is also least expensive in the oldest areas of the city.

Creation of Interstate 80 was to take much of the west end of Sacramento. Due, however, to the efforts of the Sacramento Historic Landmarks Commission, a body appointed by the City Council, a compromise was made (Sacramento Bee 2 June 1962). The freeway came to serve as an artificial boundary separating what was to become known as "Old Sacramento"--those rows of structures fronting the river to the west of the freeway, where historic buildings were rehabilitated--from the area east of the freeway and west of the capitol. This second area, within which the Golden Eagle Hotel was located, was deemed to be of lesser historical significance. Thus it continued to be viewed as "blighted" and was subsequently condemned, acquired, demolished, and finally cleared (Sacramento Bee 3 January 1963; Sacramento Union 2 April 1963).

Although the area east of the freeway was not considered to be historically significant, efforts were made to inventory and preserve historical materials located there for use in the restoration of the area west of the freeway designated as "Old Sacramento" (Sacramento Union 15 November 1962). Frank Christy of the Sacramento Historic Landmarks Commission headed the survey, which was primarily of architectural salvage. With the exception of the recovery of a bed, wardrobe, and dresser from a parlor bedroom that housed General U. S. Grant on his visit to Sacramento in 1879 (Sacramento Bee 5 June 1962; Sacramento Union 7 June 1962), all materials collected from the Golden Eagle Hotel were architectural features. The original doors of the Golden Eagle were located by Christy in the hotel basement behind a false wall (Sacramento Union 15 November 1962). Two marble fireplaces, one wood and tile fireplace, two marble washstands, and one wooden hand railing were also recovered (letter from Howard B. Leonard 23 August 1962).

GOLDEN EAGLE DEMOLITION

Early in 1963, the Redevelopment Agency issued an "Invitation for Bids for Redevelopment Project No. 3" for the purpose of demolition and site clearance. The Golden Eagle site was included in the invitation as "Item 10 (Block 237-Parcel 82). Principal Improvements: Three-story brick and wood frame located at 619-631 K Street. Floor area-56,028 square feet." The J. P. Smith Company of Sacramento was awarded the contract in April of 1963.

Investigation into the specifications for the Redevelopment Project No. 3 demolition and site-clearance contract revealed that the clearance of a property is a highly disruptive activity, involving a property's subsurface, as well as its surface features. For example, Section 604 of the technical specifications regarding the treatment of excavated or exposed areas state that:

> a. The Contractor shall take all measures necessary to protect the Public from abandoned, cased or dug wells located on properties covered by this Demolition Contract.
>
> b. Dug wells shall be sufficiently backfilled and compacted so that backfill will not later settle and leave a dangerous hole. Cased wells shall have a steel plate welded over the top of the casing....
>
> e. Concrete and masonry foundations and basement walls shall be removed to existing ground or basement level and disposed of by the Contractor.

In describing demolition practices, a Redevelopment Agency staff member recalled that the J. P. Smith Company, in order to meet the above-mentioned technical specifications, used a backhoe to clear features such as wells and privies before backfilling and stabilizing them. This technique also allowed for the collection of bottles and other artifacts located within the features.

A second specification of the demolition contract concerned the removal and salvage of existing buildings. It stated that the Redevelopment Agency vested all right, title, and interest in and to buildings, structures, and other property to be demolished and/or removed by the contractor, with the exception of title to the land or premises and personal property of the occupants of the demolition-site's buildings. The contract price for performance of demolition and site clearance was established, based upon the contractor's estimated project cost less the estimated value of salvaged materials specified to become the property of the contractor.

The demolition contractor's right to salvage materials from the demolition site, coupled with the absence of laws protecting subsurface cultural resources, resulted in a situation in which any artifacts encountered were bound to be recovered by the contractor. This situation was not unusual in Sacramento: an article entitled "Collectors Follow West End Pit Shovels" (Sacramento Union 2 May 1963) described the col-

lection of historical artifacts by both construction workers and private individuals during excavation for the 5th Street underpass. In the article, an engineer for the project described the bottles that he had collected during excavation and stated that one, in particular, was worth $18.00 to collectors. He also stated that nearly 100 people visited the construction site during one weekend to collect bottles. "There may not be pots of gold down here," he said, "but we'll all get rich if this bottle business keeps up."

CONCLUSIONS

The results of research into the nature of the demolition process at the Golden Eagle Hotel site clearly demonstrate the importance of this type of study prior to initiating subsurface investigations in urban redevelopment areas. Documentary and oral history research on the post-depositional history of urban sites can establish general parameters of integrity and indicate areas of potential before much more labor-intensive and costly field work is undertaken. It is especially important to pursue oral history from those most responsible for impacting urban historical sites, especially from bottle hunters and other relic collectors. Such research is not always easily conducted, as it requires an attitude of co-operation and mutual respect between bottle collectors and archaeologists. The information provided by collectors can, however, be extremely valuable to an accurate assessment of post-depositional disturbance and site integrity, and should be sought before sites are selected for test excavation.

Archaeological investigation of the Golden Eagle was undertaken in 1979 as a result of contemporary views of historical significance and compliance with state and federal law--views and laws which were a radical departure from that which existed in 1963, when the Golden Eagle was demolished.

ARCHAEOLOGICAL INVESTIGATIONS

by

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Project History and Sequence of Field Investigation

Investigation Methods

Site Content and Structure

PROJECT HISTORY AND SEQUENCE OF FIELD INVESTIGATION

INITIAL RESEARCH STRATEGY

The investigation strategy used in the Golden Eagle site excavation was conceived in response to the presumed arrangement of historic buildings on the block. It is therefore important to specify what, during the first phase of the project, was believed to be their layout. Frequent reference to the plans and section drawings, especially to plan 1, is essential to the understanding of this section. As a preliminary step to the production of a research design, the City Museum and History Department authorized a team of historical researchers to conduct a study (McGowan et al. 1978), which traced the history of the block from 1850 to 1920. Using Assessor's Map Books and Tax Assessment Roles and City Directories, the researchers created a series of maps and plotted the ownership and occupants of each lot in chronological sequence. This report also included a list of 19th-century photographs of the project area.

With the benefit of this information, a research design was prepared for the study area by Archaeological Consulting and Research Services, Inc. (Schulz 1979). In this document, Schulz compiled some questions which he believed would help in the identification of sites "of high potential value." These questions are presented below:

1. Would the recorded use of the site have left significant quantities of durable evidence (either discarded material in waste areas or stock on hand or tools and furnishings in burned structures)?

2. Was that particular activity being carried out at the site at a given time when a contribution to the archaeological record is likely to have occurred?

3. Is there a possibility that augmentation of the record occurred through more than one process contemporaneously (e.g., both fire and trash deposits from the same business)?

4. Was the use of the site at the time in question sufficiently specialized to present a relatively clear picture of a given occupation or residence pattern?

5. Was the activity carried out over a long enough period that investigation could center on developments through time? (Schulz 1979:15).

Using the results of the historical research, a number of likely "targets" was established (Schulz 1979:16). Based on the criteria enumerated above, the areas that had been occupied by the Golden Eagle Hotel were determined to be, potentially, the most productive. The two lots to the west of the hotel site, which had been occupied for an extended period by a blacksmith and a stone worker, respectively, were ranked lower because of the

limited nature of these activities. Thus, the research design addressed the Golden Eagle Hotel site exclusively, although general provisions were made to alter this focus in the event that "the deposit there (or part of it) had been too badly disturbed to repay investigation" (Schulz 1979:19).

Schulz's (1979:19) research goals, which are paraphrased below, were devised for application to the Golden Eagle Hotel site:

(1) detection of changes in the economic characteristics of the establishment's clientele through time.

(2) detection of social or economic differences among the customers of the Golden Eagle, the Hotel de France, and the K Street saloons.

(3) elucidation of the role of ethnic differences in producing the differences observed in the (4th and K Street) saloon material.

From the results of the McGowan et al. study (1978:4), Schulz (1979:18) concluded that the Golden Eagle Hotel had occupied a wooden structure in 1851. This building was said to have burned twice, in 1852 and 1854, and was subsequently rebuilt in brick. McGowan's interpretation of the 1856 Map Book shows the Golden Eagle Hotel's proprietor, D.E. Callahan, as the owner of the five southeasternmost lots of the block, except for a plot about 40 feet by 60 feet (12m by 18m) at the corner of 7th Street and California Street (also known as Oak Avenue or Merchant's Street). By 1860 at the latest, Callahan apparently owned all of the five lots and had also obtained more than half of the lot which, in 1856, had formed his boundary to the west.

This information indicated that, after the latter of the two fires, Callahan expanded his premises to the east while rebuilding in brick. Therefore, Schulz's (1979:18) suggestion that the final brick structure (the limits of which are clearly shown at 179-191 K Street on the 1895 Sanborn Map, figure 1) may have been that erected to replace the razed wooden building was justified.

A discovery made at the Fourth and K streets excavations in Sacramento--that an open courtyard in an area of intense commercial activity is likely to yield discrete refuse associations (Schulz 1979:8)--provided the basis for part of the excavation strategy. It was known from the 1895 Sanborn Map that the large brick hotel had been built around a central courtyard and that this construction probably occurred in the late 1850s. It was therefore reasoned that the Golden Eagle's courtyard had good archaeological potential. Furthermore, the raising of Sacramento's streets in the early 1860s suggested the potential of tightly dated features, since privies or refuse disposal areas would likely have become inaccessible at this time and would have been abandoned (Schulz 1979:14).

The investigation strategy which Schulz proposed can be divided into two phases. The first phase involved the excavation of backhoe trenches in both of the known locations of the Golden Eagle Hotel. This

work was to be done prior to any hand excavation, in order "...to ascertain the status and distribution of the relevant deposits" (Schulz 1979:19). The second stage, hand excavation, would concentrate initially on the burned layers of the first hotel building to determine distribution patterns of materials that might "...reveal activity areas within the structure"; secondly, the trash and privy deposits associated with the later building would be investigated (Schulz 1979:18).

In accordance with these general guidelines, a test-excavation strategy was devised (Fredrickson et al. 1979a: map 1). This plan involved the mechanical excavation of several backhoe trenches across the project area. It was intended that the first of these would completely bisect Callahan property, from east to west, passing through both the courtyard and the site of the earliest hotel building. Trenches would then be opened up across the northern (rear) portion of the parcel parallel to the first, in order to locate refuse and privy deposits which had been laid down prior to the construction of the later hotel building; additional trenches would be excavated at a right-angle to the first, in order to bisect the courtyard. If the features specified by the research design had been located, the arrangement of the trenches would have facilitated removing the large volume of post-demolition era fill soil which Schulz (1979:21) had identified as overlying the site.

FIELD RESEARCH

The test-excavation program was scheduled to begin on Monday, 9 July 1979. In preparation for this work, a backhoe-loader had been ordered for the day to excavate the trenches. On arrival at the site, the crew found that up to 10 feet (3 meters) of demolition fill which the Agency had agreed to remove was still being bulldozed and trucked off by a contractor via an access ramp at the northern end of the lot. At the western end of the project area, there was a 20 to 30-foot high (6 to 9 meters) pile of soil covering the entire width of the half-block. In addition, the southern 10 to 15 feet (3 to 4.5 meters) of the area to be investigated was being used for vehicular access to an adjacent construction site. Serious consideration was given at this time to postponing the start of the field work for a week or more until these problems had been resolved, but several factors suggested that this delay would be unwise. Most important was the project's schedule, which would not allow for any delay: The contract required vacation of the site by 15 August, and it was deemed unlikely that an extension would be granted. In addition, the excavation strategy required that a prodigious volume of soil was to be excavated by hand (Schulz 1979:21).

Thus, because of heavy equipment working immediately to the west, Trench A--originally intended to bisect the courtyard area--was placed slightly too far to the east and was irregularly aligned. Had this trench provided evidence of undisturbed deposits, a second cut would have been made later. This second trench would have been approximately parallel to the first, but further to the west, in accordance with the original testing strategy.

Trench A was excavated from as far north on the half-block as the position of the earth-moving contractor's access ramp would allow (see

plan 1). The trench was immediately realigned slightly to the east when it was discovered that its proposed orientation would have followed the north-south course of Wall B. The area around the northern end of Trench A was subsequently stripped of overburden, and the junction of walls A and B was exposed and investigated as Area III. Because of the size and orientation of Wall B, it was tentatively identified as a northern extension of the eastern wall of the Golden Eagle Hotel courtyard, which is shown on the 1895 Sanborn Map (figure 1). The size and characteristics of the construction of Wall A suggested that it had been an internal or partition wall. To the south, Trench A uncovered two substantial footings (C and Q), which ran east-west and formed a junction with Wall B. Although it is not known whether these walls extended to the west of Wall B, such an extension would have approximated the position of the northern courtyard wall. South of what would come to be its junction with Trench B, Trench A was once again realigned to avoid Wall B. The trench was excavated as far to the south as was possible--somewhat short of the southern edge of the block because of the construction site's access road mentioned previously.

During excavation, a large, filled feature (Feature 21/2) had been noted in the exposed sides of the middle and southern end of Trench A (see sections 1 and 7). A 3-foot by 15-foot (0.9 meter by 4.5 meter trench (designated Area I) was hand-excavated into this deposit in order to determine the kind of activity that had formed it, since the feature's stratigraphic position indicated that it might have been of recent origin. If confirmed, this would not bode well for the integrity of the balance of the site.

Trench B was positioned so that it would both bisect the hotel courtyard and help determine the western extent of Feature 21/2. Working from east to west, the backhoe exposed the top of Wall B, of which even fewer footing courses remained than in Area III. Cutting deep into subsoil, no other substantial cultural deposits were uncovered along the remainder of the trench. As some thin layering was seen in the south side of Trench B, the overburden was stripped to allow testing of a portion of this deposit (Area II). The machine next excavated Trench C, roughly perpendicular to Trench B, to determine the extent of the Area II strata and to further investigate the courtyard (see section 8). Once again, the southern limit of the trench was determined by the construction site's road. No refuse or privy features were found in this trench. Trench D, which was aligned east-west toward the northern edge of the project area, produced evidence of recent disturbance.

The evidence from the trenching was clear: The eastern 75 percent of the later hotel building and all of its courtyard had been heavily disturbed. With the possible exception of Area I, investigation of this portion of the half-block could not address the research questions outlined in the original design (Schulz 1979). Information that corroborated the archaeological evidence was gained from two visitors to the site. These men had known the demolition contractor and reported him to be an enthusiastic bottle collector who had developed several techniques of "pothunting" using heavy equipment. They suggested that our excavations were coming 15 years too late.

Based on the results from Trench B, it seemed unlikely that much stratigraphy relating to the 1851 to 1854 hotel (which, it will be recalled, had burned down) was likely to have survived. A section exposed in the cut for the contractor's access road, however, revealed that excellent, stratified deposits did exist in the two parcels to the west. Accordingly, at the request of the City Museum and History Department and the California State Historic Preservation Office, excavation strategies (Fredrickson et al. 1979a and b) were developed for the area of the first brick hotel and the two parcels to the west. These studies set forth the proposed field strategy for the test-excavation and data recovery phases, respectively, established priorities, and suggested research questions which would be applicable for the new areas.

In accordance with Schulz's original research design (1979:20-21), the testing strategy proposed that priority would be given to investigation of the site of the original hotel; if this area proved unproductive, emphasis would be moved to the lots to the west. The first of these parcels, according to the historical study, had been occupied by a sequence of stone masons from 1870 to 1885; it was selected by both McGowan et al.(1978) and Schulz (1979:16) as an area which would be "most likely to reward archaeological investigation." The western-most parcel had been the site of a blacksmith's shop from 1859 to 1890 and was also designated as an area of relatively high potential archaeological significance. These areas were made even more attractive by the evidence of good archaeological integrity shown in the soil section exposed by the contractor's excavations mentioned above (section 10). The following specific objectives of the testing program were listed in the Excavation Strategy:

1. To address the National Register eligibility of areas tested.

2. If possible, we will attempt to answer Schulz's (1979:18-19) original research questions. This would involve excavation of trash and privy features, and the burned layers associated with the early hotel.

3. Excavations in the blacksmith and/or marble and granite works will recover tools and waste materials from a specific occupation. A partial tool assemblage may be recovered for each, and it is possible that changes in the technologies of these two industries may be viewed over time. It is possible that an analysis of the blacksmith's shop may elucidate the influence of the Horse Market (Theodoratus and McBride 1978:10) on the commercial development of the neighborhood.

4. The first structure recorded on 617 K Street was occupied by a "sash maker" in 1854. This building may have been constructed before the fire of the same year. Evidence of the fire and the sash maker's burned possessions may be recovered archaeologically. No structures are recorded on 615 K Street parcel before 1859; at this date the lot was occupied by the premises of a horseshoer (McGowan et al. 1978). The historical record of Sacramento's beginnings and early development are sparse. Early uses of these "vacant" lots is not recorded. It is possible that these were used for trash disposal

by neighboring establishments, or that they were used on an ad hoc basis. It is possible that archaeology in this area will supply evidence of early land use (Fredrickson et al. 1979a:6-7).

On 20 July 1979, the excavation of Trench E, in the southeastern portion of the project area, was begun. This constituted the start of the second stage of investigation. The plan was to strip the overburden along Trench E in a swath two buckets (6 feet) wide. In this way, a sufficient sample of the underlying deposits could be exposed for excavation. The positioning of the trench was determined on the basis of historical information, some of which later proved to be incorrect. The first objective of the testing was to locate the remains of the structures believed to have been burned in 1852 and 1854, which had occupied an area of 50 feet by 140 feet (15.2 by 42.6 meters) (Schulz 1979:20). The trench was positioned based on data taken from a map supplied to the field supervisors by the City Museum and History Department which showed the presumed location of the "1851-1854" hotel. (Historical research which was performed later showed that, in fact, the early hotel extended over only half the area which the map indicated. Thus, the trench was positioned so that only 9 feet or 2.7 meters of the earlier hotel site was investigated.) The test trench was placed as far to the south (the front of the lot) as possible in order to avoid the area which was known to be disturbed from previous trenching. Due to these considerations and because of the contractor's access way, it was necessary to begin the trench somewhat short of the eastern limit of the early hotel site.

Trench E was excavated from east to west. At the beginning, the machine operator was instructed to dig through the archaeological deposits that were immediately encountered, in order to determine the integrity, or even the existence, of the earlier "burn" layer. The trenching soon encountered a brick wall running north-south (Wall D), which was assumed, because of its correlation with the Sanborn map, to have been related to a later phase of hotel construction (figure 1). Since the exposed trench section showed no sign of a burned layer stratigraphically inferior to, or contiguous with, the top of the construction trench of Wall D, the specific search for this layer was effectively halted (see section 9). Moving westward, the machine uncovered Wall E, which ran east-west; at this time, the structure was assumed to have been a partition wall in the Golden Eagle Hotel. Lapping up against this to the south was an extensive feature containing oyster shell, beer bottles, and bones. This deposit was eventually sampled as Area IV.

During excavation of Trench E, it was noted that the depth of overburden was minimal, only 1 to 2 feet (0.9 to 1.8 meters). This finding suggested that the disturbance which had been encountered in trenches A, B, C, and D was limited to the central and northern portions of the half-block.

Trench E was continued to the west, exposing the archaeological deposits in a swath of from 6 to 9 feet (1.8 to 2.7 m) wide. Wall F was exposed in this way. The enormous amount of limestone waste that was found here confirmed that the area to the west of Wall F was indeed the lot which had been occupied by Aitken and Luce's Pioneer Marble Works at

one time. To determine the depth of the mason's refuse, the backhoe excavated to the bottom of this deposit at the west side of the half-block. The fill was found to be several feet deep and crumbly; for reasons of safety, therefore, hand excavation in this part of the lot (designated Area V), was limited to sampling the construction trench of Wall F. In investigating the depth of the limestone, Wall G, which ran north-south, was encountered. This structure was interpreted as having been a common wall between Area V and the blacksmith's parcel to the west (Area VI). Although it would have been desirable to have sampled all the deposits in Area VI by hand, after the mechanical excavation of the eastern half of the trench it became clear that the stratigraphy played out almost immediately to the north of the trench. Because of this, the western half of the area was tested by hand in the form of a trench, the western extension of Trench E, which bisected the lot.

In accordance with our testing strategy (Fredrickson et al. 1979a: map 3), Trench F was mechanically excavated in approximately the middle of the half-block, roughly parallel to Trench E. The results of this trenching affirmed the belief that the center of the project area had been thoroughly cleared out during site clearance in 1963. It was expected that this trench would expose in cross section the walls that had been encountered in Trench E. Instead, only two walls (walls L and N), neither of which had been uncovered previously, were found in the area directly north of Area IV, together with what was assumed to have been the refuse-filled construction trench of one of these. One of these walls was believed to have been an earlier phase of Wall F, which separated areas IV and V.

Trench G was opened next in search of refuse and privy features which were commonly placed at the rear of a property. Survival of such features seemed likely, because they had probably been cut into subsoil rather than being deposited on its surface. This excavation revealed a similar situation as was found in Trench F: modern debris, including concrete, wood, and plastic, was distributed throughout the homogenous stratum which overlay the natural, flood-deposited silt (see sections 3 and 4).

Trench H was opened to the west of Trench G, approximately parallel to it. This trench was expected to confirm our assumption that the central and northern portions of the project area had been heavily disturbed to a considerable depth. Almost with the first bucketful, it became evident that a rich association of ceramics and glass was present. Consequently, a wide area (Area VII) to the east of this feature was opened up, and the trench was extended to the south. Later, the backhoe attempted to expose the western half of the feature, but this portion had been destroyed by construction. The exposed side of Trench H showed that the depth of disturbance increased from north to south.

The backhoe next removed more than 6 feet (1.8 meters) of overburden from above the walls which had been bisected by Trench F. What had appeared to be debris in the walls' construction trenches was shown to be refuse which had been purposefully dumped into two brick-lined pits. This newly exposed area, which was designated Area VIII, was believed to have been located, at least partially, in the small courtyard shown on the 1895 Sanborn Map (figure 1).

The field work was completed on 14 August 1979.

Key:

177 Street Address of Lot

Courtyard

Wall Lines in Project Area as Shown on 1895 Sanborn Map

Scale 1" = 40'

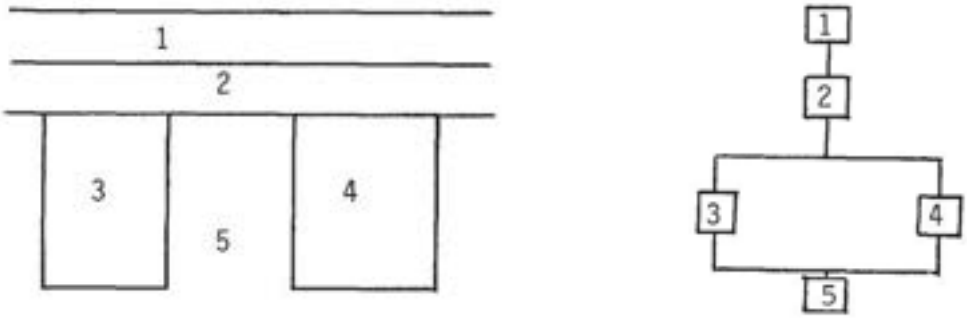
Figure 1

INVESTIGATION METHODS

The excavation techniques employed at the Golden Eagle site were in accordance with the recommendations made in the project's research design (Schulz 1979:21). Specifically, they involved treating each of the site's archaeological layers as the most basic unit of provenience and, therefore, excavation. Each of the archaeological layers was assigned a number according to the sequence in which it was encountered in the site. Since the numbers themselves do not reflect the site's stratigraphic sequence, but merely serve to identify individual layers, it is possible to conceive of a situation in which Layer 10 was stratigraphically inferior to Layer 20, which itself was inferior to Layer 30.

Horizontal control for the purposes of mapping the excavated areas was maintained by the use of a grid oriented to magnetic north which was imposed upon the site; an arbitrary point within the project area was used as its starting point. A staked grid was established with surveyor's tapes, using the principle of the 3/4/5 triangle. The grid was tied into the street plan by triangulating several reference points from a professionally surveyed 1"=20' map of the project area and its immediate environs which had been supplied by the City Redevelopment Agency. Elevations were measured using a simple builder's level. These readings were tied into a temporary bench mark established by the surveyors on a manhole cover on California Street, immediately to the north of the study area.

A great deal of emphasis was placed on recording the relationships of the layers that composed the site. To this end, excavation trenches were placed in such a way as to produce continuous, exposed soil sections. The Harris-Winchester matrix system was employed to allow better understanding of the site's stratigraphic sequence. This technique allows three-dimensional relationships to be expressed in two dimensions. If sufficient chronological control is available, the matrix can also illustrate the chronological dimension. Although the method was devised for use on complex, heavily stratified deposits (Cf. Harris 1974 and 1977), it is equally appropriate for generally simpler North American sites where, because of the sites' shorter occupation span, tight chronological control is crucial. Matrices are also more useful than section drawings as they may include stratigraphic relationships which occurred in, for example, the middle of a trench, and thus are not represented in the section.



In the matrix above (right) which corresponds to the section on the left, Layer 1 is stratigraphically superior to all others shown. Similarly, Layer 5 is stratigraphically inferior to all others. Layer 1 directly overlies Layer 2, which directly overlies both 3 and 4. The only known relationship between 3 and 4 is that they are both inferior to 2 and superior to 5. That the line which links 4 to 5 is joined by a horizontal line from 3 shows only that the latter is superior to 5, not that it is inferior to 4. Layer 3's inferiority cannot be inferred, since to do so would involve going in opposite vertical directions to solve a single problem, that is, down and across from 3 and then up to 4; to do this would be a misuse of the system. It is intended that the corresponding matrix be referred to each time section 9, 12, 13, 15 or 16 is consulted in order to aid in its interpretation; therefore, the matrices are not cited in text.

RECOVERY TECHNIQUES

All of the soil from the hand-excavated layers was examined for artifacts and ecofacts which would aid in site interpretation. The most common method used was to pass the soil through 6mm wire mesh screen and retrieve all archaeological materials. Since the strategy of artifact recovery in the field varied somewhat, techniques used are described by features.

Feature 6

This feature was composed largely of shells of the Atlantic Oyster (*Ostrea virginica*) in a layer up to 1-1/2 feet (45cm) thick. Although the soil interstices of this deposit were 6mm screened, only a sample (approximately 10 percent) of the shell was saved. Due to the overwhelming proportion of oyster, it was reasoned that the ratio between the total amount of oyster recovered and the other types of shell in the

feature--all of which were kept--would not be significantly altered by biasing the sample in this way. Although the above logic still holds, it is now recognized that the data recovery would have been improved had the discarded shells been counted.

Feature 15

Most of the fish bone recovered from the site was taken from this feature. The pit was cross-sectioned and each half was removed separately. The first half removed was 6mm-mesh screened, while the second half was passed through 3mm screen. The change in method occurred when the project's ichthyologist advised that some fish remains were doubtless being lost because of the large-sized mesh.

Feature 20

All soil from Feature 20 was 3mm screened. This method seemed most appropriate here, since many tiny bird bones were found in this feature.

Feature 8

The method of excavation and artifact recovery employed in the excavation of this feature was less controlled than would have been desired under other circumstances. The upper layers of the pit fill were passed through a 6mm screen. Approximately 10 percent of each of the lower layers was sampled in this way and then given over to a variation on the shovel broadcast technique. The latter method was adopted when it became evident that the artifact yield from these layers would be very low, and that screening the wet soil would have required more time than was available. Unfortunately, the earlier phase of the feature's life was excavated together with the later phase (see section 16, fig. 2). Consequently, artifacts from the latter (layers 84 and 85) were bagged with those from the former (Layer 90).

Soil samples were taken from layers of each of the discrete trash associations (features 6, 15, 20 and 8). It was hoped that these samples would contain insect body parts which could aid in the interpretation of the features' archaeological context. The potential of such analysis was discussed in the revised excavation strategy:

> The use of insect death assemblages (thanatocoenosis) will facilitate "the reconstruction of past events and ecological conditions, using the habitat requirements of preserved insects as evidence" (Kenward 1976:1). In this way, stenotopic insect species and communities are identified in the area's environment on the basis of samples taken from suitable archaeological deposits which can give a good indication of the local environment. The work of Kenward (1976) and Kenward et al. (n.d.) shows that numerous conclusions relating to the creation of local ecological environments by refuse disposal patterns can be made. Deposition characteristics including the following can be identified: the period which a refuse pit remained open before being capped; the state of decay of the refuse at the time of capping and its relative foulness; the probable original nature of the refuse (Fredrickson et al. 1979b:12).

The literature mentioned the importance of waterlogged conditions as a usual prerequisite for the survival of insect body parts. Within the Golden Eagle site's features, however, only Feature 8 could have been considered waterlogged. Thus, because it was felt that our efforts might not be successful, a 1-kilogram test batch of soil was processed from each layer. This method entailed soaking the soil in warm water until it disaggregated, and then, with the soil still immersed in a 1mm wire screen, gently agitating the slurry so that the soil fell through the mesh and the archaeological materials were retained.

If this trial had met with any success, the remainder of the samples would have been processed according to the method established by Kenward et al. (n.d.). Unfortunately, no insect parts were found. The soil samples which remained were carefully water-screened, using 3mm mesh as a control by which to measure the effectiveness of the field-recovery techniques. Fish bone was found to be the only commonly overlooked material (Schulz, this report: appendix 2.1).

SITE CONTENT AND STRUCTURE

DEMOLITION AND CLEARANCE

In 1963 the buildings which occupied the Golden Eagle project area were removed. This process involved a sequence of four phases of work: demolition, excavation, leveling, and filling. Elsewhere in this volume, Eisenman has described the scope of the demolition service for which the city contracted. The archaeological data revealed the degree to which the contract was actually carried out. The characteristics of these activities determined to a large degree which 19th-century deposits survived. Section drawings 1, 2, 3, and 4 are included in this report primarily to illustrate the stratigraphic arrangement which resulted from the site-clearance process.

The demolition process is represented by Layer 103, which appears in sections 1, 5, and 6. The layer, composed of brick rubble with some iron structural reinforcement bars and faced wall plaster, directly overlay Wall B. The way in which Wall B was, at this stage in clearance, sheared off at the top of its footing courses was a common occurrence on the site. Other examples of this pattern were Walls C and Q, which were exposed by Trench A; a southern part of Wall B, uncovered by Trench B; walls K and L in Area VIII; and Wall F at the junction of areas IV and V. It is notable that walls E and K had also been demolished in this way, although at a much earlier period in the site's development. This finding suggests that removing only the wall courses has long been practiced as an expedient alternative to the more difficult process of total clearance. In addition, the salvage value of bricks, which can be dislodged individually from a wall, is relatively high. Conversely, bricks making up a solid foundation are likely to remain cemented together and are merely a liability to be disposed of.

The site was subject to a considerable amount of clearance-associated excavation, especially in the northern and central areas. The southern 30 feet (9.1 meters) of the western half of the project area was in almost pristine archaeological condition. Section 9 shows that much of this area was completely undisturbed. Yet less than 35 feet (10.6 meters) to the north, Trench F (depicted in section 3) reveals considerable disturbance. From 8 to 10 feet (2.4 to 3 meters) of deposit had been removed down to the pre-1860s ground level, which was approximated by the top of the footing courses of walls K and L in Area VIII. Similarly, sections 2 and 4 show--partly by the mere absence of 19th-century archaeological features--that the previous ground surface had been at least partially disturbed. A portion of the old ground surface appeared to have survived in Area III (see section 5), but it occurred infrequently elsewhere in the area sampled by trenches A, B, and, possibly, C. The horizontal layers which appeared at the extreme south end of Trench A (see section 1) were doubtless cultural depositions on top of the geological subsoil (Anderson personal communication 1979). As such, these layers, which presumably pre-dated the hotel, comprised the most intact stratigraphic association on the entire eastern side of the site.

It was apparently during the clearance process that the disturbance to the site--the result of bottle hunting--occurred (Eisenman, this volume). Oral history indicates that the demolition contractor, an enthusiastic collector, had devised some efficient methods of retrieving bottles from refuse-filled features which he encountered. One technique involved excavating the soil from around the features to form pedestals and then backblading them to expose the bottles. Alternatively, he trenched along wall lines, using a narrow bucket on the backhoe, since experience had shown that bottles were likely to be found in construction trenches.

An example of the latter technique was encountered in Area III (see section 6). Here, the compacted layer (105) immediately to the south of Wall A was the fill of such a trench, which can be seen to extend nearly to the wall's footing course. Only a few inches of the wall's construction trench and its fill remained (Layer 106). It is also possible that Layer 104, north of Wall A, was a result of bottle collecting.

In leveling the site, the contractor bulldozed the contents of trash features into low spots on the site after he had removed the whole bottles. Although the process by which the hollow Feature 21/2 was formed is not known, its fill almost certainly derived from several discrete refuse deposits and thus apparently represented the aftermath of the demolition contractor's collecting (see section 7). This large, filled pit appeared in the southern portion of Trench A, which partially bisected the feature. At its northernmost appearance, Feature 2 was seen to have been cut into the grey, silty-clay subsoil and had been sealed by the most recent phase of fill dumped on the site. At the southern end of the trench, however, the pit had been dug through three or four cultural layers of undetermined antiquity, as well as the geological deposit (see section 1). In the next section, the archaeological reflection of the clearance process which has just been outlined, will be described in detail.

PROJECT AREA - EAST

Area I

The fill of Feature 21/2 was sampled by means of a hand-excavated trench (Area I). This ran north-south, partially bisecting the feature, and was 15 feet (5.2 meters) long by 3 feet (90cm) wide. Filling the feature had been carried out in two phases (see section 7). The later phase was represented by layers 3 and 6. These strata, of a compacted, light brown silty-clay, and a similar layer containing brick fragments, ash, and charcoal, were designated Feature 21. The layers, both about 6 inches (15cm) thick, extended for the entire length of the trench. Beneath and contiguous with Layer 6 was a 1-1/2 inch (3.8cm) thick stratum of grey silt (Layer 11). This layer was foliated with thin lenses of fine silt or clay and a fine sand. Like the layers above it, Layer 11 extended the entire length of the trench. The earlier phase of filling (Feature 2) had a maximum depth of 2 feet (60cm) and was composed, from highest to lowest, of layers 4, 15, and 19, which were under Layer 11. These silty clay layers contained varying amounts of brick and other construction debris. Excavation of Area I was not completed, because it became clear that this feature was a recent association. The artifacts from both

above and below the silt layer dated from the middle to the end of the 19th century and were quite varied, including glass, ceramic, and shell. Among these artifacts, recent materials occasionally occurred. Most notable of these finds was a styrofoam cup which bore the legend "Harvey's," the name of a nearby restaurant. The extensiveness and internal homogeneity of the layers themselves indicated that the feature was the result of secondary deposition. Another clue to the recent origin of the deposit was its location. Had the pit indeed dated from the 19th century, it would have been created under the lowest floor of the Golden Eagle Hotel by an excavation into the subsoil. To have done this would have undermined the foundation of one of the building's most crucial structural walls, Wall B.

It was concluded that this pit had originally been excavated by the demolition contractor to gain access to trash-filled features. Having retrieved the bottles, the fill was pushed back into the depression, thus creating layers 4, 15, 19, and others below these strata which were not investigated. Layer 11, the foliated silt, developed while the site lay open over the winter. Later, layers 3 and 6 were pushed into the hollow, which may have settled during the winter, just before fill was brought in from elsewhere to level the lot.

The layer of trucked-in fill (Layer 101) was present throughout the site. In trenches A, B, C, and F, Layer 101 was found to be up to 6 feet (1.8 meters) deep (see sections 1, 2, 8, and 3), whereas in Trench E it occurred sporadically and was only a few inches thick. This distribution indicated that the soil had indeed been brought in to fill the hollow in the center of the site, which had been left by the demolition and excavation phases of site clearance.

Trenches B and C, and Area II

During the excavation of Trench B, several apparently cultural layers were observed in the exposed section. Since this area would have been inside the Golden Eagle Hotel's courtyard, the strata were further investigated to see if they were the remains of the courtyard's surface. Trench C (see section 8) was excavated to the south to determine the layers' extent, and a portion of the overburden (Layer 101) was stripped from an adjoining area to allow the strata to be sampled by hand. The resulting opened area, Area II, was 12 feet by 9 feet (3.6 meters by 2.7 meters). Four irregularly occurring and heavily compacted layers were sampled. The first of these, Layer 16, contained much decayed mortar, brick, and gravel; from the presence of modern refuse (pop-tops), this stratum was assumed to be associated with the site clearance. Layer 17 was, again, a thin deposit, but of dark grey, friable or silty clay. Embedded in this matrix were many decayed brick fragments. After removing this layer, several lenses of sand and grey-brown soil were encountered (layers 22 and 23). These contained a relatively large amount of iron, glass, ceramics, and other small artifact fragments.

The entire Area II association of layers, which from section 8 can be seen to extend for several feet to the south of the hand-sampled portion, was apparently a product of site clearance. This origin was

indicated by (1) the compacted condition of the layers; (2) the discontinuous nature of the layers; and (3) the presence of modern artifacts in Layer 16.

Trench A and Area III

Walls A, B, C, and Q were uncovered by Trench A. Wall B, oriented north-south, probably formed the eastern wall of the hotel's courtyard. The courtyard would only have been fully enclosed at the construction of the hotel's easternmost addition in 1869 (Pitti 1980:59). The location of this wall in relation to the contemporary street line was slightly at variance with the 1895 Sanborn map. The latter (figure 1) shows this wall positioned 3 feet (90cm) to the west of its position on plan 1. It is likely that the plan's respective makers each took a different point to be the western edge of 7th Street, resulting in this variation.

That Wall B was a structural, rather than a partition, wall is indicated by its width and number of footing courses. Like most walls on the site, B had a stepped, pyramidal foundation, which spread the weight of the superstructure and prevented the wall from subsiding. The foundation was six courses high, alternating header and stretcher courses. As was the demolition practice elsewhere on the site, the wall courses had all been removed. Consequently, it is not known whether Wall B was two or three courses thick; the former, however, seems more likely, since only two courses were used in the "common bond" arrangement elsewhere on the site.

In Area III, part of Wall B's construction trench (Feature 3) was uncovered and excavated (see section 5). This trench had been cut into the grey, silty clay subsoil to a depth of up to 1 foot (30cm). The fill (Layer 24), a homogeneous, grey-brown silty clay mixture, contained ceramic, glass, and metal artifacts. Among these objects was a transfer-printed, ceramic bowl bearing a registry mark, which provided a terminus post quem of 1849 for this layer. Above Layer 24, both sealing it and directly overlaying the subsoil, was a layer of decayed, salmon-colored brick dust and fragments (Layer 108). The particular post-construction event that this layer represented is unknown. As Wall B was constructed of well-fired, red brick, Layer 108 cannot have been related to its demolition.

That the layers above 108 were clearly post-demolition depositions could be seen by their stratigraphic position alone, since they all overlay the wall. The quantities of faced wall plaster in Layer 104 and the brick rubble and iron reinforcement bars in Layer 103 indicated that these strata were the result of the demolition of the hotel itself.

Wall A formed a slightly less than perfect right-angle at its junction with Wall B; significantly, perhaps, the former paralleled the alignment of Wall Q, 25 feet (7.6 meters) to the south. There is little doubt that both of these walls had been part of a structure which was present before the eastern wing of the hotel was built. Documentary evidence indicates that, during the construction of the northern extension of the hotel in 1856-1857, it was discovered that Randall, the owner of the parcel to the east, had inadvertently built the southern wall of his building on land

subsequently bought by Mr. Callahan of the Golden Eagle Hotel. Randall's building was either demolished or incorporated into the eastern wing of the hotel. Wall Q's location, 100 feet (30 meters) north of K Street, represents the remains of Randall's wall.

Wall A, having only three footing courses which were stepped inward, was almost certainly a partition wall. The wall was one "full course", one header and one stretcher wide. Its construction, however, consisted entirely of stretcher courses--an arrangement which would have inclined the wall to topple over or buckle because of its lack of transverse stability. This instability is another indication that Wall A had not been built to bear much weight. The bottom of Wall A's foundation trench, Feature 23, is shown in section 6 to be about 1 foot (90cm) below the surface of the grey clay subsoil; this was, presumably, the ground surface at the time of the wall's construction. Apparently it had been necessary to dig the trench to a standard elevation all along its length because of irregularities in the surface contour of the land.

The chronological relationship between walls A and B cannot be discerned from the archaeological data. Although plan 2 shows that the wall courses of Wall A overlay the stepped footings of Wall B, the historical record suggests that this arrangement was the result of secondary construction. If this assumption is correct, then Wall A was originally cut by Wall B and later repaired. The implication of this interpretation is that Randall's building (as represented by Wall A) was incorporated into the Golden Eagle Hotel during its 1857 expansion. Further support for this interpretation exists in the relationship between walls C and Q, which are believed to have been associated with Randall's and the Golden Eagle Hotel, respectively (plan 3). It is believed that Wall C extended to the west of Wall B and thus formed the northern wall of the courtyard of the Golden Eagle Hotel (fig. 1). As was common on the site, all wall courses had been removed, and only the lower courses of footings remained. Although the two foundations were contiguous, they were easily distinguished by differences in their construction. Wall C was the thicker and more massive of the two; six overlapping header courses remained. Wall Q had eight stretcher courses and part of what may have been a buttress on its south side. The reason that this portion of Randall's south wall had been replaced is, perhaps, indicated by its construction; as with Wall A, Q was built of stretcher courses which have an attendant risk of collapse. In addition, these major bearing walls had been built on a geologically unstable stratum (Anderson personal communication 1979), which might have inclined Randall's narrow footing to subside.

It is intriguing that the stratigraphic position of neither Wall C nor Wall Q (nor the southern appearance of B) can be determined. These footings were placed neither in construction trenches nor on any established land surface that could be discerned by the project's archaeologists or the consulting geologist. According to the latter, the stratum which both underlay and sealed the footings was probably a flood deposition (Anderson personal communication 1979).

It should be clear from the above discussion that site clearance severely impacted the archaeological integrity of the entire project area

and the historical remains found in the eastern portion of the site. The western part of the site, however, produced some very important data. Since each parcel had its own established land-use history related to the ownership sequence, the archaeology of the site will be discussed by lot, from east to west.

Trench E

Trench E, which was excavated parallel to and 25 feet (7.6 meters) north of K Street, uncovered the footing and more than three feet (90cm) of the north-south oriented Wall D (see frontispiece). The exposed cross section showed that this wall had been set in a shallow construction trench (Feature 24), which had been dug directly into the natural subsoil. The wall, which was nearly 2 feet (60cm) thick, appears to have been built using a common bond method of alternative courses of header-stretcher rows. A thin, cultural layer sealed the trench fill and extended slightly over the lower stratum to the east of the wall; this layer was the only indicator of human activity on the plane of the ground surface at the time at which the wall was built. Measurements gleaned from historical documents, including title deeds and assessment records, indicated that Wall D was the western wall of the first brick phase of the Golden Eagle Hotel built in 1853 (Pitti 1980:6). This three-story wall, perpendicular to K Street, appears on a 1866 photograph of the area (plate 1). The structure of which this wall was a part was built to replace the wooden hotel that burned down in 1852. If evidence of the earlier building had survived, in the form of a layer of charcoal, ash, and burned debris similar to that found at the Cothrin/Warren excavations (Butler 1979), it would have been exposed in the side of Trench E as a stratigraphically inferior layer to Wall D's construction trench. Wall D was, therefore, the earliest structural feature discovered on the site which may be identified with the Golden Eagle Hotel.

Overlying the construction trench and lapping up against the wall was a thick (up to 2 feet, or 60cm) homogeneous stratum of grey, silty clay, Layer 143, which is believed to have been a flood deposition (Anderson personal communication 1979). If it was indeed flood-related, the stratum was likely the product of the 1861-62 inundation which submerged much of the town. This event was represented elsewhere on the site by a similar stratum, Layer 70. Above this silt was a thin, but continuous, stratum of dark brown clay, Layer 117. As Layer 117 was situated above the 1861-1862 level and below a layer of faced plaster and brick debris which has been dated to the post-1880 period (see below), it represented the total accumulation in the basement of this part of the Golden Eagle Hotel during these 20 years. This finding is in marked contrast to the situation of the adjacent parcel, discussed below.

Area IV - Feature 6

For some 30 years after 1858, the lot to the west of the original Golden Eagle Hotel was owned by two separate parties. Callahan, the owner of the Golden Eagle Hotel, bought the northernmost two-thirds of the parcel in 1858 from Cross, who retained the southern one-third (Pitti 1980). Since most of the contributions to the archaeological record were made

after this date, the deposits to the north and to the south of the property boundary were associated with different business occupants and will be discussed separately where appropriate.

The first structure on the southern lot was apparently the single-story building, presumably erected by Cross, which is shown facing K Street on the 1866 Houseworth photo (plate 1). The photograph shows that the building was quite shallow, extending only thirty feet (9m) or so into the lot. North of this building and enclosed by the Golden Eagle Hotel to the east and other brick structures on lots to the north and west, was an open yard which was about 450 square feet (42sq.m.) A comparison of Wall E's location on the ground with the 1866 photograph suggests that Wall E had been the northern wall of Cross's building. In addition, the photograph indicates that Cross's building abutted the Golden Eagle, a situation which was reflected, archaeologically in walls D and E. Furthermore, the archaeology demonstrates that the Golden Eagle Hotel and Cross's building shared a common wall, the western wall of the hotel.

The wall itself, of which two courses remained, was laid header-stretcher and was one full course thick. Its pyramidal foundation was four courses high. Interestingly, the footings were laid directly on the natural subsoil, without any preparation (section 11). Wall E spanned the parcel, abutting Wall D to the east. As the result of a secondary phase of construction, Wall E also overlay Wall F to the west. A rectangular feature, approximately 6 inches wide by 9 inches deep (15 by 22cm), was excavated immediately to the south of the footings and stratigraphically contiguous with them. This feature contained redeposited subsoil mixed with brick dust. Since it was not overlain by Layer 43--the construction layer associated with Wall E--it is believed to have been a scaffolding hole relating to the construction of this phase of Cross's building.

Unlike most other walls on the site, Wall E had not been disturbed during the recent demolition. In fact, archaeological and documentary evidence indicated that the wall went out of use and was dismantled between 1866 and 1874. The earlier date is established by the Houseworth photograph, which was taken in that year. The later terminus is the estimated latest date of deposition of Layer 35, which overlay the top of the dismantled wall (see section 11). This layer was composed of faced wall plaster and brick fragments, while its immediate inferior layer, 37, consisted of brick and mortar in a clay-loam matrix. The layers' constituents, extent, and provenience indicated that they were debris from the remodeling and northward expansion of Cross's building. These layers contained many of the shoe elements discussed elsewhere in this report (see Stanton), which are believed to have been associated with the shoemaker Hillebrand, who occupied the premises from circa 1868 to 1873 (Pitti, this report). The occurrence of leather waste in these layers indicated that they had been laid down after 1868, probably in 1874. This interpretation would place the deposition of the strata after the departure of Hillebrand and before the arrival of Cronin, represented by subsequent formation of Layer 27.

The above reconstruction is ultimately dependent on whether the attribution of Layer 27 to W. Cronin's Golden Eagle Oyster Saloon is correct.

Certainly, the artifactual evidence supports this assumption; glass and ceramic terminus post quem dates of 1873 and 1870, respectively, place the deposit in the occupation range of the saloon (1874-1878) (Pitti, this report). More suggestive are the very contents of the layer, of which approximately 70 percent was oyster shell (Davis, this report). Much of the remaining fill was composed of ceramic ale bottles (M. Praetzellis, this report; see plate 7.1). Soil constituted a very small proportion of the layer, consisting of tiny pockets distributed in the interstices of the shell matrix. Most of the spaces between the shells were void, which, together with the layer's homogeneity, suggested that it had been deposited continuously and over a short period.

Layers 37, 35, and 27 were collectively designated Feature 6. This feature therefore represented all of the debris which was deposited under the floor of Cross's building during both the remodeling (layers 37 and 35) and the operational (Layer 27) phases, even though these stages can be differentiated in the deposit.

Only a 6 foot by 8 foot (1.8 meter by 2.4 meter) sample of Feature 6 was excavated; the exact limits of the deposit to the south and east are not known. Only a single, irregular line of shell remained of Layer 27 where it was exposed in the eastern section of a sondage which had been placed at the junction of walls E and F. The layer was visible on the surface as far east as Wall D and to Wall E in the north. Workers on the adjacent construction site reported that excavation for the access road had revealed a large amount of oyster shell extending to the southern wall of a demolished building, presumably Cross's or its successor. Based on this information and the assumption that Layer 27 was of a fairly constant thickness, it is estimated that approximately 10 percent of the stratum was excavated.

Areas VIII and V

There is good evidence that Wall M, in Area VIII, was a southern wall of a building that formed the northern boundary of the yard on Cross's lot. This two-story, brick building is shown on the 1866 Housemorth photograph to the west of the Golden Eagle Hotel (plate 1). Its southern wall is shown on the 1895 Sanborn Map (fig. 1) 60 feet (18.2 meters) from the edge of K Street; a similar distance can be estimated for the southern wall shown on the Houseworth photograph. Remarkably, Wall M was almost exactly the same distance from the street. Although it is not clear from the 1866 photograph, Cross's lot was bounded to the west by a 27-foot by 60-foot brick structure which had been erected in 1857 and faced K Street (Sacramento Bee 23 May 1857). Wall K and its western return may have been the remains of this structure. This wall was certainly a bearing wall, for it has a substantial six-footing course (plan 4). At its junction with Wall M, Wall K had been partially removed to accommodate the former's northern return. Wall M was even more massive than K, having eight foundation courses.

A second contrast between walls K and M was the elevation at which their respective wall courses began. The difference was most noticable at the southern side of their junction. K's wall courses commenced 5 inches (13cm) below those of Wall M. Interestingly, no construction trench cut

could be seen for Wall K in the southern half of Area VIII, suggesting that the ground level from which the trench had been dug was at a lower elevation than the plane which had been exposed by the excavation. This situation would have necessitated some soil deposition to raise the ground level; the 1861-1862 flood, whose effects were seen elsewhere on the site, might have accounted for the layer. This interpretation of the data, however, is not favored. It seems more likely that the trench, having been filled with redeposited soil, was simply not detected during the investigation. Similarly, Wall M's construction trench was also not located, although its trench was certainly cut either from the plane which was exposed during excavation or from a higher elevation. In the latter case, the trench would have been truncated but would still have shown up if the matrix had been at all dissimilar from its parent soil.

At the time that Wall M was built (after 1857, as M post-dates K), the land belonged to Callahan of the Golden Eagle Hotel. It is therefore probable that the building of which M was a part was the western addition to the hotel constructed in 1858-59 (Pitti 1980:22).

Features 15 and 20. The brick "linings" of features 15 and 20 were very similar to each other in composition and size (see pl. 3). Both were about 5 feet (1.5 meter) square and 2-1/2 feet (80cm) deep (see plan 4). Two walls of each feature were each one offset-stretcher-course thick and had footings which were two courses high. These characteristics indicate that the walls were indeed linings, since neither could have borne a substantial superstructure.

Although several suggestions have been ventured, the original function(s) of these pits is unknown. It has been speculated that they were privy or refuse depositories which, being lined, could have been easily cleaned out and reused; or they may have served as cool storage places for perishable foods. Any speculation, however, must take into account that the features--for all their physical similarities--had been built on independently owned parcels of land and were separated by a large, brick wall. Indeed, if our interpretation is correct, Feature 15 would have been out-of-doors in Cross's yard, while Feature 20 would have been inside a building belonging to the hotel (see fig. 1).

This distinction, which was initially arrived at from documentary information, was also apparent through comparative analysis of the structure and content of the pits' fill. The earliest stratum deposited in Feature 15 was Layer 74, a black, organic humus (see section 13), which occurred around the feature's lining, adhering to it. The layer has been interpreted as the remains of a primary phase of deposition, most of which had been cleaned out. The soil was probably either privy fill (see Hall, this report) or decayed vegetable matter. This stratum was in marked contrast to the rest of the fill, indicating a change in the pit's function between the first and second phase of its use. The later fill, which occupied more than 90 percent of the pit's volume, was composed of several layers. These strata contained brick and mortar debris and a much greater proportion of artifacts than the earlier layer, all of which were set in a matrix of less manifestly organic soils. The top two layers, 53 and 72, contained all the oyster shell in the feature.

PLATE 3: Features 15 and 20 after excavation. Looking south; scale is three feet.

PLATE 4: Feature 20 after removal of Layer 82. Looking south; scale is three feet.

From an analysis of the artifacts and the fill pattern, it appears that the formation and deposition of layers 53, 59, and 72 were the responsibility of the Golden Eagle Oyster Saloon. This association can be seen in the similarity of certain classes of artifacts recovered from these layers with those of Feature 6. Mixed in with the oyster saloon remains, however, were some artifacts (notably ceramics, glass and metal) which were not compatible with the Feature 6 collection. These objects appear to have been items of personal property. The glass and ceramics, most of which can be dated, are notably older than the oyster saloon material from the same feature. Consequently, it is likely that they had belonged to the previous occupants of Cross's building. These items had been discarded during the "housecleaning" which surely accompanied the 1874 installation and earlier operation of the saloon. For more details about how the artifacts specifically support this interpretation, the reader is referred to the ceramic (M. Praetzellis), glass (Armstrong), and metal (Roscoe) chapters in this report.

The depositional history of Feature 20, the brick-lined pit located inside the Golden Eagle Hotel's western addition, was relatively simple. The feature had only three fill layers--82, 86, and 87--which, because of their physical similarities and the lack of variability in their artifactual content, appear to have been deposited in rapid succession (see section 12). The principal components of the strata were brick, rubble, mortar, and ash. Cultural materials included food bone, ceramics, and glassware (see pl. 4). Dates derived from artifacts suggest that the feature had been filled around 1860.

From 1857, Wall K had served as a boundary between Cross's land and the parcel to the west. The wall apparently still functioned as late as the mid-1870s, when Feature 15, which backed up against it, was filled. At some time either during or after the occupation of the lot to the west by various marble works from 1870 to 1885 (Pitti 1980:103, 109), Wall K went out of use and was replaced by Wall F which followed the original alignment. It is evident that during the marble works' tenure, waste material in the form of limestone chips and dust (layers 120, 121, and 122) had been deposited in the excavated basement of the building in a manner similar to the filling of Feature 6 (section 11). In Area VIII, the limestone debris was seen to lie up against the western side of Wall K. In Area V, which was located toward the front of the same lot, this material was trenched to a depth of 4 to 5 feet (1.2 to 1.5 meters). Cut into Layer 120, the uppermost stratum of stone waste, was one side of the construction trench (Feature 11) of Wall F (see section 9). The western side of this feature was tested with a cross-section trench, in order to more accurately date it. It was found to contain a mixture of the limestone debris and brown silt, but no artifacts which would provide a better date for its deposition were present. During the excavation of Trench E, the western counterpart of Wall K was found and designated Wall G. Surprisingly, no signs of a mate for Wall F were evident, although such a wall had clearly not been removed during the site clearance.

Areas VII and IX - Features 8, 14, 16, and 27

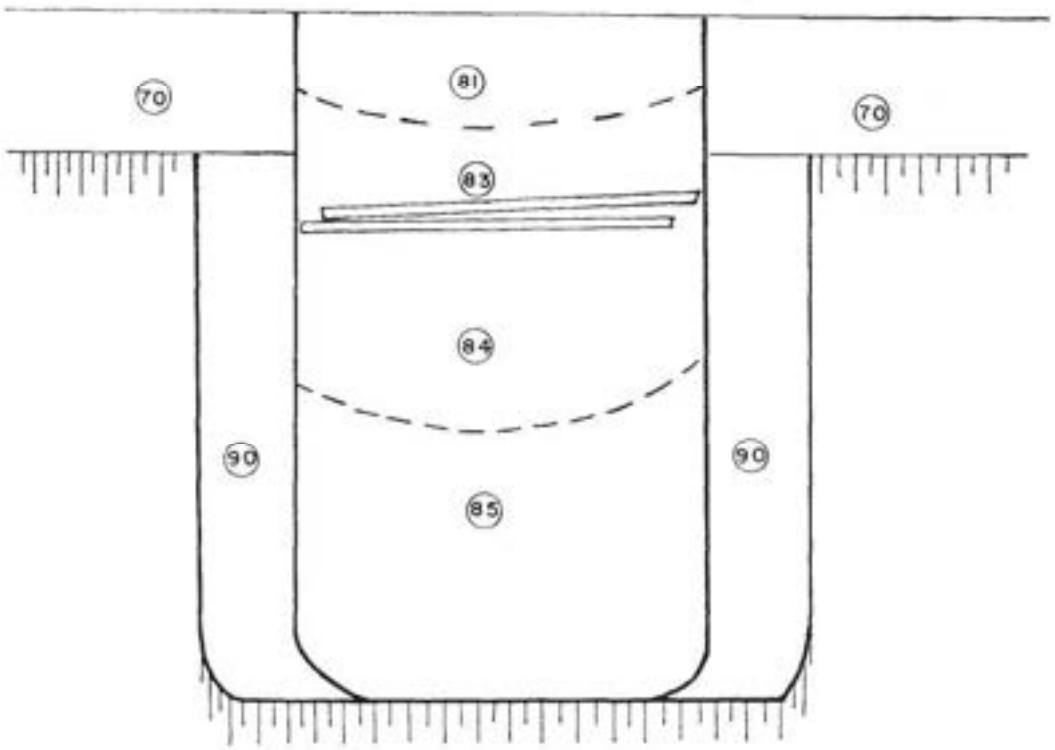
On the westernmost lot in the project area, Trench H encountered a back-filled pit (Feature 8; see pl. 5) and a trench (features 14, 16, and 27) which fed it (see plan 1, sections 14, 15, and 16).

Feature 8. Unfortunately, it was not possible to examine more than approximately 60 percent of the fill of Feature 8. This pit had two phases of cut and fill. The earlier cut was relatively broad and shallow (7 feet in diameter by 5 feet deep--2.1 meters by 1.5 meters) and circular in plan view. There is no evidence to suggest that this phase had been lined. The fill, Layer 90, was a light, grey-green silty clay that contained few artifacts. The homogeneity of the layer suggested that it was filled by some continuous process; its structure indicated that the process was siltation. Overlying this phase of the pit was a 10-inch (25cm) thick stratum of grey, silty clay--Layer 70. This stratum was apparently another occurrence of the 1861-62 flood silts which were also identified in the eastern end of Trench E (see section 9, Layer 143). Cut through this layer was a reexcavation of the inundated Feature 8, of approximately the same diameter (see fig.2). This new cut removed much of the fill of the earlier feature down to its original bottom. The sides of the new pit had been lined with wooden planks; the pit had been covered with some form of superstructure supported by wooden posts. Traces of the lining and the post holes ringing the feature's edge (see pl. 5) were discovered during the excavation. In addition, the mouth of the pit had been sealed with redwood planks; it is not known whether this covering was put down during the pit's functional life or after its abandonment.

The horizontal redwood planks formed a significant barrier between the dissimilar deposits above and below them. Layers 81 and 83, which overlay the planks, were made up of friable, brown loam and combined with a large amount of cultural material, notably glass and ceramics. These strata were continuous across the width of the feature. Below the planks, however, layers 84 and 85 occurred as angled lenses of clay-like, stained soil, and contained proportionally much fewer artifacts. Significantly, there were several cross-mends between ceramics recovered from above and below the boards. The deposition of the later phase of fill is dated to between 1862 (Layer 90, terminus post quem) and as late as 1870; by this time, Merchant's Street had been raised to grade, and the feature had become obsolete. This conclusion, derived essentially from historical documentation, is supported by artifact dates from the feature.

Feature 14. Feature 8, at least during its later phase, had been connected to a trench, Feature 14. This trench ran roughly north-south to the east of the pit and at a tangent to it. About 8 feet (2.4 meters) of this linear feature was excavated. It was approximately 15 inches (38cm) wide by 10 inches (25cm) deep and had been cut into Layer 70, the presumed 1861 to 1862 flood silt. As can be seen in section 14, Feature 14 reflected two phases of use and function. The first period was represented by what appeared to have been a simple wood-lined trench. This trench had probably been constructed as a four-sided, redwood drain, but it became distorted through compaction and disturbance from the later phase. The wooden drain was replaced by a 1-1/2 inch diameter iron pipe set in a trench which had been dug into the silted-up box. This complex represented a conversion from drainage to the introduction of an off-site utility, probably gas.

PLATE 5: Feature 8 half sectioned. Looking south; vertical scale is six feet, horizontal scale is three.



Key:

	Redwood Plank
——	Edge of Feature
– – –	Edge of Fill Layer Within Feature
70	Flood Deposit
81 - 85	Late Phase of Fill
90	Early Phase of Fill

Golden Eagle Site
Figure 2
Feature 8 (Idealized Cross-Section
Showing Two Phases of Use)
Not To Scale

AP/NT 4/80

Features 16 and 27. To the south of this complex, a cross-section trench was excavated to further investigate Feature 14's stratigraphic relationship to Feature 8. The excavation uncovered a trench which was similar to Feature 14 but lacked a wooden lining. The bottom of this cut was lined with clean, yellow clay (see section 15). The technique of lining a drainage feature with clay to prevent seepage is not an uncommon find on medieval and earlier sites in Europe, and on 18th-century sites in the eastern United States. This will probably be identified elsewhere in Sacramento. The trench was designated Feature 16. As with the northern extension, Feature 16 was cut into Layer 70, the flood silt. Significantly, Layer 56, which sealed the feature, also overlay the top layer of Feature 8. A whole bottle recovered from this stratum provided it with a terminus post quem of 1864.

Under the silty fill of Feature 16, and partially overlain by Layer 70, was an earlier phase of the drain; this was designated Feature 27 (see section 15). In the 3 feet (90cm) of the length of this feature which was exposed, part of what was thought to have been a silt trap was discovered. This trap was simply a slightly wider and deeper portion of the drain, which had been designed to collect water-borne silt. With this contrivance, material had only to be cleaned out of the regularly spaced traps rather than from the entire length of the feature. The fill of the suspected trap, Layer 80, was noticably siltier and more homogeneous than that of the drain proper, Layer 79. It is postulated that Feature 27 had been filled as a result of the inundation of the 1861-62 flood waters, which had swept nearby loose soil and debris into any available hollows before its own silts, Layer 70, were deposited.

In summary, then, an unlined sump (Feature 8 first phase) was excavated into the subsoil at some time before 1859-60. Since the earliest historical record of the lot's occupation is dated 1859 (McGowan et al. 1978), it is likely that Feature 8's construction occurred between these two dates. The pit was fed by an unlined drain (Feature 27), which ran roughly north-south and had probably been provided with a series of silt traps (Layer 80). During the winter of 1861-62, the town was inundated by flood waters from the nearby Sacramento and American rivers, which deposited a layer of silt (Layer 70) over Feature 27 and the first phase of Feature 8. After the flood waters had subsided, the pit was re-dug, lined with wood, and a superstructure supported by wooden posts was erected around it. Either during its working life or after its abandonment, the pit's opening had been covered with redwood planks. The feature was fed by a drain or drains (features 14 and 16). This drain(s) had been lined for part of its length with wooden planks; elsewhere, clay had been imported from off the site for the purpose.

There is no definite proof of the specific function of these associated features. It seems likely, however, that water which accumulated in the middle of the blacksmith's lot was drained off by a make-shift conduit (such as Feature 16) into the settling pool (Feature 8). From this point, however, a more efficient, lined drain (Feature 14) would have been necessary since it had to pass out of the lot and connect with the city sewer.

Feature 8 and its associated drains went out of use and were filled in the mid- to late 1860s. Refuse from both the blacksmith's shop

(Roscoe, this report), on whose parcel the pit was located, and from the Golden Eagle Hotel, had been dumped on top of the lined features. Some of this material had filtered through cracks or missing boards in the pit's covering, and the void below became filled.

Area VI

The final area to be described is the western end of Trench E on the blacksmith's lot, designated Area VI. The relatively complex stratigraphy encountered in this trench was interpreted by references to an exposed vertical section (see section 10), which the building contractor had excavated 10 feet (3 meters) to the south of, and roughly parallel to, Trench E. Certain crucial relationships, which could only have been inferred using data from Trench E, were explicit in section 10. This portion of the study area was unique in that it showed evidence of mid-19th-century, city-wide events which can be related to activities on the lot.

The fires of 1852 and 1854 decimated much of the city. The effects of one or the other of these events was apparently represented by Layer 134, a thin but continuous charcoal and nail stratum which extended west from Wall G for approximately 9 feet (2.7 meters). Although there is no artifactual evidence that would allow the assignment of the layer to this period, the construction trench for Wall G cuts through the layer, providing a useful terminus ante quem of 1857. Overlying the construction trench was a thick silt deposit (Layer 131); this stratum was of similar composition to deposits which have been associated with the 1861-62 flood elsewhere on the site. Unfortunately, most of the Area VI materials were recovered from above these tightly dated contexts.

The presence of the charcoal stratum, Layer 134, suggested that a structure had been burned on the lot during one of the great fires. This layer provided one of the few indications, either archaeological or documentary, of occupation on the lot before 1859-60, when horseshoer L. B. Wells opened his business there (McGowan et al. 1978).

As Wall J was stratigraphically superior to Layer 131 (the presumed 1861-1862 flood deposit), it is probable that it was part of the structure shown on the 1866 Houseworth photo (pl. 1). This wall would have formed the western boundary of the parcel. It is regrettable that layers 50, 51, 52,and 60 (see section 9) cannot be more accurately placed in time. Their stratigraphic relationship to Wall J show them to be pre-1866 at the latest; no relationship was evident, however, by which they could be assigned to the period before the 1861-62 flood. If these data were available, the materials could have been used to address undocumented land use during the 1850s. The layers in question are particularly rich in organic material (wood and straw), suggesting an early link with the adjacent City Horse Market (Theodoratus and McBride 1978:5).

Evidence suggests that the depressions into subsoil which contained these deposits were not natural convolutions in the original ground surface but that 3 to 4 feet of soil had been removed from this area (see section 9). In other areas of the site where the original land surface had been exposed--notably to the east of Wall D and in Area VII--the terrain was as flat and featureless as one would expect on a flood plain. The

contour and elevation of subsoil at the east end of Area VI and to the east and west of Wall G (see section 10) further indicates that these convolutions were not natural. Since Wall J, which formed the legal edge of the lot, had apparently been constructed on top of the depression, one may assume that the excavation was done before any structure, which took up the width of the parcel, was built there. Although the function which this feature might have served is not known, it was almost certainly not intended for waste disposal. In most places along its length, only one-third to one-half of the depression had been filled in before the erection of Wall J. After the wall's construction, there was a consequent decrease in the rate of deposition, which is implied by the arrangement of layers that accumulated after the wall was built.

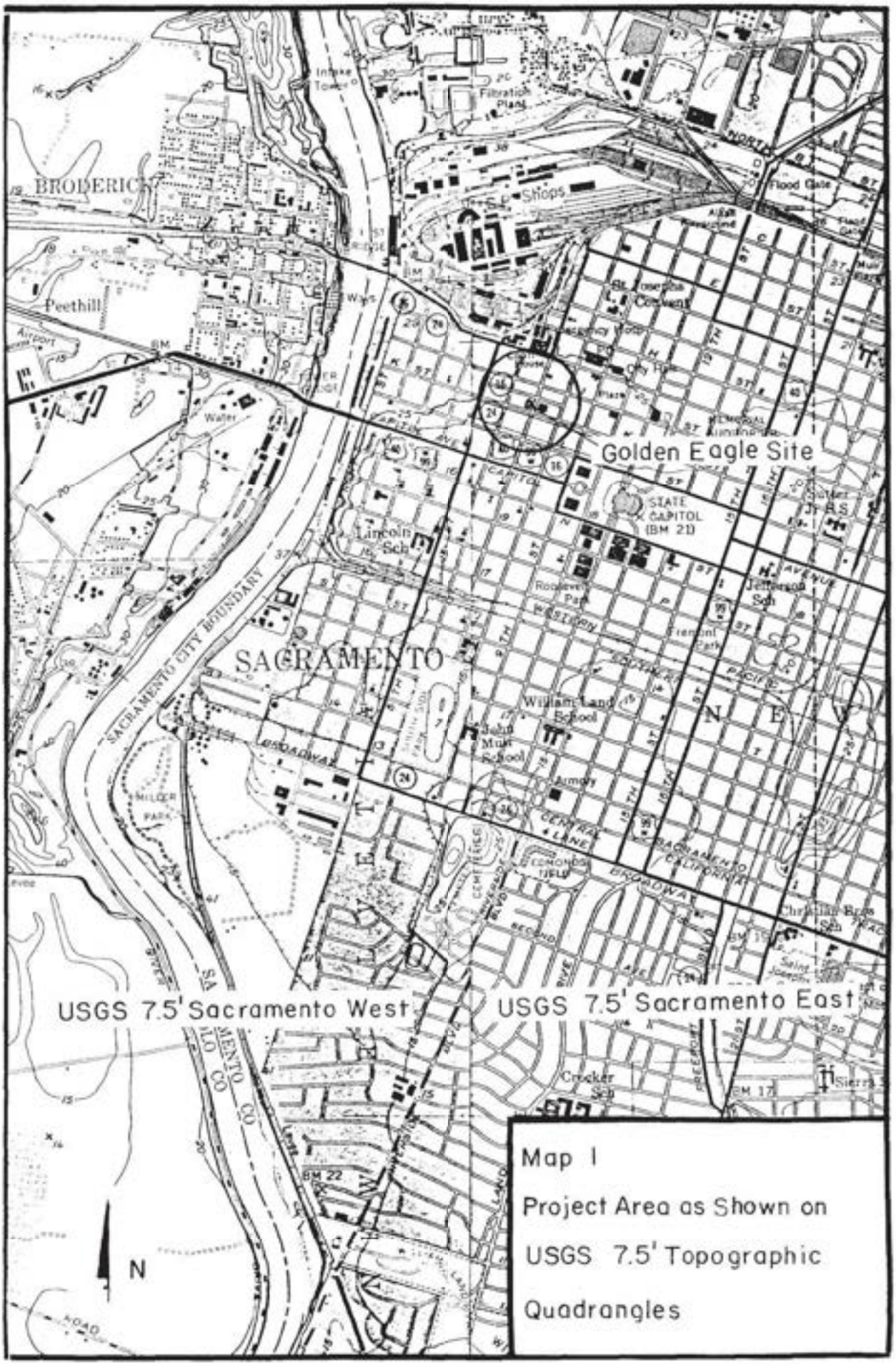
Since the depression had been dug before there was a building on the lot, the possibility exists that it was a linear feature, perhaps a drainage trench. If this is accurate, then the west half of Area VI would, in fact, not be cut perpendicular to the feature's axis, which archaeologists tend to assume on seeing a feature in section, but would be one along its long axis at an oblique angle. From the preceding evidence, it can be deduced that the feature was certainly formed before 1866 and probably before 1862.

The layers that accumulated after the construction of walls G and J and before the filling of the area with sand (Layer 30), were doubtless made up of waste materials produced by the blacksmiths and other metal workers who occupied the lot. Some archaeological evidence indicates that the basement, formed by the raising of the building, was used as a work area, at least for limited activities. During the hand excavation of Area VI, what appeared to have been a wood-lined pit (Feature 9) was discovered (see plan 5). This feature, cut from the surface of Layer 41, was 1 foot (30cm) deep by 4 feet 6 inches (1.3 meters) in length. Its width was never determined, as the feature extended into the north side of the trench. Feature 9 contained stratified deposits of heavily corroded metal lumps and nails in a friable matrix; the layers were very similar in composition to the soil that made up most of the Area VI deposit. It can be assumed that this lined feature had not been dug as a borrow or refuse pit. Considering the nature of the business being conducted, it is probable that Feature 9 served some industrial function associated with metal working. All that can be concluded with certainty about the use of this basement during the blacksmiths' tenure is that it was primarily used for refuse disposal and, to a limited degree, for some specific industrial purposes.

Layer 30 seemed to herald the change in the business orientation of the lot's occupant. The strata above this layer contrasted markedly with those below it in the high proportion of soil which the former contained. These stratigraphic data suggest that walls H and I were built after the blacksmiths' time. The mortar used in their construction is noticably harder than any other on the site, suggesting a later date.

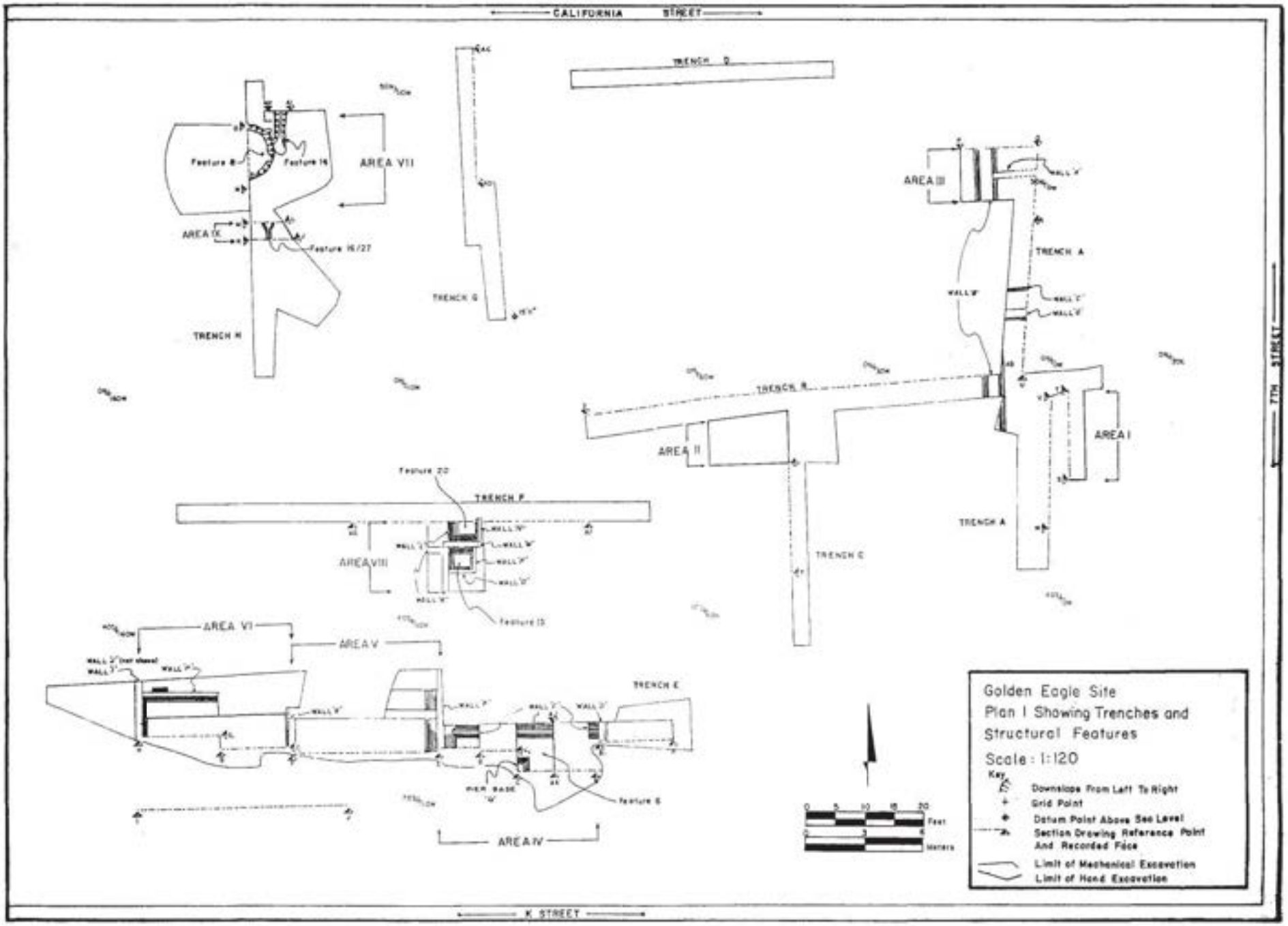
Also in Area VI was Feature 10, either a lined pit or a wide, thick pipe intruding into the layers below (see plan 5). The pipe was of a coarse, mineral-gritted stoneware, approximately 22 inches (56cm) in

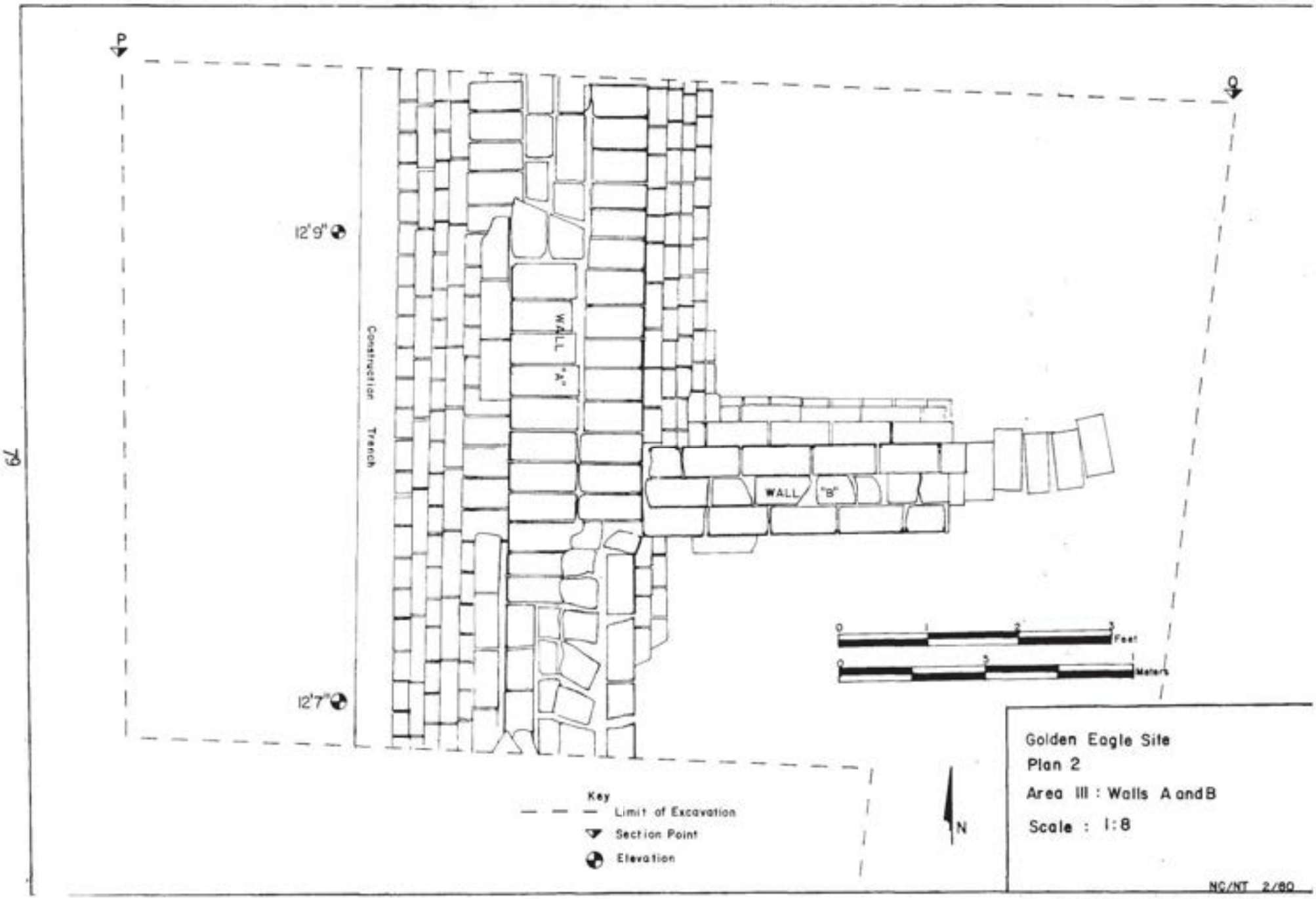
diameter; it was found capped with concrete. From the presence of the cap, it was speculated that the feature had been a privy; however, the fill was an unprivy-like sandy soil, containing much brick rubble but no chronologically diagnostic artifacts. Its stratigraphic situation--cut into Layer 30--indicated that it was a late feature, probably not constructed until the turn of the 20th century or later.



Map 1

Project Area as Shown on USGS 7.5' Topographic Quadrangles





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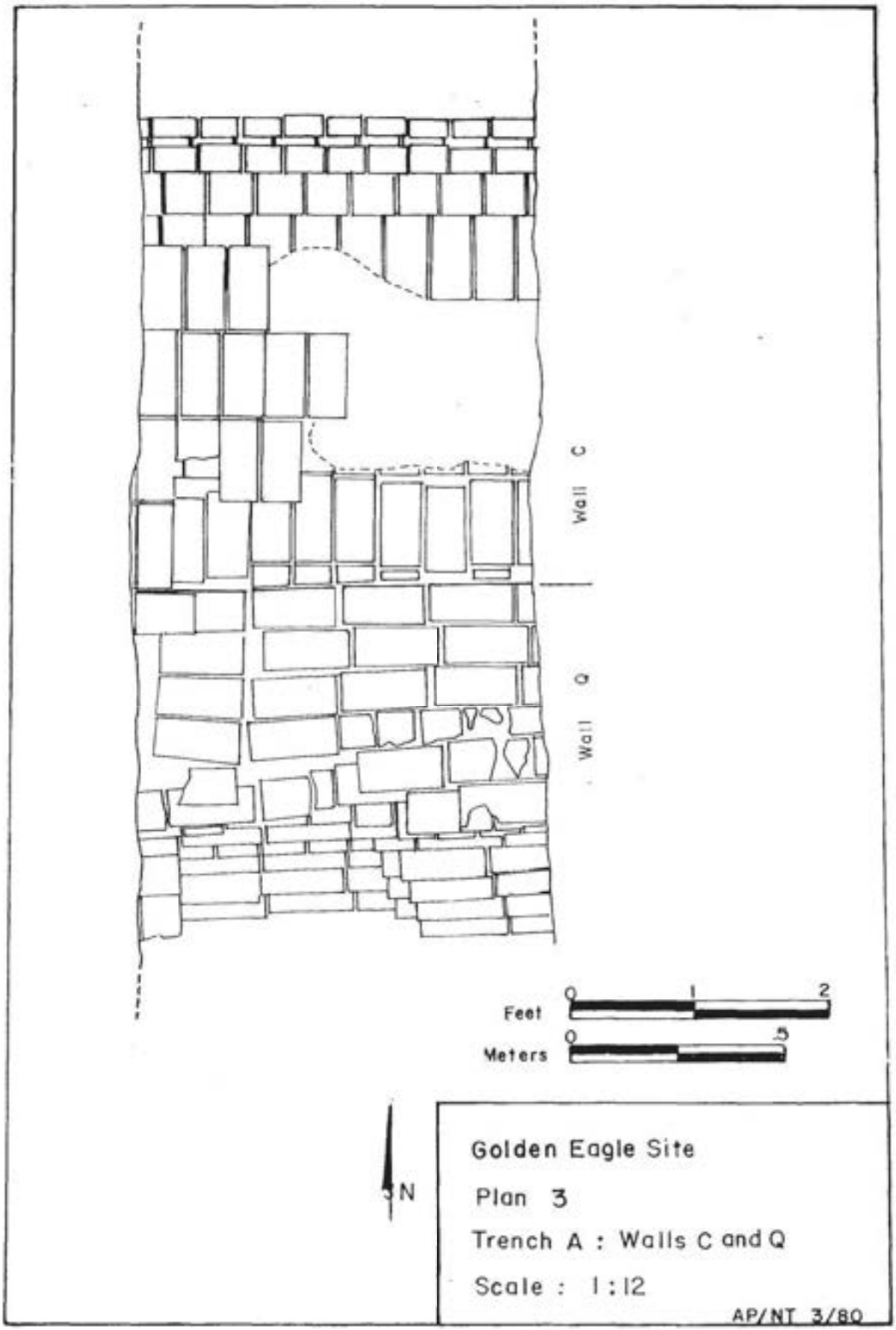
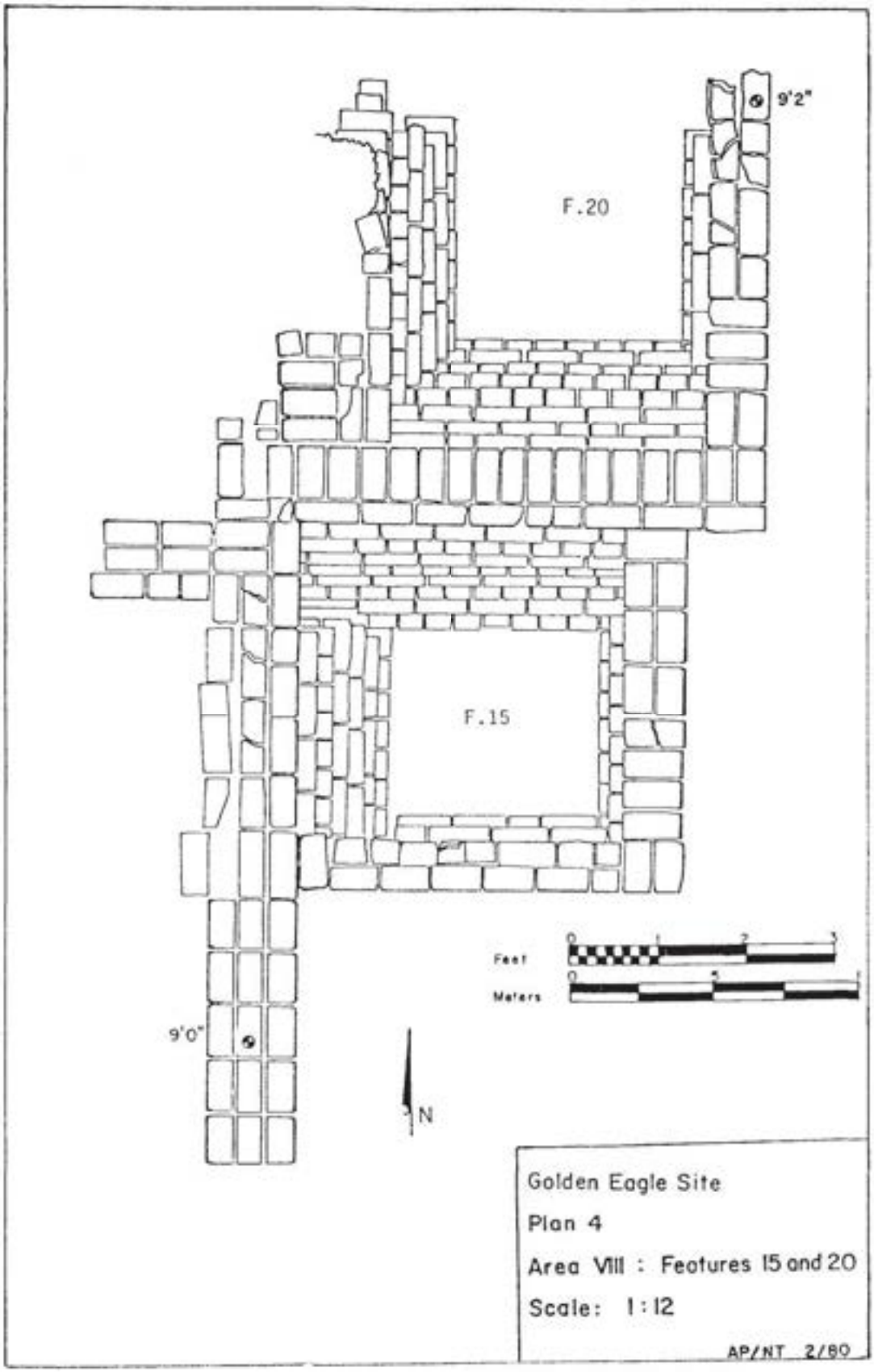
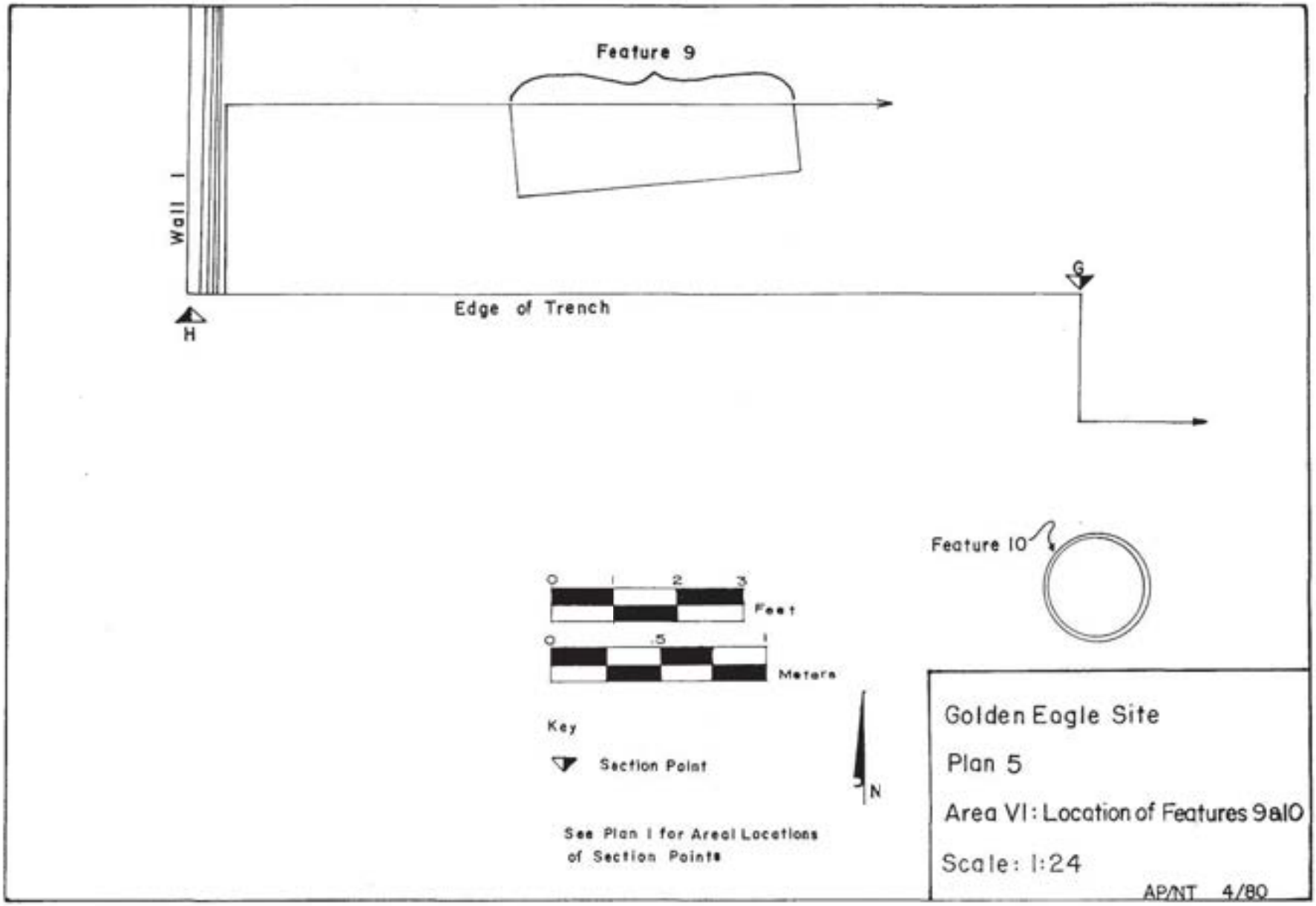
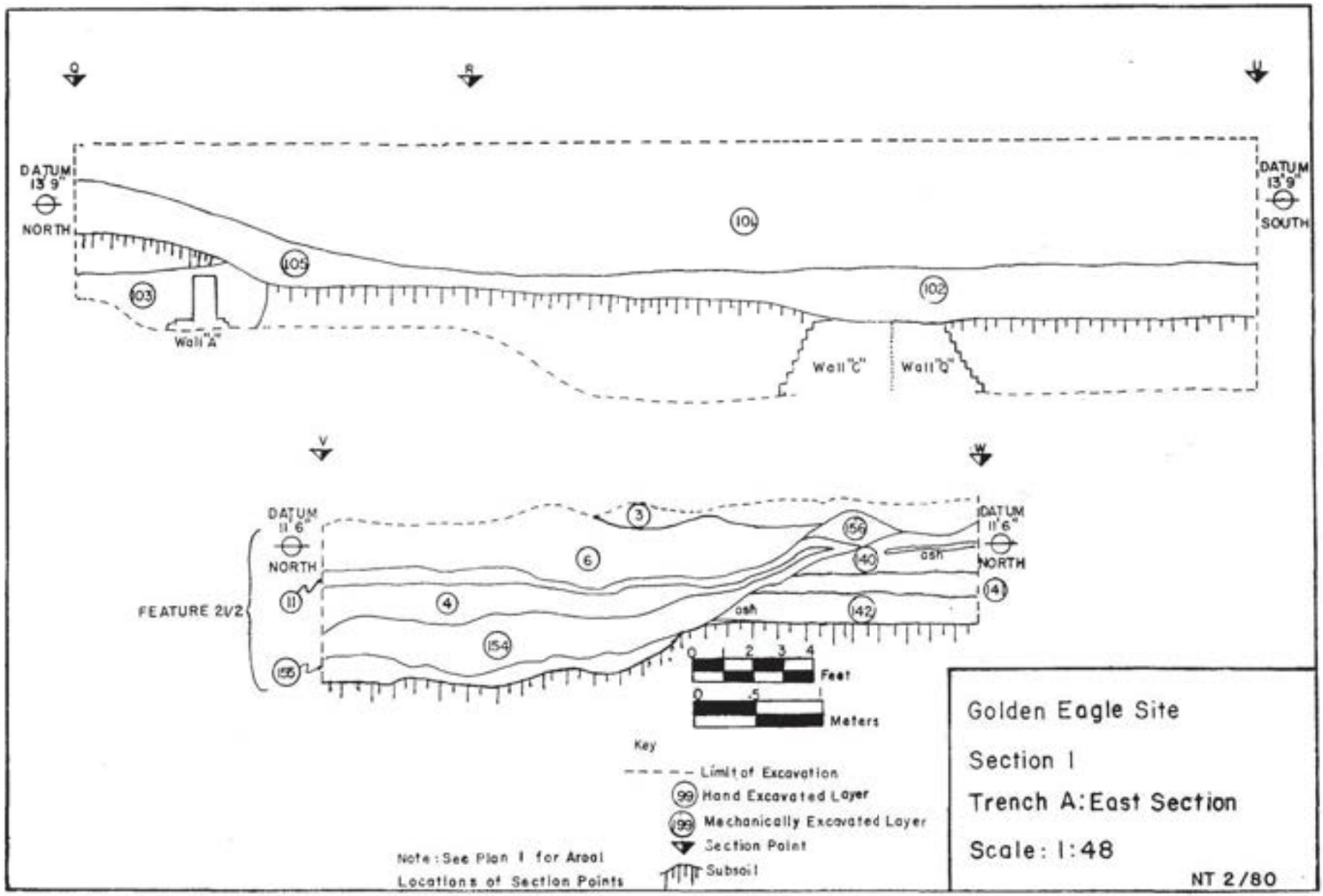
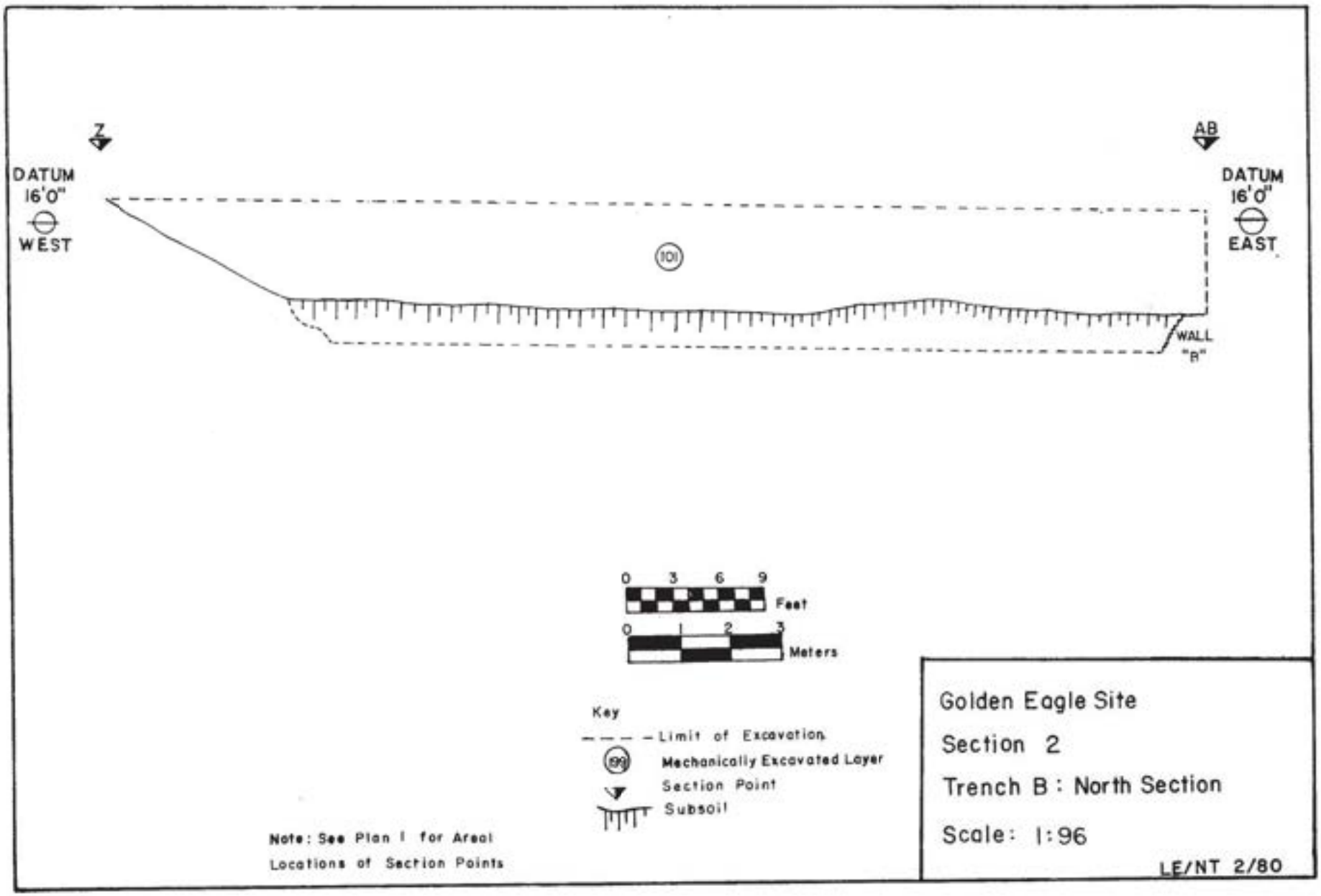
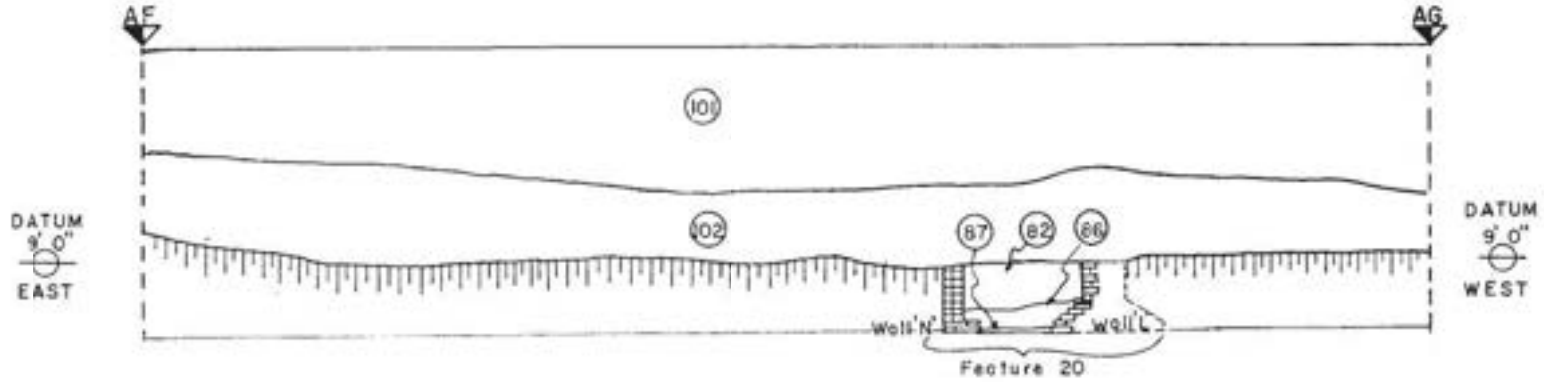












0 1 2 3 4 Feet

0 .5 1 1.5 2 Meters

Key

99 Hand Excavated Layer

199 Mechanically Excavated Layer

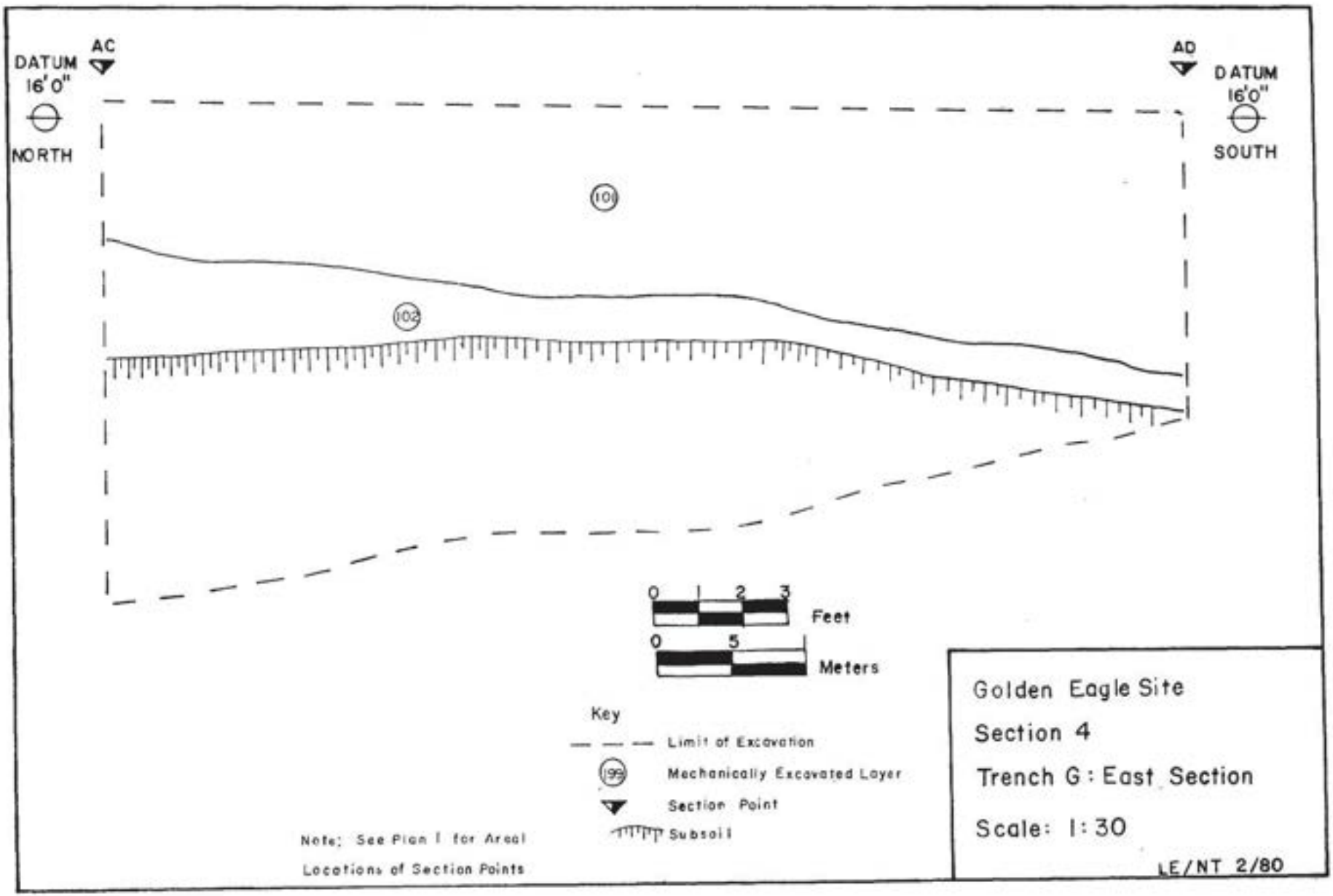
Section Point

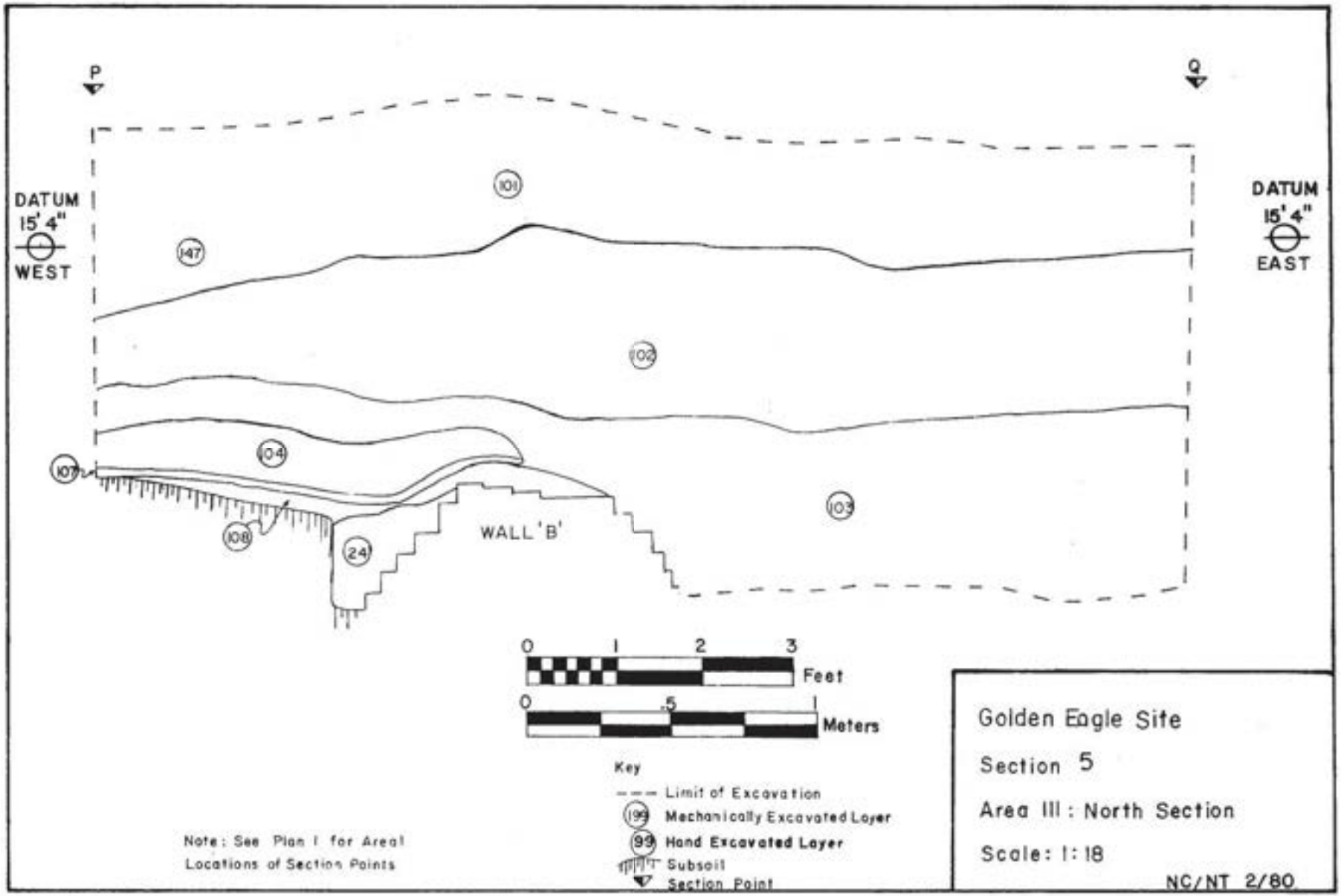
Subsoil

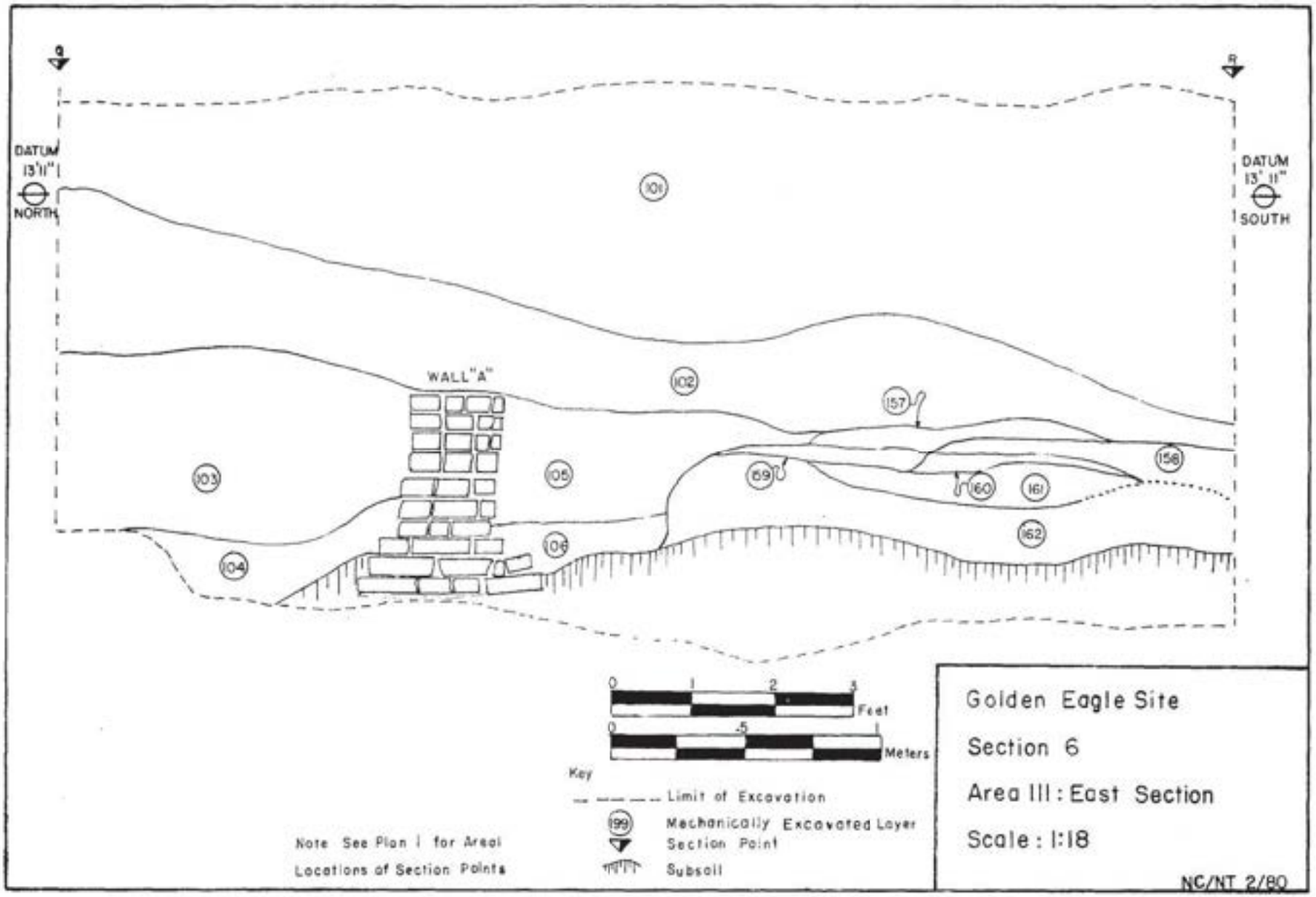
Note: See Plan 1 for Areal Locations of Section Points

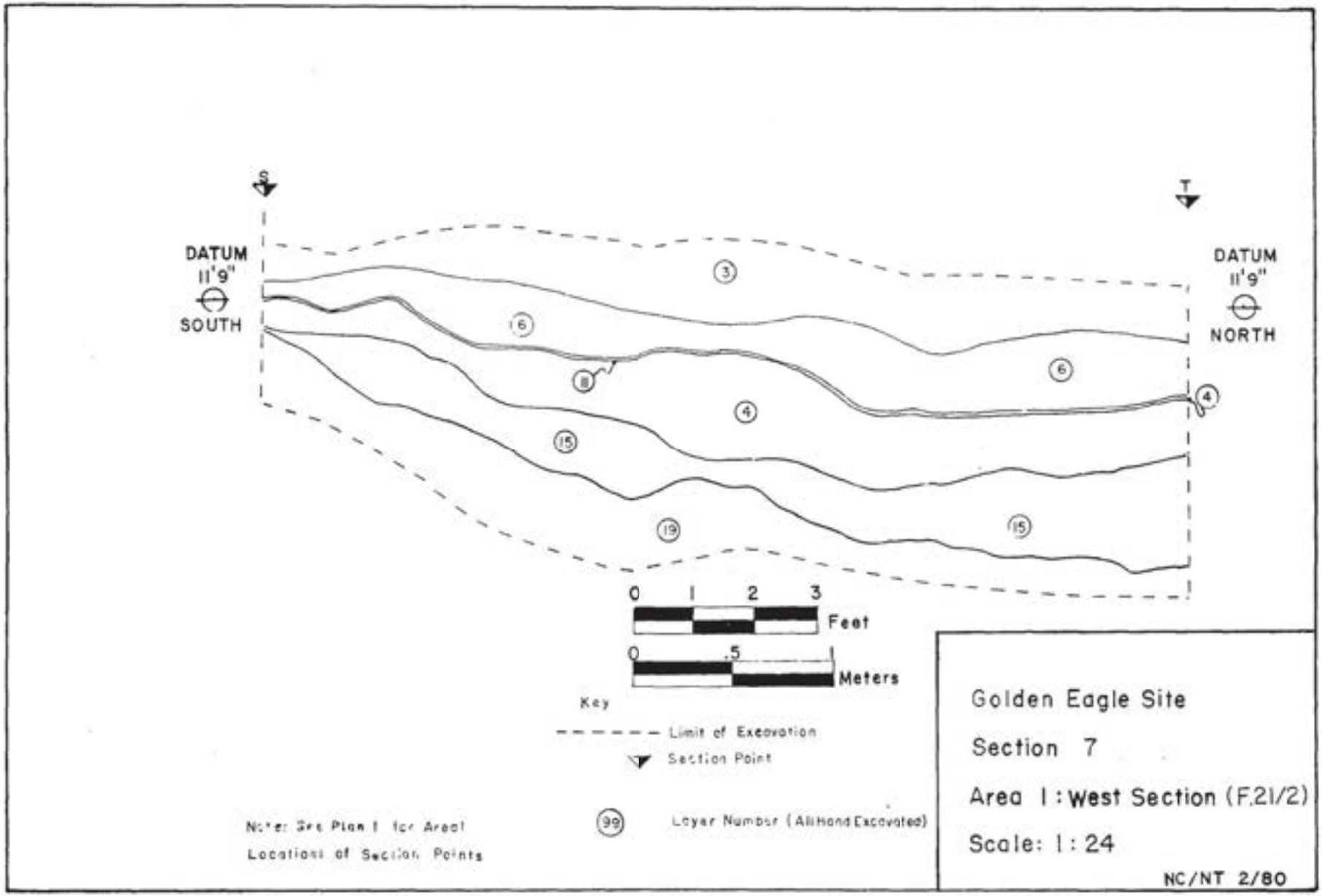
Golden Eagle Site
Section 3
Trench F : South Section
Scale : 1:60

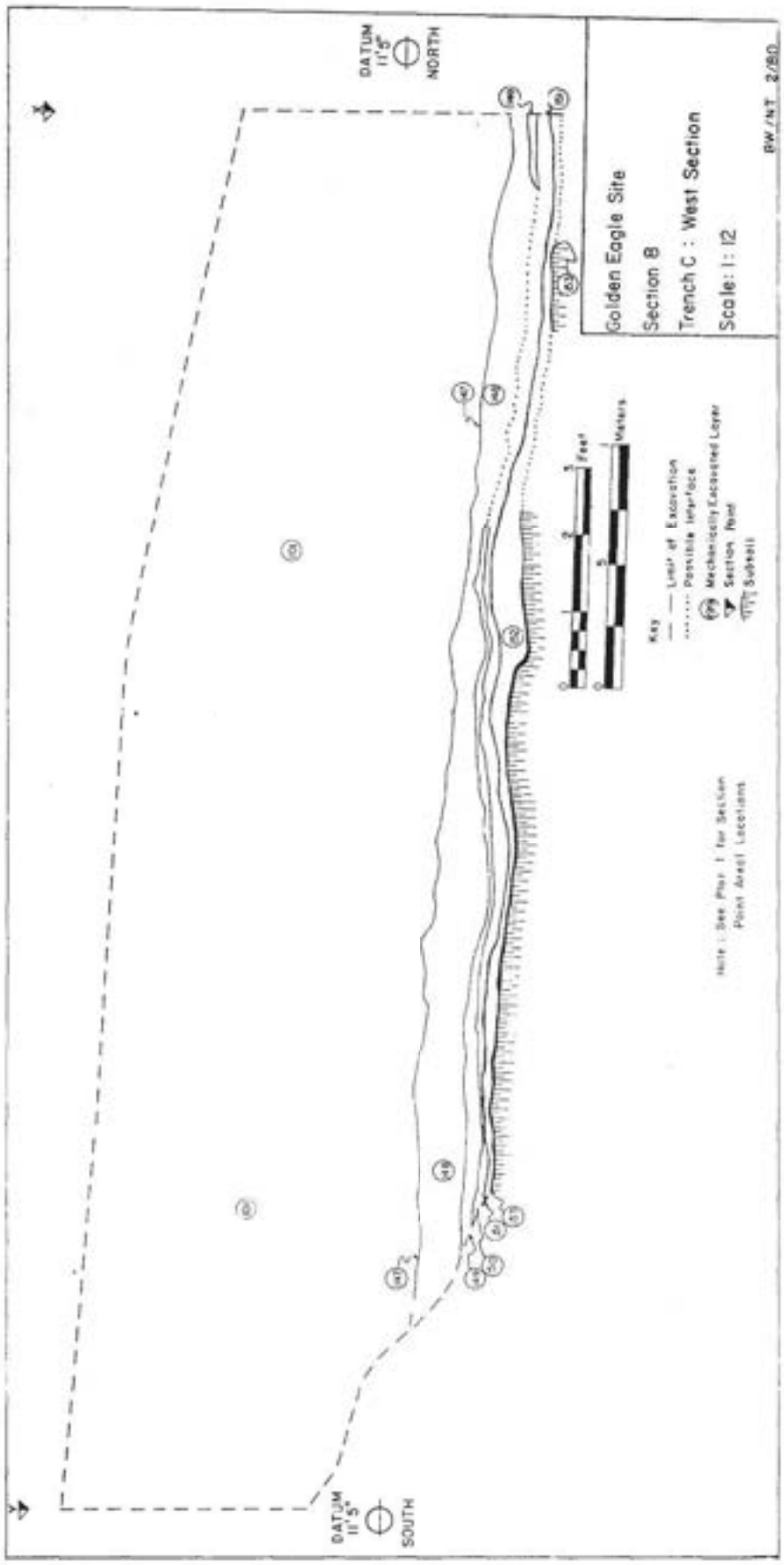
AP/NT 4/80









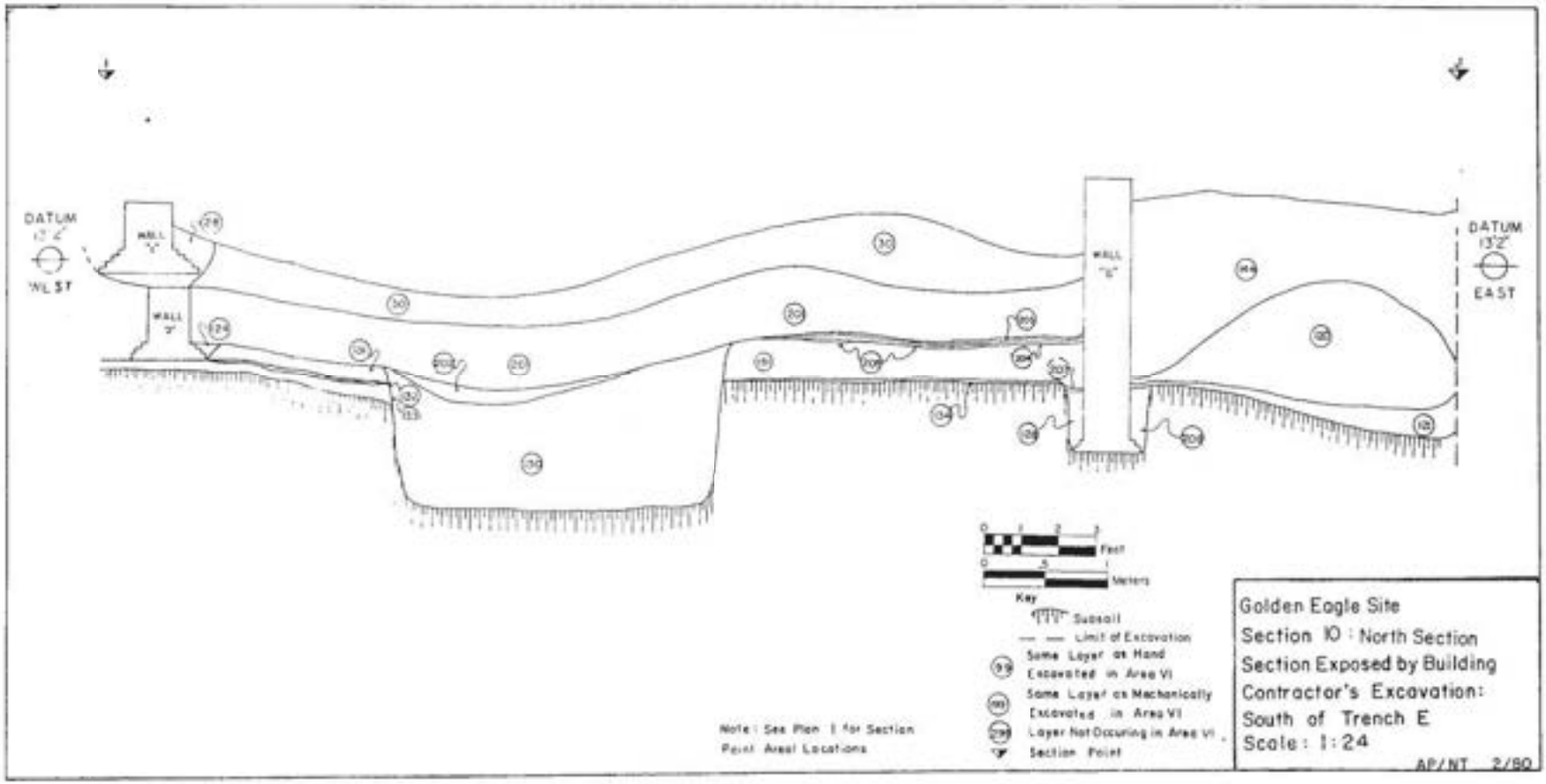

DATUM 11'5" NORTH
DATUM 11'5" SOUTH
Golden Eagle Site
Section B
Trench C : West Section
Scale: 1: 12
RW/NT 2/80
Feet
Meters
Key
Limit of Excavation
Possible Imp-Rock
Mechanically Excavated Layer
Section Post
Subsoil
Note : See Plan 1 for Section Point Areal Locations

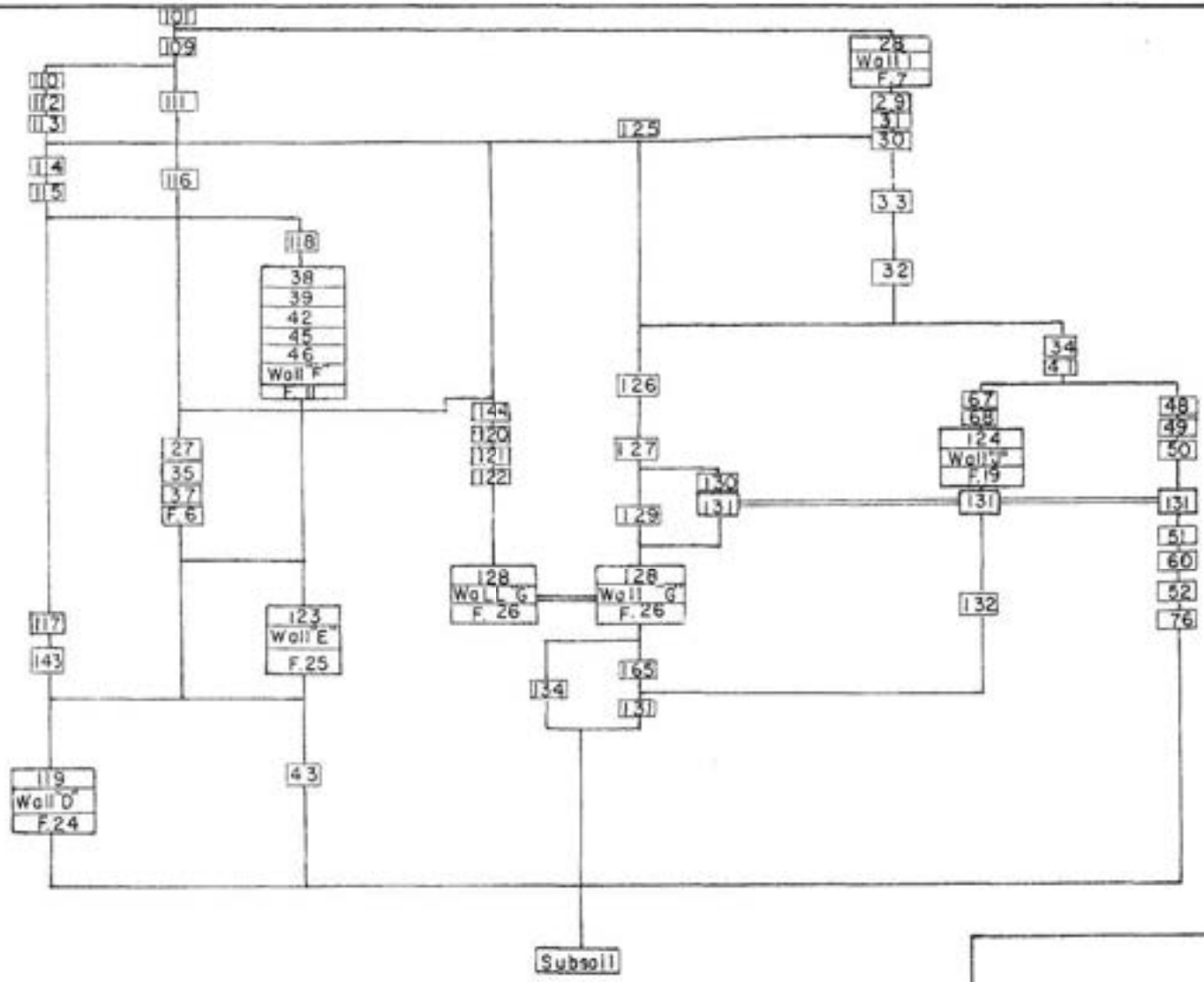
Oversized Map not included

Golden Eagle Site

Section 9

Trench E: South Section

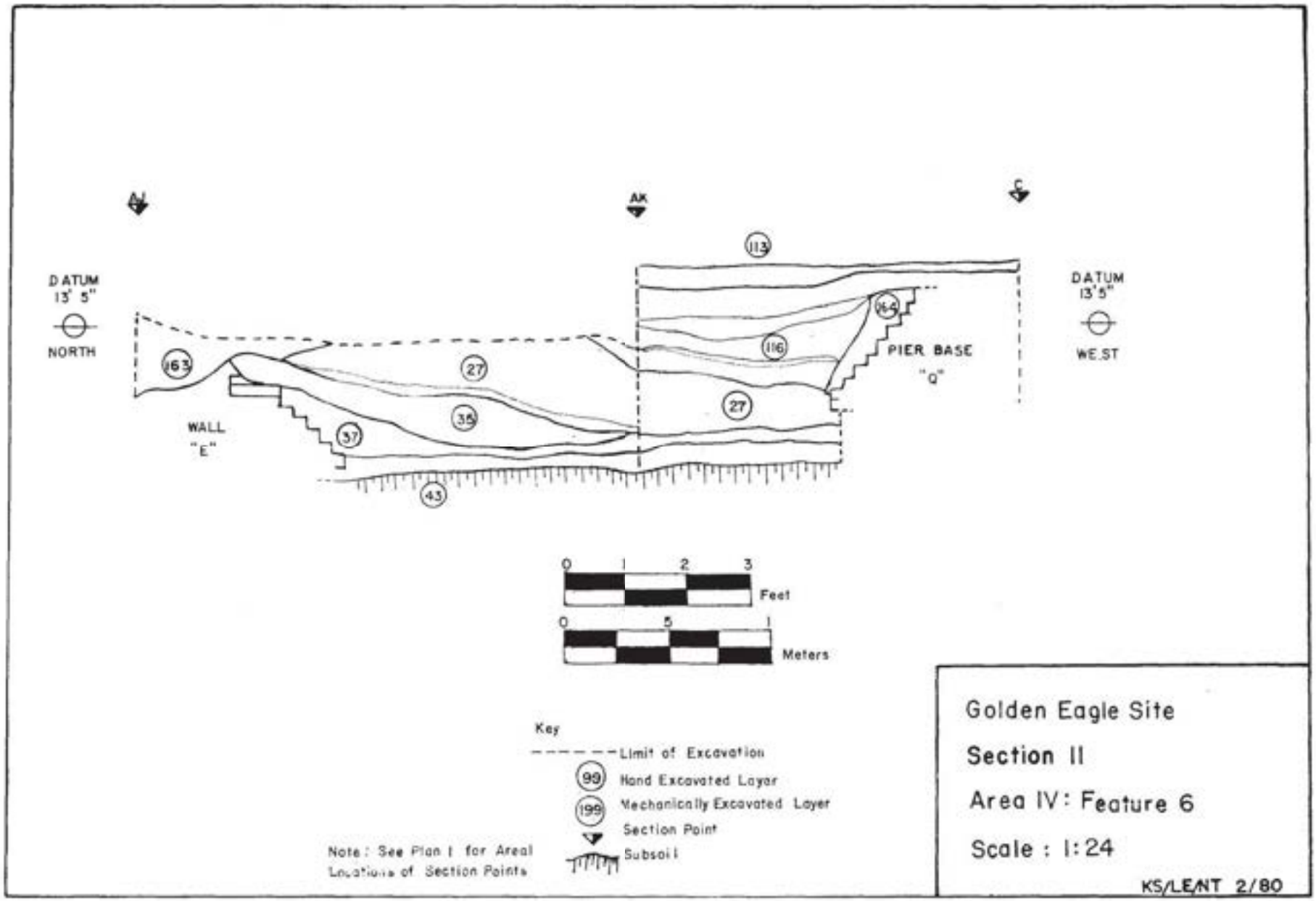


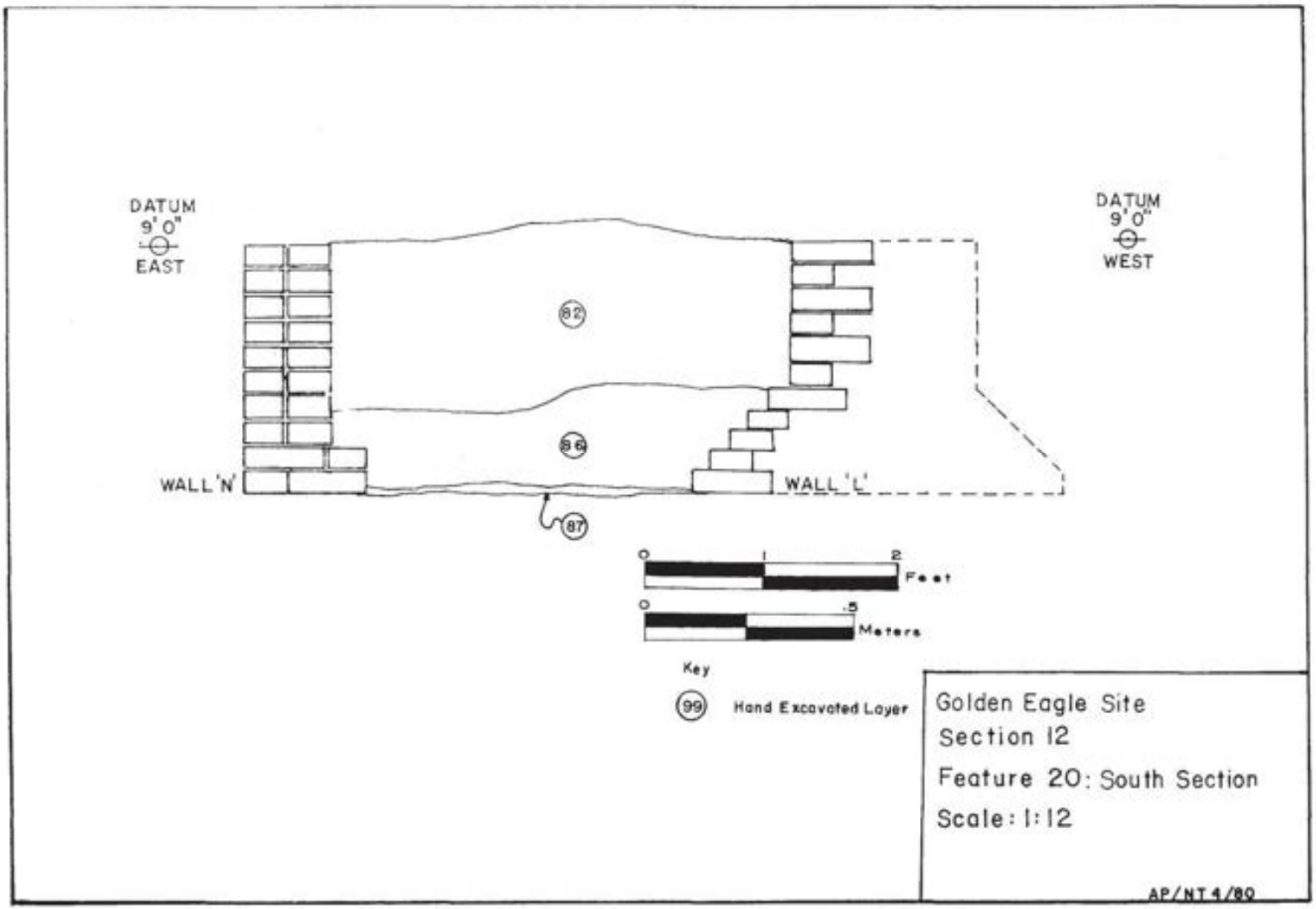


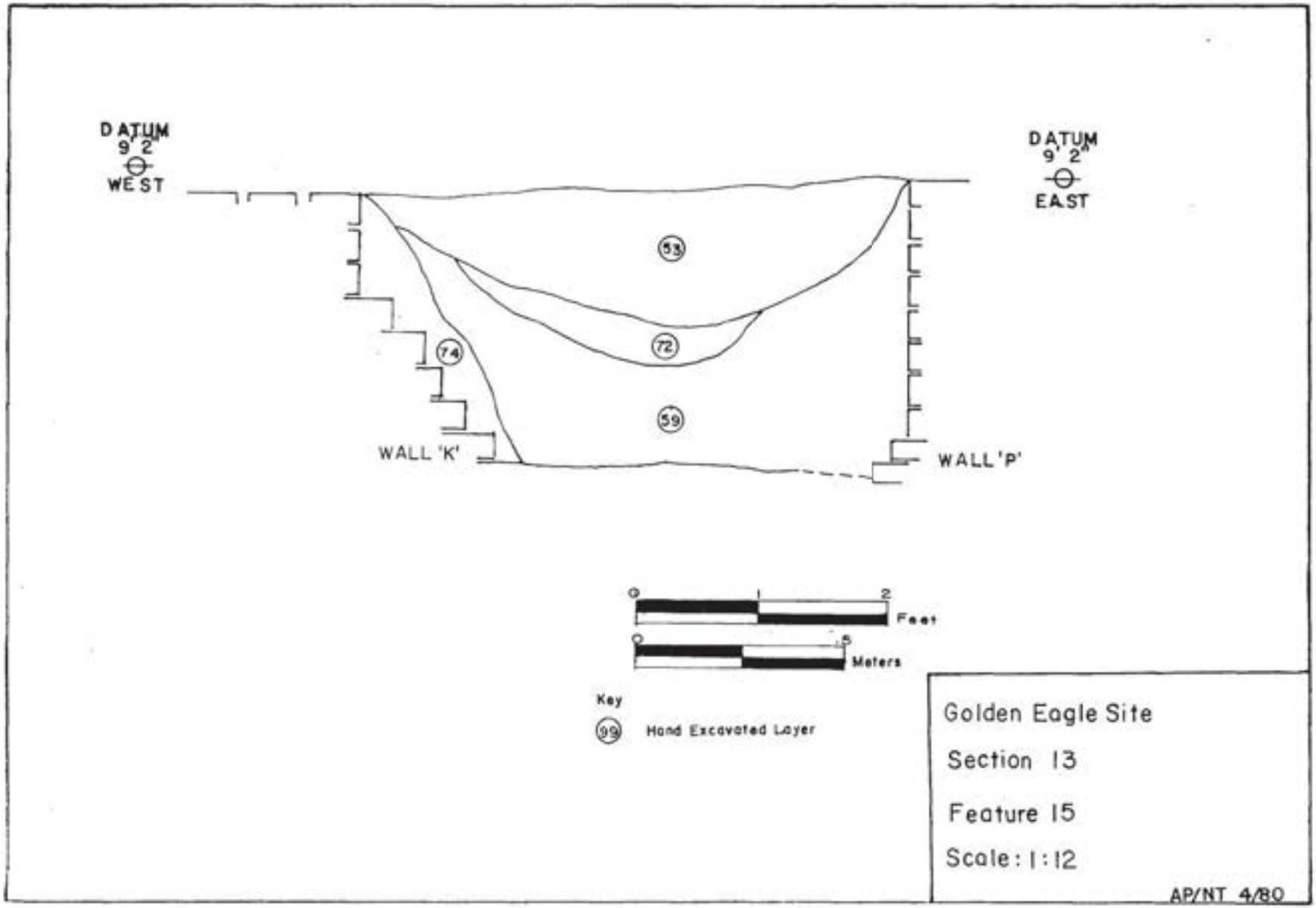
Matrix

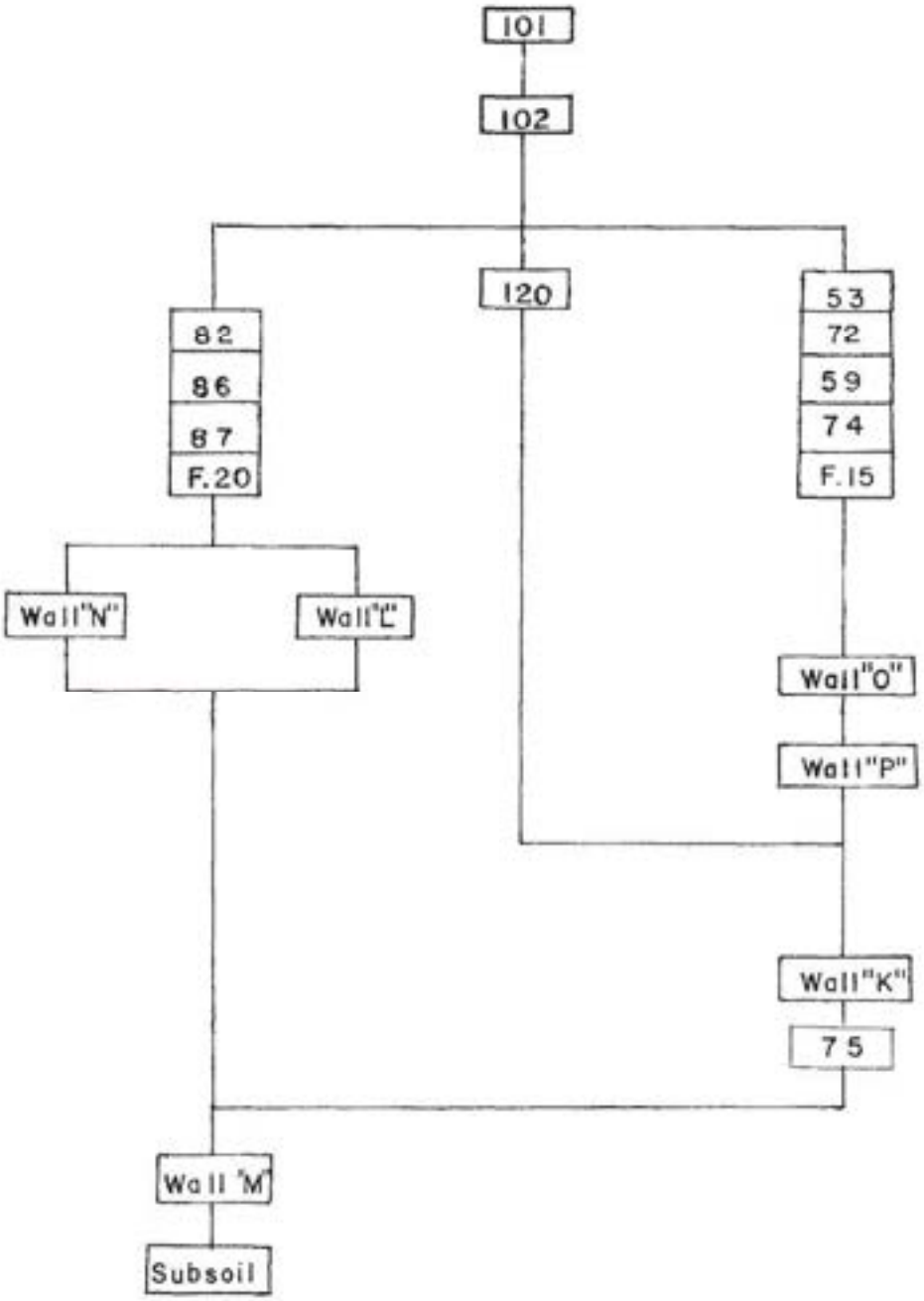
Trench E: Incorporating Stratigraphic Data From Sections 9 and 10

Figure 3



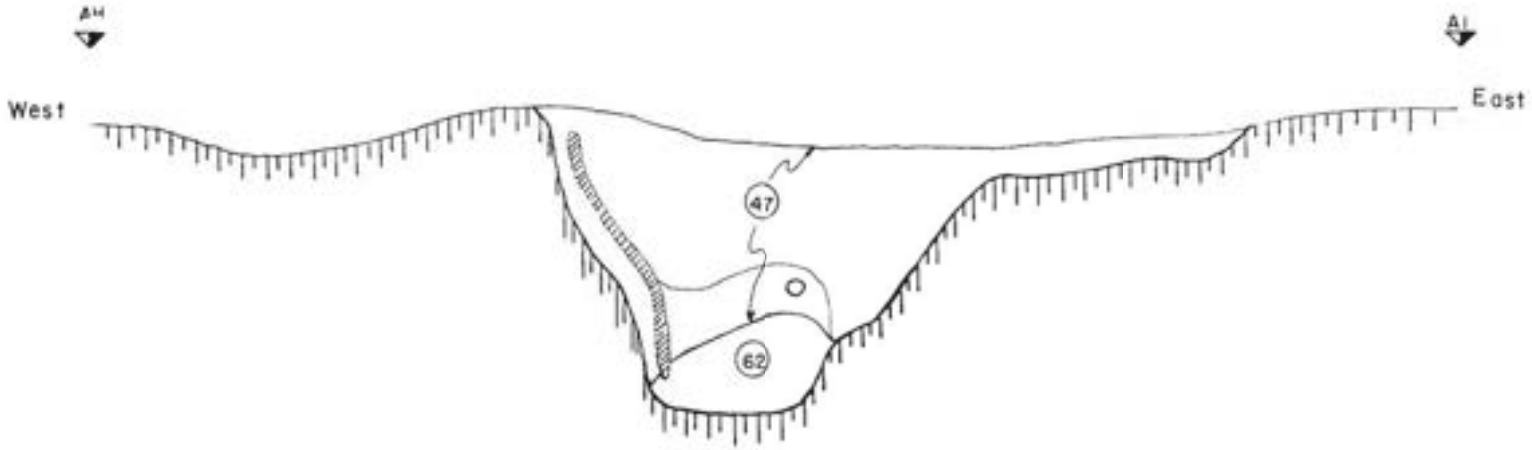






Matrix
Area VIII

Figure 4



0 1 Feet

0 .25 .5 Meters

Key

Section Point

Wood

Iron Pipe

Subsoil

99 Hand Excavated Layer

Note: See Plan 1 for Areal Locations of Section Points

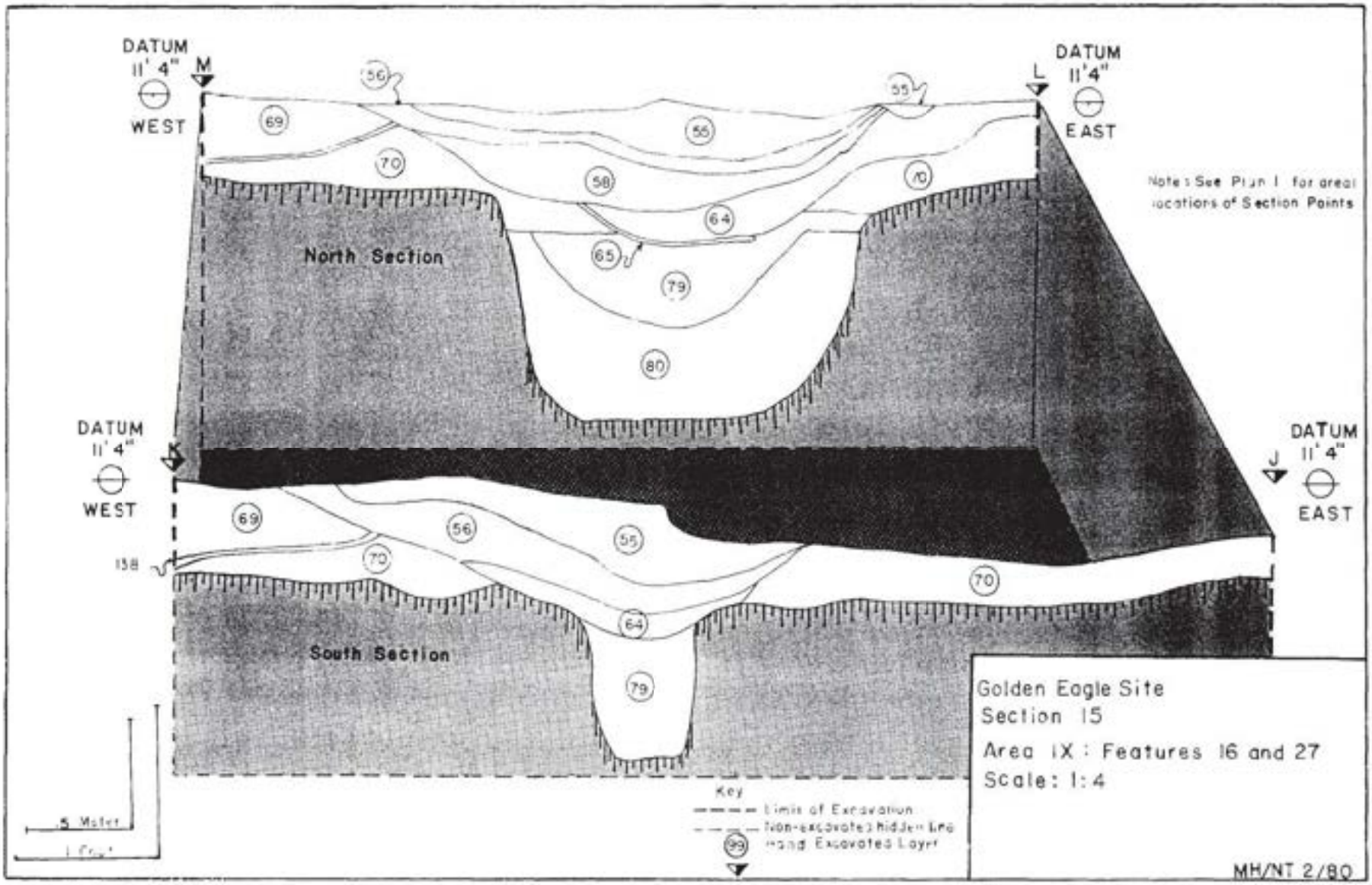
Golden Eagle Site

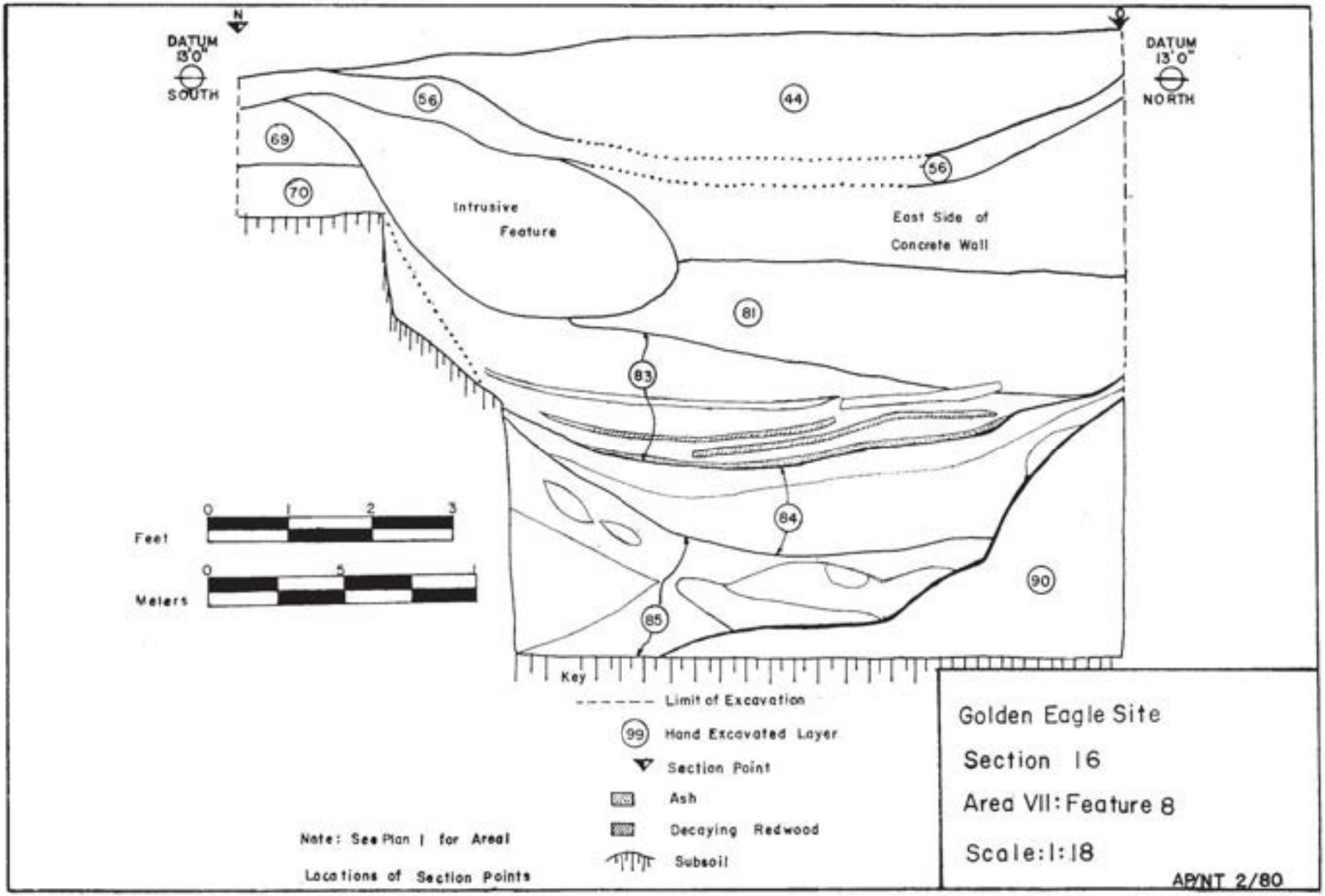
Section 14

Area VII : Feature 14

Scale 1:6

AP/NT 3/80





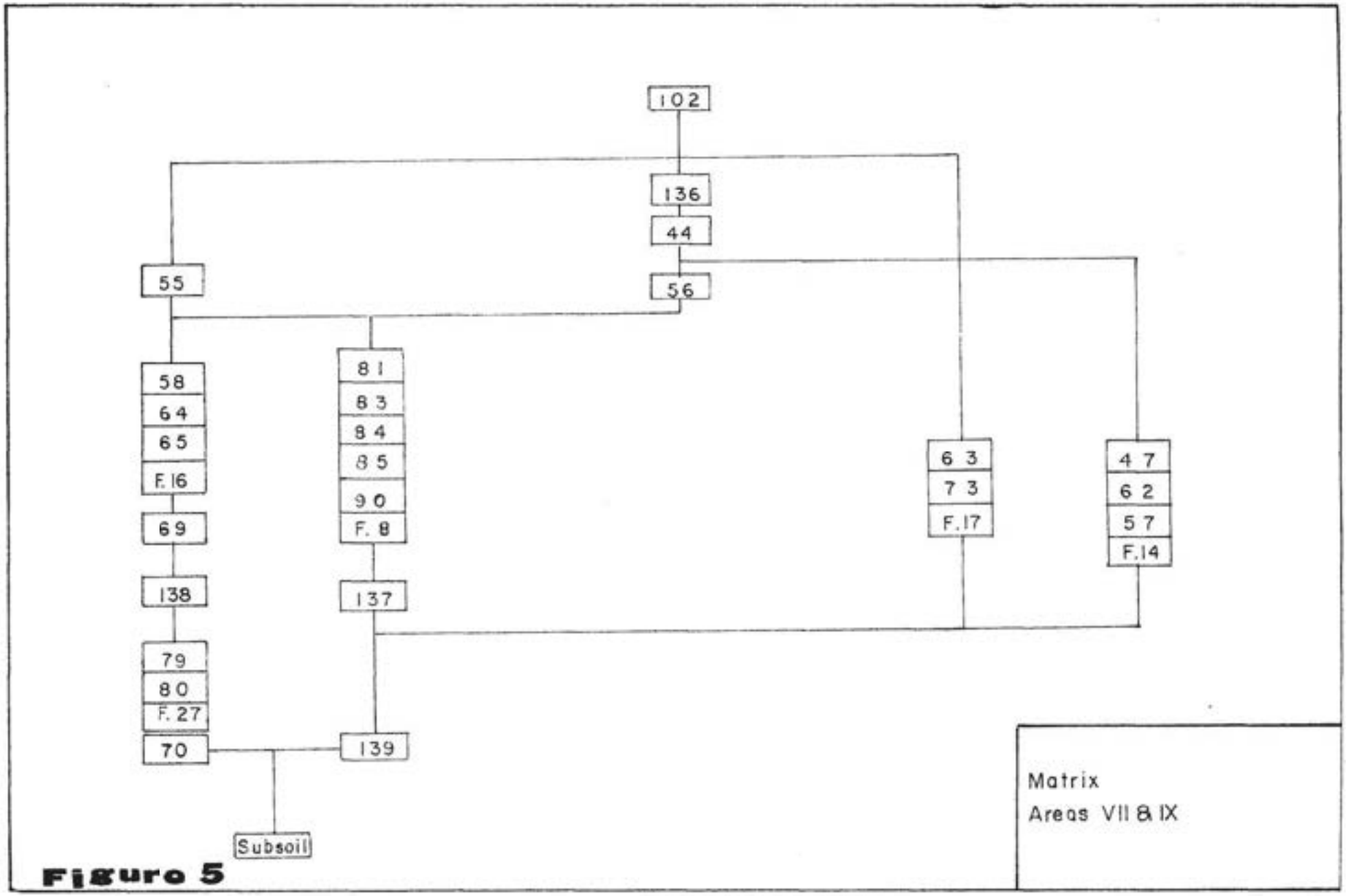


Figure 5

APPENDIX 2

Layer Descriptions

Layers 1-91 were hand excavated, 101-165 were mechanically excavated, and 210-208 were outside the main project area.

Layer

1 - Same layer as 3
2 - Same layer as 6
3 - Reddish-brown silt with some brick fragments
4 - Grey ash and sand with flecks of charcoal, brick, and bone
5 - Same layer as 3
6 - Mix of yellow-grey sand, grey sand, charcoal, and white ash
7 - Same layer as 4
8 - Same layer as 4
9 - Same layer as 6
10 - Same layer as 11
11 - Laminated grey-brown silt
12 - Same layer as 4
13 - Same layer as 11
14 - Brown soil and brick rubble
15 - Light brown sandy loam with much brick rubble and charcoal
16 - Greenish-grey clay with some brick rubble and gravel
17 - Black friable soil with mix of clay and charcoal
18 - Yellow-brown sandy clay with decomposed brick and lime
19 - Mix of sand, lime and,ash
20 - Light brown sand
21 - Several layers excavated together
22 - Grey-brown soil with decomposed brick
23 - Black silt with pockets of charcoal
24 - Dark brown sandy clay
25 - Brown-black silt with streaks of decomposed iron
26 - Sandy clay with brick rubble
27 - Oyster shell, brick, and lime dust
28 - Light sandy loam
29 - Blackish-brown soil with some iron fragments
30 - White and gold sand
31 - Grey sand with many coal fragments
32 - Two layers excavated together: blackish-brown clay-loam with coal, iron, and charcoal; silty clay with charcoal and coal and some iron
33 - Grey-brown soil with iron and coal fragments
34 - Three layers excavated together: dark brown sandy clay with iron; charcoal and brown clay; charcoal
35 - Two layers excavated together: grey-white ash with charcoal flecks; lenses of clay loam and plaster
36 - Part of Layer 41
37 - Black silty clay
38 - Brick rubble
39 - Brown clay-loam
40 - Friable grey-brown sandy soil with much brick rubble
41 - Grey rust-streaked clay with much iron
42 - Pale yellow sand

43 - Grey-yellow silty clay mix with brick rubble
44 - Limestone rubble
45 - Grey limestone dust and fragments
46 - Limestone rubble
47 - Mix of grey silt, brown clay and charcoal, and ash; much window glass
48 - Dark grey crumbly clay with rust streaks
49 - Grey-green clay
50 - Thin lens of dark grey crumbly clay
51 - Two layers excavated together: grey-green clay; green clay and decomposed wood
52 - Green clay, straw, and wood
53 - Loose mix of sand and lime-dust mortar with some brick rubble
54 - Altered subsoil: light grey clay stained green
55 - Laminated light golden-brown silt
56 - Fine black coal or coke dust
57 - Decomposed wood lining
58 - Medium brown sandy silt
59 - Black organic soil
60 - Green clay with decomposed wood
61 - Rusty brown soil with much iron
62 - Mix of ash, grey silt, brown clay, charcoal, and window glass
63 - Brownish grey silty clay with limestone rubble
64 - Brown sandy silt
65 - Yellow clay
66 - Green-yellow mottled clay with rust streaks
67 - Dark brown clay with much brick rubble
68 - Orange sandy soil with brick fragments
69 - Brown silty soil
70 - Grey silt
71 - Light brown silty soil
72 - Charcoal and orange-brown clay
73 - Grey clay with ash and charcoal
74 - Black organic humus-like soil
75 - Lens of decayed mortar and brick
76 - Light brown sandy soil
77 - Parts of layers 81 and 83, which were excavated together
78 - Brown sandy clay
79 - Brown sandy clay
80 - Grey-brown clay
81 - Friable brown loam with brick rubble
82 - Dark grey-brown clay with brick rubble
83 - Loose brown clay with lenses of green clay and decomposed wood
84 - Two layers excavated together: light brown-green clay; grey-green clay
85 - Numerous lenses and layers excavated together; in general, a fine, grey-brown silty clay
86 - White-grey ash
87 - Layer of sand, brick, and mortar
88 - Material bagged under this number came from layers 77, 81, 84, and 83
89 - Most material bagged under this number is from cleaning on top of features in Area III; some is from Layer 24
90 - Light green-grey silty clay with charcoal
91 - Brown crumbly soil with iron fragments

101 - Light brown silty clay. Same layer as 146
102 - Brown silty clay-loam with rubble
103 - Heavy brick rubble in matrix of brown sandy mortar
104 - White faced wall plaster on backing of sandy mortar
105 - Compacted brown soil with brick rubble
106 - Two layers: brown silt and grey clay with brick fragments; mortar driven into subsoil
107 - Coal dust
108 - Decomposed salmon-colored brick
109 - Asphalt surface
110 - Pebbles and coarse sand
111 - Brick and plaster fragments in brown soil matrix
112 - Brick rubble in brown soil matrix
113 - Concrete surface
114 - Ash and charcoal
115 - Dark brown clay
116 - Wall plaster
117 - Dark brown clay
118 - Brown clay with brick fragments, plaster, and oyster shells and fragments
119 - Mix of grey-brown clay with charcoal and iron staining
120 - Limestone rubble and dust
121 - Coke dust
122 - Limestone rubble and dust
123 - Brown-grey clay with plaster and brick fragments
124 - Sandy brown-grey soil
125 - Compact brown sandy soil with streaks of iron
126 - Crumby grey soil with slag fragments
127 - Sand with much rusted and burned metal
128 - Grey clay
129 - Brown sandy soil
130 - Grey-brown sandy soil
131 - Tan-grey silt
132 - Charcoal
133 - Tan-grey silt
134 - Charcoal
135 - Area of iron-stained subsoil
136 - Limestone rubble
137 - Charcoal and brick fragments
138 - Black burned soil
139 - Same layer as 70
140 - Yellow-grey silty clay with ash lenses
141 - Orange-grey sand
142 - Yellow-grey sandy clay
143 - Grey silty clay
144 - Limestone dust and fragments
145 - Brwon clay with brick fragments, plaster, and oyster shell
146 - Same layer as 101
147 - Layer of decomposing grass
148 - Brown silt with brick, glass, and rock fragments
149 - Light brown sand
150 - Black-brown mottled clay
151 - Charcoal with iron fragments
152 - Dark brown clay with brick fragments. May be same layer as 22
153 - Charcoal

154 - Golden-brown sand with brick fragments
155 - Grey sandy silt with brick fragments
156 - Sand, ash, and charcoal
157 - Grey silty loam with brick fragments
158 - Pale grey silt
159 - Yellow-brown clay with brick fragments
160 - Sandy silt
161 - Grey micaceous silt
162 - Grey-brown silty clay
163 - Brick rubble, pebbles, and iron fragments
164 - Mix of sand, limestone dust/mortar, oyster shell, and brick fragments
165 - Grey silt

201 - Iron fragments and conglomerate in matrix of grey clay/soil (50%/50%)
202 - Grey sand
203 - Brown silty clay
204 - Brown sandy silt
205 - Coke fragments and dust
206 - Same layer as 131
207 - Coke dust and fragments
208 - Same layer as 128, but with glass fragments

IMPLICATIONS

by

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INTRODUCTION

The research questions developed before the initiation of field work and those generated during excavation were limited to the Golden Eagle site. These goals have been rephrased in a more general manner to address broader anthropological questions. The research directions which are outlined could be pursued in future archaeological and historical work in Sacramento, and perhaps in other urban areas as well.

The "formation process" is an essential element of this discussion. Although it is purely an archaeological problem, an understanding through historical research of the "formation process" on a site can indicate those time periods when the archaeological record is most likely to be substantial and can make significant contributions to the study of urban process.

Variability is suggested as a suitable index for intrasite and intersite comparison to elucidate changes or differences in site function or in the ethnic, economic, or social status of the site occupants. As the potential of each class of artifacts is discussed in Part Two, this section concentrates on the meaning of variability of artifact classes within a feature. In order to operationalize this variable, however, an understanding of the cost and availability of consumer items through time is necessary. As cost and availability are linked to trade networks, these phenomena are discussed together. Data from the Golden Eagle site clearly show that these elements of the economy can be profitably reconstructed through a combination of archaeological and historical sources.

Finally, it is proposed that the Golden Eagle assemblage is a manifestation of the material correlates of the dominant cultural group in popularized form. This collection may be used, therefore, as a base line from which to measure cultural diversity and economic status on other sites.

URBAN SITE-FORMATION PROCESSES: IMPLICATIONS FOR GENERAL RESEARCH DESIGN

An understanding of the processes by which cultural deposits are formed is a requisite for the interpretation of archaeological data. Prehistorians have long used assumptions about their sites' formation as aids to the interpretation of artifact assemblages and site function and operation. Reher (1977), for example, used this approach as the basis of his study of a unique bison kill site by beginning with the assumption that the discrete associations of bone on the site were primary depositions, the results of on-site butchering. Many historical archaeologists working on urban sites, however, have failed to recognize the interpretive potential of their sites' "content" (as defined by South 1979) beyond its use in establishing chronology (e.g., Harris 1977). This discussion of site-formation processes will explore further applications of the following general proposition:

> With increasing site population (or perhaps site size) and increasing intensity of occupation, there will be a decreasing

correspondence between the use and discard locations for all elements used in activities and discarded at the site (Schiffer 1972:162).

The material items which are the subject of archaeological study are involved in five processes during their life: procurement, manufacture, use, maintenance, and discard (Schiffer 1972:158). At the last of these stages, an object enters the archaeological context through one or another "disposal mode." Until fairly recently, only primary and secondary deposits were recognized by archaeologists (Binford 1978:344). Schiffer (1972:162, 1977:30-31) enlarged upon the simple concept of secondary deposition to conceive of de facto refuse. Later, South (1979), listed several disposal modes and correlated them with the type of refuse they produced, for example, dropping creates primary refuse; tossing, secondary refuse; and abandoning, de facto refuse. South (1977) assigned transcendent significance to refuse-disposal patterns and suggested that work with these had the potential to produce anthropological generalizations.

In his original research design for the Golden Eagle site, Schulz (1979) observed that contributions to the archaeological record will vary in accordance with the timing and nature of historical events and behavioral episodes. Archaeological deposits on historical sites may be seen to reflect either periods of continuity or intervals of transition in site occupation or use. Discard occurring during periods of continuity often produces "sheet refuse," or gradually filled features. While specific rates of discard will depend on the intensity of site use and levels of consumption, continuous deposits are usually formed over periods of several months to several years. Because they accumulate gradually, these deposits are highly susceptible to depositional and post-depositional disturbance. Using the principle of superposition, archaeologists can employ material assemblages recovered from continous deposits to examine a variety of research problems. These deposits are, however, less likely to yield the quality of discrete associations which characterize deposits formed during intervals of transition. Transitional deposits accumulate very quickly, often through a single depositional event in response to abrupt change in the nature of site occupation. Such deposits are more likely to retain their integrity than are continuous deposits and, therefore, possess both greater visibility and focus in the archaeological record (Deetz 1977:94). In addition, the periodic character of transitional deposits is often a sensitive indicator of the nature and tempo of social and cultural change.

Although continuous and transitional deposits are found on both rural and urban sites, their presence in each setting reflects different historical and behavioral factors, with transitional deposits exhibiting the most marked difference in this respect. On rural sites, especially those occupied by individual households for long periods of time, the periodicity which characterizes transitional deposits is mainly the result of the developmental process of the domestic group and, more specifically, the timing of inheritance and property transfers (Brown 1976 and unpublished data). On urban sites, transitional deposits are the result of changes manifest on two levels: (1) those which result from new use

of a particular parcel relating to the presence of a different commercial enterprise, occupant, or owner, or from modifications made by a continuing one; and (2) those produced by widespread responses to either natural disaster, such as floods or fires, or municipal regulations governing sanitation practices, water delivery and storage, or street and lot improvements. These latter transitions are clearly interrelated, as natural disasters often prompt regulatory responses to the problems of public health and safety which their occurrence creates. More broadly, these transitions may be viewed as the movement of cities away from unplanned growth and development toward urban planning for the welfare of all their residents--a transformation which is most notable in western America during the second half of the 19th century. It is during this period as well that many of the public-works projects took place which resulted in large-scale modification of the urban landscape in the form of extensive filling and grade alteration (e.g., street-raising in Sacramento). In many cases, these filling projects reflected changing attitudes towards public health (Barber 1978).

Features of the built environment which are most immediately effected by intervals of transition, especially those initiated by the regulations of a centralized authority, are the following: well (water supply), privy (sewage disposal), trash pit (trash disposal), cistern (water storage, fire protection), and drain or sump (drainage). As noted in the parentheses, each one of these features corresponds to an essential activity or service in the supply and maintenance of urban sites, both residential and commercial. When an event, such as the passage of a regulation regarding new sewer or water-line construction or sanitation practices, renders any or all of these features obsolete, they share the common characteristic of being "holes in need of filling." Transitions such as these can produce an extremely valuable body of archaeological data for the synchronic and comparative study of urban populations, because it is during these intervals that a large number of individual households and commercial enterprises contribute en masse to the archaeological record. Particularly at the household level, conscious decisions are made regarding the relative value of particular objects, as evidenced by the large quantity of undamaged objects which are thrown away. The results of such "housecleaning" have been observed on both rural and urban sites, and in these deposits may be glimpsed aspects of consumer behavior and economic status. At the very least, the study of such disposal episodes offers some insight into changing consumer taste and the timing of obsolescence for certain kinds of material items at different levels of society. It may even be possible to relate "housecleaning" to the degree of upward mobility characterizing particular households, given a representative sample of deposits reflecting the same transitional episode among different neighborhoods.

It should be borne in mind that there is a terminal quality to transitional deposits, in the sense that at some point in the history of all American cities, wells, privies, and cisterns are replaced by more advanced technological solutions to the problems of water supply, waste disposal, and fire protection. While the timing of these improvements varies both within and among cities, they often result in situations where it is "the last of their kind" which are most observable in

the archaeological record; that is, archaeologists may indeed encounter these features with their fills intact, but the filling will represent a final transitional deposit rather than a periodic one. A detailed analysis of documentary sources pertaining to the development and implementation of city-wide utility and sanitation systems within individual cities should make it possible to predict the terminal period for different kinds of features.

Viewed from a developmental perspective, the nature of urban site-formation processes may be expressed in the following three-stage evolutionary scheme:

Agent of Disposal	Disposal Mode	Nature of Contribution
Individual	Non-organized	Little discrete contribution
Individual	Organized	Much discrete contribution
Municipal	Organized	Little or no discrete contribution

This scheme relates the agent responsible for disposal and the disposal mode to the nature of the contribution to the archaeological record in terms of whether the deposition will be diffused, localized, or off-site, and of high or low visibility and focus. These stages may, in turn, be correlated with a three-phase typology of the evolutionary growth of American cities during the 19th century identified by the geographer Ottensman (1975:24-25). These stages are:

(a) Pre-Industrial - Undifferentiated

(b) Transitional - Semi-differentiated

(c) Industrial - Differentiated

This typology is based, first, on the predominant economic character of the city and, second, on the general patterns of urbanism corresponding to each. While the prime mover in 19th-century urbanization may indeed have been economic (industrialization), this scheme can be applied to a broad range of change in the spatial, social, and political organization of cities. It summarizes what is viewed as a progressive trend in the direction of increased specialization in land use, the emergence of discrete, internally consistent neighborhoods, and, in its latter stages, the aggregation of land ownership within the commercial district. Accompanying these changes is an increase in governmental and bureaucratic functions, especially those which involve taxation for civic improvements and the regulation of individual behavior for the benefit of the common weal (Mumford 1961:95).

This latter characteristic of the progressive differentiation of the urban environment bears most directly on urban site-formation processes, as it is the increasing loss of individual and local autonomy, at the hands of centralized city governments, which results in the municipal/organized pattern of refuse disposal. It may be proposed, then, that that portion of the urban archaeological record which provides direct, on-site evidence of discrete social, residential, and commercial

units within the city will generally correspond to the interface between transitional and industrial stages of urban development. At this time, usually during the third quarter of the 19th century, features which have become either illegal or obsolete are abandoned and filled. Even though timing of such abandonment varies according to the particular history of sanitation, sewerage, and utility services in different cities and the lag in the effective implementation of various ordinances and regulations, the cut-off point for each type of feature should be predictable from historical sources.

Although the terminal nature of many transitional deposits does constrain the archaeological examination of the industrial stage of American cities (i.e., post-1870 to 1900, depending on local circumstances) and may adversely affect the visibility of pre-industrial features, it is during the transitional stage in urban development that patterns of residential differentiation by class, occupation, and ethnicity first become pronounced (Ottensman 1975:12-13). Several models have been proposed which attempt to account for patterning in residential differentiation, but whether one employs Burgess' pioneering concentric zone theory (1925), Hoyt's sector theory (1939), or more recent geographic models based on factorial ecology and social-area analysis (Shevky and Bell 1955; Rees 1971; Salins 1971) to understand this process, it is clear that archaeological investigations can play a significant role in the study of the city's incipient social and cultural differentiation during the transitional stage.

As has been noted above, terminal transitional deposits reflecting widespread response to public ordinances and public-works projects afford an opportunity for the observation of "housecleaning" over a large area of the city during a relatively brief time interval. To the extent that residential patterns during the transitional stage may be reconstructed from census data, tax records, city directories, and other sources, it should be possible to examine archaeologically specific propositions regarding consumer behavior and resulting material correlates. Such factors as social rank, economic status, household composition, and ethnic or minority status are most often identified as the primary variables affecting the course of residential differentiation. In approaching the 19th-century urban archaeological record with such a problem orientation, archaeologists can contribute to what is a basic question confronting historical archaeologists. As Cary Carson observed:

> The production of consumer goods is one of the principal aims of capitalism. Why and when it became so, how the wealth of artifacts has been unevenly distributed, how that, by differently affecting the way people lived, caused further changes in the society--these are the central questions for students of material culture. These are the historical questions that most need to be answered using the evidence of artifacts themselves, as well as documents about their manufacture, distribution, and use (1978:49).

Assuming that the major variables affecting urban residential segregation are observable in the material by-products of consumer behavior, control over several factors will be required before these differences may be precisely defined. Such factors include, for example, the availability and cost of manufactured goods and patterns of their acquisition, preferably at the household level. More important is the establishment of standards of consumer taste against which to measure divergence in consumer patterns. If, indeed, the growth of cities during the 19th century was accompanied by the increasing spatial segregation of the population along social and economic lines, there were, at the same time, assimilative pressures, or "homogenizing processes" (Hardesty 1980:16-18) which resulted in the reduction of observable behavioral and material manifestations of these distinctions. In other words, even though competition or conflict may have intensified class differences during the transitional period of urban growth and increased the social distance separating ethnic groups, the material expression of these differences may not be easily detectable except in extreme cases. After all, archaeologists have thus far met with only limited success in identifying distinctive material attributes of ethnicity (e.g., Kelly and Kelly 1980).

Before it will be possible to formulate specific and testable propositions regarding the archaeological expression of ethnicity and social class, it will be necessary to confront the problem of the dominant group and its consumer tastes. It is the dominant group which is the source of assimilative pressure, and it is this group which controls the means of production and channels of distribution of mass-produced manufactured goods. The strong pressures exerted by the dominant group and the production and distribution of manufactured goods by a national economic system have been identified as the two major "homogenizing processes on the 19th century Western frontier" (Hardesty 1980:16-17). Of course, these same processes were operating in the rest of the country as well. Hardesty identified the dominant group's cultural orientation as Victorianism or Victorian culture. Basing his definition of the concept on an earlier paper by Baker (1978) and on the work of Howe (1975, 1976), Hardesty summarized the "cultural rules" which supposedly characterized Victorianism and observed that it "was rooted in the urban middle-class of Britain and the United States" (1979:168). Architectural historians and students of the American decorative arts have also used the concept of Victorianism in discussing the evolution of material styles and taste during the second half of the 19th century (e.g., Ames 1978). In addition, geographers such as David Ward have employed the term to describe a certain urban type emerging at about the same time in England and America (Ward 1975, 1978).

To the extent that Victorianism is more than simply a label given to an intellectual tradition of recent Anglo-American history, it may have some value for characterizing the nature and source of assimilative pressure during the transitional stage of American cities. Not only was it purportedly a class-based value system, but one of Victorianism's major features was "didacticism" (Howe 1975:526). As Hardesty noted, this quality of Victorianism made it "an effective agent of social change in the direction of conformity" (1980:16). Victorianism's "high degree of

cultural self-consciousness" (Howe 1975:526) combined with "a feeling of moral superiority and cultural competitiveness...explains why the carriers of Victorian culture sought so aggressively to assimilate those individuals and societies carrying other cultural ideologies and patterns of behavior" (Hardesty 1980:16). Before the concept of Victorianism as a source of assimilative pressure can become operational, however, the degree to which its essential defining characteristics or "rules" are expressed in material terms must be established; in other words, "the meaning of material culture in Victorianism" must be defined (Hardesty 1979:169).

Since the transitional stage in the development of American cities closely corresponds to the rise of Victorianism as a class-based ideology, it may be proposed that, once its effects on the availability and acquisition of material goods are identified, Victorianism can be employed to examine the relative masking effects of assimilative pressures or "homogenizing processes" on the archaeological visibility of urban residential differentiation according to class and ethnicity. Conversely, the accurate definition of the material correlates of Victorianism, particularly in terms of consumer behavior, will allow for a more precise measurement of divergence from middle-class consumer ideals on the part of class and ethnically organized urban residential units for both cultural and economic reasons. This latter goal has broader application as well, for the measurement of such divergence also figures prominently in research designs being implemented on rural communities of the late 19th century (e.g., Deetz 1980). Archaeologists have devoted altogether too much attention to the problem of archaeological evidence of ethnic differences at the expense of identifying the dominant cultural tradition of 19th-century America as it may, or may not, be expressed in the archaeological record and the material environment in general.

THE GENERAL RESEARCH STRATEGY: APPLICATIONS IN SACRAMENTO

The goal of coordinating the archaeological sampling of households representing different ethnic, minority, and economic groups within urban residential neighborhoods with a detailed reconstruction of the process of residential differentiation during the transitional stage of urban growth can be pursued in most American cities. The latter reconstruction, based on primary documentary and cartographic sources, can be organized in terms of a range of economic and geographic models developed to account for patterns of residential segregation. However, the refinement of such a research strategy for application in the Far West, and particularly in California, must consider that, (1) many of these cities did not even begin their industrial stage until well after 1900, but instead grew up as commercial entrepots and remained so throughout the 19th century; and (2) many western cities passed through a brief, but significant, frontier stage in their development, to be caught up in a period of transition very soon after they were settled. One important aspect of the residential pattern during the initial frontier period of cities such as Sacramento is that, while class and ethnic differences were present, they are difficult to define archaeologically because people were often living above or adjacent to the workplace rather than apart from it, a pattern which earlier characterized American cities in the East. A research design

stressing the problem of identifying the archaeological expression of ethnicity and class within the urban context in terms of divergence from dominant consumer behavior must, therefore, be altered in such cases to consider the lack of clear spatial segregation. The discussion which follows will thus emphasize the analytic procedures employed in identifying the source of archaeological material (i.e., commercial vs. domestic) from assemblages which represent both commercial establishments and residences.

ARTIFACTS: GENERAL IMPLICATIONS FOR SITE INTERPRETATION

ARTIFACT VARIABILITY

Variability within and among artifact classes present in a particular feature is a potentially useful indicator of the origin of the collection. In general, there should be less variability in refuse deposits relating to commercial activities in comparison with those which had a domestic element. The range of activities which are carried out domestically is notably broader than that of a commercial context of limited function (see South 1979:table 2 for an extensive list of activities), and more artifact classes should, therefore, be respresented. In addition, the variability within a particular class of artifacts may have interpretive potential in many cases. Food bone from a restaurant, however, would not be expected to follow the rule, as it is part of the raison d'être of such establishments to provide a relatively wide range of meat cuts. Clearly, if the concept is used uncritically, it could result in misinterpretation and contradictions. For example, a collection of artifacts recovered from a warehouse destroyed by fire would possess a great variation of artifact classes and wide range of variation within each class. Here, limited function and high variability would be found together.

In the present context, the archaeological manifestations of change on a site connected with a service industry differ from those resulting from the same process on the site of a manufacturing concern. The element which probably contributed most to the variability shown in figure 6 is the presence of two types of service establishments on the site, as no domestic components were identified in the historical record. A distinction can be made between principal/client businesses (for example, lawyers, barbers, physicians) and bureaucratic businesses (such as restaurants, hotels, saloons) on the basis of their respective organizational characteristics. Just as domestic sites exhibit more variability than their commercial counterparts, a similar relationship exists between principal/client and bureaucratic establishments. This pattern may be partly a function of the interchangability of elements, which is characteristic of bureaucratic organizations (Valleau personal communication 1980), and which results in the duplication and homogeneity of materials used by these kinds of businesses. In an eating establishment, for example, the trade necessitates many similar vessels on which to serve food and involves specialization among employees. In a principal/client business, however, an individual may perform several functions but for the benefit of only one client at a time. Consequently, in the latter case one would expect artifact variability to be relatively high, with little duplication.

Examples of the interpretive value of trash disposal patterns, site function, and artifact variability can be found in the four temporally controlled features on the Golden Eagle site. Figure 6 shows the variability in all classes of artifacts recovered from the features. The criteria by which variety was identified within each artifact class differed. Within the bird, fish, and shell categories, species were counted; that is, five blackbirds constituted one variety within the bird class. Mammals were counted by species and cut; glass by function, contents, and embossings; buttons by size and type; and pipes by type only. The metal variety count was based on function. Variability of ceramics was calculated by a combination of fabric, function, and decoration; only sherds identifiable by all three criteria were counted. Figure 6, therefore, indicates the range of artifact variability in each class, not the quantity of artifacts.

Feature 6 (1874-1878, plates 7.1 and 10.1), the basement-like cavity under the floor of Cronin's oyster saloon, came into being as a result of the public policy of street-raising. Local business people realized that, if their city was to continue to develop and grow, barriers imposed by nature (e.g., periodic flooding) had to be overcome (Sacramento Bee 11 February 1863:3). Significantly, this was a group decision made for the common good. The disposal pattern in this feature was one of secondary deposition of refuse from a single commercial context; the resulting contribution was large, but discrete, in its extent. Feature 6 reflects the individual/organized mode of trash disposal typical of the transitional stage in the development of cities. The artifact assemblage from that phase of this feature which primarily represents the oyster saloon includes both personal and commercial items. Nearly all of the personal items are buttons, which are believed to have filtered through the floor boards. This pattern has been suggested elsewhere (South 1977:68; Tordoff 1979); the materials are termed "primary de facto" refuse. The chance presence of personal items can be dismissed from consideration of saloon debris per se, although they give an indication of the demographic characteristics of the saloon clientele. The saloon material thus defined exhibits characteristics which one would expect of a food-service establishment: both quantity and variability are greatest in the categories of glass (reflecting drinking), bone, and shell.

Feature 15 (plates 7.2 and 10.2) was a brick-lined pit located at the rear of a courtyard on the same lot as Feature 6. It apparently had been used as a privy before being abandoned and filled, first with articles left behind by previous tenants and, subsequently, with debris from the oyster saloon. Why the privy was taken out of use is not known, however, its abandonment occurred shortly after the lot's orientation shifted to food service in 1874. This new customer-intensive business would, presumably, have required more extensive sanitation facilities than the manufacturing concern and the principal/client organization of a barber's shop. The variability factor of almost all artifact classes is highest from this feature, with personal items being especially numerous. It would be unwise, however, to correlate the high variability of artifacts from this feature (see figure 6) exclusively with the principal/client component reflected in the assemblage. The fill of Feature 15 clearly had several components, associated with as many businesses which

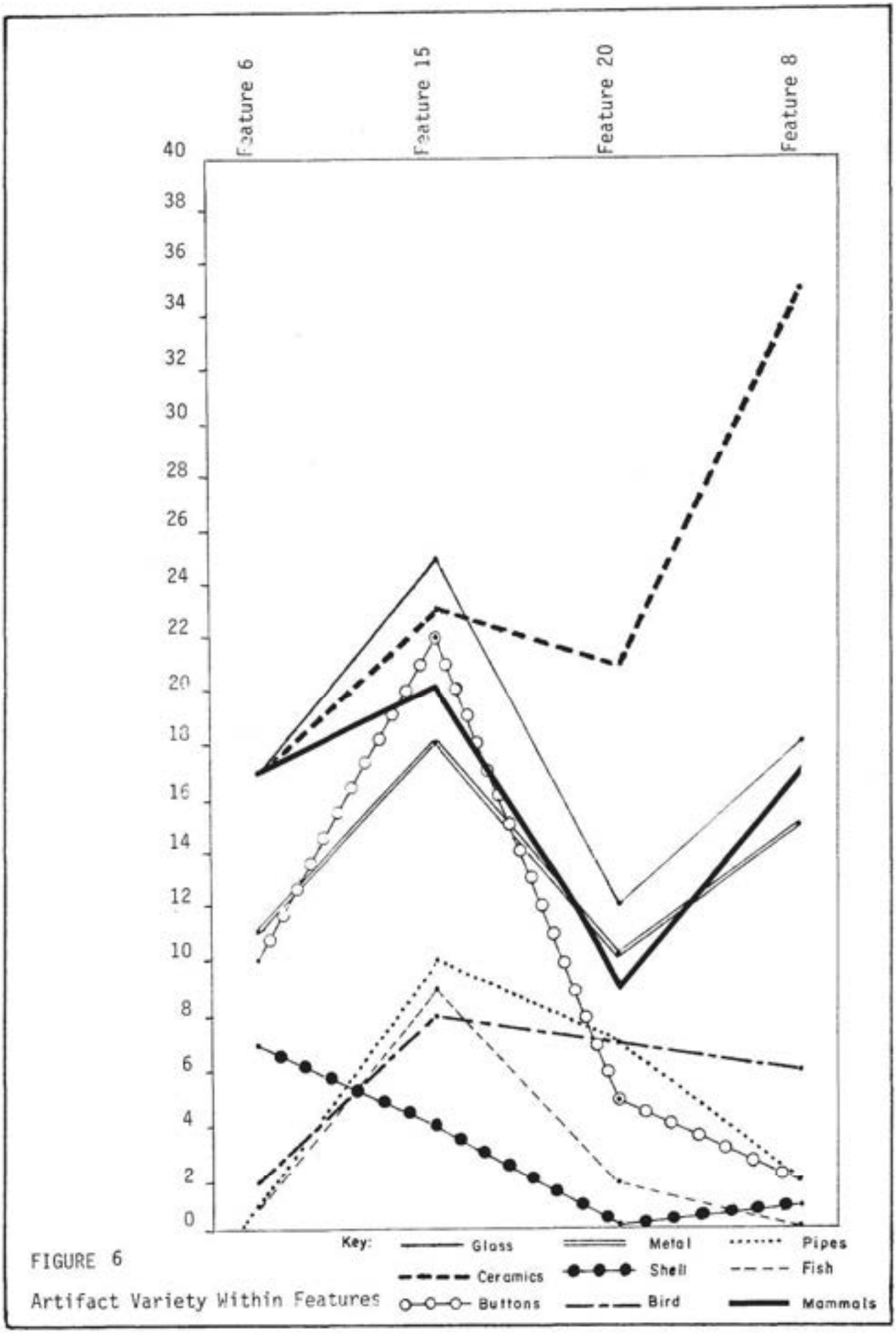

FIGURE 6

Artifact Variety Within Features

had occupied the lot over a 15-year period. Although most of the artifacts can be linked to particular enterprises, it is not possible to determine whether the personal items were left by one particular occupant or if this was an accumulated association.

Feature 20 (plates 7.4 and 10.4) was a second brick-lined pit situated in the "basement" of the Golden Eagle Hotel adjacent to Feature 15. Unlike its twin, Feature 20 had apparently not been used as a privy, but was quickly filled (c.1860) with kitchen and construction refuse from the hotel soon after the pit was formed. Since the particular reasons for the pit's abandonment are not known, this event cannot be related to any of the general site-formation processes described earlier. Nevertheless, the fill of Feature 20 was a good case of single component refuse: almost certainly, this material came only from the hotel. In keeping with the bureaucratic organization of the hotel, the artifact variability was lower in this feature than in any other such context on the site.

Feature 8 (plates 7.3 and 10.3) was a wide, squat shaft located at the rear of an adjacent parcel that had been occupied at the time of filling by a blacksmith's works. The feature probably acted as a drainage sump until it was abandoned and backfilled. This terminal filling occurred at about the time when the feature would have become obsolete because of Sacramento's street-raising (c.1870). Although a portion of the fill was not screened, high artifact variability was exhibited in the materials that were recovered. On the basis of the types of artifacts present, it appears that Feature 8 had been filled with refuse from two commercial establishments (the Golden Eagle Hotel and the blacksmith's shop), as well as by other means.

In most of the situations described above, it has been demonstrated that the prime mover which resulted in the features' being filled was either localized change in property holding or the result of wide change, such as street-raising. The suggested correlation between intra-feature variability of artifacts and single-component commercial activities is given much support, but more control over the data (i.e., more information from single-component sites) is necessary before a definitive statement can be made. A clearer interpretation of figure 6 could be achieved through comparing it with similarly constructed graphs from other archaeological sites. Future workers are therefore encouraged to display their data in a similar manner as an aid to intersite comparison.

It has been shown that the presence of most of the refuse deposits on the Golden Eagle site was the result of the kinds of improvements which characterize the transitional stage in the evolution of cities. Further evidence of this pattern has been uncovered elsewhere in Sacramento. Schulz (1977:22), for example, investigated a backfilled water cistern and a long, narrow "enclosure" which had been filled with refuse in the 1870s. It appears that the 1860s to 1870s was an important period during the transition stage in Sacramento. The frequent presence of items discarded whole indicates that these objects were considered valueless, although they were still functional. The interpretive potential that such deposits offer for an understanding of cultural change has only begun to be exploited.

COST AND AVAILABILITY

An understanding of the relative cost and availability of items within an archaeological assemblage is essential to its interpretation. Determination of the economic position of a site's inhabitants requires an understanding of the contemporary value of the items recovered. Similarly, variability between sites can only be attributed to the social or ethnic differences of the sites' occupants when their range of choice has been defined. Otherwise, what may appear to reflect a homogeneous pattern may, in fact, represent a very limited trade network resulting in a narrow range of choice in material goods. Cost is often directly related to availability; items in great demand and short supply command a high price. Many consumer products were in short supply in California during the two decades between the discovery of gold at Sutter's Fort and the completion of the transcontinental railroad in 1869.

From its beginnings, Sacramento served as a supply center--first, for the mining towns in the Sierras to the east and, later, for the agricultural communities of the Central Valley. Sacramento was second only to San Francisco in its importance to trade. Prior to the completion of the railroad, Sacramento merchants purchased goods shipped to San Francisco from Europe, Asia, and the eastern United States. These goods, often bought at auctions, were sent by steamer to Sacramento and sold by the merchants to country dealers or directly to the public. Therefore, the maximum range of variability for these outlying communities could be defined to some extent as the degree of variability within Sacramento itself.

A clear picture of the relative cost of goods during any one period would require painstaking historical research. This research has been initiated for some classes of artifacts. Miller (in press) discusses the relative cost of different classes of ceramics produced in Staffordshire during the 19th century. Though the actual price of an item would depend to some extent on its journey through the trade network, the relative cost of all classes of items should remain the same. The interpretive value of Sacramento faunal remains has been greatly enhanced by historical research into pricing. This process has been forwarded for fish by Peter Schulz (this report, appendix 2.1), for birds by Dwight Simons (unpublished data), and for mammals by Peter Schulz and Sherri Gust (this report, unpublished data).

Unlike information on cost, the question of availability can be approached through archaeological excavation as well as through historical research. In fact, the combination of these two kinds of records can give a much better indication of the range of available goods than could either record alone. The historical record tells us that apples came from Chile, and blackberries from "Smith's garden," something archaeology is unlikely ever to achieve. On the other hand, advertisements merely proclaim the sale of "Earthenware from England," while archaeology gives us the specific range of patterns from a defined group of manufacturers. These facts on ceramics may, in time, be linked through knowledge of cost and changing fashion to a discussion of social status and ethnicity.

While all archaeological sites yield some information on availability, certain kinds of sites, such as warehouses, are more productive. The remains of two warehouses destroyed in the 1852 fire have been excavated in Old Sacramento, and some of the materials from the archaeological deposits associated with these fires have been analyzed. Butler (1979) discussed the artifacts from the Cothrin Building, while Praetzellis and Praetzellis (1979 and in progress) describe the ceramic assemblages from both warehouses.

Investigation of the Golden Eagle site further increases our knowledge of the availability of goods, especially in light of the management's ability to purchase goods in the higher price ranges. It also substantiates the complementary aspect of the historical record and the archaeological record in relation to the question of availability. Table 3 contains information on prices and origin of items compiled mainly from advertisements and articles in the Sacramento Bee for the year 1857 and the period 1860 to 1863. Table 4 lists the origins of artifacts recovered from the four analyzed features of the Golden Eagle site, dating from c.1857 to 1878.

TRADE NETWORKS

Though they contain only a sampling of the data base, it appears clear from tables 3 and 4 that local and regional trade networks are more accurately reconstructed through the historical record, while national and international networks may be seen also through archaeological assemblages. This difference is, in part, a function of the transportation process. Perishable goods traveling long distances required packaging, while those sold soon after harvest or slaughter might not. The stoneware bottles used to ship and preserve English ale have survived, while little artifactual record is left of local breweries who sold by the keg or in reusable bottles. It is suggested here that incipient businesses, for example soda works or potteries, will only begin to mark their products when they expand their trade beyond the local network or when the local network has grown to the extent that such devices are required for product recognition. Sacramento soda-water bottlers began embossing their names on their products in the 1860s. The Pacific Pottery mark (figure 7.15h), which pre-dates 1860, mixes decoration and advertising in an interesting way; their mark was probably indecipherable to anyone who did not already know its message.

The faunal remains from archaeological deposits indicate a change in the dependence upon native species by the residents of Sacramento. Prior to the completion of the railroad and the development of cheap, efficient means of refrigeration, fresh meat and fish had to be hunted or raised within a relatively short distance from the marketplace. During Sacramento's early period, residents exploited the native fish and game resources. Native species of small game, such as squirrel, rabbit, and muskrat, were hunted and sold in the marketplace. Game birds were plentiful and easily hunted, while the incipient domestic poultry industry had not yet adapted to local environmental factors and grown to the point at which it could adequately supply the market. Domestic poultry was, therefore, more expensive than game birds.

As local population increased the pressure upon these native species, the less resilient populations dwindled in numbers. Increased predation, combined with the loss of habitat resulting from the reclamation of marshland and the channeling of rivers, caused the extinction of a number of fish species and a significant reduction in migratory waterfowl. Eventually, markethunting could no longer make a significant contribution to the food supply. As native species dwindled and Sacramento grew, domestic exotic forms replaced native varieties. Catfish and other exotics were introduced to California rivers, while the Eastern oyster was transplanted in the San Francisco Bay. Domestic turkeys and chickens replaced game birds as the least expensive poultry products.

The archaeological record indicates that during the mid-1870s both native and domestic or exotic species were traded within the regional network. By 1880, however, native varieties were less common, and a few introduced species supplied the bulk of the market. This increase in specialization can be linked to the drop in number and variety of species used as food resources during the later period.

TABLE 3

Price and Origin of Goods Available in Sacramento
(Reconstructed from historical records)*

Item	Origin	Price	Date
Apples	Chile	50-75¢/lb.	2 June 1857
Apples	California		22 June 1857
Apricots	California	12-1/2¢ each	2 June 1857
Blackberries, strawberries	"Smith's garden"	$1.50/lb.	2 June 1857
Wild blackberries	local	50¢/quart	2 June 1857
Strawberries, raspberries, gooseberries, cherries, blackberries, apricots	Wolfskiel's Ranch, Yolo County	50¢ wholesale, 75¢ retail	10 June 1857
Gooseberries, raspberries	California		20 June 1857
Cherries	Sacramento	$2.00/lb.	2 June 1857
Figs	Yolo County	75¢/lb.	22 June 1857
Watermelon	California		20 June 1857
Strawberries	California	50¢/lb.	26 June 1857
Fruit	Oregon		4 December 1860
Peanuts	California		4 December 1860
Eggs		90¢/doz.	12 November 1857
Butter		87-1/2¢/lb.	12 November 1857
Butter	Eastern	50¢/lb.	12 November 1857
Cheese	California	37-1/2¢/lb.	12 November 1857
Flour		6-1/2¢/lb.	12 November 1857
"Isthmus butter"	New York		11 February 1863
Table butter		25¢/lb.	9 January 1860
Flour		$4.75/barrel	9 January 1860
"Sugar-cured ham"		12-1/2¢/lb.	9 January 1860
Sweet potatoes	Sandwich Islands and Japan		23 January 1860
Ice	Sitka, Alaska	6-1/4¢/lb.	19 March 1857
			16 April 1857
Ice	Silver Creek	5¢/lb.	3 May 1860
Ice	Placer County		19 June 1860
Ice	Sitka, Alaska	3-1/4¢/lb.	6 January 1860

*Compiled from the *Sacramento Bee*, unless otherwise noted.

TABLE 3, continued

Item	Origin	Price	Date
Live turkeys		30-35¢/lb.	25 November 1857
Dressed turkeys		40-45¢/lb.	25 November 1857
Turkeys	Sacramento		29 December 1860
Oysters, open		$1.50/100	12 November 1857
Oysters, in shell		$1.25/100	12 November 1857
Oysters	Shoalwater Bay	75¢/100	11 February 1874
Champagne	Los Angeles		18 December 1857
Raspberry wine	California		24 July 1862
Lager beer	Philadelphia Brewery, San Francisco		11 February 1863
Ale and porter	England		9 May 1857
Wine	California and France		9 January 1861
Lager beer	Columbus Brewery, Sacramento		8 June 1861
Champagne beer	R. Bredy & Co., Sacramento		29 March 1860 9 April 1860
Cigars	Havana, Cuba		23 October 1860
Dr. Humphrey's Homeopathic remedies		24¢-$1/bottle $2.50-$10/case	14 April 1863
Drugs and chemicals	New York, Boston, Philadelphia		4 April 1860
Clothing	New York, Philadelphia		13 June 1863
Silk, clothing, wine, brandy, preserved meat, flour, barley, cheese, coal	France via San Francisco		3 April 1850 *Daily Alta California*
Newspapers	England, Scotland, Atlantic		9 May 1857
Fireworks	Boston		30 June 1860
Monumental marble	El Dorado County		11 May 1860
American statuary, mantles and grates	New York	$35-$500	2 February 1860
Italian veined mantles and grates	Italy	$30-$150	2 February 1860
Monumental marble	Tuolumne County		16 November 1861

TABLE 3, continued

Item	Origin	Price	Date
Bricks	Sacramento		21 October 1857 30 September 1857, 26 May 1862 7 May 1862, 7 June 1962 5 June 1867
Sashes, doors, blinds	Sacramento		23 May 1857
Pianos	Boston		1 August 1861
Sewing machines		$12.50	28 May 1863
Porcelain	France via San Francisco		3 April 1850 *Daily Alta California*
Ironstone and stoneware	England via San Francisco		8 November 1852 *Daily Democrat State Journal*
Porcelain	France via San Francisco		22 February 1854 *Daily Democrat State Journal*
Eartherware	England via San Francisco		22 February 1854 *Daily Democrat State Journal*
Pottery	Sacramento		30 December 1854 *Sacramento Daily Union*
China	France via San Francisco		1 January 1857 *Daily Democrat State Journal*
"Crockery ware," "China ware"	England, France via San Francisco		1 May 1860
Crockery ware, glass ware, china ware, cutlery, mirrors	France and England via San Francisco		23 February 1860
"China ware," plain and fancy	France		18 June 1862 20 December 1860
Eartherware	Staffordshire		13 April 1869 *Sacramento Daily Union*

TABLE 4

Probable Origin of Goods Available in Sacramento
(Reconstructed from archaeological artifacts)

Marked Items	Quantity	Place of Origin
Tableware (Earthenware)	88	Staffordshire, England
Tableware (Porcelain)	1	England
Storage vessel (Stoneware)	1	Sacramento
Ale or porter (bottle)	51	Scotland
Ale (bottle)	2	U.K./Ireland
Ale (bottle)	1	Germany
Beer (bottle)	1	Kentucky
Beer (bottle)	1	Pennsylvania
Clay tobacco pipe	4	France
Clay tobacco pipe	2	Scotland
Condiment (bottle)	3	San Francisco
Cologne (bottle)	2	New York
Perfume (bottle)	1	France
Mineral water (bottle)	1	Germany
Medicine (bottle)	1	Vermont
Medicine (bottle)	1	Massachusetts
Medicine (bottle)	1	Pennsylvania
Medicine (bottle)	2	San Francisco
Medicine (bottle)	2	U.S.A.
Mustard (bottle)	1	France
Soda water (bottle)	1	Pennsylvania
Worcestershire sauce (bottle)	2	England
Medicine (bottle)	3	New York
Insulator	1	New York
Unmarked Items		
Tableware (Earthenware)	5	U.S.A.
Tableware (Earthenware)	approx. 87	England
Tableware (Porcelain)	approx. 43	England or France
Tableware (Porcelain)	1	China
Kitchenware (Earthenware)	2	U.S.A.
Storage vessel (Stoneware)	1	Sacramento
Storage vessel (Stoneware)	6	China
Furnishings (Earthenware)	4	U.S.A.
Ale or porter (bottle)	at least 27	Scotland
Brandied fruit (bottle)	approx. 137	France
Capers (bottle)	1	Mediterranean
Champagne/wine (bottle)	29	France
Wine (bottle)	3	Germany
Olive oil (bottle)	19	France
Clay tobacco pipe	2	Ohio
Pistol	1	Massachusetts
Pistol	1	U.S.A.

DISCUSSION: THE TRANSITIONAL STAGE IN SACRAMENTO

This section will suggest some characteristics of the transitional period in Sacramento using examples from documentary and archaeological sources. Many of the directions followed during the transition stage are consistent with the general characteristics of Victorianism, the presumed cultural orientation of the dominant group in the second half of the 19th century. While some "cultural rules" have been suggested for Victorianism, the variables involved have not been defined and the material correlates of the culture to be expected in the archaeological record have not been determined. For these reasons, the following discussion focuses on those elements which characterized the dominant group during the transition period, without reference to a Victorian model. When sufficient archaeological information is available from other transition-period city sites in the West, such a model might be proposed.

Urban geographers have seen the evolution of the city as divided into three or four successive stages. Taylor (1951:76-77) defined these as infantile, juvenile, and mature. Each of these stages has its analogue in the model which was proposed in a previous discussion: pre-industrial/undifferentiated; transitional/semi-differentiated; and industrial/differentiated. During the period to which the analyzed Golden Eagle features date (c.1857-1878), Sacramento was clearly involved in the juvenile or transitional stage of its development.

The historic use of the J/K/6/7 block was traced from 1851 to 1920 by McGowan et al. (1978) by means of city directories. These data show that, early in the city's history, the block was the locus of light industry and manufacturing, as well as service-oriented enterprises, such as saloons, hotels, and lawyers' offices. In time, the former businesses became less common in the area (see table 5). During the same period, the proportion of residential guests vis á vis transients at the Golden Eagle Hotel declined (Pitti 1980:42-45). Gradually, the area became part of the established central business district, specializing in food service and the retail trade. Table 6 presents details of land ownership for the block. In 1854, the parcels on the block were owned by 25 people, even though 4 lots were still unsold. By 1872, although all the lots had been sold, the number of owners was reduced to 22, and by 1914, to 19. Once again, the general pattern of behavior is consistent with the model, although it is believed that this trend was not fully established until the final stage.

The effects of increasing municipal involvement in, and regulation of, such functions as waste disposal, drainage, building construction, and public health, are evident on the Golden Eagle site. On-site refuse disposal and use of privies may have ceased as early as the mid-1870s, probably as a result of both governmental encouragement of city-wide utilities and contemporary technological improvements. The 1852 ordinance that restricted all new construction to brick or other fireproof material put an end to the ad hoc construction methods that characterized the city's early years; it was perhaps the most extreme early example of the regulation of private behavior for the public good in the history of the city. Similarly, in 1862 the City Board of Health was established to

TABLE 5

Historical Development of Occupancy for Block Bounded by 6th and 7th, and J and K Streets
(Compiled from McGowan et al. 1978 work with Sacramento City Directories)

Type of Occupant	Number of Businesses by Year												
	1851	1853	1854	1855	1856	1857	1858	1859	1865	1870	1875	1880	1885
Merchant	9	10	11	15	15	13	13	12	10	13	13	12	15
Blacksmith/saddler	0	5	5	3	1	2	2	3	6	2	2	2	1
Hotel/boarding house	3	2	2	2	2	2	2	2	2	2	2	3	2
Manufacturer	1	0	1	2	3	0	1	5	0	1	1	3	3
Restaurant	2	0	0	0	0	0	0	0	0	0	0	0	0
Saloon	0	2	0	1	2	1	0	0	1	1	4	4	0
Barber/bathhouse	0	0	0	1	2	2	2	1	2	2	2	2	2
Tailor/dressmaker	0	0	0	0	0	0	0	0	5	2	1	3	4
Boots*	0	0	0	0	0	0	0	0	1	3	4	3	1
Church	1(?)	0	0	0	0	0	0	0	1	1	1	1	1
Office	2	0	1	3	2	1	1	2	0	2	1	0	1
Stable/stock trader	0	3	0	0	0	0	0	0	1	0	0	0	0

*It is unclear if these businesses made and/or sold boots

TABLE 6

Historical Development of Ownership for Block Bounded by 6th and 7th, and J and K Streets (Compiled from McGowan et al. 1978 work with the City of Sacramento Map Book)

Year	No. of Owners	Year	No. of Owners
1851	17 (21 vacant parcels)	1889	22
1852	23 (9 vacant)	1890	22
1854	25 (4 vacant)	1891	22
1855	25 (5 vacant)	1892	21
1856	24 (4 vacant)	1893	21
1860	25 (3 vacant)	1894	21
1861	26 (3 vacant)	1895	21
1862	24 (4 vacant)	1896	22
1863	25 (3 vacant)	1897	22
1865	24 (1 vacant)	1898	21
1867	23 (2 vacant)	1899	22
1868	25	1900	22
1869	21	1901	22
1870	21 (4 vacant)	1902	22
1871	21 (1 vacant)	1903	22
1872	22	1904	22
1873	24	1905	22
1874	25	1906	21
1875	24	1907	21
1876	24	1908	21
1877	24	1909	20
1878	24	1910	20
1879	24	1911	20
1880	24	1912	20
1881	24	1913	20
1882	24 (1 vacant)	1914	19
1883	23	1915	19
1884	23	1916	19
1885	23	1917	19
1886	22	1918	18
1887	22	1919	18
1888	22	1920	18

"prevent the spread of contagious disease and to promote the public health" (Sacramento Bee 18 March 1862); this act might be viewed as a watershed in the transition from individual to public control, since the city health inspectors were empowered to enter at will and inspect all private hotels and boarding houses. In spite of this official concern for the state of their town, for some years the council left the responsibility for the execution of the city's maintenance to individual landowners, especially the condition of public streets and sidewalks, which were often improved only by private subscription (Sacramento Bee 7 October 1861). After the 1861 flood, a correspondent in the Sacramento Bee (30 December 1861) complained that mud rendered some streets impassible, and lauded the efforts of property owners who, at their own expense, had constructed wooden walkways at street crossings. The weed-choked condition of main thoroughfares and sidewalks was mentioned by another writer, who also praised local residents for their independent efforts (Sacramento Bee 17 June 1860). Even the municipal law requiring street-raising allowed for some individual variance: It was each property owner's decision whether his building would be raised, and two-thirds of the owners of each block had to agree before the sidewalk could be brought up to grade (Sacramento Bee 3 February 1863).

The lack of differentiation between public office and private involvement of this practice also indicates an early stage of civic organization. An example of the dual role some individuals played can be found on the J/K/6/7 block where, from 1863, the Superintendent of the City Cemeteries, Israel Luce, had both his official office and his own monumental masonry works. Two years earlier, the city council considered appointing an officer to go from door to door in the city, ensuring that every building was numbered. On finding one that was not, the officer was to offer to sell the owner numbers to be attached to the buildings "and make good pay" by doing so; those who did not either take advantage of the officer's offer or themselves provide the identification forthwith, should be fined (Sacramento Bee 8 July 1863, 18 July 1861).

These examples support the proposition that the period under examination was a part of the transitional stage in the city's social and organizational development. An optimistic concern for the future, a trait attributed to Victorian society, is also apparent in the transition period of a city's growth. Once again, the raising of Sacramento's streets provides a good example. Contemporary newspaper accounts indicate the only opposition to the plan came from people who had sustained financial losses in the 1861 flood and could not afford to raise their buildings, or from non-resident land speculators. Sacramentans, apparently, were unanimous in their support for the project, which, it was said, would be adequate for the job for the next 100 years without alteration. Some significance may be drawn from the title "People's Protective Grade," which was popularly assigned to the project (Sacramento Bee 21 March 1862, 19 March 1862, 3 February 1863). This name suggests an element which can be added to the definition of the transition period--an increased tendency for individuals to aggregate to achieve common goals for the public good. This attitude manifested itself in a plethora of membership organizations devoted to a wide variety of religious, recreational, and charitable pursuits. By way of illustration, the following list was compiled through examination of but a few copies of the Sacramento Bee in the early 1860s: Sons of Temperance,

Knights of the Record, I.O.O.F., Independent Order of Knighthood, Mutual Benefit Society, Settlers' County Convention, Methodist Church Society, Spiritualist Society, Agricultural Society, Library Association, Philharmonic Society, Glee Club, Jockey Club, Democratic Union, and the Republican Party.

During the period under study, there is evidence of a marked divergence of real from ideal behavior. The idealized state, it has been suggested, was one of order, in which there was a "place for everything"; this attitude is reflected in ordinances which were designed to insure that order prevailed. Refuse disposal serves as a good example of this divergence. While order was the official ideal, streets and alleys were cluttered to the point of impassability with trash and disabled "prairie schooners," resulting in the passage of an ordinance in 1863 outlawing this practice. Waterways were similarly littered with rotting hulks and other maritime debris. The same law also forced tradespeople to remove their stock from the sidewalks where it was displayed, much to the inconvenience of pedestrians who were forced to step into the street to negotiate a merchant's pile of wares. Blacksmiths were said to be particularly guilty in this regard, more often doing their work on the sidewalk or in the street than in their shops (Sacramento Bee 11 July 1863, 27 August 1860). The free roving of cattle and horses in the city was regulated in 1861 because of the effect that these animals' foraging had on small holdings within the town. Those who continued to allow their stock to range were publicly admonished: An outraged correspondent stated that it was unfair that these beasts should be able to destroy the work of citizens who had labored long to improve the area (Sacramento Bee 11 February 1863).

Historians have long recognized the grim realities which caused Sacramento to be known as a stinking city (Brienes 1978a, b). The attitude towards health and disease which is suggested by the archaeology of the Golden Eagle site is the antithesis of the middle-class ideal. It has been shown that the basement under Cronin's oyster saloon was filled with food refuse and that this offal attracted rats. This pattern was apparently not uncommon at the time (Richard Hastings personal communication 1980). It is curious that such practices were condoned, in light of the widespread acceptance of the miasma theory of disease and the establishment of the public-health profession (Brienes 1978a:18).

Clearly, order and morally offensive public displays are incompatible. No doubt one of the city fathers' reasons for mandating the relocation of the economically important open-air Horse Market was its increasing incompatibility with the incipient central business district. Citizens also advised that the traders should "conduct their business in a proper and decorous manner and not outrage all feeling of public decency and morality" with their raucous behavior and obscene language (Sacramento Bee 16 December 1862). Similarly, potential visitors to Mr. Turner's traveling museum and menagerie were assured that nothing offensive would be exhibited, and that even the "Wild Man from Borneo" would be suitably attired. Mr. Turner did, however, run afoul of contemporary morality when he was cited for operating his business on Sunday under the law which provided for "the better observance of the Christian sabbath" (Sacramento Bee 12-13 October 1857). The fact that he could profitably remain open on a Sunday, however, is another instance that real culture differed markedly from the ideal at this time.

Several events in the history of the Golden Eagle Hotel show a progressive trend from what can be viewed as a pattern of "frontier accommodationism" to one more consistent with middle-class ideals. The hotel's first building, like many of its contemporaries, was probably of canvas stretched over a wooden frame. It was soon replaced with a regular frame building which, in turn, was succeeded by a small brick structure. Through piecemeal additions, this building was to grow until it occupied a large portion of the block's southeastern quarter. In 1869 the final expansion, a grand Italianate facade, was added to the Eagle (Pitti 1980:25). This gave the building a classically formal and solid appearance, which would not have been out of place in any eastern city. The change in proxemic organization, indicated by the replacement in 1880 of the hotel's long dining tables with ones for smaller groups, may have been part of the trend toward differentiation and individualism which is the antithesis of what may have been a more communally oriented frontier pattern. The relationship of these elements to a change in the social class orientation of the hotel should not be forgotten, since it suggests that the transition period is closely associated with a burgeoning middle class.

The model of the organizational evolution of cities suggests that there is a trend toward increasing ethnic and social-status differentiation as cities develop. Since the archaeological expression of ethnicity is uncertain, it is conjectural whether the site's historically recorded black barbers (Pitti 1980:57) are represented in the collection. There is, however, some archaeological evidence to suggest that there were Chinese workers in the oyster saloon. This inference is based on the presence in the saloon deposit of fragments of at least six Chinese food storage vessels (Praetzellis, this report). Although this is only circumstantial evidence, it is supported by the observation that this type of pottery is generally found exclusively in association with Overseas Chinese. Bones of several thicktail chub, a now extinct species which were used historically by Chinese, were also found in the saloon deposit (Schulz, this report). Pitti's (1980:48, 55-58) work shows that nearly all historically mentioned non-whites associated with the study area were employed in low-status positions, such as that of servant or porter; barbers Reno and Besser were the only independent businessmen. Barbering was one of the few middle-status occupations that was considered appropriate to be held by blacks.

The presence of several proprietary medicine bottles, homeopathic vials, and syringes among what is believed to be the barbers' refuse also has interesting implications. Since as late as 1890, barbers were still advertising their expertise at "cupping and leaching" (Pitti 1980:24), the archaeological materials may suggest that similar pseudo-medical functions were occurring at the site. It need hardly be said that this practice was disapproved of by the medical profession during the middle and later 19th century (Sacramento Bee 4 December 1860). It has been suggested that, in reality, one was probably safer with the nostrums of Dr. Hostetter than with the ministries of a doctor trained in the practices of the mid-19th century. Curing without the benefit of a physician was doubtless very common during this period. The relative dependence of different social and ethnic groups upon patent medicines is a question which is eminently testable, archaeologically. A lack of professional differentiation would be another indicator of the transitional or earlier stage of development.

The Golden Eagle Site's Contribution to the Study of 19th-Century Sacramento

As the high economic position of the hotel's guests is known from historic sources, the archaeological investigations provided a rare opportunity to check assumptions regarding the material by-products of such an establishment. Gust and Schulz (fig. 3.2) have shown that economics can be accurately measured using mammalian bone remains. Ceramic data, which have traditionally been used to determine social status, produced less significant indicators, except for the presence of porcelain in forms which were duplicated in earthenware (M. Praetzellis, this report). Glassware, especially bottles, seems to have great potential (Armstrong, this report), given the necessary context of cost and availability studies; glass containers will doubtless usurp the position of pottery as the useful artifact class for determining the economic characteristics of 19th-century sites.

Archaeological studies can recover both historical and anthropological information. Archaeological evidence of trade networks, patterns of natural resource use, and details of particular activities serve to flesh out the historical record. For such studies, however, it is necessary to investigate the kinds of sites which occur infrequently. Conversely, a broadly based research question, for example, some element of the model of site formation during the transitional stage, can be addressed by the very structure of almost every site. Thus, a site may produce nothing new of historical interest to any but the most particularistic of researchers, while it significantly increases understanding of some general archaeological or anthropological process. From this perspective, the Golden Eagle's importance is clear: It has provided good definition of the material correlates of a solidly middle class establishment of the period. The materials, and the characteristics of the features in which they were disposed, can be thought of as the nearest expression of the middle-class ideal of the period which is likely to be recovered archaeologically. Consequently, the collection can be used as a touchstone from which to measure deviation using a variety of artifacts. Through the investigation of similar establishments with differing social class, ethnic, or regional affiliations, it is believed that patterns will emerge which will allow us to define and measure the influences that affected variation in the cultural traditions of 19th-century California.

Recommendations for Future Research in Sacramento

In the next decade or so, more than 20 city blocks will be developed as part of the City of Sacramento's Urban Renewal effort. As Eisenman (this volume) has pointed out, the "blighted" areas which will receive the new construction are the city's oldest commercial districts, dating from the town's mid-19th-century establishment. Fortunately, the archaeological implications of this situation have been recognized by the City, which has shown itself willing to do more than merely meet its legal obligations. This commitment is shown by the City Museum and History Department's "Cultural Resources Plan " that proposes a general policy by which areas of the greatest archaeological potential will be identified and investigated, whether or not the City is legally required to do so. The Golden Eagle project has shown that the remarkable degree of preservation of historical archaeological deposits in Sacramento, which is largely the result of raising the streets in the 1860s and 1870s, provides an unusual and important opportunity for archaeological study and will fully repay this kind of effort. The following suggestions, which, it is hoped, will promote the success of historical archaeology in the city, emerged largely from the experience of the Golden Eagle project.

(1) A city-wide historical overview is needed. Such a study would trace the changing patterns of land use so that the historical development of any particular project area, as well as its place within the context of the city's overall development, could be readily determined. The study would identify the historic events and processes which affected the nature of Sacramento's growth, and, as much as possible, assess their influence. Of particular value could be the analysis of patterns of urban spatial differentiation in terms of current economic and geographic models, with emphasis on the patterns of residential and economic segregation.

(2) Lines of communication must be opened between historical archaeologists, historians, urban geographers, and interested researchers in order to establish a series of general research questions towards which the field work will be directed. These questions would probably stress the various disciplines' particular emphases toward understanding of the developmental processes at work in the formation of 19th-century Sacramento. This dialogue would be ongoing and would provide continuity of direction between successive archaeological projects which might otherwise result in a series of unassociated field reports.

(3) Each site-specific research design should recognize the role of serendipity by emphasizing research in the framework of some general model or models. In this way, if research questions which were developed in response to the particular historical uses of the site cannot be addressed, others will always be available. The model of the evolution of urban organization which was proposed in this report is believed to be such an issue, having considerable significance in its own right and being applicable to almost every conceivable 19th-century archaeological site in Sacramento.

(4) Since assemblages derive much of their interpretive value when studied in comparison, sites should be chosen for which local comparative collections exist. At present, there is a derth of such artifact associations from well-controlled proveniences and which can be assigned to historically recorded sources.

(5) Historical research should be carried out on two levels. Cursory research, undertaken before it is decided which block is to be investigated, should detail the areas' demolition and site-clearance history to determine whether undisturbed archaeological deposits are likely to be present; experience at the Golden Eagle site, however, shows that "complete clearance" may have resulted in less destruction than its description implies. Developmental histories similar to Theodoratus and McBride (1978) and McGowan et al. (1978) should then be compiled to identify potentially significant sites. Before archaeological field work is begun, certain elements of the mitigation-level historical research (see Brown, this report) must be completed. All available historical maps and photographs should be reviewed in order to produce a series of plans of the area showing the locations of walls and the interiors and exteriors of buildings at appropriate times in the history of the site. Such plans are essential in order that the field supervisor may be immediately aware of the historical association of any feature which might be encountered and appreciate the degree to which further excavation is necessary to understand it. Historical research should also be conducted concurrently with the archaeological work, with the idea that the historian could be directed by the supervising archaeologist to investigate areas which may help refine the course of the field work.

(6) The project should be scheduled to allow sufficient lead time between the acceptance of the contractor's proposal and the start of field work. At least 2 months are recommended. It should also be remembered that Sacramento's climate determines that some times of the year are more suitable than others for the efficient performance of field work; the heat of summer and the winter rains should be avoided whenever possible.

(7) The method of subsurface testing proposed in the Golden Eagle Hotel project's research design (Schulz 1979) has been shown to be eminently appropriate, considering the depth of the fill and the extent and nature of the archaeological deposits. It is emphasized, however, that the archaeologists chosen to monitor the trenching must have extensive experience in the recognition and interpretation of relatively complex stratigraphy or the process will be entirely destructive and only misinformation will result.

(8) From the outset of full-scale archaeological excavation, the inevitable public interest should be encouraged and directed. This can be achieved through on-site and post-excavation interpretive displays, public talks, and the careful exploitation of the news media. The writers believe that, in the long term, the future of public-financed archaeology will be decided on the basis of the public's interest. It is essential to show the lay public that they are getting something worthwhile for their money.

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PART TWO

ARCHAEOLOGICAL MATERIALS FROM THE GOLDEN EAGLE SITE

INTRODUCTION

Part Two contains reports prepared by a number of authors on the materials recovered during the 1979 excavations at the Golden Eagle site. These reports are organized primarily by material, rather than by functional categories. Buttons and clay tobacco pipes form an obvious exception to this procedure. In the future, when functional attributes of artifact classes are more clearly defined, the classification of materials by function rather than by composition may be the more rewarding route to chronological and behavioral interpretation of artifacts from archaeological excavations.

The analysts were asked to explore the potential of each artifact type toward the elucidation of site chronology and function and of the occupants' demographic and behavioral characteristics. Analysts sought to define those variables within their types which changed through time, indicated particular activities, or were related to social variables such as economic status or ethnicity. Each analyst sought to explore the nature of the high status clearly attributed to the hotel by the historical record: to define the material correlates of such an establishment and to support this correlation through the use of intersite comparison and historical research.

The presence of artifact associations from a number of businesses of different characteristics gave many Golden Eagle analysts the opportunity to distinguish aspects of each type of establishment and to suggest variables which may typically correlate with each. The validity of these propositions awaits support from other archaeological assemblages. In the meantime, the Golden Eagle collection has increased the productivity of future historical archaeological projects by providing a tightly dated association of materials from particular establishments for the purpose of intersite comparison.

BIRD REMAINS

by

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INTRODUCTION

Recent analysis of bird remains from historic-period cultural deposits in Old Sacramento, California, led to the development of an historical-archaeological model describing the utilization of wild and domestic poultry resources from 1849 to 1920 in central California (Simons 1980). The study of bird remains from early American-Period cultural deposits from the Golden Eagle Hotel site in downtown Sacramento, California, lends further support to this model and also strongly suggests that cultural factors, such as social status and ethnicity, must be taken into account.

MATERIALS AND TECHNIQUES

The bird remains analyzed in this report result from the 1979 excavations carried out by the Sonoma State University Cultural Resources Facility of the Golden Eagle Hotel site within the J/K/6/7 block, Sacramento, California. Initial inspection of archaeological data from this locality by the author indicated that the bird remains from some parts of these cultural deposits were not suited for detailed analysis due to small sample sizes and undetermined chronological positioning. As a result, bird bones from only four features within the site were selected for further analysis and interpretation. On the basis of historical accounts and artifact associations, these features have been tentatively dated as having been deposited between 1857 and 1878 (table 1.1).

During excavation, all soil from Feature 20 and half of the soil from Feature 15 were passed through 1/8-inch mesh screens, while 1/4-inch mesh screens were used elsewhere. All recovered bone was saved. After preliminary sorting and cleaning, bones were labeled according to provenience, and the bird bones were turned over to the author for analysis. The bird bones were identified to species level whenever possible. Additional data were also recorded for analysis, including the types and numbers of various skeletal elements present, the gross age of the birds from which individual elements came, indications of burning, and the nature of bone breakage/modification. The minimum number of individuals of each of the identified taxa was established by counting the most abundant skeletal element.

RESULTS

A total of 643 bones from at least 70 individual birds belonging to nine taxa was recovered from features 6, 8, 15, and 20 of the Golden Eagle Hotel site (see table 1.2). All of the taxa represented are either native to the Central Valley of California or are domestic species introduced into California during the last 200 years by Euro-American settlers.

TABLE 1.1

Summary of Analyzed Deposits

Provenience	Association	Date
Feature 6	Cronin's Oyster Saloon	c.1874-1878
Feature 8	Golden Eagle Hotel/ Blacksmith	c.1861-1870
Feature 15	Cronin's Oyster Saloon	c.1874-1878
Feature 20	Golden Eagle Hotel	c.1857-c.1860

TABLE 1.2

Number of Identified Skeletal Elements (E)
and Minimum Numbers of Individuals (MIND)

(A) Cronin's Oyster Saloon

Avian Taxa	Feature 6 E/MIND	Feature 15 E/MIND	Totals E/MIND
Goose: White-fronted, snow, and Ross' (*Anser* spp.)		3/1	3/1
Duck: Mallard, pintail, widgeon, gadwall, and shoveler) (*Anas* spp.)	1/1	29/4	30/5
Duck: Teal (*Anas* spp.)		34/5	34/5
Duck: Redhead, scaup, canvasback, and ringnecked (*Aythya* spp.)		6/2	6/2
Quail (*Lophortyx* spp.)		18/4	18/4
Turkey (*Meleagris gallopavo*)		33/2	33/2
Chicken (*Gallus gallus*)	6/1	105/9	111/10
Band-tailed Pigeon (*Columba fasciata*)		8/1	8/1
Blackbird (*Agelaius* spp.)			
TOTALS:	7/2	236/28	243/30

TABLE 1.2, continued

(B) Golden Eagle Hotel

Avian Taxa	Feature 8 E/MIND	Feature 20 E/MIND	Totals E/MIND
Goose: White-fronted, snow, and Ross' (*Anser* spp.)	3/3		3/3
Duck: Mallard, pintail, widgeon, gadwall, and shoveler (*Anas* spp.)	5/1	61/11	66/2
Duck: Teal (*Anas* spp.)	1/1	2/1	3/2
Duck: Redhead, scaup, canvasback, and ringnecked (*Aythya* spp.)	7/1	21/4	28/5
Quail (*Lophortyx* spp.)			
Turkey (*Meleagris gallopavo*)	17/2		17/2
Chicken (*Gallus gallus*)	9/1	26/2	35/3
Band-tailed Pigeon (*Columba fasciata*)			
Blackbird (*Agelaius* spp.)		248/13	248/13
TOTALS:	42/9	358/31	400/40

MARKET HUNTING AND THE DOMESTIC POULTRY INDUSTRY, 1849-1920

The data in table 1.2 can be interpreted by using the descriptive model of the development of the poultry industry in California between 1849 and 1920 constructed by Simons (1980). Based on archaeological and historical data, this model argues that prior to the 1880s, market hunting of wild birds provided the residents of the state with a significant portion (possibly most) of the poultry consumed. During this period, a broad spectrum of wild birds was exploited, including bitterns, ducks, geese, swans, rails, coots, cranes, shorebirds, quail, grouse, wild pigeons, doves, and various passerine birds. These birds, especially ducks, geese, and quail, were taken and sold in great numbers. The pricing of game birds in the marketplace was based primarily upon customers' perceptions of palatability, although availability was also an important factor.

With the advent of large-scale chicken and turkey production during the 1880s in California, a new competitive force entered the market. During the last two decades of the 19th century, domestic poultry increasingly dominated the marketplace. Domestic fowl were still significantly more expensive than wild birds, however, and the contributions of market hunters, which then consisted mainly of ducks, geese, and quail, remained important. By the first decade of the 20th century, domestic poultry had become competitive in price with wild game birds. Also at this time, populations of wild fowl began to decline in numbers, and they increasingly became a luxury food item for urban Californians.

This reversal in the prices and dietary contributions of market hunting and the domestic poultry industry, and the co-occurring perception of the former enterprise as the main cause of the decrease of game birds, were apparently the principal factors leading to removal of wild birds from the marketplace. This process began in 1901 with passage of a limited set of protective laws by the California legislature. After this, conservationists' efforts increased, ultimately culminating in the passage and implementation of the Migratory Bird Treaty with Canada in 1916-1918 by the United States Government, which completely ended legal market hunting of wild birds.

SOCIAL STATUS AND POULTRY UTILIZATION

The bird remains from the Golden Eagle excavations also strongly indicate the importance of cultural variables in the utilization of wild and domestic poultry products by mid/late-19th-century Californians. One of these variables was the social status of persons consuming poultry. The restaurants, saloons, and oyster bars along Front Street and K/4th streets in Sacramento, dated between 1849-1880, were recently sampled by archaeological excavations. Investigations revealed that these establishments primarily catered to a lower-/lower-middle class clientele (Peter Schulz personal communication 1979), while those at the Golden Eagle Hotel site were mainly frequented by upper-middle-/upper-class customers. These social differences are reflected in the representation of avian taxa from the two localities. The ratio of wild ducks, geese, and swans to domestic chickens and turkeys in the Front Street-K/4th street cultural deposits is approximately 3:2 (Simons 1980: figure 2). In the Golden

Eagle Hotel deposits, however, the overall "duck:chicken" ratio is approximately 1:1. It seems likely that this difference in duck:chicken ratios directly reflects status differentiation. As noted above, during the time that these cultural deposits were laid down, domestic poultry was scarce and expensive in California--twice the price of wild game birds. Customers frequenting the restaurant and oyster saloon of the Golden Eagle Hotel site apparently could afford domestic poultry, however, and were quite willing to pay the extra price in effect at the time.

ETHNICITY AND POULTRY UTILIZATION

Ethnicity was apparently also a factor in the utilization of wild and domestic poultry products by mid/late 19th-century Californians. A study of menus from the Golden Eagle Hotel, combined with archaeological and historical data, suggests that its chefs practiced an Americanized version of "continental" (i.e., French) cuisine. Many of the dishes listed on these menus, for example, are described in various "classic" guides to French and Franco-American cooking (e.g., Ranhofer 1920; Escoffier 1957; Montagne 1977). Additionally, historical records indicate that a cook of French origin was employed by the Golden Eagle Hotel during the early 1860s. Historical data also note that William Cronin was a waiter at the Golden Eagle Hotel before he started his oyster saloon. Finally, bird remains from the Golden Eagle excavations display attributes best interpreted in terms of their preparation and consumption as items of French/Franco-American cuisine.

One of these indicators is the presence of 248 blackbird bones, representing at least 13 individual birds, in cultural deposits associated with Feature 20. During the latter half of the 19th century, several species of passerine birds--including horned larks, robins, house-finches, and goldfinches--and several genera of sparrows (*Zonotrichia, Melospiza, Ammodramus*) and blackbirds (*Agelaius, Euphagus*) were retailed in California's markets (Bryant 1891; Storer 1965). Horned larks were the species most commonly taken and sold (Bryant 1891; Gordon 1977), with some 2,354 of these birds being sold in the San Francisco and Los Angeles markets during the 1895-96 season (Skinner 1962:210). Prices asked for passerine birds in the markets of California ranged from 50 cents to one dollar for one dozen birds (San Francisco Chronicle 1870-1871, 1876-1876; Bryant 1891; Skinner 1962). These birds were almost exclusively hunted for market by immigrant southern Europeans of French and Italian origin. Ultimately, this form of market hunting received a great amount of criticism, often strongly tinged with anti-southern European prejudice (Hornaday 1913, 1914, 1931; Graham 1971).

Passerine birds were consumed mainly in the homes of southern European immigrants and by the upper-class clientele of better restaurants (Bryant 1891), where they were commonly used in French/Franco-American dishes. Ranhofer (1920), for example, referred to a number of passerine species used in this fashion, as did Escoffier (1957) and Montagne (1977). They noted that these birds could be prepared in a number of ways (roasted, broiled, sauteed, baked in casseroles, and baked in pies). Among the passerine birds present in the Central Valley of

California which were used in French cooking, blackbirds would have provided a resource of some significance. Many blackbird species, for example, are highly gregarious, feeding in large flocks, congregating in enormous roosts, and often nesting in large groups (Bent 1958; Orians and Christman 1968; Payne 1969). Because of this behavior, they would have provided hunters with a significant "target of opportunity." During the 1850s, a number of naturalists reported that several blackbird species were abundant in the Central Valley and were shot in large numbers for the market (Heermann 1853, 1859; Newberry 1857; Neff 1937, 1942; Bent 1958).

The ethnicity of the cuisine served by the restaurant and oyster saloon of the Golden Eagle Hotel site is also reflected in representation of the major body parts of chickens and wild ducks found in the deposits (see table 1.3). All major parts of chickens are well represented, particularly the "breast-upper wing." This finding is not surprising given the importance of chicken breasts-upper wings in French/Franco-American cooking (Ranhofer 1920; Escoffier 1957; Montagne 1977). Bones comprising the "giblets" (as defined by Montagne 1977:424) of wild ducks are greatly over-represented, while the "breast-upper wing" and "thigh-drumstick" are very under-represented. Ranhofer (1920) and Montagne (1977) jointly provide an explanation for this situation. Ranhofer noted that the breast fillet of wild ducks was consumed whole, while the remainder of the carcass was commonly broken up and squeezed in a duck press for the juices. Montagne observed that the giblets of wild ducks, like those of chickens and other poultry, are commonly trimmed off and used in the creation of a number of dishes.

The bird remains from the Golden Eagle excavations, however, display some qualities which are not entirely consistent with the interpretations given above. In particular, upland game birds (quail, grouse, pigeons, doves) are greatly under-represented, while shorebirds do not occur at all in the deposits. The paucity of these birds directly contradicts historical evidence that they were marketed and consumed in large numbers in California. It is also at variance with the postulation that French/Franco-American food was served at the Golden Eagle Hotel site's restaurant and oyster saloon, given the importance of quail, pigeon, and shorebird dishes in this form of cuisine (Ranhofer 1920; Escoffier 1957; Montagne 1977).

The scarcity of these birds in the Golden Eagle deposits may have resulted from a number of causes. For example, these taxa may not have been commonly available in the Sacramento area, although this seems unlikely. The loss of quail, pigeon, and shorebird bones as a result of preparation and consumption as food and/or the activities of scavenging animals, such as cats and rats, is possible given the relatively small size and delicate construction of skeletons of these birds. This inference is supported by the existence of gnaw marks on many of the bird bones in the collections and by historic documentation of the presence of large numbers of cats and rats in the late 19th-century Sacramento (Peter Schulz personal communication 1978). The most likely cause of the scarcity of quail, pigeon, and shorebird remains in the Golden Eagle deposits, however, is recovery loss, since most of the soil excavated from the site was passed through 1/4-inch-mesh screens.

TABLE 1.3

Representation of Bones from Selected Body Parts of Chickens and Wild Ducks

Body Parts	Whole Chicken/Wild Duck Number	Whole Chicken/Wild Duck Percent	Golden Eagle Block Chickens Number	Golden Eagle Block Chickens Percent	Golden Eagle Block Wild Ducks Number	Golden Eagle Block Wild Ducks Percent
"Breast-Upper Wing" (sternum, furcula, scapula, coracoid, proximal humerus)	10	29.5	44	39.0	24	13.0
"Thigh-Drumstick" (femur, tibiotarsus)	8	23.5	29	26.0	10	5.5
"Giblets"* (distal humerus, ulna, carpometacarpus, wing phalanges, tarsometa-tarsus)	16	47.0	39	35.0	149	81.5

*"Giblets" are defined following Montagne (1977:424).

SUMMARY AND CONCLUSIONS

Study of the bird remains from the Golden Eagle excavations in Sacramento, California, provides data lending further support to the model of mid/late-19th- and early 20th-century wild and domestic poultry utilization developed by Simons (1980) from historical and archaeological evidence. It also strongly suggests that cultural factors, such as social status and ethnicity, often played significant roles in determining how wild and domestic poultry products were utilized during this period in California. These findings demonstrate the value of such studies in archaeological faunal analysis and indicate that the historic-period archaeology of California undoubtedly contains numerous opportunities for similar work.

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FISH REMAINS

by

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INTRODUCTION

The fish remains analyzed in this report were recovered during a recent archaeological excavation of 19th-century urban deposits in Sacramento, California. Remains such as these are of potential importance because little quantitative information is available on California's fisheries in the last century. Even less is known of the fish populations upon which these industries depended or the role of fish in the urban diet at that time. Remains such as those reported on here are also potentially useful in providing information on the chronology and seasonality of deposition of the archaeological strata themselves.

While the present collection is relatively small and consequently of limited value in itself, it nonetheless represents the most productive single archaeological feature yet studied in the city; results can be compared with other collections from 19th-century Sacramento (Schulz n.d.) to provide a fuller picture of the role of fish during this period.

SITE DESCRIPTION AND METHODS

During the summer of 1979, excavations were conducted by the Sonoma State University Cultural Resources Facility on the J/K/6/7 Block in northwestern Sacramento. This block is situated in the city's early commercial district, and all the deposits encountered were within or adjacent to the site of the Golden Eagle Hotel, a prominent Sacramento enterprise from 1851 to the middle of the present century.

Of the investigated deposits, three chronologically well-controlled units yielded fish remains. These three proveniences are: (1) Feature 6, a deposit built up beneath the floor of the Golden Eagle Oyster Saloon (1874-1878), yielding a ceramic terminus post quem of 1870; (2) Feature 15, a brick-lined pit with a ceramic terminus post quem of 1866, also probably associated with Cronin's oyster saloon; and (3) Feature 20, another brick-lined pit, which had a ceramic terminus post quem of 1856 and was associated with the operation of the Golden Eagle Hotel in the early 1860s.

Earth from Feature 20 and half of the material from Feature 15 was passed through 1/8-inch mesh screens; 1/4-inch mesh was used for the remainder of Feature 15 and for soil in Feature 6. The recovered bone was saved, cleaned, and sorted, and the fish bone was submitted to the author for identification.

Soil samples were taken from all features. Later, these were passed through 1/8-inch mesh screens and the residue carefully sorted. This process was completed too late for incorporation of the data into the body of this report. Appendix 2.1 lists identifiable fish remains recovered.

RESULTS

A total of 278 identifiable fish bones was recovered from the three features, most of which (97 percent) came from Feature 15. At least 29 individual fish of ten species are represented among the remains (table 2.1)

SACRAMENTO PERCH

The most common fish in the Golden Eagle collection was the Sacramento perch *(Archoplites interruptus)*. Until late in the last century, this species was extremely abundant in the lakes and sloughs of the lower Sacramento-San Joaquin Valley, and its bones outnumber the remains of all other fishes in prehistoric Indian middens near Sacramento (Schulz and Simons 1973; Schulz, Wagner, and Domning 1976).

The "strings of pan fish" which were sold by native fishermen to the first overland party of 1846 when it reached Sutter's Fort (Bryant 1936:243) were undoubtedly Sacramento perch, and it is noteworthy that this fish, alone among the native freshwater species of the state, has maintained a consistently excellent gastronomic reputation ever since (see appendix 2.2). Known during the last century merely as "perch" or, rarely, "bass," they were a common element of local restaurant menus during the 1850s and 1860s (Askin 1978; Sacramento Bee 3 February 1862:2). Unfortunately, Sacramento perch 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.

In the late 1870s, Sacramento perch were still considered "abundant" by observers of the market (Lockington 1879b), but fishermen were already noting a decline in their numbers:

> In the early days the run of perch was quite large. Fishermen have been known to take in Brannan Slough in one day as much as 3,600 pounds. As late as 1869 it was a common thing to take from 500 to 1,000 pounds daily in that slough. Since that time they have been getting less and less each year, until now there are weeks at a time that there are none to be seen in the local markets. The decrease is fully 98 per cent,... the cause of which, for one thing, is the reclamation of the tule lands, which has closed all of the sloughs by which they entered the lakes to deposit their ova (Sacramento Record-Union 9 February 1884:5).

Except for a brief revival (in 1884 and 1885) attributed to breaks in the levees which permitted spawning over the tule lands (Dibble et al. 1884; Buckingham et al. 1886), the population continued downward. By the beginning of the present century, commercial landings had declined to insignificance, and within a few decades Sacramento perch had been eliminated from all the open waters of their native habitat.

TABLE 2.1

Fish Remains from the Golden Eagle Excavations, Sacramento

(Number of elements/Minimum number of individuals)

		Cronin's Oyster Saloon		Golden Eagle Hotel
Common Name	Species[1]	Feature 6	Feature 15	Feature 20
Sacramento perch	*Archoplites interruptus*		187/11	
Thicktail chub	*Gila crassicauda*		23/6	
Sturgeon	*Acipenser* sp.		18/1	
Rockfish	Scorpaenidae		13/2	
Lingcod	*Ophiodon elongatus*		12/1	
Cod	*Gadus* sp.	2/1	4/1	6/1
Jacksmelt	*Atherinopsis californiensis*		6/2	
Surfperch	Embiotocidae		4/1	
White seabass	*Atractoscion nobilus*		2/1	
King salmon	*Onchorhynchus tshawytscha*			1/1
TOTAL		2/1	269/26	7/2

[1] Scientific names follow Hubbs, Follett, and Dempster (1979).

THICKTAIL CHUB

The second most common fish in the collection, the thicktail chub *(Gila crassicauda)*, a large minnow, is also one of the most interesting since it is probably now extinct. Reports of 19th-century fisheries suggest that this species was then a common component of the Sacramento fishery, although such reports regularly confused various species of minnows under overlapping popular names. More definitive evidence is provided by studies of fish remains in local prehistoric middens: chubs are among the most numerous of fish species in the sites studied, and in one historic Patwin village on the middle Sacramento, they were the most abundant species in the fauna (Schulz and Simons 1973; Schulz, Wagner, and Domning 1976; Schulz 1979). These studies lend considerable weight to reports that chubs were abundant in the lower Central Valley at least as late as 1888 (Collins 1892:123), but the population--like that of the Sacramento perch--seems to have gone into permanent decline shortly thereafter. Chubs were not even mentioned in studies of the early 19th-century commercial fishery (Croker 1934), and only two specimens have been observed by biologists since 1938. Nineteenth-century assessments of their gastronomic reputation differ, but on the whole, chubs were not preferred (see appendix 2.2).

COD

Although their remains were not abundant, cod *(Gadus* sp.*)* are unique in the collection in being represented in all three archaeological features. The remains could represent either Atlantic cod *(Gadus morhua)* or Pacific cod *(Gadus macrocephalus)*. The bones of this genus exhibit considerable individual variation, and it has not been possible to isolate specific differences among the elements in the Old Sacramento collections.

Salted Atlantic cod were being shipped around the horn to San Francisco even before the Gold Rush (The Californian 26 January 1848:1), and they were being advertised in Sacramento by 1850 (Placer Times 30 June 1850:3). The large cod populations of the North Pacific were not discovered until 1857 and the commercial fishery did not begin until 1863 (Cobb 1927).

Since cod appear only occasionally on available local 19th-century menus (Askin 1978), they may not have been esteemed for flavor. There is little information in the fisheries literature regarding cod's popularity, and it is possible that the taste of cod was so universally known that no one felt the need to comment upon it. Salted cod were certainly more troublesome than fresh fish, since they required overnight soaking, before cooking, to leach out the salt. They had, however, the advantage of being storable for extended periods of time, thus avoiding the vagaries of supply that afflicted the fresh fish market.

STURGEON

California waters contain two species of this fish, white sturgeon *(Acipenser transmontanus)* and green sturgeon *(A. medirostris)*. Although the two species could not be distinguished on the basis of skeletal remains, in view of the extreme prejudice against green sturgeon in the last century (see appendix 2.2), the bones in the present collection probably derive from white sturgeon.

These primitive fish attain the greatest size of any species on the Pacific coast, sometimes reaching weights in excess of 1000 pounds. Specimens brought to market averaged 15-50 pounds (Redding et al. 1877:13; Lockington 1881:58; Collins 1892:163). The flesh is now generally considered excellent eating, and the fish have attracted an avid sport fishery, but their reputation in the last century was less secure. Accounts of the period repeatedly noted that, while sturgeon comprised an important part of the fishery, they were usually not much favored; much of the meat was sold in restaurants masquerading as "sea bass" or "tenderloin of sole" (see appendix 2.2). The latter name is listed on the menu of an 1869 banquet held at the Golden Eagle Hotel for the directors of the Central Pacific Railroad (see Gust and Schulz, this volume), suggesting that the imposture may not have been too seriously regarded in upper-class circles.

KING SALMON

King salmon *(Oncorhynchus tshawytscha)* were popularly known in the last century as quinnat salmon or Sacramento salmon. The salmon fishery of the Sacramento was the first commercial fishery established on the coast and the most important. Adult fish moved up the Sacramento from the ocean to spawn in two major runs, the spring run being larger than that of the fall and yielding fish of better flavor. Average weight of these fish was 15-20 pounds (Kirkpatrick 1860:56; Collins 1892:162).

JACKSMELT

Jacksmelt *(Atherinopsis californiensis)* were popularly known in the last century only as smelt, a designation which was also applied to several other species. *Atherinopsis* was by far the most abundantly represented "smelt" on the market and, when any distinction was made, the most preferred. The fish weighed from 1/3 to 1 pound (Collins 1892:122).

WHITE SEABASS

Known in the 19th century only as sea bass or as sea trout, this large species *(Atractoscion nobilis)* reached weights in excess of 100 pounds. Average weight of market fish, however, was about 15 pounds (Jordan 1884a:37; Collins 1892:121). Their rating as a table fish was consistently high (see appendix 2.2).

LINGCOD

Lingcod *(Ophiodon elongatus)*--cultus cod or green cod in the terminology of the time--resembled the true cod in size and general appearance, although being of a separate family. Weight averaged 10-15 pounds (Collins 1892:120).

ROCKFISH

Some 50 species of this family (Scorpaeindae) are native to San Francisco Bay or the adjacent coastal waters. They vary greatly in their commercial importance, but as a group they seem to have been highly valued (see appendix 2.2).

SURFPERCH

This family (Embiotocidae) is represented by 18 local marine and 1 freshwater species. The only elements in the collection are four vertebrae from a relatively large fish. Interestingly, the vertebral bodies exhibit a marked anterior-posterior compression and associated osteophytosis. This kind of spinal deformity has been reported in pile surfperch (*Damlichthys vacca*) (Tasto 1978), and it is also mirrored precisely in a rubberlip surfperch (*Rhacochilus toxotes*) in the U. C. Davis Museum of Anthropology (No. 5099) examined during this study.

Marketed surfperch averaged about one pound (Cronise 1868:488). They were generally rated as of little account commercially (see appendix 2.2).

DISCUSSION

The implications of this collection for interpreting the archaeological deposits relate to questions of chronology, seasonality, and economic status. Because the collection is small, the following comments must be considered provisional.

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 surely indicates that Feature 15 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 species. In 1871 federal and state fish commissioners began introducing what was to become a long series of exotic fishes (Shebley 1917; Moyle 1976). 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-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 Feature 15 predated 1880.

SEASONALITY

When this study began, it was hoped that seasonal occurrence in the market of the identified fish species would aid in determining the season of deposition of the archaeological features. Unfortunately, most of the recovered fish would have been abundantly available throughout the year, and reports of the seasonal availability of the other species are somewhat contradictory. White seabass were variously reported as being avail-

able from February through October (Lockington 1879b:55), May through October (Buckingham et al. 1886:9-10), and July through November (Collins 1892:121). Sacramento perch were reported by Lockington (1879b:55) as present in the market from February through September, while Collins (1892:121) described them as being "taken in great numbers from October to March." Except for agreement that seabass were absent from the market in December and January, then, this information is of little value.

ECONOMIC STATUS

It was known at the beginning of this study that strong popular prejudices were involved with the table values applied to various fish species. These prejudices would affect behavior, which, in turn, would be reflected in the archaeological record. In brief, it was expected that highly esteemed fishes would have cost more and would therefore be recovered with some consistency from archaeological deposits deriving from high-status establishments. Poorly rated species, by contrast, would have been the table fare of the lower socioeconomic groups and would be recovered from deposits associated with their status.

All three features, in the present instance, had some connection with the Golden Eagle Hotel, and, though they may have derived from enterprises operating under separate management, the proximity of these businesses to the hotel strongly suggests that they were serving the same upper-class and upper-middle-class clientele. This assumption receives considerable support from the analysis of the mammal bone from the features (Gust and Schulz, this volume).

Most of the fish assemblage seems in perfect accord with our expectations. Salmon, smelt, rockfish, seabass, and Sacramento perch were all highly esteemed fishes, while popular ratings of cod and lingcod are sufficiently equivocal that their presence evokes no particular surprise.

Sturgeon, in view of their rather questionable reputation in the last century, might be considered an unexpected inclusion. Their appearance (as "tenderloin of sole") on a menu of the Golden Eagle, however, suggests that market accounts of their popularity are overly negative or that diners disliked the flesh only when they knew what it was.

The surfperch, however, seem to have maintained a consistent position of low popular esteem. It appears that these fish were not favored by anyone (except perhaps the Chinese). Yet we have a report of one species (redtail surfperch) wholesaling for 15¢ per pound (San Francisco Call 31 March 1887:5)--two to three times the cost of most other species--an expression of popularity surely!

Even more interesting is the presence in the Feature 15 deposit of several thicktail chubs. These now-vanished minnows were usually accounted a poor table entree and often were viewed as a food only the Chinese would eat. The occurrence of several chubs in the present collection accordingly comes as a surprise. Whether their presence is evidence for an upward revision in our assessment of their status or for lowering our view of the status of the deposits can be determined only when results of the archaeological investigation are viewed as a whole.

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APPENDIX 2.1

Fish Remains Recovered from Soil Samples

Feature 6

Layer 27
Archoplites interruptus: ctenoid scale
Unidentified: thoracic vertebra

Feature 15

Layer 53
Archoplites interruptus: L epihyal, 2 ctenoid scales
Unidentified: 15 vertebrae, 2 dorsal spines, misc. fragments

Layer 59
Flatfish[1] (Pleuronectidae or Bothidae): 2 thoracic vertebrae
Gila crassicauda: R premaxillary, R ceratohyal, first vertebra
Archoplites interruptus: vomer, L ceratohyal, parasphenoid, supraoccipital, first vertebra, second vertebra, 9 thoracic vertebrae, 1 caudal vertebra, basioccipital
Unidentified: 49 vertebrae, 11 dorsal spine, 12 ribs, misc. fragments

Feature 20

Layer 86
Unidentified: pterygiophore

Feature 8

Layer 84
Scomber sp. (mackerel)[1]: 2 thoracic vertebra
Onchorynchus tshawytscha: thoracic vertebra
Archoplites interruptus: R ceratohyal, R epihyal, 3 ctenoid scales
Atherinopsis californiensis: L cleithrum
Unidentified: 2 dorsal spines, 4 vertebrae

Layer 85
Scomber sp.: thoracic vertebra
Unidentified (Cypuinidae?): 3 vertebrae

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1 Fish not recovered in major sample

APPENDIX 2.2

19th-Century Statements of Table or Market Value for Golden Eagle Fish Species

Date	Comments	Source
	Sacramento Perch	
1849	"Delicious eating."	Derby 1932:115
1852	The best food-fish in Clear Lake	Gibbs 1853:106
1854	"One of our most esteemed fishes."	Ayres 1856:99
1857	"Very much esteemed as an article of food."	Girard 1857:9
1862	"The only fish /in the river/ considered worth keeping."	Grunsky 1959:59
1868	"About equal to the perch of other countries in flavor."	Cronise 1868:487
1872	"Perch, pile and sturgeon are the best food-fishes of the river."	Stone 1874:378
1873	"Their flesh is excellent, and they are highly prized as food both by white men and Indians."	Stone 1876:379
1879	"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.... A very good fish for the table, unless taken in sloughs that, by the falling of the water, have become disconnected from the river."	Lockington 1897b:21
1880	"Bought and consumed mainly by the Chinese, who value it highly, paying for it more than for any other fish which they consume. Although it is an excellent pan fish...we have never seen any of them bought by Americans."	Jordan 1884b:405
1884	"The next best pan fish, and there is a difference of opinion as regards which is the better of the two, trout or perch."	Sacramento Record-Union 9 February 1884:5
1886	"Regarded by many as the best flavored and most palatable fish found in inland waters."	Buckingham et al. 1886:6
1887	"Fine in quality."	Anonymous 1978
1887	"Sell at 6 and 7 cents, and are favorites with many as a breakfast fish."	San Francisco Call 31 March 1887:5
1888	Sells at 4-8¢/lb.	Collins 1892:121
1890	"Not frequently brought into the market, and is of no great economic value."	Eigenmann 1890:64
1890	Retail value averages 10¢/lb.	Wilcox 1895:209
1891	Retail value averages 7¢/lb.	Wilcox 1895:209
1892	Retail value averages 8¢/lb.	Wilcox 1895:209
1892	Better food than catfish	Jordan 1892:476
1895	"An excellent food-fish."	Jordan and Gilbert 1895:140
1895	Wholesale (?) value averages 4.6¢/lb.	Wilcox 1898:633
1899	Wholesale (?) value in Sacramento 17¢/lb.	Wilcox 1902:555

Appendix 2.2, continued

Date	Comments	Source
	Thicktail Chub	
1862	Not considered worth keeping by anglers. "Thrown back into the water."	Grunsky 1959:54
1863	"Not valuable."	Hittell 1863:146
1868	"None /native minnows/ are considered very good eating."	Cronise 1868:495
1884	"A great favorite with the Indian and Mongolian races."	Dibble et al. 1884:7
1884	"A very good pan fish."	Sacramento Record-Union 9 February 1884:5
1886	"An excellent fresh water fish, the flavor is almost equal to that of the Sacramento River perch. The chief objection to it is that it is quite bony, yet the meat peels well."	Buckingham et al. 1886:7
1888	"One of the cheapest species, selling for from 1 to 3 cents per pound."	Collins 1892:123
	White Seabass	
1863	"The meat is white and delicate, and always commands a high price."	Hittell 1863:144
1868	"One of the best sea-fish sold in our markets."	Cronise 1868:488
1879	"One of the most highly prized of the fishes of our markets, so much so that its name is given to the flesh of other species."	Lockington 1879a:685
1880	"One of the most valued food fishes of the coast."	Lockington 1881:45
1880	"Flesh is excellent, firm and well-flavored."	Jordan 1884a:379
1881	"Flesh is highly esteemed."	Jordan and Gilbert 1882:48
1888	"One of the most valued and important species on the coast." Sells for 1-10¢/lb.	Collins 1892:121
1890	Retail value averaged 7¢/lb.	Wilcox 1895:209
1891	Retail value averaged 5¢/lb.	Wilcox 1895:209
1892	Retail value averaged 7¢/lb.	Wilcox 1895:209
1895	Wholesale (?) value averaged 2.5¢/lb.	Wilcox 1898:633
	Surfperch	
1863	"The meat is not good."	Hittell 1863:146
1869	"None of them are considered very good, though all are eaten, and command an extra price from the Chinese."	Cronise 1868:488
1880	"Far inferior to the other leading groups of food fishes."	Lockington 1881: 43
1881	"Flesh...flavorless and poor."	Jordan and Gilbert 1882:49

Appendix 2.2, continued

Date	Comments	Source
1887	"One variety...known as the red tail sells at 15 cents a pound."	San Francisco Call 31 March 1887:5
1888	Most common species sells for 3-8¢/lb. "Mostly consumed by Chinese."	Collins 1892:120
1890	Retail value averaged 8¢/lb.	Wilcox 1895:209
1891	Retail value averaged 5¢/lb.	Wilcox 1895:209
1892	Retail value averaged 4¢/lb.	Wilcox 1895:209
1895	Wholesale (?) value averaged 2.4¢/lb.	Wilcox 1898:633
	Jacksmelt	
1863	"The best of our small fishes."	Hittell 1863:145
1869	"Justly esteemed as food, but inferior to the true smelts."	Cronise 1868:488
1875	"Generally relished for food."	Jordan 1887:615
1881	"Flesh is firm, white, and delicate, but rather dry."	Jordan and Gilbert 1882:44
1887	Wholesaling at 7¢/lb.	San Francisco Call 31 March 1887:5
1888	Sells at 6-10¢/lb.	Collins 1892:122
1890	Retail value averaged 7¢/lb.	Wilcox 1895:209
1891	Retail value averaged 7¢/lb.	Wilcox 1895:209
1892	Retail value averaged 6¢/lb.	Wilcox 1895:209
1894	"An excellent food fish."	Babcock 1894:43
1895	Wholsale (?) value averaged 3¢/lb.	Wilcox 1898:633
	Rockfish	
1854	"They bear always a high price."	Ayres 1856:94
1857	"All very much esteemed."	Girard 1857:15
1863	"The main supply of fish in the San Francisco market... They are always in market, and their meat is excellent in all seasons."	Hittell 1863:143
1868	"Favorite fish for the table...a resemblance to Cod in taste."	Cronise 1868:491
1880	Most species valued	Lockington 1881: 33-38
1883	Wholesale at 1½-7¢/lb., depending on supply.	San Francisco Chronicle 11 November 1883:1
1887	Wholesaling at 7¢/lb. "People who like rock-cod like it excessively; to most people it requires careful cooking and a good deal of sauce to make it palatable."	San Francisco Call 31 March 1887:5
1888	Sells at 4-10¢/lb.	Collins 1892:120
1890	Retail value averaged 8¢/lb.	Wilcox 1895:209
1891	Retail value averaged 7¢/lb.	Wilcox 1895:209
1892	Retail value averaged 5¢/lb.	Wilcox 1895:209
1895	Wholesale (?) value, fresh 2¢/lb.; salted 3.4¢/lb.	Wilcox 1898:633

Appendix 2.2, continued

Date	Comments	Source
	White and Green Sturgeon	
1863	"The meat...is coarse, and in the market is worth only about one-fourth or one-sixth that of better table fishes..."	Hittell 1863:143
1872	"Perch, pike and sturgeon are the best food-fishes" of the river.	Stone 1874:378
1875	"Unwittingly confounded with sea-bass by restaurant keepers, as many people can testify."	Jordan 1887:615
1879	Flesh disguised under names "sea basse" and "tenderloin of sole".	Lockington 1879a: 685
1879	"'Sea Bass', boiled and baked, is a constant dish at the restaurants of the city /San Francisco/, but examination shows that much of that sold at the cheaper restaurants is sturgeon." Only white sturgeon "brought to market in abundance, as the fishermen have a prejudice against the ...green sturgeon...asserting that is is poisonous."	Lockington 1879b: 26, 51
1880	White "very cheap." Green "not used as a food, being reputed poisonous."	Goode 1884:663
1880	White "very cheap." Green "not eaten as it has the reputation of being poisonous; green color of the flesh prevents its sale as 'sea bass.' The flesh in reality is as good as that of the white sturgeon."	Lockington 1881: 58
1881	White "largely used as food, although very cheap. In the restaurants it is usually called 'sea-bass'." Green "not used as food being reputed 'poisonous' by the fishermen."	Jordan and Gilbert 1882:36
1884	"One of our best and cheapest food fishes, and is becoming more in favor with all classes of our citizens."	Dibble et al. 1884:8
1884	White "in the early days was considered of no value as a food fish;" now "one of the best of our cheap fish, and is used in great quantities."	Sacramento Record Union 9 February 1884:5
1886	"One of the best and cheapest food fishes... A favored food with all classes of our citizens, and well advertised in 'bills of fare' as the 'steak of sole'."	Buckingham et al. 1886:5
1888	White "abundant and meets with a good demand at all seasons, selling at from 4 to 12½ cents per pound." Green "not in favor as a food fish."	Collins 1892:124
1890	White "sold in restaurants as 'tenderloin of sole'." Green no longer thought poisonous, "still looked upon with less favor than the white."	Eigenmann 1890:55
1890	Retail value averaged 5¢/lb.	Wilcox 1895:209
1891	Retail value averaged 5¢/lb.	Wilcox 1895:209
1892	Retail value averaged 4½¢/lb.	Wilcox 1895:209
1895	Wholesale (?) value averaged 2.8¢/lb.	Wilcox 1898:633

Appendix 2.2, continued

Date	Comments	Source
	Lingcod	
1880	"As a food fish it ranks high."	Lockington 1881:33
1881	"One of the better food fishes."	Jordan and Gilbert 1882:54
1890	Retail value averaged 7¢/lb.	Wilcox 1895:209
1891	Retail value averaged 6¢/lb.	Wilcox 1895:209
1892	Retail value averaged 5¢/lb.	Wilcox 1895:209
1892	"Not a first-class fish." Young sold as "white bait" (young herring).	Babcock 1894:43
1895	Wholesale (?) value averaged 3¢/lb.	Wilcox 1898:633

MAMMALIAN REMAINS

by

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INTRODUCTION

SITE DESCRIPTION

The mammalian remains analyzed in this chapter were recovered during archaeological excavations of 19th-century deposits located on the J/K/6/7 block in the commercial district of Sacramento, California. The archaeological features encountered were unique in that they resulted from upper-class sources. They therefore provide an unusual opportunity to investigate the economic characteristics of such deposits in Sacramento.

The focus of this excavation was the Golden Eagle Hotel. Founded in 1851, it maintained a reputation as one of Sacramento's finest hotels for much of its 100-plus years of existence. Evidence of the hotel's status is easily obtained from local newspapers, which carried an exclusive daily item on arrivals and departures at the Golden Eagle Hotel. The papers' society columns reported on important dinners held there. For instance, in 1869 a banquet given for the officers of the Central Pacific Railroad was attended by the Big Four (Stanford, Huntington, Hopkins, and Crocker), Admiral Farragut, and numerous other dignitaries (Sacramento Bee and Sacramento Union 29 September 1869).

Archaeological exploration of architectural features related to buildings of the Golden Eagle led to partial excavation of adjoining lots. One of these parcels had been the site of W. Cronin's Golden Eagle Oyster Saloon, which operated next door to the hotel during the 1870s. Cronin had worked at the Golden Eagle Hotel for 11 years prior to opening his oyster saloon in 1874.

MATERIALS AND METHODS

Four features of the Golden Eagle excavation were selected for intensive analysis due to their undisturbed state and clear date ranges. Feature 20 is associated with the Golden Eagle Hotel's restaurant and dates to around 1860. Feature 8 is also associated with the hotel and dates to the mid to late 1860s. Features 15 and 6, associated with Cronin's oyster saloon, were deposited between 1874 and 1878.

All soil from features 8 and 6 was screened through 1/4-inch mesh; 1/8-inch mesh was used for Feature 20 and part of Feature 15. All fragments of bone recovered were retained. The bone was cleaned, sorted, and catalogued by personnel of the Sonoma State University Cultural Resources Facility. Identifications were made by the authors using the comparative faunal collections of the Archaeological Laboratory, California Department of Parks and Recreation, and of the Museum of Anthropology, University of California, Davis.

Taxon, element, and side were specified for each piece of identifiable bone (for definition of these terms see Chaplin 1971). Additionally, all butchering marks were noted, and each butchered bone, pictorially recorded per Lyman (1979a).

RESULTS

BEEF, MUTTON, AND PORK

Bones of domestic meat animals usually constitute the major portion of historic faunas. The analysis of these bones is particularly rewarding in the urban commercial context. The wealth of pertinent documentation coupled with information available from the archaeological remains allows exploration of many issues.

Butchering is a matter of major concern in historical faunas. The results of an intensive butchering study on old Sacramento faunas, including the Golden Eagle collection, will be fully described in the future (Gust,in press). Indications are that meat was cut into standard pieces much as is the practice today. The particular pieces of butchered bone present in the Golden Eagle sample are typical of 19th-century commercial eateries.

Determination of the relative contributions of beef, mutton, and pork to the diet is important for the insight into meat preferences it provides. Table 3.1 gives several measures of frequency for the three species: beef (Bos), mutton (Ovis), and pork (Sus). The best of these approximations is provided by Lyman's (1979b) method, which results in percentages of meat by weight. This method shows beef to be dominant in all Golden Eagle features, with mutton and pork present in varying, but relatively small, amounts.

Cumulative frequencies for the Golden Eagle Hotel and Cronin's oyster saloon are compared in figure 3.1 with frequency data from other old Sacramento sites (Gust and Schulz, unpublished data) and with records of sales by a Sacramento butcher (Strickert 1856). The differences in the types and amounts of meat bought by restaurants and hotels, saloons, and private parties are apparent. The close correlation of the archaeological frequencies to those from the butcher's records implies functional differentiation. In other words, there seems to be significant and contrasting patterning in the types and amounts of meat utilized locally in saloons, in restaurants (including hotel restaurants), and in the home. Accumulation of more frequency data from archaeological sites with known functions will be required to fully test these tentative results.

Bone data can also make a contribution to the determination of socioeconomic standing. Since the relative values of different cuts of meat are available from documentary sources, frequencies of occurrence of bones representing different cuts should indicate economic status. Table 3.2 gives percents of meat weight (figured using Lyman 1979b) from the major carcass divisions recovered from each feature, as well as totals for the hotel and oyster saloon. These carcass divisions represent meat cuts of differing quality and value. Perusal of the table shows that almost 60 percent of the meat represented were highly desirable cuts: loin, rib, leg, and ham. Middle-value cuts make up over 30 percent, leaving less than 10 percent inexpensive cuts. The fact that these percentages are virtually equal for both the Golden Eagle Hotel and Cronin's oyster saloon is a significant indication of their equivalent status.

TABLE 3.1

Comparative Species Values

	Golden Eagle Hotel			Cronin's Oyster Saloon		
	Feature 20	Feature 8	Total	Feature 15	Feature 6	Total
Fragment Counts						
Bos	5	110	115	67	161	228
Ovis	25	71	96	117	84	201
Sus	80	25	105	144	89	233
Minimum Number of Individuals						
Bos	1	3	4	2	1	3
Ovis	1	4	5	5	3	8
Sus	1	3	4	7	3	10
Lyman's Meat Weight of Butchering Units (in percent)						
Bos	50	73	69	40	79	63
Ovis	25	18	20	25	6	14
Sus	25	9	11	35	15	23

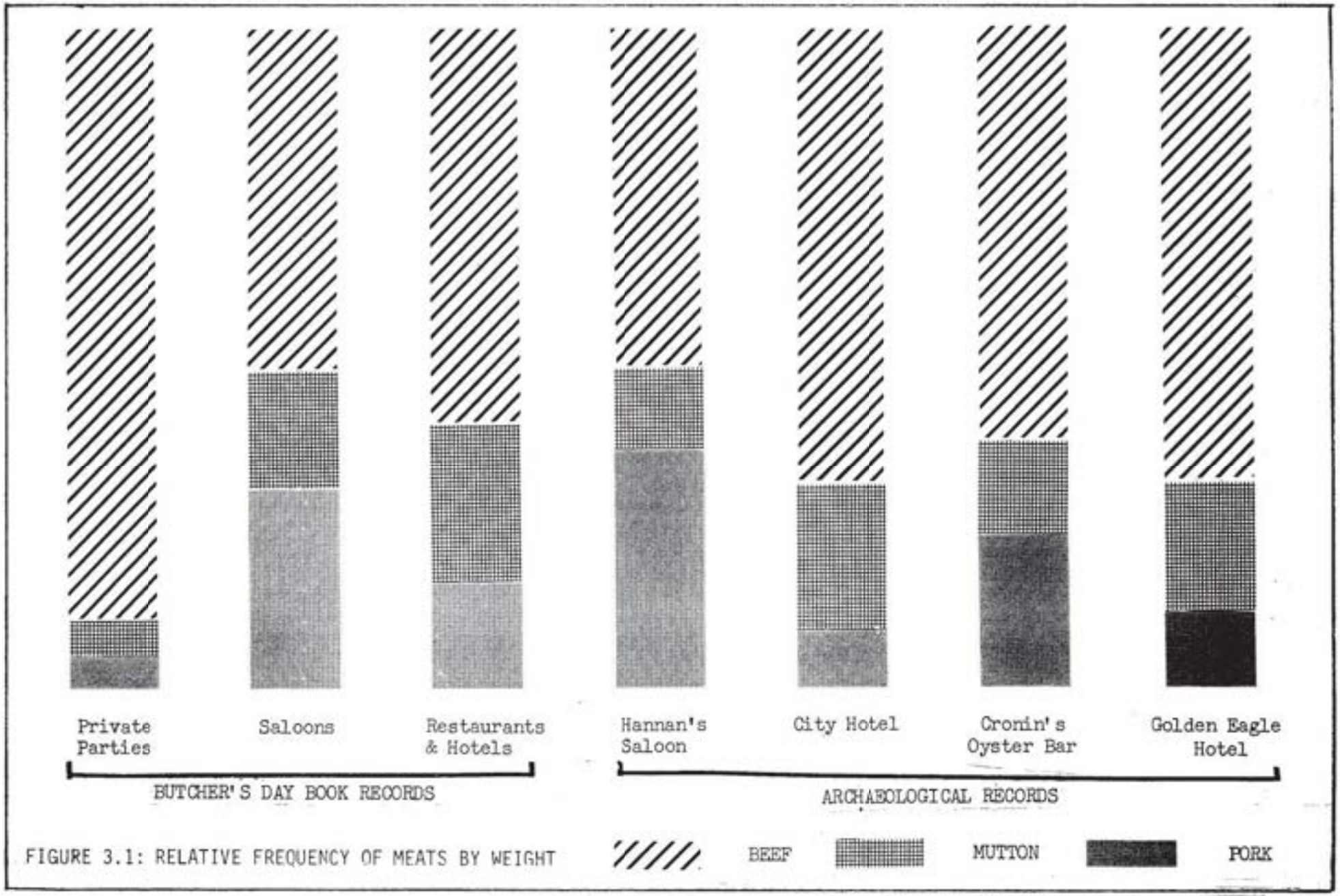


FIGURE 3.1: RELATIVE FREQUENCY OF MEATS BY WEIGHT

TABLE 3.2

Percentages of Total Meat Weight for Carcass Divisions with Minimum Butchering Units

	Feature 20		Feature 8		Feature 15		Feature 6		Golden Eagle Hotel	Cronin's Oyster Saloon
	MBU	%	MBU	%	MBU	%	MBU	%	%	%
BEEF										
loin	1	19	3	14	1	8	2	12	15	10
ribs			6	17	2	11	8	30	15	23
round			5	18			1	5	15	3
rump			2	2	2	3	1	1	1	2
chuck	1	30	2	14	1	14	3	28	17	22
plate					2	3				1
foreshank			6	6			2	2	5	1
neck					4	1	1			1
hindshank			2	2			1	1	1	1
PORK										
ham	2	8	3	4	9	16	4	5	4	9
loin	1	14	1	3	1	6	1	4	5	5
picnic ham	1	2	3	2	3	3	5	3	2	3
shoulder			1	1	5	4	4	2	1	3
jowl					7	6				2
MUTTON										
leg	4	12	7	5	4	5	2	2	6	3
loin	3	6	3	1	2	2	3	2	2	2
rib	4	7	25	9	13	9			8	4
chuck			5	3	8	8	3	2	2	3
breast					4	2				1
foreshank	1	1	6	1			6	1	1	1
									100%	100%

The high socioeconomic position of the Golden Eagle's clientele is more dramatically reflected in figure 3.2. Here, frequencies of beef cuts ranked by value are compared for four 19th-century Sacramento sites (Schulz 1979; Gust and Schulz, unpublished data). The contrast between the Golden Eagle at one extreme and the City Jail at the other is very clear.

SMALL GAME MAMMALS

Two types of small game are present in the fauna: rabbits and squirrels. The term "rabbit" is used here in the vernacular sense, applying both to true rabbits and to hares, which are called jackrabbits in the west. Accounts of the "...countless heaps of hares, rabbits, and squirrels..." in the San Francisco market in 1854 (Mollhausen 1969:355) suggest the abundance of these animals in early California.

A large number of rabbit bones was recovered from the site, with the vast majority from Feature 15 (see table 3.3). A sample from this feature was further analyzed for generic affiliation. Cottontail rabbit bones outnumbered bones of the jackrabbit more than 2 to 1. No specimens of the domestic rabbit were identified.

Tree squirrels of the genus *Sciurus* are common game throughout the country (Dalrymple 1978). The squirrel bones from Feature 15, however, are from ground squirrels of the genus *Citellus*. Many of these bones bear distinct knife scores, and the portions of bones represented are similar to those for rabbits. These factors leave no doubt that the ground squirrels were food items, although possibly not always overt ones. According to several market hunters, ground squirrels were bagged in lots of 8-10 dozen per day and "sold by the markets as 'rabbits'" (Twining 1939). Jacobsen (1918) also mentioned the suitability of ground squirrels as rabbit substitutes, particularly in relation to commercial eating establishments.

While the idea of eating ground squirrels seems undesirable today, it should be remembered that their role as carriers of the bubonic plague was not proven until 1908. Prior to that time, countless ground squirrels were marketed, and recipes for squirrel fricassee appeared often (Jacobsen 1918).

Butchering

Animals in this size range all seem to be butchered in similar manners. There are several methods, depending on the recipe. An occasional recipe calls for merely quartering the body, but the vast majority involve cutting the carcass into serving pieces (Ashbrook 1955; Fitzgibbon 1963; Hering 1958; Montagne 1977; New Mexico Wildlife Federation n.d.; Wigginton 1972).

The serving pieces produced are dependent upon the size and degree of musculature of each animal. Although these differences result in variation in the exact placement of cuts, clear butchering patterns can be discerned. The cutting patterns shown in figure 3.3 were reconstructed from the rabbit and squirrel bones recovered from Cronin's oyster saloon.

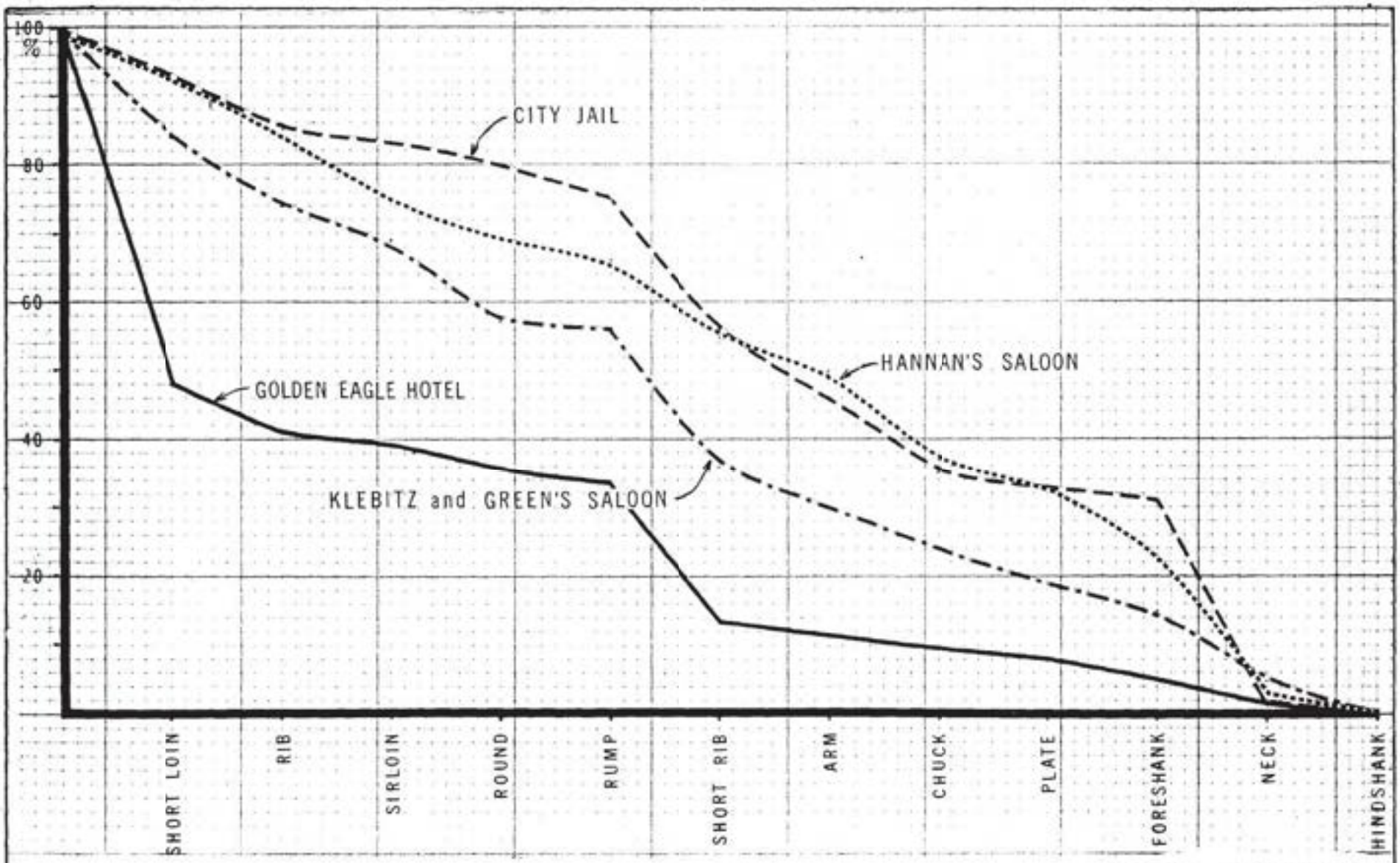


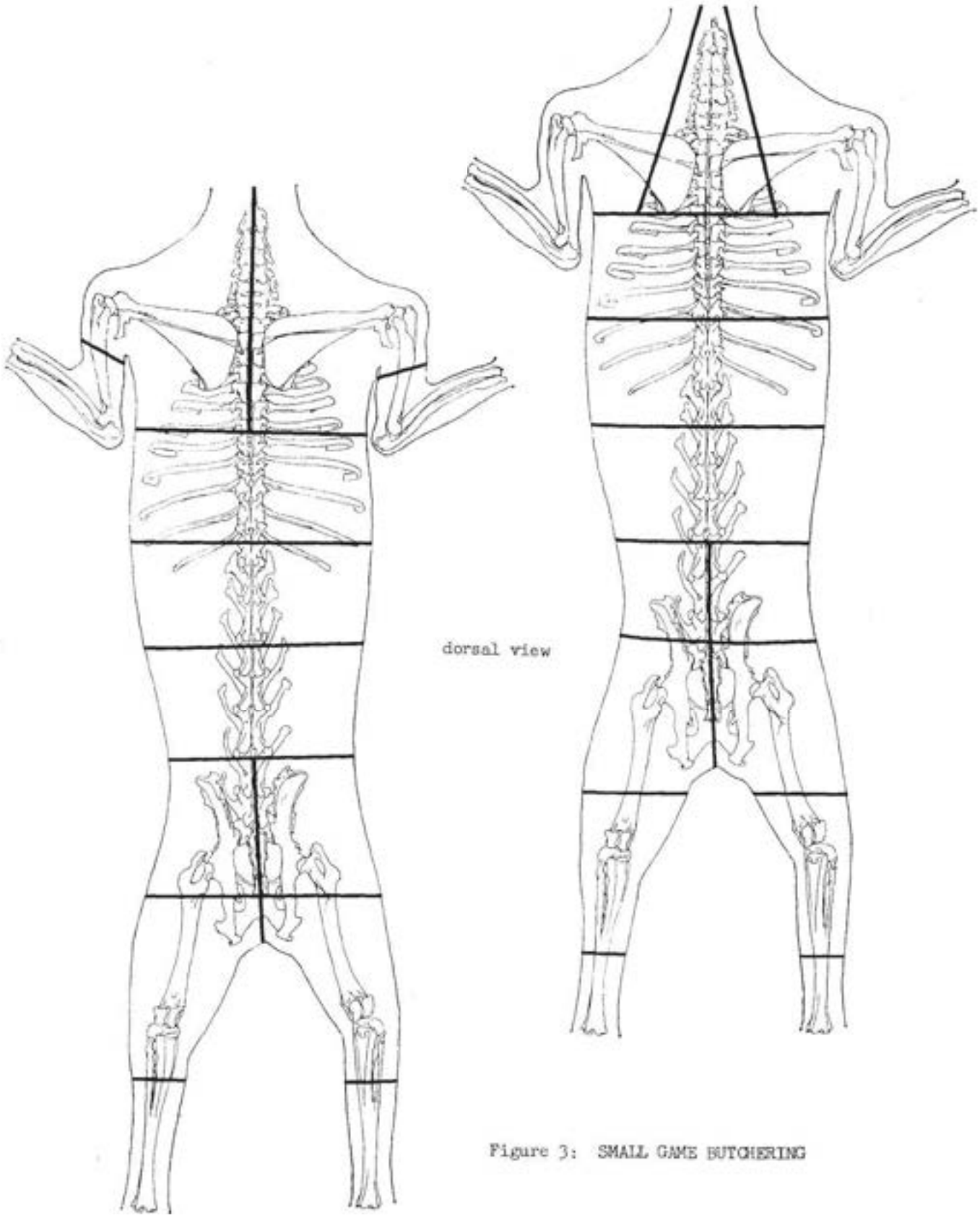
FIGURE 3.2 CUMULATIVE FREQUENCIES OF FLEMENTS FROM SECONDARY BEEF CUTS

TABLE 3.3

Small Mammals

(number of fragments/minimum number of individuals)

	Golden Eagle Hotel		Cronin's Oyster Saloon	
	Feature 20	Feature 8	Feature 15	Feature 6
Rabbits		8/2	110/10	1/1
Cottontail (*Sylvilagus* sp.)			52/7	
Jackrabbit (*Lepus* sp.)			22/5	
Ground Squirrels (*Citellus* sp.)			86/9	
Cats (*Felis catus*)			1/1	
Rats (*Rattus* sp.)	20/3	15/3	65/7	1/1
Mice (*Mus musculus*)			4/1	



dorsal view

Figure 3: SMALL GAME BUTCHERING

INQUILINES

Urban locales are noted for their excessive rodent populations, today as in the past. The early City of Sacramento was no exception, as noted in accounts of the period (Borthwick 1948; Meyer 1938). Rat bones were recovered from every feature analyzed (see table 3.3), providing physical evidence of their abundance. The disproportionately high number of rats recovered from Feature 15 likely resulted from the fact that this feature appears to have been open for some time; mammal, bird, and fish bones recovered from it bear extensive rodent gnawing marks.

DISCUSSION AND CONCLUSION

The cuisine offered by the Golden Eagle Hotel and Cronin's Golden Eagle Oyster Saloon was sampled by archaeological recovery of food remains from birds and fish, in addition to mammals (see Schulz, this volume; Simons, this volume). The relative frequencies of these meat sources from the Golden Eagle and Cronin's are summarized in table 3.4. Meat from domestic mammals is overwhelmingly dominant in both enterprises. There are more total birds represented at the Golden Eagle Hotel, but the amounts of domestic birds are nearly equal. Given the fact that chickens and turkeys were twice as expensive as game birds in the 1860-1880 period (Simons 1980), it would appear that the two restaurants were on par economically. The presence of many blackbird bones in the hotel deposits indicates that, as was typical of prestigious restaurants, French-style cooking was practiced. Indeed, in 1860, the time period to which the Golden Eagle deposits are dated, the chef was one George Dupree, who listed France as his country of origin in the Sacramento City Directory (Edith Pitti personal communication 1980). There are more fish represented at Cronin's than at the hotel, but this may not be surprising for a restaurant specializing in oysters.

Rabbits are also represented in greater number at Cronin's. Of special interest is the curious presence of ground squirrels in the oyster saloon deposits. It is unlikely that ground squirrel meat was offered regularly. While they may have been utilized as rabbit substitutes, as noted previously, it is equally possible that the ground squirrels were a merchandising gimmick. Research on restauranteers of the day indicates that unusual food items (e.g., muskrat) were sometimes advertised to draw in new customers and increase business.

Comparisons of bills of fare from 19th-century Sacramento dining spots (Askin 1978) with banquet menus from the Golden Eagle Hotel (appendix 3.1) provides additional insights. Most of the menus in Askin's collection are from small restaurants catering to working-class and middle-class clientele. There is great similarity among their offerings--mostly beef, mutton, and pork entrees. A few list items such as chicken or jackrabbit stew, but none advertises squirrel dishes. The Golden Eagle Hotel menus contrast greatly with these. Among the outstanding differences are the high number of chicken and turkey dishes, the elegant cuts of meat, and the presence on the menus of pate de foie gras from Strasbourg, an area long noted for a particularly fine product. The wines

TABLE 3.4

Relative Contributions of Dietary Components

	Golden Eagle Hotel				Cronin's Oyster Saloon			
	Feature 20 wt.	Feature 8 wt.	Total wt.	Total percent	Feature 15 wt.	Feature 6 wt.	Total wt.	Total percent
Beef[1]	82	515	597	62	148	432	580	53
Mutton[1]	42	129	171	18	94	35	129	12
Pork[1]	41	57	98	10	131	80	211	19
Rabbit[2]		4	4	1	20	2	22	2
Ground Squirrel[2]					9		9	1
Chicken[3]	3	2	5	1	14	2	16	1
Turkey[3]		20	20	2	20		20	2
Wild ducks[2]	27	4	31	3	11	2	13	1
Wild geese[2]		12	12	1	4		4	1
Quail[2]					1		1	1
Pigeons[2]					1		1	1
Blackbirds[3]	1		1	1				
Large fish[3]	30		30	3	60	15	75	7
Small fish[3]					17		17	1
			969 lbs.	99+%			1098 lbs.	99+%

[1]Meat weight of minimum butchering units using Lyman (1979b).

[2]Meat weight of minimum numbers of individuals using White (1953).

[3]Meat weight of minimum numbers of individuals using estimates appropriate for the 19th century.

listed also indicate the Golden Eagle's high status. Château Lafitte, St. Christoly, Verzeney, and Piper Heidsieck were among the finest red wines and champagnes of the time (Betty Rivers personal communication 1980).

In conclusion, the faunal evidence emphasizes and reaffirms historical information on the status of the Golden Eagle Hotel and indicates an approximately equivalent position for W. Cronin's Golden Eagle Oyster Saloon.

ACKNOWLEDGMENTS

We thank the following persons for their contributions: Adrian and Mary Praetzellis for information they supplied on the excavation, stratigraphy, and history of the site, and for the support provided by their enthusiasm for the potential of historical faunal work; Edith Pitti for additional historical information; Dwight Simons for information on ground squirrels and market hunting; Jeannette Schulz, whose intrepid researching discovered the Golden Eagle Hotel banquet menus; and Betty Rivers for documenting the authenticity of wines from the menus. Rob Turner drew the carcass view required for figure 3.3, using a box of unarticulated rabbit bones and perseverance.

We would like to laud here the efforts of the Sonoma State University archaeologists who took a mere hour of instruction, added many more of hard work, and dealt very competently with the tedious tasks of sorting and cataloguing the bone.

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APPENDIX 3.1

Golden Eagle Hotel Banquet Menus

(Originals at the California State Library)

Masonic Banquet,

given by the members of

SACRAMENTO COMMANDRY, No. 2, KNIGHTS TEMPLAR,

TO

Stockton Commandry, No. 6,

Saturday Evening, August 21st, 1869.

Bill of Fare,

prepared by D.E. Callahan, of the Golden Eagle Hotel, Sacramento.

FISH.

Cold Salmon - - Tartar Sauce. Salad de Homard.

ENTREE DISHES.

Mayonize of Chicken. Pattie de Foi Gras a la Strasburg.
Gelatin de Vollileaux Truff. Beef Tongues a la Belview.
Boned Turkey a la Jelly. Westphalia Hams Decore.

ROASTS.

Pig - - Japanese Style. Turkeys and Chickens.
Saddle of Southdown Mutton - - Currant Jelly.

CAKES.

Swiss Harengoes. Marengoes a la Cream.
Sponge Cakes. Pyramids of Macroons. Ornamental Kisses.
Lady Fingers. Croquets. Water Jumbles.
Charlotte Russe. Sherry Jelly. Jelly Tartlets.

FRUIT.

Peaches. Pears. Grapes. Walnuts.
Almonds. Figs. Raisins.
Filberts. Mottoes.
Vanilla Ice Cream

GRAND COMPLIMENTARY BANQUET,

Tendered the Officers of the

CENTRAL PACIFIC RAILROAD,

By the Citizens of Sacramento

AT THE GOLDEN EAGLE HOTEL.

D.E. Callahan . . . . . Proprietor
September 28th, 1869

DINNER BILL OF FARE

Oysters, ... On Half Shell.

SOUPS.

Sauterne.
Green turtle. Colbert.

ORDUVRE.

Amontilla la Sherry
Stuffed Olives. Anchovies a Churle.

FISH.

Salmon Genoise. Tenderloin of Sole a la Normande.

RELEVEES.

Chateau Bertram.
Chateau Rersesser.
Chapons a la Monterron. Saddle of Mutton, English Style.
Bouche de ame a la Rein.

COLD DISHES.

Chateau Lafitte.
Boned Turkey on Bucle. Pattey de Foi Gras, Strasbourg.
Pattey of Quail de Chartare. Westphalia Ham decorgee with jelly.
Chicken Salad a la Italian.

ENTREES.

St. Christaly.
Tenderloin of Beef a la Renaissance. Sweet Breads tarded a la St. Cloud.
Quail, Beffore Style. Supreme of Chicken.
Noide of Veal a la Conti. Tame Ducks of Rouand.
Punch a la Romaine.

VEGETABLES.

Green Peas. Baked Sweet Potatoes. Lima Beans.
String Beans. Stewed Tomatoes.

ROAST.

Chateau de Fruits.
Stuffed Turkey a la Chevaliere. Ribs of Beef. Ham-Champagne Sauce.

GAME.

Teal Ducks with Currant Jelly. Saddle of Venison with Currant Jelly.

ORNAMENTAL DISHES.

Verzeney.
Piper Heidsick.
Horn of Plenty. Croquant of Oranges. Ice Cream Pyramids.
Pyramid of Macaroons. Charlotte Russe. Gra Gateaux of Savole.
Locomotive Stanford.

DESSERT.

English Plum Pudding - St. Croix Sauce. Macedon of Fruit with Jelly Maraskma.
Assorted Cakes.
Oranges. Apples. Raisins. Figs. Almonds. Pears.
Grapes. Peaches. Cantelope. Watermelons.
Coffee. Liquers.

BANQUET

Tendered To

James Anthony, Paul Morrill, Henry W. Larkin & Samuel Seabough

Late proprietors and editor of

THE SACRAMENTO UNION,

By the Citizens of Sacramento, Cal,

At the GOLDEN EAGLE HOTEL, May 13th, 1875.

BILL OF FARE.

RELISHES.

Olives Farcie, Anchovies.
Sherry, ——— ——— ——— ——— ——— ——— ——— Amontillado.

EASTERN OYSTERS ON THE HALF SHELL.

Sauterne, ——— ——— ——— ——— ——— ——— ——— Peyron.

SOUP.

Terrapin, au vieu Vin de Madeire.

Claret, ——— ——— ——— ——— ——— ——— ——— Mathieu Colon.

FISH.

Baked Tahoe Trout, Club Sauce.

COLD DISHES.

Boned Turkey, aux Truffe, a la moderne,
Eastern Ham, sur socle, with Aspic Jelly,
Buffalo Tongue, a l'Ecarlate, Chicken Salad, a la francaise.

ENTREES.

Chicken Fricassee, with Mushrooms, a la Royale,
Braized Tame Duck, with Spanish Olives,
Broiled Tame Rabbit, on Toast, a la Windsor.
Volauveant of Spring Chicken, a la Financiere.

ROAST.

Stuffed Turkey, with Chestnuts, Beef, a l'Anglaise,
Spring Chicken, Ham, Champagne Sauce,
Lamb, mint Sauce.

VEGETABLES.

New Potatoes, a la Maitre d'Hotel, Green Peas, Asparagus.
Champagne, ——— ——— ——— ——— ——— ——— ——— Carte d'or.

PASTRY.

English Plum Pudding, with Rum Sauce, Omelette Soufle, a la vanille.
Maccaroon Pyramids, Assorted Fancy Cakes.
Strawberry Pie, Lemon Pie.

DESSERT.

Strawberries, Bananas, Pine Apples, Cherries, Oranges,
Almonds, Raisins, Walnuts, Toasted Crackers and Rockrort Cheese.
Vanilla Ice Cream.

Mocha Coffee. Green and Black Tea.

COMPLIMENTARY DINNER

To

GEN. U. S. GRANT,
Sacramento, Oct. 22, 1879,

AT

Golden Eagle Hotel.

F.A. Hornblower, Proprietor.

MENU

Eastern Oysters, on Half Shell.

SOUPS.

Terrapin. Chicken

FISH.

Salmon a la Chambord.
Brook Trout, Madeira Sauce.

ORNAMENTAL DISHES.

Chicken Fricassee.
Chicken Saute, Mushroom Sauce.
Fricassee of Veal, with Green Peas.
Stewed Rabbit, Wine Sauce.
Chicken Liver Brochet a la Maitre d'Hotel.

ROAST.

Turkey, stuffed with Truffles.
Spring Chicken au Cresson.
Spring Lamb.
English Ham, Champagne Sauce.
English Sirloin of Beef.

GAME

Quail on Toast. English Snipe.
Saddle of Venison, Jelly Sauce.
Canvasback Duck, a la Orange.

COLD DISHES.

Boned Turkey, with Jelly.
Smoked Tongue, en Bellevue.
Decorated Whittaker Ham.

SWEET DISHES.

Imperial Pudding, Claret Sauce.
English Plum Pudding, Hard Sauce.

FRUITS.

Grapes Apples. Oranges. Peaches.

DESSERT.

Charlotte Russe, a la Chantilly.
Wine Jelly. Blanc Mange. Orange Ice.
Ice Cream, a la Vanilla.
Strawberries and Cream.
Assorted Ornamented Cakes.

SHELLFISH REMAINS

by

Karen J. Davis

Sonoma State University

INTRODUCTION

The man had sure a palate covered o'er
With brass or steel, that on the rocky shore
First broke the oozy oyster's pearly coat,
And risked the living morsel down his throat.

- John Gay

Molluscan remains analyzed in this report result from the Sonoma State University excavation of the Golden Eagle Hotel site located in Sacramento's J/K/6/7 block. Most of the excavated soil was sifted through 1/4-inch screen, although 1/8-inch screen was used for half of the material from Feature 15. All shell remains were saved except for oyster; oyster was present in such quantity that time would not allow for its complete recovery, and only approximately 10 percent was retained. Following excavation, all material retrieved was brought to Sonoma State University's Anthropology Laboratory, where it was sorted according to provenience and species, and counted. Species identification was corroborated by reference to a variety of shell manuals (Abbott 1968; Morris 1966; Ricketts and Calvin 1952; Smith and Carlton 1975), a shell typology available at the Cultural Resources Facility, and consultation with Dr. James Bennyhoff, Sonoma State University. Historical literature pertaining to the shell species recovered from the site was then examined to determine the significance of these species in the Sacramento area during the 19th century. Table 4.1 presents a list of shell species recovered from the site.

Shell was recovered from six of the nine areas excavated: areas I, II, IV, VI, VII, and VIII (see table 4.2). Most of the recovered shell came from features 6 and 15, associated with the Golden Eagle Oyster Saloon. These materials will be used for a more intensive analysis, because of the undisturbed state of the features. Feature 6, also associated with a boot manufacturer, has been given a glass terminus post quem of 1873. This deposit was built up under a floor and could not be completely excavated. Feature 15, a brick-lined pit at the rear of the lot with an 1867 glass terminus post quem, was completely excavated. This feature may have been a privy or trash pit; it is possible that a portion of the fill represents a cleanup of items left by the previous occupants prior to the opening of the oyster saloon in 1874, while some of the remains are clearly from the saloon itself.

Fewer amounts of shell were found in features 4 and 10 and in non-feature areas I, II, and VII. Features 4 and 10 were both late 19th-century construction trenches, placing them out of context of the present study. Of the non-feature areas, Area I is of interest because it yielded the only bent-nosed clam (*Macoma nasuta*) remains (see table 4.2), but it is possible that these fill layers were deposited during the 1963 demolition. The absence of shell remains from the features (features 8 and 20) associated with the Golden Eagle Hotel and restaurant is also noteworthy.

SHELL SPECIES DESCRIPTIONS

CLAM

Protothaca staminea was the most abundant clam species represented. This hard-shelled clam, commonly found in bays on the ocean coast, was one of the few native varieties regularly sold in San Francisco markets (Morris 1966; Skinner 1962:106). By 1931, the *Protothaca* population had been severely depleted (Ricketts and Calvin 1952:210). The 23 complete valves collected are small, from 1 to 2 inches in width.

A limited number of bent-nosed clam shell (*Macoma nasuta*) was collected (see table 4.1). This clam was once the most common edible species found in the San Francisco Bay and was highly favored by Native American populations. The specimens recovered were small in size, from 1 to 2 inches in width. Prior to the 1870s, Chinese shrimp fishermen dug these clams to be marketed (Ricketts and Calvin 1952:305; Skinner 1962:106). Since only 12 complete valves were retrieved, it is uncertain whether they signified consumption.

One other clam species was represented in the collection: the Washington clam, *Saxidomas nuttalli*, a common coastal bay form. Beads made from the shell of this clam were used as money among central California Indians; a single bead was worth about $.50 in the early 1900s (Skinner 1962:109).

MUSSELL

Mytilus edulis was the only species of mussel recovered. Although few in number, this mussel was found in three of the areas of the site from which shell was retrieved (see tables 4.1 and 4.2). Recovered shells ranged from 1 to 2 inches in length. This species lives in quiet, shallow bay waters. Great quantities of this species are sold for food in northern Europe (Abbott 1968:198), and it was one of the few mussels found for sale on the San Francisco market (Keep 1904:32).

The Clam and Mussel Industry

One to 3 million pounds of clams and mussels were taken annually from California waters between 1880 and 1900, while as much as 15 million pounds of oysters were taken each year (Skinner 1962:42, 106). One reason for the lesser retrieval of clam and mussel was the greater time and effort required to remove these shellfish from their natural habitats. A cheap labor force, no longer available in the late 1800s, was necessary in order to make the clam and mussel industry a financially feasible enterprise. The resource itself, by this time, had also become depleted (Skinner 1962:107, 108).

OYSTER

Oyster shells comprised the largest category of molluscan remains at the Golden Eagle site. Unlike the clam, the two valves of the oyster shell are unequal in size and shape. The left, or lower, valve is

thicker and more convex (Bolitho 1961:100-101). None of the shell valves recovered were connected. It is difficult to determine from the collection, therefore, if smaller valves represent smaller specimens or if they are the lower half of the oyster's shell. The Pacific oyster, *Ostrea lurida*, was the more abundant of the two species recovered from the Golden Eagle site. *O. lurida* is a small oyster native to the western coastal bays of North America. Specimens collected averaged about 7 inches in diameter. The Olympia oyster of this species from the state of Washington was more commercially successful in California than was the San Francisco Bay oyster, and it is likely that the specimens found on the site were from Washington and Oregon and not from local bays. Commercially, they were often sold in sacks containing about 1-1/2 bushels of oysters (Barrett 1963:77).

The other species recovered was the eastern oyster, *Crassostrea virginica*. This species is much larger than *O. lurida*, those in the collection averaging about 11 inches. *C. virginica*'s larger size can be attributed to the fact that "An adult eastern oyster will pump from two to seven gallons of water per hour and if not exposed at low tide will feed more than twenty-two hours out of every twenty-four" (Fitch 1953 cited in Skinner 1962:102). Although *Ostrea lurida* was of an excellent flavor, and people "often pronounced it more delicious than the large eastern oyster...." (Ricketts and Calvin 1952:216), during the 19th century the eastern oyster was preferred, probably because most Californians at this time had recently immigrated from the east. Eastern oysters were packed in boxes containing 150 large, or 250 standard-sized oysters (Barrett 1963:76).

The Oyster Industry

The Early Oyster Industry: 1850-1869. Shoalwater Bay (now Willapa Bay) in Washington was the principal source of fresh, native oysters for California markets during the 1850s and 1860s (Barrett 1963:22). These oysters were either sold for immediate wholesale and retail marketing or were laid out in baskets in the San Francisco Bay. Although most of these oysters were consumed in San Francisco, some firms shipped them to Sacramento; Sacramento, in turn, was the locus for shipment of oysters to the gold-mining camps in the Sierra foothills (Barrett 1963:26). During the 1850s, the Shoalwater Bay trade apparently met California's oyster demand, although Sacramento newspaper menu ads advertising Oregon oysters indicate that the Oregon coast was another source for the Sacramento markets (Sacramento Bee 3 June 1857, 20 October 1857, 11 February 1862, 17 March 1862).

The native oyster industry suffered losses in the 1860s: In 1861-62 most of the oysters bedded in the San Francisco Bay had been destroyed as a result of flooding of the Sacramento and San Joaquin rivers (Barrett 1963:22), while the severe winter in Washington had decimated the supply in Shoalwater Bay. Although the Northwest coast trade was again supplying the desired number of oysters in the 1860s, eastern oysters were still in demand. The completion of the transcontinental Pacific Railroad in 1869 (Barrett 1963:26) allowed the importation of the

preferred eastern oyster and opened up a new era in the oyster industry. Oysters of marketable size could not be profitably imported from the east, but seed oysters brought in by the railroad were successfully bedded in San Francisco Bay for later use.

The Eastern Oyster Industry: 1869-1910. The most commercially successful oyster species in California between 1869 and 1910 was the eastern oyster, which played a dominant and relatively stable role in the oyster industry for over 30 years. Between 1888 and 1908, this species constituted 85 percent of the oysters produced in California each year, with the native oyster making up the remaining 15 percent. By 1908, imports from the east declined sharply, as eastern oyster seeds failed in the San Francisco Bay due to unknown factors (Barrett 1963:28) possibly related to increasing bay pollution.

Market Variation in the Oyster Industry: 1850-1910. Prior to eastern oyster production, from 1850 to 1869, native oysters were priced at $16.00 per sack of 1,000, but after the 1870s when eastern oysters had become available, the price was forced down to $4.00 per sack. Sharp competition among native oyster suppliers prior to 1885 also brought prices down, although oysters were still considered a luxury food. After 1885, the oyster market was relatively stable due to a non-competitive market. When eastern oysters were first available, they were sold to the local market for $15.00 per 100, but by 1889 they were selling from $1.00 to $2.50 per 100, according to grade (Barrett 1963:91).

In 1898, it cost $100.00 per acre to clear and prepare beds for oyster cultivation (San Francisco Chronicle 6 February 1898 cited in Barrett 1963:76) and 12-1/2 cents each, plus upkeep, to purchase the redwood scantlings placed in the ground around oyster beds to prevent stingray raids (Collins 1892:156, cited in Barrett 1963:76). The seedlings cost $9.25 per packing case of unbroken shell, requiring a considerable investment. The two oyster monopolies, Morgan and Moraghan, had an average annual outlay for seed and freight of about $72,000 each (Barrett 1963:35, 56). In the 1890s, 3,000 to 4,000 acres were used to produce 10 to 15 million pounds of oysters annually (Skinner 1962:104). Between 1888 and 1904, the annual value of oyster production in California was $500,000 (Barrett 1963:28).

Sacramento menu ads in 1857 and 1862 advertise oysters at $.50 a serving, with oyster soup priced at $.25. Oysters were the most expensive serving listed in the 1862 menus (Sacramento Bee 3 June 1857:1, 11 February 1862:3, and 17 March 1862:1).

ADVENTITIOUS SPECIES

One representative of a non-edible shellfish species, *Urosalpinx cinerea*, was found at the Golden Eagle site. This oyster drill is not native to the west coast; a natural predator of *C. virginica*, it probably was introduced when this oyster was first planted in California (Carlton 1977).

One claw fragment of crab, unidentified as to species, is present in the collection. Although some crab species were a food source, others were considered pests, preying on clams in Humboldt Bay, Tomales Bay, and Drake's Estero (Barrett 1963:19). Without proper identification, it is not possible to determine whether this fragment represented the leavings of a meal. Crab is not mentioned in the 1860s Sacramento menu ads; after 1870, the crab, *Cancer magister*, became a major constituent of the San Francisco fishery (Skinner 1962:118).

DISCUSSION

Approximately 1,600 shell specimens were recovered from the Golden Eagle excavations (see table 4.1). All were possible food species except for the oyster drill. There may be a question as to whether the clam and mussel were indeed indicative of a food source at this site, since their remains were so few in number compared to the oyster. *M. nasuta*, *P. staminea*, and *M. edulis*, however, were all marketable species. Since the available menus do not list clams or mussels, these shellfish may have been only occasionally served.

Only 8 species are represented in this collection, in marked contrast to the 25 species recovered from the K Street excavation (Carlton 1977: table 2). Because of the incomplete molluscan recovery, the percent of each species in the collection is not presented. The most abundant shell species found was oyster, both *Ostrea lurida* and *Crassostrea virginica*. Oyster remains most frequently occurred in features 6 and 15 associated with Cronin's oyster saloon. Almost equal amounts of *C. virginica* and *O. lurida* were recovered from Feature 6, Layer 27. In Layer 35 of Feature 6, as in Feature 15, however, *C. virginica* remains are considerably fewer than those of *O. lurida*. Of the clams, *Protothaca staminea* were found only in features 6 and 15 and *Macoma nasuta* appeared only in Area I. The *Macoma* were not recovered from layers which contained *C. virginica*, and *P. staminea* were not found in any areas where there were *Macoma* (table 4.2).

CHRONOLOGY

Conceivably, it might have been possible to date Area I to an earlier time period than the other deposits, since *M. nasuta*, a species indicative of an earlier time, was present and no *C. virginica*, indicative of a later period, was found. Unfortunately, the original stratigraphy in Area I had been destroyed. In Feature 6, the nearly equal amounts of native and eastern oyster in Layer 27 and the considerably greater amount of the native oyster in Layer 35 would suggest that Layer 35 is the older deposit. Feature 15 appears to have been deposited during the same period as Layer 35, Feature 6, since it yielded a similar ratio of native and eastern oyster (see table 4.2).

It is not surprising that there was so much oyster in Feature 6, since it was associated with an oyster saloon. What is odd is that equal amounts of both oyster species occur together. According to

the historical record, commercial use of native oysters fell off markedly after 1870, while the preferred eastern oyster became the more commercially successful species. Cronin's oyster saloon was in operation at this location from 1874 to 1878, well after the introduction of the eastern oyster. The disparity of dates does not necessarily refute the historical record. It could mean that commercial outlets for the eastern oyster were not well established inland until after the 1870s. Until more comparative data are available, using the historical record to date a site from shell alone must be done with caution.

SOCIAL CONTEXT

Differences between shell recovered from the Golden Eagle excavations and that recovered from the K Street Privy 1 may reflect the contrast between "dinner out" and "dinner in": luxury food when dining out; ordinary food when eating at home. Since oysters were considered a luxury item, people treated themselves to oysters when "out on the town," while clams were probably more frequently eaten in the home. For example, at K Street's Privy 1, associated with a business and residence, except for one native oyster, only clam, *P. staminea*, was present (Carlton 1977:table 2).

These differences may instead reflect marketing practices. The presence of whole shells at Cronin's oyster saloon suggests that oysters were served directly out of the shell. In California, oyster was much more often sold to the retailer "shucked" (with shell removed) (Barrett 1963:91). Thus, the people responsible for K Street's Privy 1 may have bought their oysters "shucked"--leaving no archaeological evidence. Given the number of variables, it is unlikely that shell remains alone can be used to determine economic differences between the two establishments.

It is clear that oysters were a very popular item in Sacramento during the second half of the 19th century. Appendix 4.1 contains information, gathered mainly from newspaper advertisements and menus, on oyster prices and the social context in which oysters were served.

TABLE 4.1

Molluscan Remains

Number of Species	Scientific Name	Common Name
	Gastropoda (snails)	
1	**Urosalpinx cinerea*	Atlantic Oyster Drill
	Pelecypoda	
± 960	*Ostrea lurida*	Native Pacific Oyster
95	without hinge	
± 448	**Crassostrea virginica*	Eastern Oyster
4	without hinge	
23	*Protothaca staminea*	Pacific Littleneck Clam
8	without hinge	
12	*Macoma nasuta*	Bent-nosed Clam
57	without hinge	
9	*Mytilus edulis*	Common Blue Mussel
13	without hinge	
	Saxidomus nuttalli	Common Washington Clam
1	without hinge	
1	Undetermined bivalve fragment	
	Decapoda	
1	Crab claw (undetermined species)	

*Not native to Pacific coast

TABLE 4.2

Molluscan Remains by Provenience

Number of Specimens/Minimum Individuals

Provenience Area/Feature/Layer			*Macoma*	*Mytilus*	*Ostrea*	*Crassostrea*	*Protothaca*
I		4	15/2	2/1	1/1		
		9	8/1	5/1	4/2		
		12	4/1	1/1	15/5		
		15	42/3	1/1	15/5		
		19			1/1		
II		16			4/1		
		18			1/1		
			69/7	9/4	41/16		
IV	6	27		6/4	±375/±373	±405/±402	26/11
		35		2/2	141/ 112	7/ 7	1/1
				8/6	±516/±485	±412/±409	27/12
VI	4	26			2/1		
	10	40			7/1	2/1	
					9/2	2/1	
VII	8	88			1/1		
VIII	15	53		5/1	±481/±438	38/38	4/2

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APPENDIX 4.1

Excerpts from Menus and Newspaper Ads
Showing Cost and Social Context of Oysters*

Date: 1854 Railroad Saloon
No. 87 Clay Street, San Francisco

Oyster Soup...25¢
Beef Soup.....12¢
Reference: Daily Alta California 1854

Date: 1854 Express Saloon
2nd Street, Sacramento

Ice cream and confections
Strawberries and other fruits
Oysters in every style
Mesdames Levi & Wells
Reference: Sacramento Daily Union: 1 July 1854

Date: 1854 Refreshment Saloon
107 J Street, Sacramento

...Breakfast and Tea
...Game, Oysters
Burr & McGregor
Reference: Sacramento Daily Union: 22 August 1854

Date: 1854 Capitol Saloon
2nd Street, Sacramento

Madame Josephine - fresh oysters served up in every style on shortest notice....also Game, Suppers, Chickens
Reference: Sacramento Daily Union: 22 September 1854

Date: 1854 Capitol Saloon
2nd Street, Sacramento

FRESH OYSTERS, ALL PRIME
To be served in quick time,
Either roasted or fryed,
Stewed, pickled or pied,

---

*Collected by Jeanette Schulz

As gentlemen wish
Who call for a dish
Whigs, Democrats, Know-nothings and all,
Please give us a call.
Madame Josephine

Reference: Sacramento Daily Union: 8 December 1854

Date: 1857

Fresh Oysters
at the Lunch House next to the
Sazerac on J and 2nd Sts.

Fresh oysters in every style and in every quantity
Orders from the country promptly filled at the
lowest prices. Families supplied at all times
with oysters and other shell fish.

Reference: Sacramento Daily Bee: 1 August 1857

Date: 1857

Oysters at the Sazerac
in every style
Fried, Stewed and on the shell
25 cents

Reference: Sacramento Daily Bee: 31 December 1857

Date: 1860

New York Restaurant
45 & 46 J Street, Sacramento

Oyster Stew.....50¢ /the most expensive item/
Porterhouse Steak...37¢
Quail, broiled.....37¢

Reference: Sacramento City Directory 1859-1860: 38

Date: 1860

Fashion Restaurant
2nd Street, Sacramento

Oyster Stew.....50¢ /the most expensive item/
Porterhouse Steak...37¢
Quail, broiled.....37¢

Reference: Sacramento City Directory 1859-1860: 9 /same menu as for the New York Restaurant/

Date: 1862

Cincinnati Restaurant
25 K Street, Sacramento

Oyster soup.....25¢
Oregon Oysters, stewed...50¢
Oregon Oysters, fried....50¢
Oregon Oysters, raw.....50¢

Oregon Oysters, fritters..50¢
Oyster Stew.....50¢ /one of most expensive items/
Porterhouse steak.....38¢
Quail, broiled.....38¢
Chicken, half.....50¢

Reference: Sacramento Bee: 3 February 1862

Date: 1874 Sacramento Confectionery and Lunch and Restaurant Saloon
250 J Street, Sacramento

Fresh oysters
Fruit and Ornamental cakes
Candies

Reference: Sacramento Daily Union: 11 February 1874

Date: 1874 Antelope Restaurant and Oyster Rooms
80 J Street, Sacramento

...Oysters served in every style, day and night - Prices to suit the times
Cuisine Francaise

Reference: Sacramento Daily Union: 11 February 1874

Date: 1874 Fashion Restaurant
2nd Street, Sacramento

Depot of Shoalwater Bay Oyster Co.
The best flavored oysters 25¢ per plate
Families supplied in any part of the City at 75¢ per hundred.

Reference: Sacramento Daily Union: 11 February 1874

Date: 1874 State Capitol Confectionery
148 J Street, Sacramento

...Dining, Ice Cream, and Oyster Saloon

Reference: Sacramento Daily Union: 30 May 1874

Date: 1874 The Golden State
182 J Street, Sacramento

Ice Cream, Oyster and Dining Saloon (also candy manufacturer)

Reference: Sacramento Daily Union: 30 May 1874

Date: 1876 Restaurant Francais
2nd Street, Sacramento

Eastern Oysters 50¢
Private rooms for families and private parties
Regular French breakfast and dinner with one-half bottle of wine - 50¢
Reference: Sacramento Daily Record Union: 5 August 1876

Date: 1876 Removal of Antona Mauretich's Oyster and Chop House from 54 K St. to 54 3rd

Eastern and California Oysters 25¢
Reference: Sacramento Daily Record Union: 2 September 1876

Date: 1876 Railroad Exchange Oyster and Chop House
corner 3rd and K Streets

Open Day & Night
...traveler's lunch - 10 minutes complete
Reference: Sacramento Daily Record Union: 12 October 1876

Date: 1876 San Francisco Exchange
K between 5th and 6th

Shoalwater Bay and Eastern Oysters 25¢ plate
Nice cool Lager Beer 5¢ glass
Reference: Sacramento Daily Record Union: 12 October 1876

Date: 1876 Restaurant Francais
2nd Street, Sacramento

Open day and night
California oysters in every style 25¢
Eastern oysters 50¢
Reference: Sacramento Daily Bee: 4 January 1876

Date: 1876 Pacific Oyster House
197 J Street, Sacramento

Oysters in every style 25 cents
Eastern oysters always on hand. Steaks, chops, etc. at all hours. House open all night.
Reference: Sacramento Daily Bee: 22 January 1876

Date: 1876 Santa Rosa Oyster and Chop House
7th near K Street, Sacramento

...oysters served in fifteen different styles
Meats served to order
Sheep's tongue, pig's feet and everything desired.
Reference: Sacramento Daily Bee: 30 March 1876

Date: 1877 Toney's Oyster and Chop House
54 3rd Street, Sacramento

Eastern and California Oysters 25¢
Reference: Sacramento Daily Union: 1 January 1877

Date: 1871-1885 Clipper Restaurant
nos. 311 & 313 Pacific Street, San Francisco

Oyster stew.....20¢ /one of the most expensive items/
Porterhouse Steak...20¢
Reference: Menu on file, California State Library California Room

PARASITES

by

H. J. Hall

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University of Queensland
St. Lucia, Queensland
Australia

Two soil samples from Feature 8 and one from Feature 15 were sent to H. J. Hall, paleoscatologist at the University of Queensland in Australia. Hall's (personal communication 14 February 1980) findings are quoted below:

"While all three contained ample evidence of organic material (pollen, spores, phytoliths, etc.), I was able to recover no evidence whatsoever of intestinal parasites.

"After examining five microslides made up directly from the formalin solution the samples were sent in and getting negative results, I used the formalin-ether concentration technique for parasite ova--again with negative results.

"Thus, it would appear that the denizens of this part of Sacramento were quite free from parasites. Of course, negative evidence from such a small sample does not really indicate such a conclusion since a number of factors could be operating, separately or in concert, to produce such results. These range from the types of parasites present in the population to sanitation practices and personal hygiene, intensity of infections to post-depositional preservation variables and, finally, to choice and size of sample(s).

"The lack of parasite evidence would not therefore provide a solid argument in refutation of any interpretation of your features as privys (whereas positive evidence would provide a good argument in support of such). It would merely be negative parasite result. In this connection I thought these samples very much 'coprolite-looking' in texture, composition, color, etc., although I must say they were very 'gritty' which is unusual for coprolites but normal for privy deposits."

BUTTONS

by

Neysa Carpenter

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INTRODUCTION

The buttons analyzed in this chapter were recovered during the 1979 archaeological excavations of the Golden Eagle Hotel and adjacent urban commercial enterprises in Sacramento. They were from a variety of contexts, dating from 1858 to 1878.

INTERPRETIVE POTENTIAL

The interpretive potential of buttons recovered from historic sites has often been overlooked by archaeologists. Because textiles are seldom preserved in a recognizable form underground, buttons are usually all that remain to indicate fashions worn by a site's occupants. Button typology can be used as a tool for dating, for determining social and economic status, and as an aid in reconstructing demographic profiles.

Assemblages of buttons show patterns of types that reflect changes in fashion and availability over the years. Although they were frequently cut off worn garments and "recycled" onto new clothing, when found in quantities in an archaeological context, buttons may provide a clue to dating. Methods of button manufacture changed dramatically during the course of the 19th century, as mass-manufacturing and distribution methods came to replace handwork and cottage industry. Patent dates of the various button types can often aid in determining terminus post quem dates for archaeological features.

Clothing has long been considered an important indication of an individual's social and economic status. Even after inexpensive buttons became widely available during the latter half of the 19th century, certain kinds remained very expensive and were worn on more costly clothing. Thus, the quality and price of recovered buttons can reflect the social class of the people who discarded or lost them.

In the 19th century, both the size and type of button differed on men's and women's clothing. By the time of the occupation of the Golden Eagle site, button sizes were fairly standard for garments such as shirts, vests, dresses, trousers, and overcoats (see table 6.1). Study of the proportional occurrence of different button sizes can indicate whether an area was occupied by single men or by men, women, and children.

Finally, assemblages of buttons from different sites can contribute to our knowledge of the trade networks which operated between the eastern United States and California during the 19th century.

METHODS OF CLASSIFICATION

Two hundred buttons were recovered from the Golden Eagle excavations. Only those buttons associated with temporally well-controlled features (features 6, 8, 15, and 20) were included in the analysis, but interesting types recovered from other portions of the site are described. Most of the buttons (64 percent) were recovered from Feature 15, a brick-lined pit associated with a bootmaker and, later, with Cronin's Oyster Saloon.

TABLE 6.1

Size and Function of Buttons

Size in Lines	Typical Use	Range in mm	Feature 20	Feature 8	Feature 15	Feature 6
10	dress shirts/ lingerie/babies	6-8	2	0	6	1
12						
14						
16	shirts	9-11	14	2	71	2
18						
20						
22	dresses/vests pants (fly)	12-14	1	2	22	3
24						
26	dresses/vests/ suspenders	15-17	3	0	35	2
28						
30	coats	18-20	0	0	1	0
32						
34						
36	overcoats	21-23	0	0	0	1

Shoe and gaiter buttons are not included.

Buttons in the collection have been classified first by material of composition and then by their method of attachment (either shanks, consisting of loops attached to the back, or two to five holes drilled through the body of the button). These classes correspond to broad differences in methods of manufacture. The material of composition tends to be deceptive: positive identification of material is often impossible without breaking the button to view it in cross section. Glass buttons were made opaque to resemble porcelain, and bone buttons were cut to look like wood. By the turn of the century, cinnabar, vegetable ivory, and all manner of "composition" buttons were used to imitate preferred materials.

Most of the buttons in the Golden Eagle collection were probably imported from England or France, since it was later in the century that the American button industry became well established. Button size was measured by standard units: lines in Great Britain and America and lignes in France (Johnson 1948:19). Although forty lines are said to equal one inch (Herskovitz 1978:37), button gauges which were examined varied from 38-45 lines per inch (Lord & Taylor 1881:137; Weinstock, Lubin, & Co. 1891:41; Sears, Roebuck & Co. 1919:940), and actual buttons seldom agreed in size to a set number of lines. These discrepancies could be a function of the imprecision of 19th-century manufacturing techniques or of a lack of standardized scales.

Because of the inconsistencies among button gauges, all buttons from the Golden Eagle site were measured to the tenth of a millimeter. Table 6.1 shows the relationship of button size and function.

Sixteen individual types of four materials of composition--bone, ceramic, metal, and shell--are represented among the remains. Sizes given in the descriptions below show the actual range of specimens in the collection, while sizes listed in table 6.2 refer to functional categories shown on table 6.1. Buttons are plain, opaque white, with no decoration, unless otherwise noted.

TYPE DESCRIPTIONS

BONE BUTTONS

Bone was one of the materials first used for button manufacture. In America, cattle bone was commonly used. This was boiled, cleaned, and cut lengthwise into slabs, from which discs were cut in varying sizes and fashioned into buttons.

Twenty-one bone buttons were recovered from the Golden Eagle site. All were stained or dyed brown; some were firm and shiny, some crude and porous in texture. They were identified as bone by the presence of small broken lines or flecks scattered irregularly throughout the material (Brown 1942:193). The several types are described below.

TABLE 6.2

Distribution of Button Types

Material	Type and Variety	Method of Attachment	Size* in mm	Quantity
Feature 20				
Ceramic	Dish	3 holes	6-8	1
	Dish	4 holes	9-11	14
	Dish	4 holes	12-14	1
	Dish-Knob	4 holes	15-17	3
Shell	Inkwell	4 holes	6-8	1
Feature 8				
Ceramic	Dish	4 holes	9-11	2
	Dish	4 holes	12-14	2
Feature 15				
Bone	Thread Center	1 hole	12-14	2
	Thread Center	1 hole	18-20	1
	Sunken Panel	4 holes	15-17	11
	Sunken Panel	5 holes	15-17	3
	Tire	4 holes	12-14	1
	Tire	4 holes	15-17	2
Ceramic	Gaiter/Shoe	shank	9-11	2
	Gaiter/Shoe	shank	12-14	1
	Dish	3 holes	6-8	1
	Dish	4 holes	9-11	64
	Dish	4 holes	12-14	14
	Dish	4 holes	15-17	6
	Dish-Knob	4 holes	12-14	5
	Dish-Knob	4 holes	15-17	8
	Dish-blue	4 holes	9-11	1
	Inkwell	4 holes	9-11	4
	Inkwell	4 holes	15-17	2
	Inkwell-blue/white	4 holes	9-11	1
	Saucer	4 holes	15-17	2
	Tire	4 holes	15-17	2
Shell	Plain	4 holes	6-8	5
	Plain-grey	4 holes	9-11	1
Feature 6				
Ceramic	Shoe/Gaiter	shank	6-8	1
	Dish	4 holes	12-14	1
	Dish-calico	4 holes	9-11	1
	Dish-radiating line	4 holes	12-14	1
	Inkwell	4 holes	15-17	1
Metal	Riveted	Rivet	21-23	1
	Omega	shank	12-14	1
	Tripartate	4 holes	15-17	1
	Plain-grey	3 holes	6-8	1
	Plain	4 holes	9-11	1

*See Table 6.1 for typical use of each button size range.

Thread Center Buttons: 12-20mm diameter

Thin bone discs, having a center hole and no rim, were originally covered with fabric or with a pattern of numerous threads and were attached to garments by means of a thread eye. They originated in Dorsetshire, England, in the mid-18th century, where they were made of sheep horn and known as "high tops" or "Dorset buttons" (Luscomb 1967:57). Earlier examples of these buttons were covered with woven threads of gold, silver, and silk; later ones were covered with cloth (Albert and Kent 1949:44-45).

In America, bone discs of this type have been recovered from both 18th- and 19th-century contexts. Although the 18th-century discs may have been locally made by hand (South 1964:119), by the mid-19th century they were mass-manufactured by a process utilizing refuse chips of horn, wood, or bone sawed into thin flakes (Appleton 1857:200) (see plate 6.1a).

Bone Sew Thrus

Bone buttons having four or five holes, introduced in the mid-1700s (Olsen 1963:552), were widely used on men's underwear, suspenders, trousers, and work garments (Levine 1975:61). At the Golden Eagle site, these buttons occurred in two types: Sunken Panel (both four-hole and five-hole varieties) and Tire.

Sunken Panel

- Four Hole: 15-18mm diameter. These buttons have slightly convex backs and flat fronts, with four holes drilled into a central depression on the front. The central depression is circular, except in the case of one very crude button with a square depression. Some show slight knobs or indentations in the centers, which were left by the turning tool.

- Five Hole: 15-17mm diameter. The five-hole variety buttons are similar to the four-hole variety, except that they have a center hole which is slightly larger than the outside holes. The center hole was used to index the turning tool; after the blanks were cut, the four peripheral holes were drilled (Olsen 1963:552). Button collectors consider them to be the older of the two types (Brown 1942:193), and one pictured in The Collector's Encyclopedia of Buttons was attributed to the 18th century (Luscomb 1967:25). Olsen (1963:553) dated the five-hole button as early as 1750; his reference, however, is to the tire variety described below. The smaller of these buttons are irregularly drilled, having convex centers, convex borders, and flat backs, whereas the larger example exhibits all flat surfaces (plates 6.1b and 6.1c).

Tire - Four Hole: 13-16mm diameter. Tire type buttons have larger central depressions than the sunken panel and very narrow, rounded borders. A conical impression, which looks like an unfinished fifth hole, is drilled in the center of each. The center well is flat and shallow and the back is rounded (see plate 6.1d).

CERAMIC BUTTONS

All the small ceramic buttons recovered can be attributed to the period of mass production. In 1840 Richard Prosser of Birmingham, England, patented a revolutionary process in which clay ground to a fine powder was compressed in a dye or mould by means of a fly press (Dodd 1851:478). The resulting articles--both "sew thrus" and metallic shank buttons--were serviceable and inexpensive to manufacture.

Ceramic buttons quickly became fashionable in England and France, where they were produced in great quantities. Minton's porcelain works in Staffordshire, England, purchased Prosser's patent and was soon turning out 5000 gross of these buttons weekly (Dodd 1851:479). The fashion spread to America, where Prosser's brother, Thomas, had patented the same process in 1841 (Kirk 1974:337). Appleton's 1857 Dictionary of Machines, Mechanics, Engine-Work, and Engineering, which details complex manufacturing processes for other types of buttons, does not mention ceramic buttons, suggesting that they were not yet of much importance in America at that time. Most ceramic buttons were made during the 1860s (Luscomb 1967:183), although production continued into the 20th century (Encyclopedia Britannica 1910:891).

Except for a few colored specimens, the small ceramic buttons in the collection are opaque white. A few may be of milk glass, which was made in imitation of Chinese porcelain. In another process, patented in 1850, a paste of powdered minerals, combined with salt and flour, was pressed into a mold. The buttons produced by this method had a "crystalline or agate-like appearance" (Dodd 1851:479). This method of manufacture may account for several specimens in the collection which have rough or glassy surfaces.

Gaiter and Shoe Buttons

Domed or cone-shaped ceramic buttons with shanks were used originally to fasten gaiters or shoes. They also served a socio-technic function, as decoration on women's and children's clothing.

According to the sources consulted, gaiter buttons were made with a white-metal shank plate and loop shank (Kirk 1974:338; Switzer 1974: 137; Luscomb 1967:76) first patented in 1864. The features in which these buttons were found (features 6 and 15) might therefore be given a terminus post quem of 1864. Unfortunately, all button shanks are wholly or partly missing; the buttons appear to have had screw-like devices with blunt ends, however, indicating shank-plate attachment. Shoes with buttons were made before 1864, however, and ceramic buttons with shanks were made at least as early as 1851 (Dodd 1851:479). It is therefore advisable to only use buttons that still exhibit entire shank plates for dating purposes. The four buttons of this type, pictured in plate 6.1e to 6.1h, are described below.

6.8 x 2.2mm. This button is slightly domed, of a rough texture, and has a deep, round hole for the shank attachment in the back.
8.5 x 5.0mm. This is a cone-shaped button, of smooth texture, having a deep, round hole in the back.

6.7 x 10.6mm. This high-domed button was made in two parts. The base is flat; a metal shank, with its loop broken off, is embedded in the base. It appears to have been a shoe button.

13.7 x 7.5mm. This low-domed button has a white-metal shank embedded in the base and a metal loop shank but no shank plate.

Ceramic Sew-Thru Buttons

These buttons were known as "agates" to the customers of the day and are now divided by button collectors into such categories as "dishes," "saucers," "inkwells," and "tires," according to their shape. The vast majority were worn on men's shirts; very small ones were probably from babies' clothes or from lingerie, while larger ones were from women's gingham or cheap worsted dresses (Sears, Roebuck & Co. 1910:940).

Dish. There are several varieties of dish buttons in the collection: plain buttons (both knob and knobless) and fancy buttons (calico and pie crust). Fancy, dish-shaped buttons, colored or decorated in some fashion, would have been worn on more valued articles of clothing. They all occurred in chronologically late contexts on the site, which is suggestive of the greater variety of material goods that became available to Californians by the 1870s. No matching examples were recovered, indicating that they were accidentally lost from clothing.

Plain

Knobless Center - Three Hole: 7-8mm diameter; Four Hole: 9-16mm diameter. The knobless center button is the most common type within the dish class and in the entire collection. The center is concave, the back, flat, and the sides are slightly beveled or rounded. All but one in the collection are opaque white. The odd, dark blue button matches one recovered during the University of California 1979 excavation season at Somersville, under the direction of James Deetz (plate 6.1i and 6.1j).

Knob Center - Four Hole: 13-17mm diameter. The back of this button is convex. In the middle of the concave face is a small raised "knob." Buttons having this knob are only in the larger specimens; they probably represent a variation in the manufacturing process.

Calico: 11.0mm diameter. Opaque buttons having transfer-printed patterns across their faces were known as "calicos" and were popular at the same time that the printed fabric of the same name was in vogue. First manufactured in France and England, by 1848 they were made in the United States and became very popular here. They were worn on men's clothing, as well as on that of women and children. Only one calico button, with a pattern of red stars on a white background, was found at the Golden Eagle site. Calicos were more widely available than is suggested by the Golden Eagle assemblage. When the steamboat Bertrand, conveying merchandise to the frontier, sank in 1865, over 30 percent of the ceramic buttons it carried were calicos (Switzer 1974:136).

Pie Crust (hobnail): 10.6mm diameter. One example of a hobnail pie crust was found. It has a rounded back and knobs of china around the rim, resembling a fluted crust of a pie.

Pie Crust, Radiating Line Rim: 13.8mm diameter. The rim of this button is made up of 24 radiating lines. Buttons of this description were found during excavations in Ventura, California (Kirk 1974:346). They were made into the 20th century, and were advertised as "fancy white agate buttons" (Sears, Roebuck & Co. 1902:940).

Inkwell: 8.7-15.4mm diameter. These buttons are cone-shaped, with rounded backs and deep, concave center wells in which four holes are drilled. One fancy example has a blue rim; the others are plain white (see plate 6.1n).

Saucer: 15.7mm diameter. The single saucer button in the collection has a rounded back, a convex front with four holes and no rim, and flat edges (see plate 6.1o).

METAL BUTTONS

Plain buttons of yellow metal are often difficult to date because of their long period of use. "Yellow metal" was the buttoner's term for all metal compounds of brass or bronze, while "white metal" referred to pewter buttons in various mixtures of lead and tin (Johnson 1948:6,15). From about 1800, Connecticut brass manufacturers strove to compete with the Birmingham metal-button makers. By the War of 1812, the American metal button industry was firmly established in Waterbury, Connecticut, where quantities of sheet brass and gilt buttons were produced (Bishop 1868:112). Buttons represented in this collection were probably all domestically manufactured.

Yellow- and white-metal buttons were worn on men's clothing (Levine 1975:68). The fact that only four examples were recovered from the Golden Eagle could reflect the greater importance attached to them than to ceramic buttons; consequently, they were more carefully guarded. The specimens found can all be attributed to a context of loss rather than of discard. The four metal buttons in the collection are each of a different type.

Riveted: 21.5mm diameter

The crown of the riveted button is of a thin, pressed metal, with its front edge turned back over the rim. A pressed pattern of anchors and crescent moons forms the border. The back, which is rusting, is probably of iron; it is constructed in the same manner as modern Levi's jeans buttons. This fastener is of a cheap, mass-produced type that superseded the old overall button and is large enough to have been worn on a man's overcoat. It appears to be a late, machine-made item, dating from the last half of the 19th century (Johnson 1948:17) (see plate 6.1q).

Omega: 14.0mm diameter

The body of this button is coin-shaped, having been cut from a sheet of rolled yellow metal. A round, wire-loop shank soldered to the back, its

ends bent over like the Greek letter "omega," forms a stable base of attachment. On the back, the words "orange colour" form an impressed border, with a star between each word. These words are a "quality mark," designating the type of gilding used to cover the base metal (Johnson 1948:8). This type of button was manufactured using a combination of machine and handwork. Olsen (1963:552) assigned this type of button a date of 1812-20, but, according to Johnson (1948:13), they were common from approximately 1800-1850. Buttons of this type were found at Brunswick Town and Fort Fisher in both 1800-1830 and 1837-1865 contexts (South 1964:120-121) (see plate 6.1r).

Tripartate Construction:16.5mm diameter

This type of button is composed of two, yellow-metal discs with a fibrous filler in the middle. Four holes for attachment are set in a slightly depressed center, bordered by an impressed criss-cross pattern around the circumference. This type of construction was originated by a Dane, Benjamin Sanders, in 1823, and came into use late in the 1820s (Johnson 1948:13,14). Buttons of this type were found at Brunswick Town and Fort Fisher, in both 1800-1830 and 1837-1865 contexts (South 1964:121) (see plate 6.1s).

Stamped Metal: 15.7mm diameter

The construction of this button is of one-piece, stamped yellow metal (probably brass or brass alloy). The border is flat; the center is concavely depressed, having four holes for attachment. Its lack of decoration or any handwork make it attributable to the post-1850 period, by which time most buttons were mass-produced by machines (Johnson 1948:17) (see plate 6.1t).

SHELL BUTTONS

Prior to the 1850s, making buttons from shell was a cottage industry. After that time, machines, using tubular saws and other mass-produced devices, replaced handwork in button manufacture (Albert and Kent 1949:59). Makers in Birmingham, England, produced most of the shell buttons made during the mid-19th century. The finest of these were of white Macassar shells from the East Indies, but cheaper varieties made of shell from Manilla, Bombay, and Alexandria were also available (White 1977:71). "Smoked pearls" were darker buttons made from the black mother-of-pearl shell of the Society Islands. In 1852 it was reported that these buttons were currently very high priced because many Pacific shell divers had gone to Australia to dig for gold (Scientific American 1852:120). Before the American Civil War, only a small pearl button industry existed in the United States, but the complete cessation of imports from Britain forced America to establish her own shell-button manufactories. This, coupled with the shell shortage, led to a decline in the Birmingham shell button industry in the 1870s (White 1977:72). Until 1891, when the American fresh-water shell industry began, pearl buttons were relatively very costly.

It is the high cost of shell buttons which makes them particularly useful as socioeconomic indicators during much of the 19th century. They can also reflect demographic characteristics: Although some shell buttons

were worn on men's dressier shirts, finding them in quantity can be taken as indicating the presence of women on a site. Victorian women's dresses closed by means of hooks and eyes down the back, but shell buttons served a socio-technic function as both closures and decoration along waists and bodices (Levine 1975:61).

Shell buttons found at the Golden Eagle site have been identified by white or grey color only, because exact identification of shell types is often impossible once the outer layer has worn off (Luscomb 1967:177). The very small buttons of less than 10 millimeters diameter, which are represented by the first three varieties described below, were not introduced to America from France until about 1855 (Kirk 1974:325). They were worn on shirts, as well as on lingerie and children's garments.

Plain Four Hole: 8.6-9.6mm diameter

These white or grey buttons have holes asymetrically located and irregularly drilled. Both backs and fronts are flat, with no decoration or incisions (see plate 6.1a).

Sunken Panel: Three Hole: 7.6mm diameter; Four Hole: 7.0-9.3mm

These grey or white buttons have flat surfaces, with holes drilled into a circular central depression.

Shallow Inkwell: 7.9mm diameter

The sides of this white button slope up to the center well, which is depressed like an inkwell (see plate 6.1w).

Fish Eye: Two Hole: 15.6mm diameter

This button is of iridescent shell, with traces on the back. Its holes are uniformly drilled, and its back is flat with beveled edges. There is a depressed area on the crown around the holes, and an incision between the holes forms a thread grove. Buttons of this type would have characteristically been worn down the front of a woman's dress.

DISCUSSION

Of the two hundred buttons in the collection, the 172 specimens recovered from the temporally well-controlled features will be considered in this interpretive summary (see table 6.2). These proveniences are: Feature 20, associated with the Golden Eagle restaurant; Feature 8, a deposit associated with the hotel and a blacksmith's quarters; and Features 15 and 6, associated with a boot manufacturer and W. Cronin's Oyster Saloon. Although only Feature 15 contained the quantity of buttons necessary to provide a representative sample, variations in button types among the four features are chronologically significant.

Feature 20, a brick-lined privy or trash pit, was constructed in 1858, or soon after, and was filled with trash from the hotel's restaurant during the next several years. All but one of the specimens found therein were plain white ceramic buttons of various sizes (see table 6.2). The odd example is of mother-of-pearl, probably from lingerie or a baby's

clothing. This recovery is in keeping with ceramic and glass remains, which date Feature 20 as the earliest deposit on the site (c.1860). It is hypothesized that these plain buttons were all that was available at that time in Sacramento. Seventy percent of the specimens in this feature are shirt buttons, and matching examples indicate disposal by discard of at least one man's shirt.

Feature 8, a large pit of uncertain function, was filled with garbage from a blacksmith's and the Golden Eagle Hotel, between approximately 1862 and the raising of the streets around 1870, which caused the feature to go out of use. All the buttons recovered were plain or white ceramic, with no matching examples.

Feature 15, another brick-lined pit, contained deposits from a boot manufacturer and a fashionable oyster saloon. Over two-thirds of the site's buttons came from this feature (see table 6.2). Though the majority were ceramic shirt buttons, more varieties were present than in the features discussed above. Buttons of dress or vest size were also well represented. Multiple examples of matching bone and ceramic buttons show deposition by discard of entire garments. This pattern suggests that the earlier occupants left behind clothing, which was dumped into Feature 15 when Cronin took over the premises in 1874.

Feature 6, chronologically the most recent feature, probably dates from the 1874-78 period. It contained much refuse from W. Cronin's oyster saloon as well as some cobblers' remains, all deposited under a floor. The buttons found in this feature had probably been deposited in a context of loss, having filtered through the floorboards of the saloon. The greatest variety in button types was found in this feature, which contained metal, shell, and fancy ceramic buttons of all sizes and varieties. This finding supports the premise that Cronin's oyster saloon was one of the more elegant establishments in Sacramento during the 1870s.

The correlation of increase in varieties of buttons with time could have several implications. The hotel and nearby businesses may have become more fashionable during the time covered by the deposits--approximately 1858-1878--thereby attracting people who fastened their garments by fancier means. A change in fashion or in types of buttons manufactured could instead be represented. Alternatively, the increase in types could indicate that a greater variety of material goods had become available by the 1870s, as the frontier of California gave way to urban civilization. From the historical records consulted, the latter appears to be the most likely explanation. Very little research has been conducted concerning the trade networks operating at the time in California, and information of this sort could shed light on the material goods found in archaeological contexts.

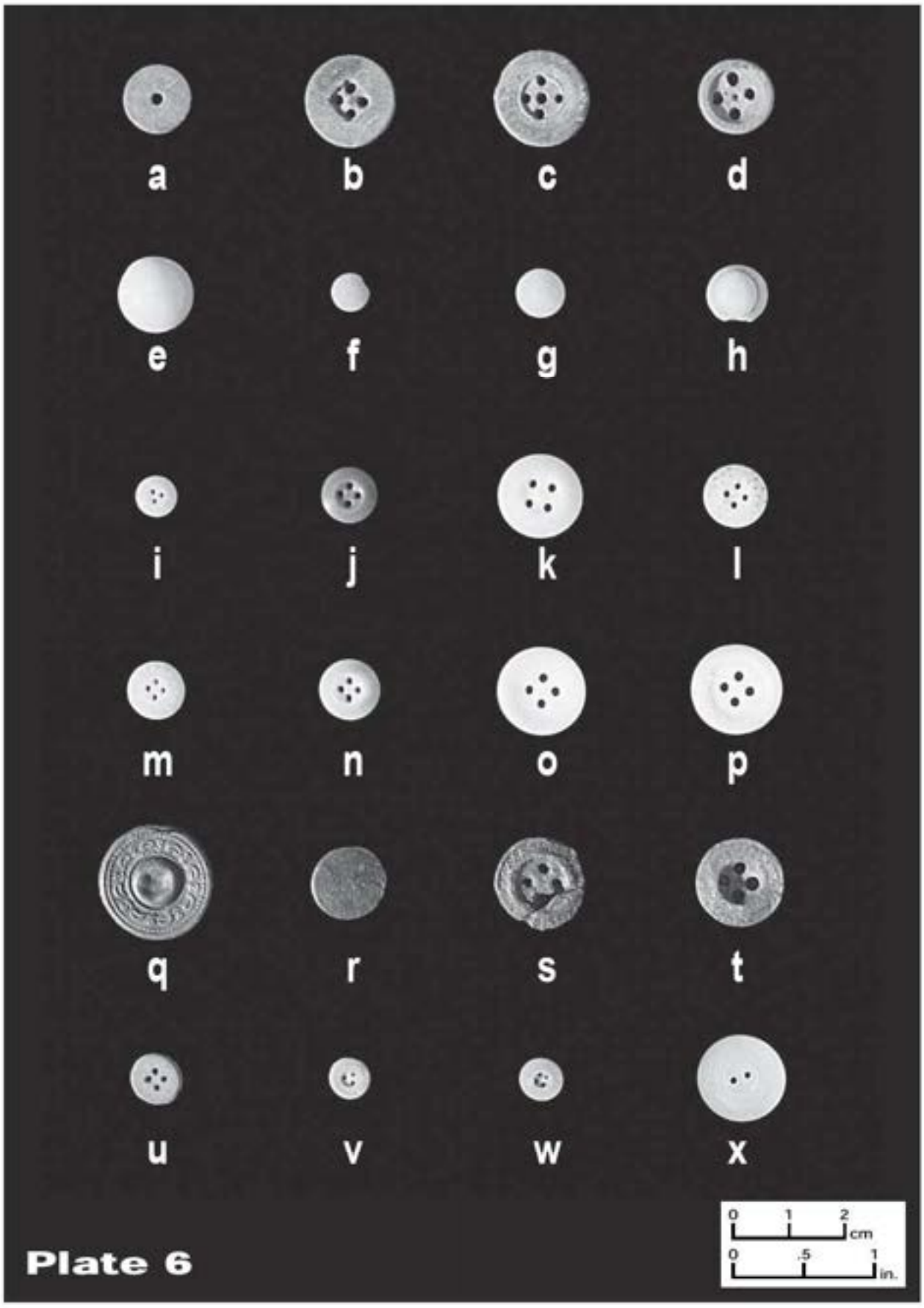
Sizes of buttons found, especially the large number of 16-line, or 9-11mm shirt buttons (see table 6.1), indicate a predominantly male occupation of the Golden Eagle site. Additionally, the duplicate specimens from Feature 15 and, to a lesser extent, Feature 20, are from men's clothing. Comparatively few duplicates were found in women's button sizes.

It was traditional for women to remove buttons from worn-out garments before relegating them to the scrap bin. The matching bone, work-clothes buttons and ceramic shirt buttons indicate that men were present, during the 1850s and 1860s, who had neither wives nor mothers to take care of their clothing. The presence of unmarried men at that time is supported by census data.

It is hoped that this paper will contribute to understanding the usefulness of buttons as indicators of fashion and will provide data for comparative research purposes. Attempts have been made to correlate assemblages of buttons from archaeological sites with those on dated garments (Switzer 1974; Furnis 1979), and more work of this type should be conducted. There is little information on button prices until the advent of mail-order catalogues during the final years of the 19th century, and further research is needed in this area. Studies of mercantile collections, such as the one recovered from Steamship Bertrand (Switzer 1974), have great potential for revealing availability of various types at a certain date. Currently, there are few button assemblages from carefully dated archaeological contexts; comparative collections are vital to understanding chronological, demographic, and socioeconomic variations as expressed by material culture.

PLATE 6.1

a) Bone, thread center
b) Bone, sunken panel
c) Bone, sunken panel
d) Bone, tire
e) Gaiter/shoe
f) Gaiter/shoe
g) Gaiter/shoe
h) Gaiter/shoe
i) "Small china," knobless center dish
j) "Small china," knobless center dish
k) "Small china," knob center dish
l) "Small china," calico dish
m) "Small china," hobnail piecrust dish
n) "Small china," inkwell
o) "Small china," saucer
p) "Small china," tire
q) Metal, riveted
r) Metal, omega
s) Metal, tripartate
t) Metal, stamped
u) Shell, plain
v) Shell, sunken panel
w) Shell, shallow inkwell
x) Shell, fish eye



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CERAMICS

by

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INTRODUCTION

The ceramic collection from the Golden Eagle Hotel excavation appears remarkably plain and seemingly undistinguished, especially in light of the high-class reputation of the establishment. Although dull from an aesthetic viewpoint and lacking in new datable decorative patterns, this collection has much to offer the study of ceramics from American Period sites in California. Ceramics from each of the archaeological features can be associated with business activities during discrete time periods, while personal articles associated with manufacturing and service-oriented activities can be distinguished from restaurant ceramics. Ceramics from features 8 and 20 can serve as a type collection from a circa 1855 to 1870 "high-class" restaurant.

To enhance the comparability of the collection, the first part of this chapter is devoted to a detailed description of the classification system used to generate the ceramic summary tables (table 7.1). Information on ceramics recovered from areas I through VIII is included in the table, although further discussion is limited to the materials from features 6 (Area IV), 8 (Area VII), and 15 and 20 (Area VIII). This focus is due to the disturbed nature of areas I and II, the behaviorally non-diagnostic fill of construction trenches in areas III and V, the limited number of ceramics in Area VI, and the absence of ceramics in Area IX. Manufacturers' marks present on the ceramics are described in the second part of this chapter. The purpose of this section is threefold: to aid in the future identification of marks by other researchers; to provide terminus post quem dates for features 6, 8, 15 and 20; and to apply and test a variation of South's Mean Date Formula (South 1978:68-82).

In the final section of this chapter, I have interpreted the collections from each feature in terms of pattern of deposition, economic status, and commercial versus private ownership and/or use. To elucidate differences among the features, comparisons are made among features on the site and with ceramic assemblages from two other archaeological sites: collections from a c.1866 Sacramento saloon/family residence and from a c.1873 private residence in Santa Rosa, California.

TYPE DESCRIPTIONS

For the purposes of analysis, the ceramics recovered from the Golden Eagle site are divided into three broad Classes: Earthenware, Stoneware, and Porcelain. These classes are then further broken down into Groups and Types. The criteria for group and type classifications differ among classes. Earthenware is grouped by body type, while stoneware and porcelain are grouped by gross place of origin: Euro-America or China. Earthenware and porcelain types are determined by decorative styles, while stoneware vessels are typed by a mixture of function and surface characteristics. Although this

taxonomy may seem internally inconsistent, it is designed to reflect the most significant aspects of each class within the collection. The typology could not be applied to other sites without modification and the addition of types.

CLASS A EARTHENWARE

In this ceramic taxonomy, the term "earthenware" is used to cover a wide range of ceramics which, because of the low temperature at which they are fired, are neither porcelain nor stoneware. Earthenware may be contrasted with porcelain, in that it is opaque, not translucent; and with stoneware, in that it is porous, not vitreous. Because earthenware is porous it requires glazing before it can be used for food preparation, serving, or storage. Its porosity also makes the ware water-absorbent. When exposed to liquid, the fabric expands, placing pressure on the glaze; as a result, the glaze may crack, producing the effect known as "crazing." The range of earthenware fabrics is great: from the technically most advanced Opaque Porcelain to the coarse, low-fired Common Pottery. Type distinctions at the technically crude end of the earthenware continuum are relatively simple, based on the vessel fabric and decoration. As technological improvements produced more highly refined white earthenware, however, classification and therefore dating and attribution become perplexing.

Since the introduction in the 1760s of Wedgwood's "Queensware," the goal of many potters was to produce a durable, white-bodied earthenware as a substitute for porcelain. This gradual process, including the addition of feldspathic minerals to the clay and the raising of firing temperature, resulted in a ware which was hard, dense, and durable. This product has alternately been classed by ceramic analysts as "soft paste porcelain," because it is white and vitrified; "white stoneware," because it is dense; and "earthenware," because of its antecedents.

Rado (1969:table 1) defined his types by their material composition and firing temperature. Vitreous china--the improved earthenware--was classified separately from earthenware, stoneware, and porcelain. This is the most objective method by which a classificatory system may be derived; Rado's categories are discrete, although they may be artificial. Obviously, his criteria cannot be applied to archaeological materials in quantity. Our categories are artificial and overlapping, and our criteria must be limited to those characteristics which are palpable to the senses. The boundaries drawn along the ceramic continuum are no doubt different from those which other analysts might decree.

For the purposes of this report, the refined white earthenwares have been divided into three groups: Pearlware, White Improved Earthenware, and Opaque Porcelain. In some cases, the same vessel forms and decoration occur in all three groups. The variations in body types are assumed to represent both chronological and economic differences.

Group I Pearlware

Pearlware is a refined white earthenware with a clear lead glaze to which a small amount of cobalt has been added. This glaze pools and appears darker in crevices, especially around the base of the vessel (Price 1979:10). Pearlware is lighter in weight than either of the other two refined earthenware types. It is also the least abundant of the whiteware types within the present collection.

Pearlware was first produced by Josiah Wedgwood of Staffordshire, England, in the 1770s. By the 1780s, it was being exported to North America, where it became the predominant common tableware by c.1810 (Price 1979:10). White improved earthenwares, such as "Ironstone," had largely replaced pearlware by the 1840s, although small quantities of pearlware are still produced today. A large proportion of the ceramics in a Sacramento warehouse that burned in 1852 were pearlware; unfortunately, the burned condition of all sherds rendered the exact tabulation of the proportions of pearlware to white improved earthenware impossible (Praetzellis and Praetzellis, unpublished data).

Pearlware vessels bear printed or painted decorations more frequently than do those of white improved earthenware. This difference is probably a result of changes in fashion: the decline in both pearlware and transfer printing coincided with the trend toward molded vessels of durable white fabric.

Type A Plain
Date: c.1780-1850
Origin: England

Description: Light-bodied, white earthenware covered with a clear, blue-green glaze; no decoration.
Forms in collection: Cosmetic jar lid (Feature 8); possible toy teapot (Feature 8).
Comments: Although small pearlware sherds were recovered from the other features, the only reconstructable vessels are those personal items from Feature 8 mentioned above.

Type B Multi-sided
Date: c.1830-1850
Origin: England

Description: Light-bodied, white earthenware, covered with a clear, blue-green glaze; multi-sided molded decoration.
Forms in collection: Lidded vessel (Feature 8).
Comments: This is the only multi-sided pearlware vessel in the collection. This vessel was very incomplete and apparently not in the "Gothic" style described under white improved earthenware.

Type C Handles
Date: c.1780-1850
Origin: England

Description: Handle elements from light-bodied, white earthenware vessels covered with a clear, blue-green glaze.
Forms in Collection: Mug (Feature 15)
Figure: 7.1a
Comments: This category was created following Miller and Stone (1970:48) in order to include diagnostic handle elements. Only one such pearlware vessel was recovered.

Group II White Improved Earthenware

This term was created by Praetzellis and Praetzellis (1979a: 11-12) to avoid the confusion generated by the use of such emic ware names as "Ironstone." Such names, created by the potters to enhance the marketability of their wares, were used indiscriminately to describe a variety of body types. Fancy appellations such as "French China" or "Pearl China" actually refer to plain White Improved Earthenware. In the past,white improved earthenware was known under many names, including "White Granite," "Ironstone China," "Semi Porcelain," "Feldspar Opaque China," and so on. It was widely produced in the 19th century, first in England and later in the United States.

White improved earthenware is simply an improvement, in the direction of durability, of the pearlware of Group I. Whereas pearlware is light and relatively porous, white improved earthenware, because of its higher firing temperature and/or greater proportion of feldspar, is dense and low in porosity. White improved earthenware is first fired to 1100-1250 degrees centigrade, and then again, after glazing, to a temperature of 950-1100 (Rado 1969:167-169). The popularity of white improved earthenware is attributed to its unusual durability and brilliant clear glaze, together with its relative low cost. It was a ceramic well suited to frontier conditions.

Type A Plain
Date: c.1830-1900
Origin: England

Description: White improved earthenware covered with a clear glaze; no molded, printed, or painted decoration.
Forms in collection: Cosmetic jar, cup, platter, serving dish, small dish, plate, small plate, deep plate, saucer (all areas and features).
Marks: John Alcock; T. & R. Boote; Bridgwood & Son; E. Challinor; E. & C. Challinor; Davenport; James Edwards & Son; Thomas Hughes; John Maddock; T.J. & J. Mayer; J. & G. Meakin; C. Meigh & Son; Powell & Bishop; W. Ridgway & Sons.
Comments: Plain white improved earthenware comprises the largest group within the collection. Most complete vessels possess one or even two marks, which may be printed and/or impressed.

Type B Multi-sided, paneled
Date: c.1840-1900
Origin: England

Description: White improved earthenware covered with a clear glaze, multi-sided or paneled.
Forms in collection: Cup, saucer, plates, mug, small plate (all features)
Figure: 7.1b, 7.2a, 7.2b, 7.3b
Marks: T. & R. Boote; E. Challinor; John Maddock; T. J. & J. Mayer; George Wooliscroft; J. & T. L.
Comments: Multi-sided, angular, or paneled vessels gained popularity as a result of the Gothic Revival movement of the 1830s. Vessels of this type were also produced in porcelain and opaque porcelain. Freeman (1954:8) dated the popularity of "sided wares" from 1840 to 1860, followed by the return of round shapes with molded rim designs. Twenty-five reconstructable vessels of this type were recovered from the Golden Eagle features.

Type C Molded
Date: c. 1840-1900
Origin: England

Description: White improved earthenware covered with a clear glaze; molded decoration.
Forms in collection: Small oval platter, "arches" plate, "waves" deep plate, "arches" bowl, "fig" ewer, "fig" small dish, plate, lidded vessel (all areas and features).
Figure: 7.3a and 7.4, 7.5a
Marks: James Edwards & Son; J. & G. Meakin; Pinder, Bourne & Co.; Pinder, Bourne & Hope
Comments: Multi-sided and molded-rim patterns appear to have dominated the tableware market from the mid-1840s; their popularity roughly paralleled the decline of transfer-printed ceramics. All of the patterns mentioned above come in a variety of fabrics, the quality of which would, presumably, have been reflected in their pricing. Wetherbee (1974) illustrated many molded patterns, currently sought by collectors, which are common components of post-1850s ceramic assemblages.

Some of these patterns remained popular for many years. Upon expiration of their patent on a certain pattern, manufacturers would change the shape slightly and then re-register it. Of course, other manufacturers could also implement slight changes to the pattern and thereby avoid infringing the patent. The "fig" pattern is a good example of such perseverance. Davenport registered "fig" patterns in 1856, 1859, and 1861 (Praetzellis and Praetzellis 1979b:15-17). Samuel Alcock (1828-1859) made a very similar pattern, as did Baker (Praetzellis and Praetzellis 1979b: 5, 1979d:9). Unfortunately, both "fig" vessels within the Golden Eagle Hotel collection lacked bases and, therefore, manufacturers' marks.

The registry date and pattern name for the "arches" pattern is not known. This pattern probably also enjoyed a long period of popularity, as is indicated by the occurrence of marks for Pinder, Bourne & Hope (1851-1862) and Pinder, Bourne & Co. (1862-1882). The designations "arches" and "waves" were created by the author.

There were 22 reconstructable vessels of this type from the Golden Eagle features.

Type D Printed
Date: c.1830-1860
Origin: England

Description: White improved earthenware covered with a clear glaze decorated with red or blue transfer prints; underglaze.
Forms in collection: Ewer (Feature 8), plate (Feature 15), bowl (Feature 15), "Athens" saucer and bowl (Feature 3).
Figure: 7.6
Mark: W. Adams & Son
Comments: Almost all of the transfer-printed sherds from the Golden Eagle Hotel features were too small to be diagnostic as to pattern, date, or form. Exceptions to this were the "Athens" bowl and saucer, which were recovered from a construction trench in Area III. W. Adams & Son registered this pattern on 3 January 1849 (Cushion 1976:294; Laidacker 1951:18). Charles Meigh (c. 1830) and Davenport also manufactured printed patterns entitled "Athens" (Laidacker 1951:127; Freeman 1954:24; Lockett 1972:70).

Type E Printed and Painted
Date: 1851-1855
Origin: Staffordshire

Description: White improved earthenware covered with a clear glaze; decorated underglaze with a blue transfer print and overglaze with hand-painted gold highlights.
Forms in collection: Lid (Area I), hollowware (Feature 20).
Figure: 7.7
Mark: T.J. & J. Mayer
Comment: T. J. & J. Mayer won a prize for their ceramic exhibit at the 1851 Great Exhibition at the Crystal Palace in London. Among the prize-winning pieces (Art Journal 1851:294-95) was a small pitcher of a type that was recovered during archaeological excavations at 4th and K streets in Sacramento (Praetzellis and Praetzellis 1979a:fig. 4d); it possesses the same mark as the lid uncovered in Area I. This mark was apparently used to identify those designs honored at the Crystal Palace Exhibition (Praetzellis and Praetzellis 1979b:31).

Type E Edged
Date: c.1830-1860
Origin: England

Description: White improved earthenware covered with a clear glaze; molded, shell-edge rim colored blue; underglaze.
Forms in collection: Plate (Feature 15)
Comments: Only one small, shell-edge sherd was recovered.
Reference: Price 1979:17

Group III Opaque Porcelain

The term "Opaque Porcelain" is used by the author to designate an opaque ceramic body having more characteristics in common with improved earthenware than true porcelain. The fabric, which is often grey, has a crystalline body when viewed in cross-section. The porcelain-like characteristics of this material may have resulted from a variation on Turner's "Stone China" formula, which used a high proportion of kaolin, an ingredient of porcelain. Opaque porcelain was used for tableware ranging from plain, heavy-bodied vessels to the thin-walled, delicately molded pieces often produced by Davenport of Staffordshire (Praetzellis and Praetzellis 1979a:13).

In Canada, and probably in the United States as well, cheap French porcelain began to compete with British earthenware about 1850. To recover the American trade, some British firms made a dense, slightly grey-bodied improved earthenware in imitation of French porcelain. They marked this ware with such terms as "Porcelaine Opaque" and "Demi-porcelain" (Collard 1967:130). Many potters simply graced their old wares with the new names; emic terms for opaque porcelain and white improved earthenware often bore little relationship to the actual body type.

Type A Plain
Date: c.1840-1900
Origin: England

Description: Porcelain-like improved earthenware covered with a clear glaze; sometimes the body has a blue-grey cast. No printed or painted decoration.
Forms in collection: Small plate (Feature 20)
Mark: John Maddock
Comments: This plate, the only undecorated opaque porcelain vessel in the collection, is a good example of the confusion created by emic labels. A number of similar plates were marked "Maddock's Patent Ironstone China"; this plate, however, was of the more refined fabric.

Type B Multi-sided
Date: c.1840-1900
Origin: England

Description: Porcelain-like improved earthenware covered with a clear glaze; sometimes the body has a blue-grey cast. Multi-sided molded decoration.
Forms in collection: Mug (Feature 15), ewer (features 8 and 20)
Figure: 7.8
Mark: C. Meigh & Son
Comments: The same vessel shapes occur in white improved earthenware. There were three reconstructable opaque porcelain multi-sided vessels recovered from the Golden Eagle features.

Type C Molded
Date: c.1845-1900
Origin: England

Description: Porcelain-like improved earthenware covered with a clear glaze; sometimes the body has a blue-grey cast. Molded decoration.
Forms in collection: Small "arches" plate (Feature 8), "leaf and crossed ribbon" ewer (Feature 8), oval dish (Feature 20)
Figure: 7.9, 7.5b, 7.10a
Marks: E. Challinor; Pinder, Bourne & Hope
Comments: A number of small "arches" plates made of white improved earthenware were also recovered. The "leaf and crossed ribbon" ewer lacked a base; Wetherbee (1974:27) attributed this pattern to the Staffordshire pottery of Livesley and Powell, circa 1855.

Group IV Yellow Ware

Type A Plain
Date: c.1830-1900
Origin: Probably U.S.A.

Description: Pale yellow or cream-colored earthenware covered with a clear or yellow glaze.
Forms in collection: Mixing bowl (Feature 8)
Comments: This type, which is still available today, most commonly occurs as kitchen mixing bowls. The clay used is less well refined and is fired to a lower temperature than that used for white tableware vessels. Due to these simpler requirements, most American whiteware manufacturers entered the ceramic business via the yellowware market, making both kitchenware--often with slips of colored bands around the rims--and molded Rockingham vessels. In 1872 the Sacramento pottery of Bergman & Bros. at the corner of N and 13th Streets began the manufacture of Rockingham and yellow ware, which they sold locally (Sacramento Union 22 June 1872, 23 November 1872). Yellow-ware baking dishes and mixing bowls were also made in England, especially in Derbyshire (Jewitt 1883:375-76), however, the fabric

of these wares was more refined ("Fire Proof") and closer in composition to ironstone than to American yellow ware.

Only two yellow-ware bowls, both from Feature 8, were recovered from the Golden Eagle Hotel site.

Type B Rockingham Glazed
Date: c.1830-1900
Origin: Probably U.S.A.

Description: Pale yellow or cream-colored earthenware covered with a variegated purple-brown, brown, or yellow-brown glaze; often with molded decoration.
Forms in collection: Teapot (Feature 6), teapot lid (Area II, Feature 15), "diamond" or "lozenge" pattern cuspidor (Feature 6)
Reference: "Diamond" or "lozenge" pattern cuspidor illustrated in Barrett (1964:fig. 35 and 36) and Praetzellis and Praetzellis (1979a:fig. 1a and 1b).
Comments: The characteristic glaze of this type was made by employing manganese or various other metallic salts. It is formed of either a single layer of glaze or of two layers, one being clear and the other colored. The double-glazing process was used by the United States Pottery Company in Bennington, Vermont, until 1856, when efforts to economize halted its production (Barrett 1958:19). First produced in Great Britain at the end of the 18th century, Rockingham gained much popularity in America in the mid- to late-19th century for use on cuspidors, teapots, pie dishes, and similar items. From about 1835, every sizable pottery in the United States produced Rockingham-glazed wares (Barret 1958:19); enormous quantities were made, especially in the Ohio Valley, until 1900 (Ramsey 1939:64). By 1872, Sacramento had at least one local pottery which produced Rockingham (Sacramento Union 22 June 1872). Although Rockingham was also manufactured in England (Barrett 1964:25; Jewitt 1883), Scotland (Anonymous 1876:55), and Canada (Collard 1967), it is, according to Ramsey (1939:65), "an American type more fully developed and more used here than abroad."

Sherds from Rockingham-glazed vessels occurred in features 6, 8, and 15.

Type C Flint Enamel
Date: c.1849-1880 (Ramsey 1939:147)
Origin: U.S.A.

Description: Pale yellow or cream-colored earthenware covered with a variegated glaze made up of combinations of blue, green. orange, brown, and yellow; often with molded decoration.
Forms in collection: Unknown variant of "diamond" or "lozenge" molded pattern (Feature 6).

Comments: A form of Rockingham glaze invented by Fenton of Bennington, Vermont, flint enamel differs from the common Rockingham by exhibiting various combinations of blue, green, and orange. The colors were applied by the use of a box with holes in its bottom, through which various metallic oxides were shaken onto the ware; in good examples, a speckled effect was produced (Barret 1958:19). This technique was patented by Fenton in 1849; by 1852, however, the Ohio Valley potters were turning out poor copies (Ramsey 1939:76). Flint enamel occurs in the same vessel forms and body types as Rockingham.

Only a few sherds of this type, all apparently from one vessel, were recovered from Feature 6.

Group V Scroddled Ware

Type A Miscellaneous
Date: c.1845-1875 (Ramsey 1939:147)
Origin: U.S.A.

Description: Mixture of various colored earthenware clays covered with a clear glaze.
Forms in collection: Unknown (Feature 6)
Comments: Scroddled-ware items were formed from a mixture of colored clays, usually under a clear glaze, resulting in an agate-like effect. The ware was used extensively in the United States for door handles, although Fenton of Bennington, Vermont, produced various toilet and kitchen articles in this ware. The latter vessels were expensive, and relatively little was produced (Ramsey 1939:147). Scroddled ware was a revival of the "agate" ware made by Whieldon in England (Watkins 1968:216); it is distinct from the more common "marbled" ware, whose surface was treated with two or more colored slips, creating a similar effect.

Only two sherds of this type were recovered, both from Feature 6.

Group VI Common Pottery

Common pottery is generally made of local, unrefined clay. When fired, impurities in the clay usually result in a colored (red, buff, or brown), rather than a white, ceramic. The body may contain tiny pieces of crushed stone, or "tempering," which the potter introduces to strengthen an otherwise rather weak body; it also is very porous and, therefore, light. On mid-19th-century sites, this ware most commonly occurs as flower pots, bowls, and crocks.

Only two items of common pottery, one American and one Chinese, were recovered. Both were from Feature 15.

Type A Unglazed Redware
Date: 19th century
Origin: U.S.A.

Description: Thick, red earthenware; unglazed
Forms in collection: Flower pot (Feature 15)

Type B Glazed Redware
Date: 19th century
Origin: U.S.A.

Description: Thick, red earthenware; glazed.
Forms in collection: Unknown vessel form with lug handles, glazed inside and out (Area I).

Group VII Chinese Common Pottery

Type A Unglazed
Date: 19th century
Origin: China

Description: Very low-fired, unglazed, orange earthenware
Forms in collection: Lid (Feature 15)
Comment: A concave lid to a small, shouldered, Chinese brown glazed stoneware food jar was recovered.
Reference: Praetzellis 1979c:fig. 1c; Chace 1976:519

CLASS B STONEWARE

The high proportion of fluxes contained in stoneware clay causes it to vitrify when fired to a sufficiently high temperature: between 1100 and 1300 degrees centigrade (Rado 1969:163-64). The dense, extremely hard fabric varies from buff to brown-black, depending on the amount of iron or other impurities in the clay, the firing temperature, and kiln conditions (Rhodes 1959:43). Stoneware clays are commonly sedimentary and vary considerably in working properties. High firing tends to melt the impurities within the clay, often giving a spotty texture to the bodies of stoneware vessels and producing dark specks (Rhodes 1959:55). Being non-porous, it is not necessary to glaze the body before use. For cosmetic purposes, however, salt glaze was commonly used on the exterior, and a slip on the interior. The salt-glaze technique was not used in China.

In modern America, stoneware occurs mainly as studio pottery; previously, it was widely used as the material for large and small shipping and storage vessels.

Group I Euro-American

Type A Cream-colored Beverage Bottle
Date: c.1850-1930
Origin: Scotland; possibly other parts of Great Britain.

Description: Light-colored stoneware with a cream-colored glaze.

Forms in collection: Bottle (features 6, 8, and 15; areas I and II)
Marks: F. Grosvenor; Murray & Co.; Murray and Buchan; Port Dundas Pottery
Comments: These bottles were manufactured to contain beer and ale shipped from England, and they may well have been filled or reused in America. During the mid-19th century, stoneware bottles were cheaper to produce than hand-blown glass bottles; they also provided their contents with better protection from the elements. Stoneware was eventually forced out of the bottle market by the introduction of mass-produced glass containers. Stoneware was apparently used to bottle British beer, ale, and whiskey (Fleming 1923:221) longer than it was used for other commodities.

These bottles were made from Devonshire ball clay, which was transported by ship from Bristol to Scotland. The clay is free from iron impurities and, when fired at a high temperature, produced a vitreous, buff-colored body. Requiring little refining, this clay was eminently suited for the large bottle-manufacturing business that centered in Glasgow (Fleming 1923:219).

In chronicling the progress of the Port Dundas Pottery Company, Jewitt described a glaze which appears to be that found on the bottles within this collection:

> In the same year /1856/ a new glaze was introduced, giving to the ware a cream-colored appearance, and a great demand having thus sprung up for stoneware beer-bottles, the works were greatly enlarged (1883:620)

All of the marked bottles in this collection originated in Scotland; some bottles also possess paper labels from the London ale firm of Byass. At least 77 stoneware bottles were recovered from the Golden Eagle site; the vast majority of these came from Feature 6.

Type B Two-toned Beverage Bottle
Date: c.1850-1930
Origin: Scotland, and possibly other parts of Great Britain

Description: Light-colored stoneware with a yellow-ochre and a cream-colored glaze.
Forms in collection: Bottle (features 6 and 15)
Marks: Murray & Buchan; Port Dundas Pottery Company; H. Kennedy
Comments: These bottles differ from Type A bottles only in the glazing technique. The top third of the bottle is yellow-ochre, while the bottom is cream-colored, giving the vessel a two-toned appearance. The significance of the differences in glazing is not known; manufacturers produced both types in the same forms.

Type C Salt-glazed Mineral-Water Bottle
Date: c.1860-1914
Origin: Germany

Description: Light-colored stoneware with a salt-glazed exterior

Forms in collection: Bottle (Feature 6)
Mark: Birresborn
Comments: These bottles, containing mineral water, were imported from Germany (Armstrong and Schulz 1977:144). Only one example of this type was recovered.

Type D Salt-glazed Blackening Bottle
Date: c.1840-1900
Origin: England or France

Description: Grey stoneware with a salt glaze
Forms in collection: Bottle (Feature 6)
Comments: Blackening, sometimes used as shoe polish, was made and bottled by the same companies that produced ink. There was only one complete example of this type.
Reference: Armstrong and Schulz 1977:154

Type E Salt-glazed Stoneware Storage Vessel
Date: c.1850-1890
Origin: Sacramento

Description: Grey stoneware with a salt glaze
Forms in collection: Crock (Area I, Feature 8), crock lid (Feature 20)
Mark: Pacific Pottery
Comments: These vessels may have been made locally. The name "Pacific Pottery" is incised within the geometrical design around the crock lid rim (fig. 7.9). A similar crock bearing the mark of the Pacific Pottery Company was recovered from an archaeological excavation near 4th and K Street in Sacramento (Praetzellis and Praetzellis 1979a:fig. 12a). The crock and the lid were the only vessels of this type recovered from the Golden Eagle site. Though from separate features, they are of the same fit.

The Pacific Pottery, believed to be one of the first potteries established in the state (Ketchum 1971:89), was located at J and 34th streets. It was established by Dr. Oatman and became the property of N. Clark around 1860. After an unsuccessful beginning, Clark surmounted the anomalies of the local clay and produced "the most desirable earthenware, stoneware, etc." During the 1870s, the Pacific Pottery concentrated on making sewer pipe for buildings in California, Nevada, and Utah (Sacramento Union 22 June 1872, 14 December 1872). The Pacific Pottery last appears in the Sacramento City Directory in the 1890s.

Group II Chinese

Type A Chinese Brown Glazed Stoneware
Date: 19th century
Origin: China

Description: Grey stoneware with brown glaze

Forms in collection: Shouldered food jar (Feature 15), large storage jar (Feature 6)
Comments: The fabric of this type is a well-refined, grey to buff-colored stoneware that contains several types of inclusions, notably quartz and an unidentified black mineral. The vessels are covered with a brown glaze which may be derived from the Sung Dynasty glaze, jiàn yòu (Olsen 1976:82). Chinese brown glazed stoneware comes in a number of vessel forms, most of which were used for the shipment and later storage of wine, soy sauce, vegetables, and other foodstuffs from China. This type occurs in quantity on Overseas Chinese occupation sites (Cf. Chace 1976: 510-530; Olsen 1976, 1978; Praetzellis and Praetzellis 1976, 1979c; Greenwood 1976; Gehr 1975:121-139).

Sherds from Chinese brown glazed stoneware vessels were recovered only from features 6 and 15.

CLASS C PORCELAIN

Porcelain is a hard, dense, white, translucent ceramic material which appears granular in cross-section. Porcelain is made by combining kaolin with feldspar and firing the mixture to the point of vitrification: 1400 degrees centigrade (Rhodes 1959:62). This high-fired ceramic type evolved out of the stoneware tradition in China. The dividing line between porcelain and stoneware is a matter of degree; both are hard, dense, and vitreous and can be greyish in color. Whiteness and translucence are the clearest indicators of porcelain (Rhodes 1959:66).

Group I Euro-American

Type A Plain
Date: 19th century
Origin: Probably France and England

Description: White porcelain with a clear glaze; undecorated
Forms in collection: Toy pot, oval platter, doorknob, oval serving dish, plate, small plate, platter, cosmetic jar, cup (all areas and features)
Figure: 7.10b
Mark: Kerr & Co.
Comments: As only one of the plain porcelain vessels possesses a maker's mark, their point of origin remains unclear. It is likely that they were not of American origin, however, as porcelain was a difficult and expensive ceramic in which to begin production. According to Mr. Greeley (1853:113) of the New York Tribune: "If we put aside the Chinese, there are but three nations who can export pottery to any extent--first, England; then, France; and lastly, Germany." American potters met with little success in porcelain, as in the whiteware trade, and did not begin to compete successfully with European porcelain, if ever, until the end of the 19th century. Recent archival research indicates that, at least through the 1850s and 1860s, most porcelain imported into the west was shipped from Bordeaux, France (Praetzellis, unpublished data).

Thirty-seven plain porcelain vessels were recovered from features associated with the Golden Eagle Hotel and Saloon.

Type B Multi-sided, molded
Date: c.1840-1900
Origin: France and England

Description: White porcelain with a clear glaze and molded, multi-sided decoration.
Forms in collection: Serving dish, cup, saucer (Feature 8)
Figure: 7.11
Comments: These vessel forms were also manufactured in white improved earthenware and opaque porcelain. Adams et al. (1975: fig. 75) illustrated an earthenware serving dish which has the same figure head as that recovered from Feature 8. Their vessel is marked and probably was produced by Charles Meakin (1876-1889) of Staffordshire (Adams et al. 1975:200).

Six vessels of this type were recovered from Feature 8.

Type C Painted
Date: 19th century
Origin: Probably France and England

Description: White porcelain with a clear glaze and hand-decorated overglaze.
Forms in collection: Toy cup (Feature 15)
Comments: No decorated porcelain tableware was found on the site. The toy cup recovered from Feature 15 is the only painted porcelain vessel in the collection.

Group II Chinese

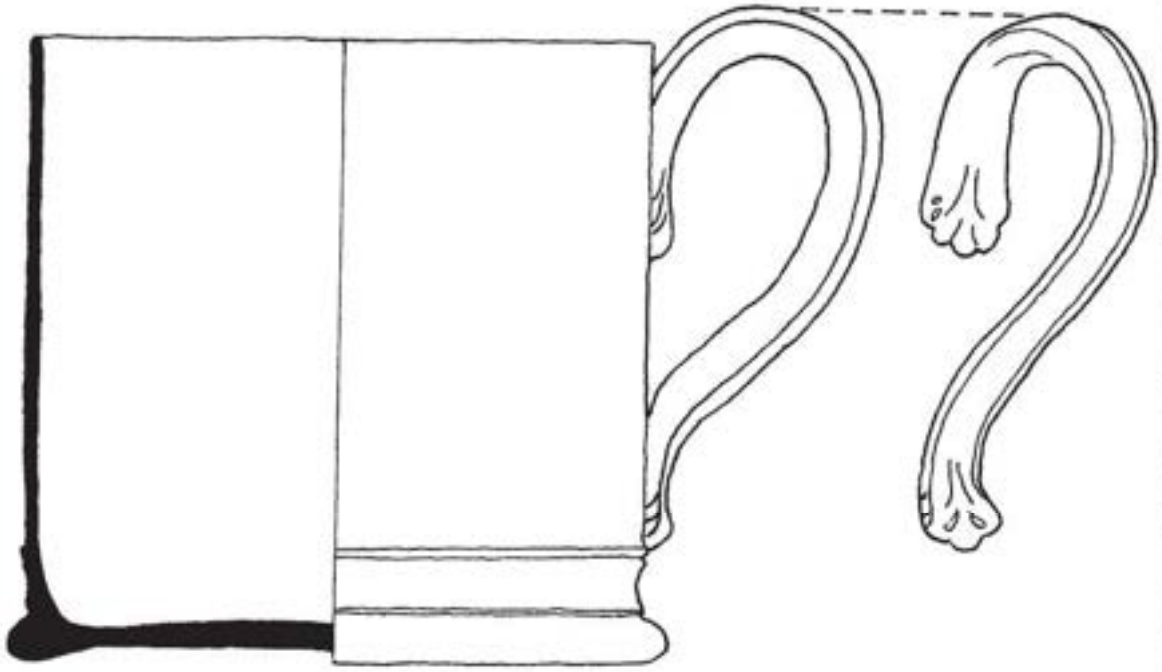
Type A Blue and White
Date: 19th century
Origin: China

Description: White porcelain with a clear glaze of a light-blue cast; handpainted blue underglaze
Comments: Only one small sherd of Chinese porcelain was recovered from Feature 15.

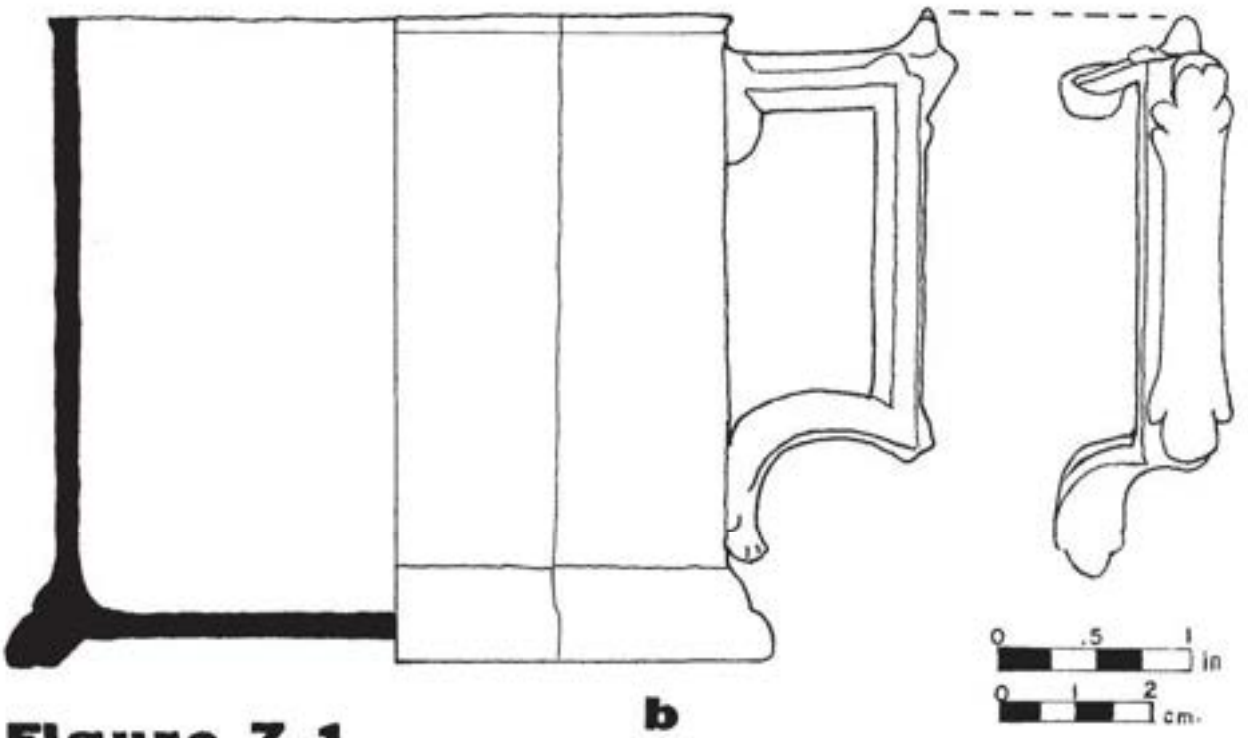
Table 7.1 summarizes the information on provenience and ceramic characteristics described above. A few of the decorative types recovered from areas not essential to site interpretation are listed here but are not included in the typology.

FIGURE 7.1

a) Pearlware mug
b) White Improved Earthenware mug, marked: "E. Challinor & Co."



a



b

Figure 7.1

FIGURE 7.2

a) White Improved Earthenware plate, marked: "T. & R. Boote"
b) White Improved Earthenware saucer, marked: "E.C, & Co."

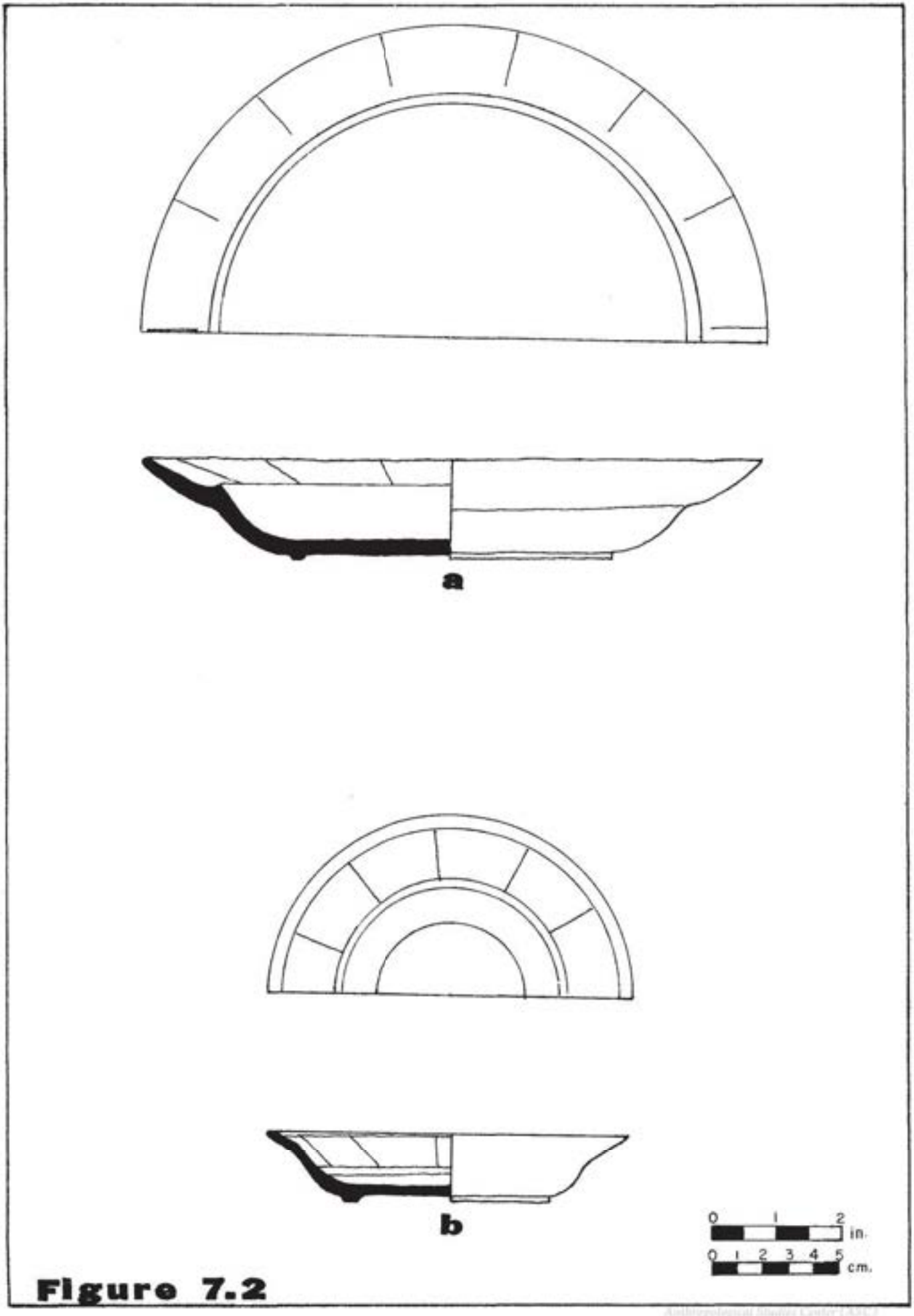
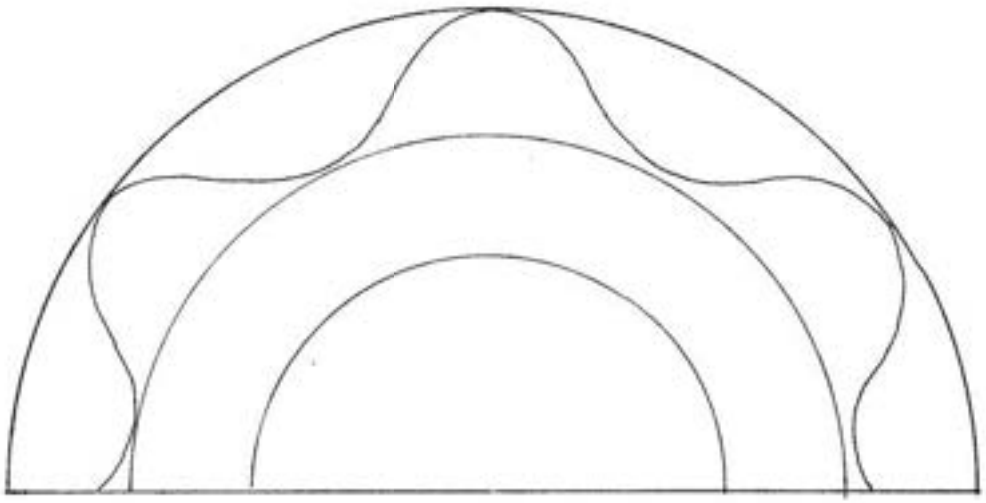
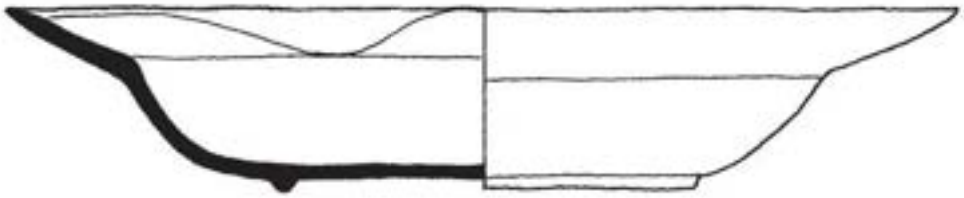


Figure 7.2

FIGURE 7.3

a) White Improved Earthenware "waves" deep plate, marked:"Jas. Edwards & Son"
b) White Improved Earthenware plate, marked "T. J. & J. Mayer," registered October 22, 1853





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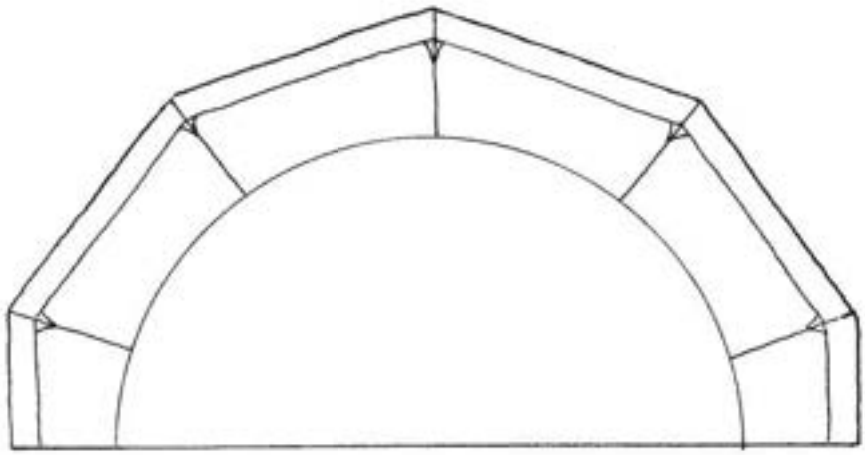
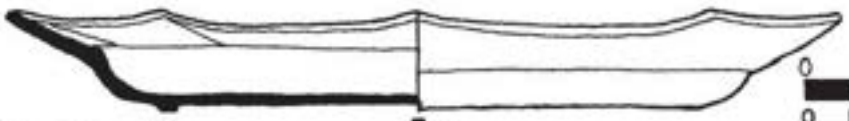
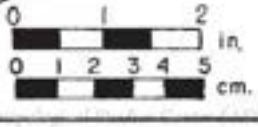




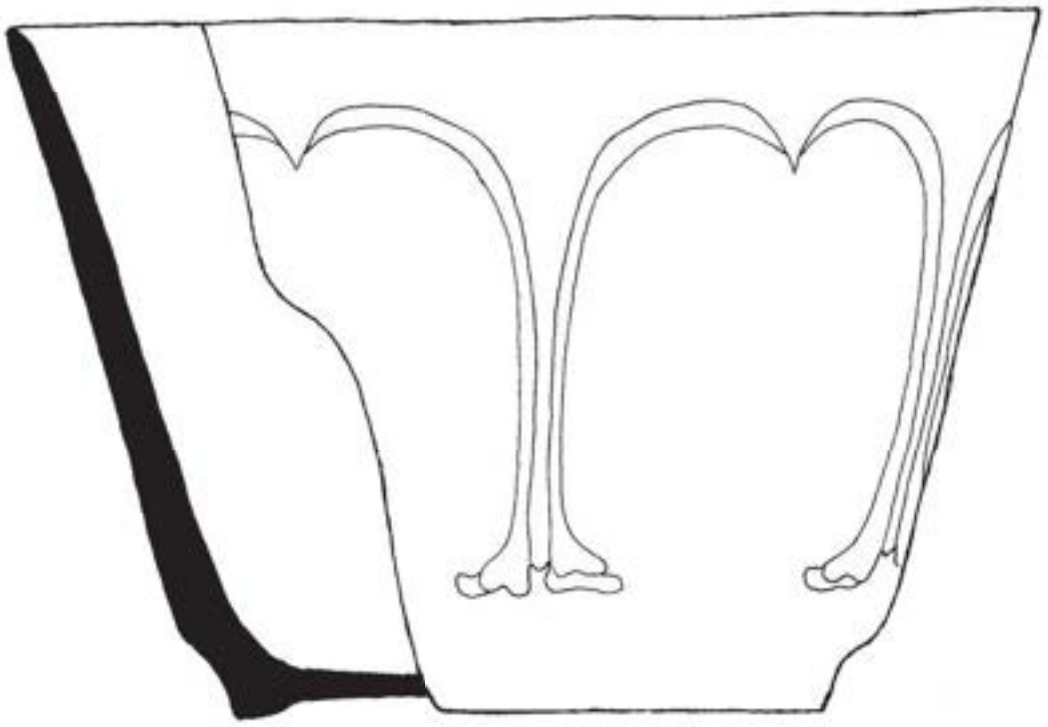


b

Figure 7.3

FIGURE 7.4

White Improved Earthenware "arches" bowl, marked: "Pinder, Bourne & Co."



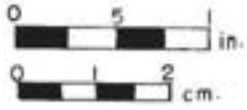
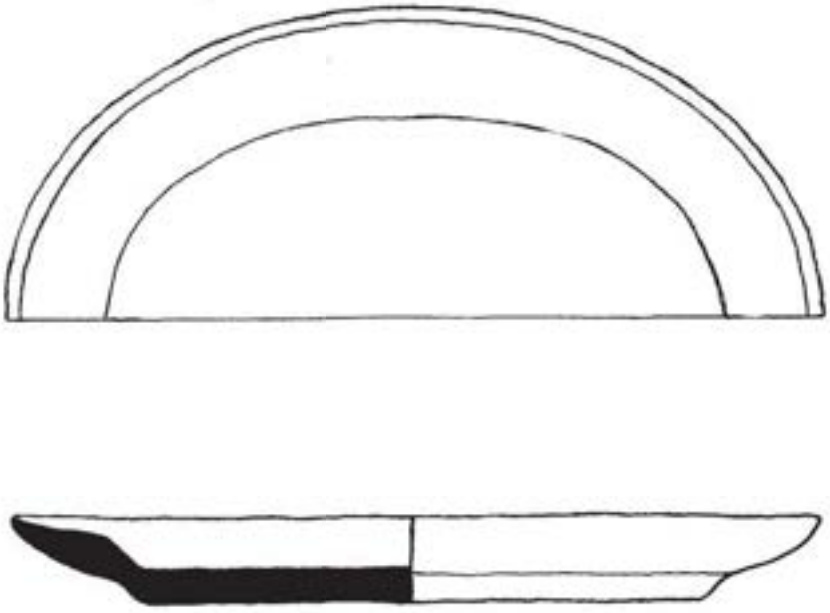


Figure 7.4

FIGURE 7.5

a) White Improved Earthenware oval platter, marked: "J. & G. Meakin"
b) Opaque Porcelain "arches" small plate, marked: "Pinder, Bourne & Hope"



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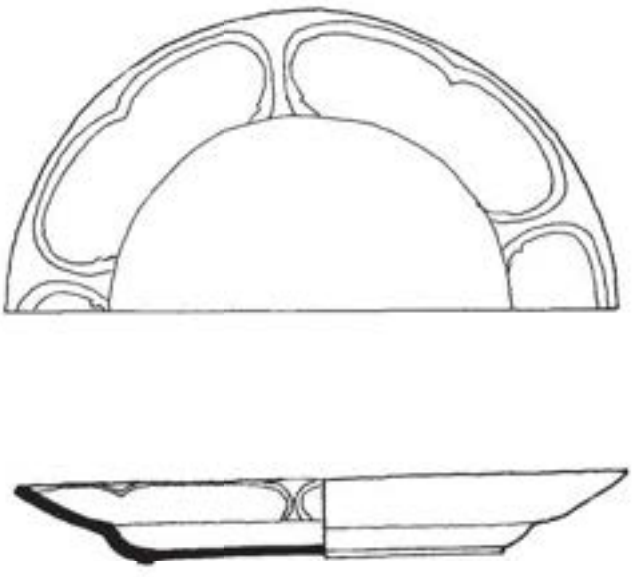

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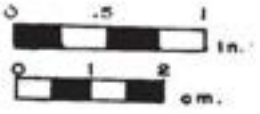


Figure 7.5

FIGURE 7.6

White Improved Earthenware "Athens" bowl, marked: "W. Adams & Son", registered January 3, 1849

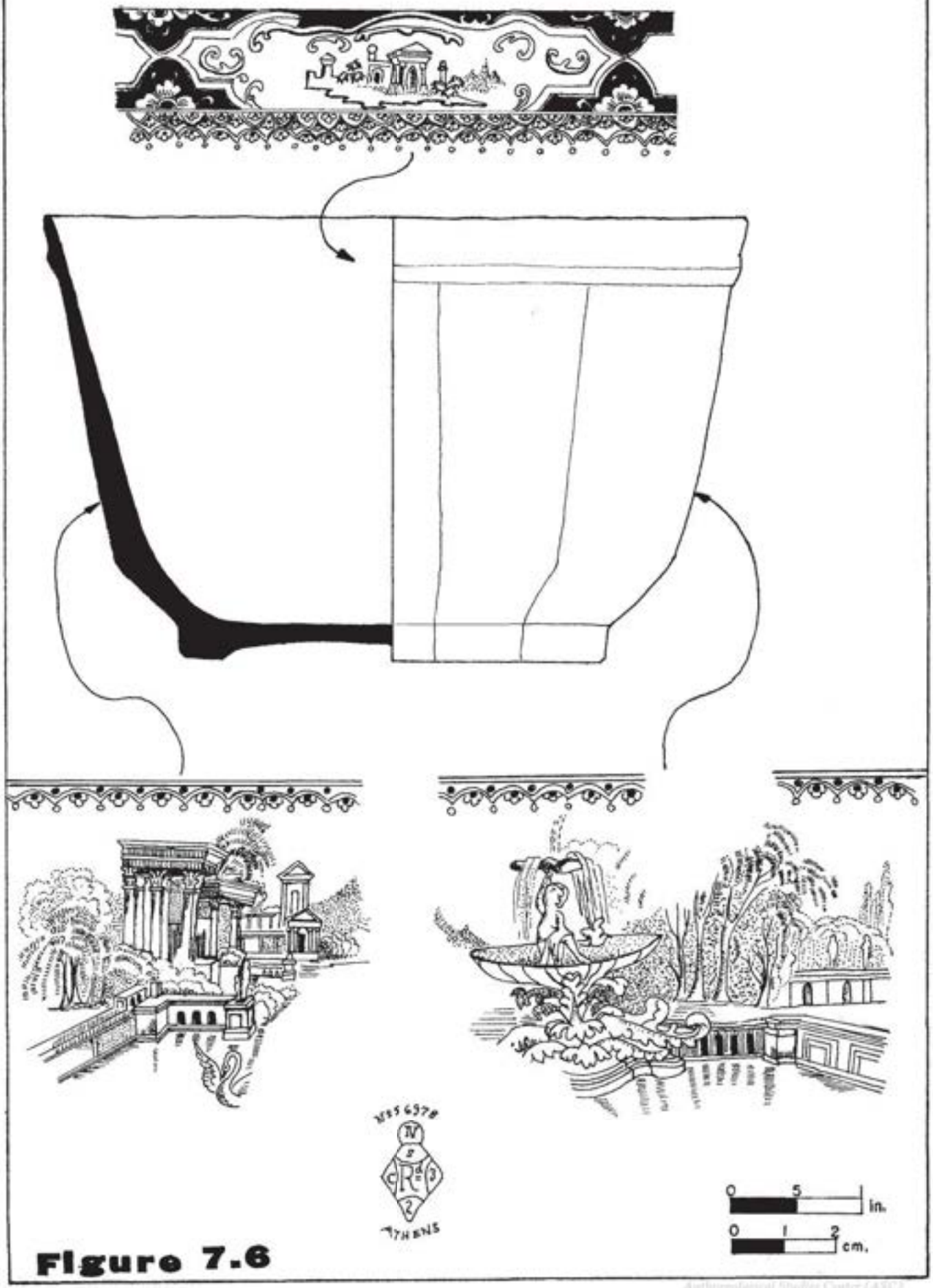
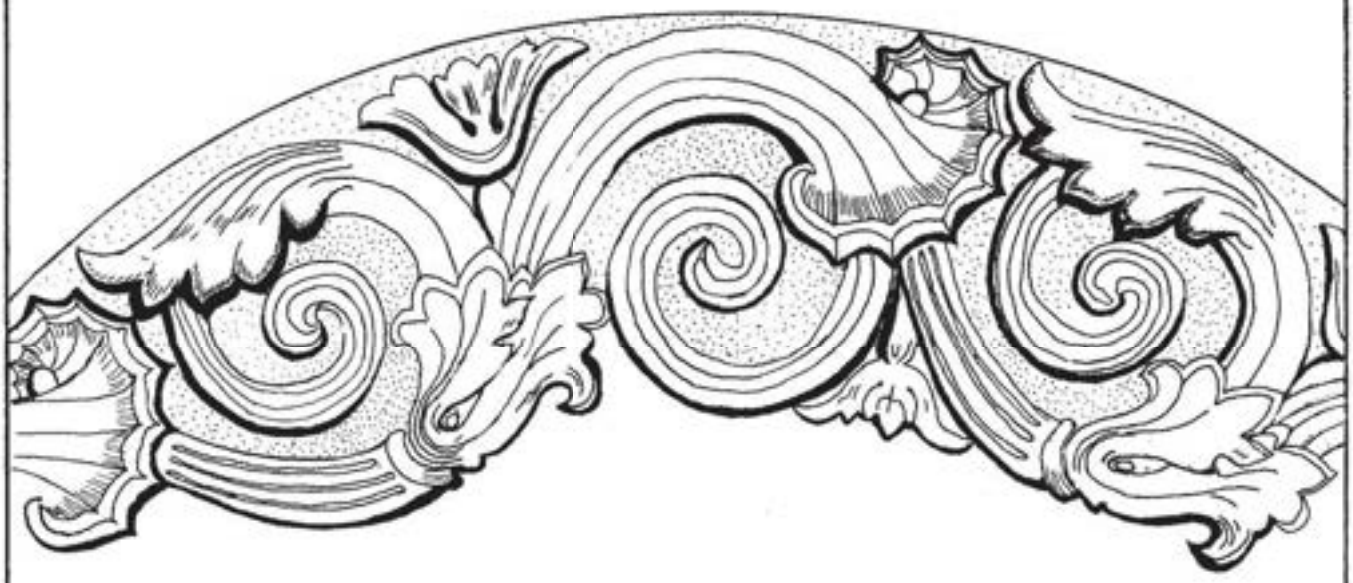


Figure 7.6

FIGURE 7.7

White Improved Earthenware printed and handpainted lid, marked: "T. J. & J. Mayer"



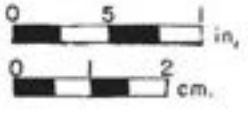
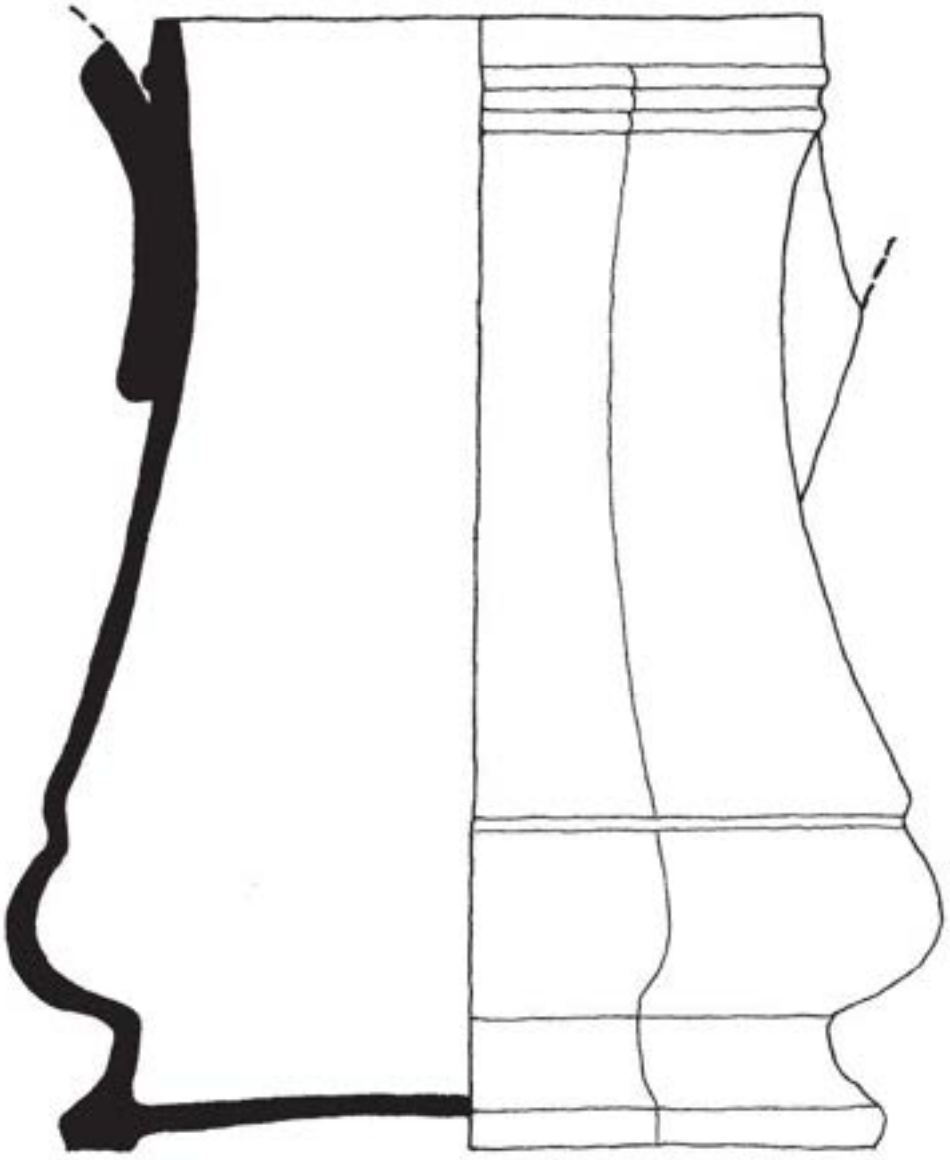


Figure 7.7

FIGURE 7.8

Opaque Porcelain ewer



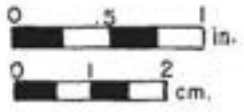
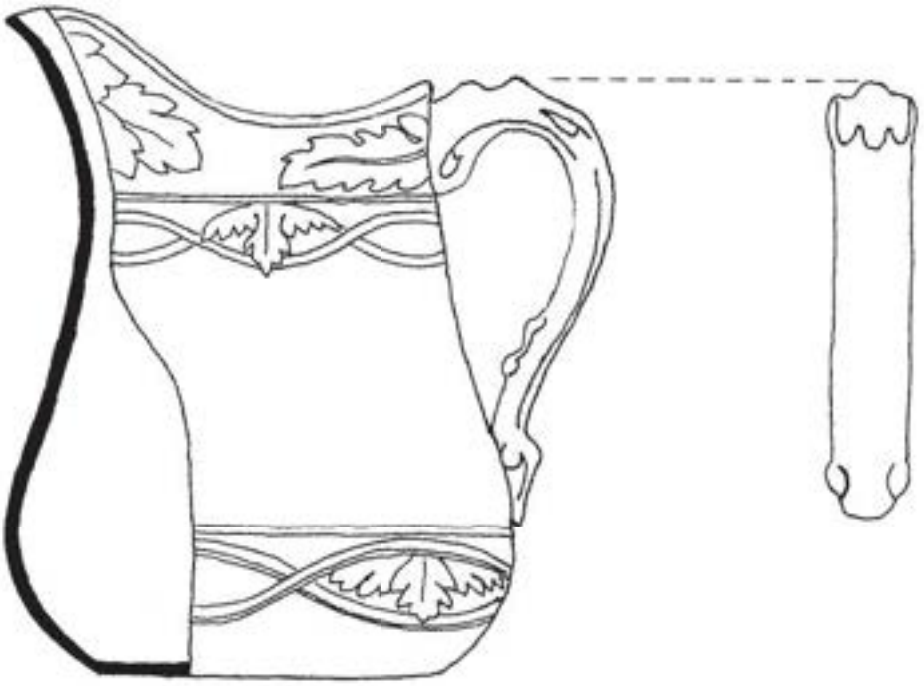
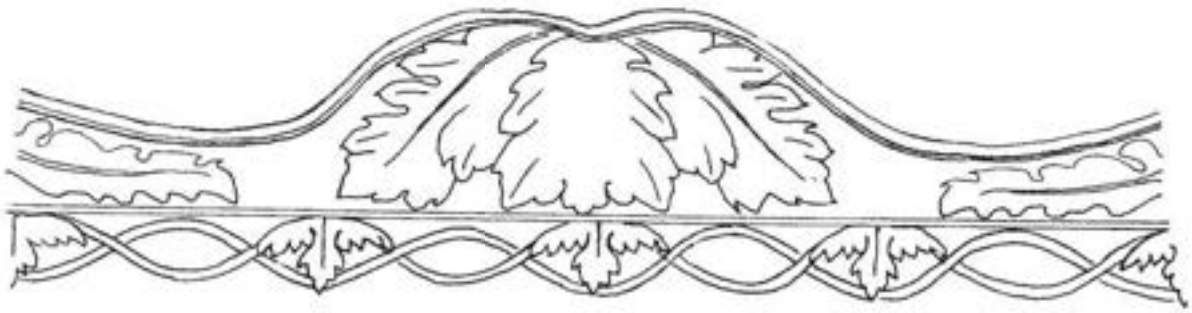


Figure 7.8

FIGURE 7.9

Opaque Porcelain "leaf and crossed ribbon" ewer





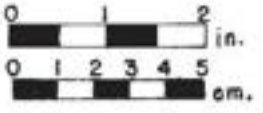
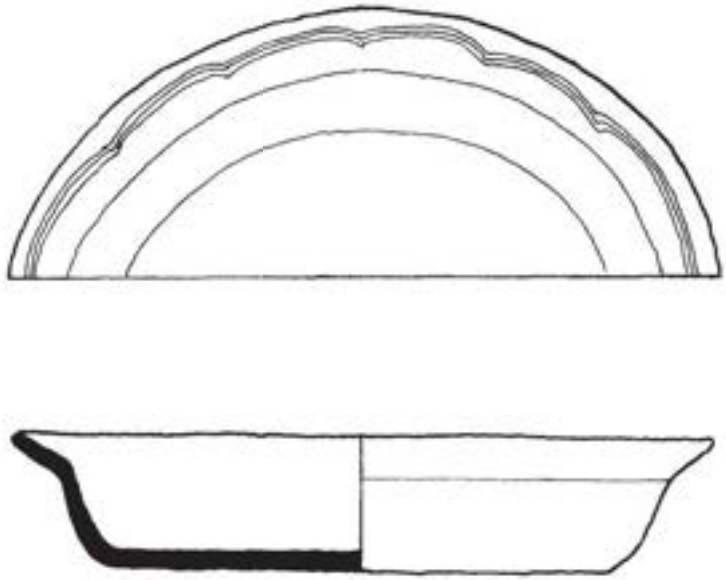


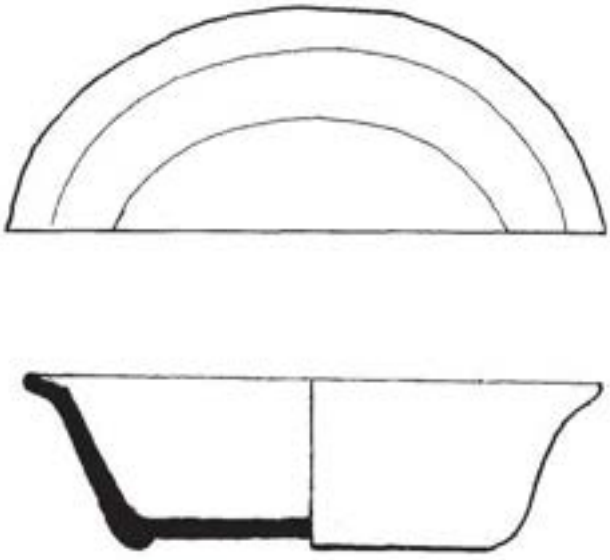
Figure 7.9

FIGURE 7.10

a) Opaque Porcelain oval dish, marked: "E. Challinor & Co."
b) Porcelain oval serving dish



a



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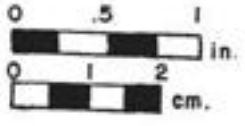
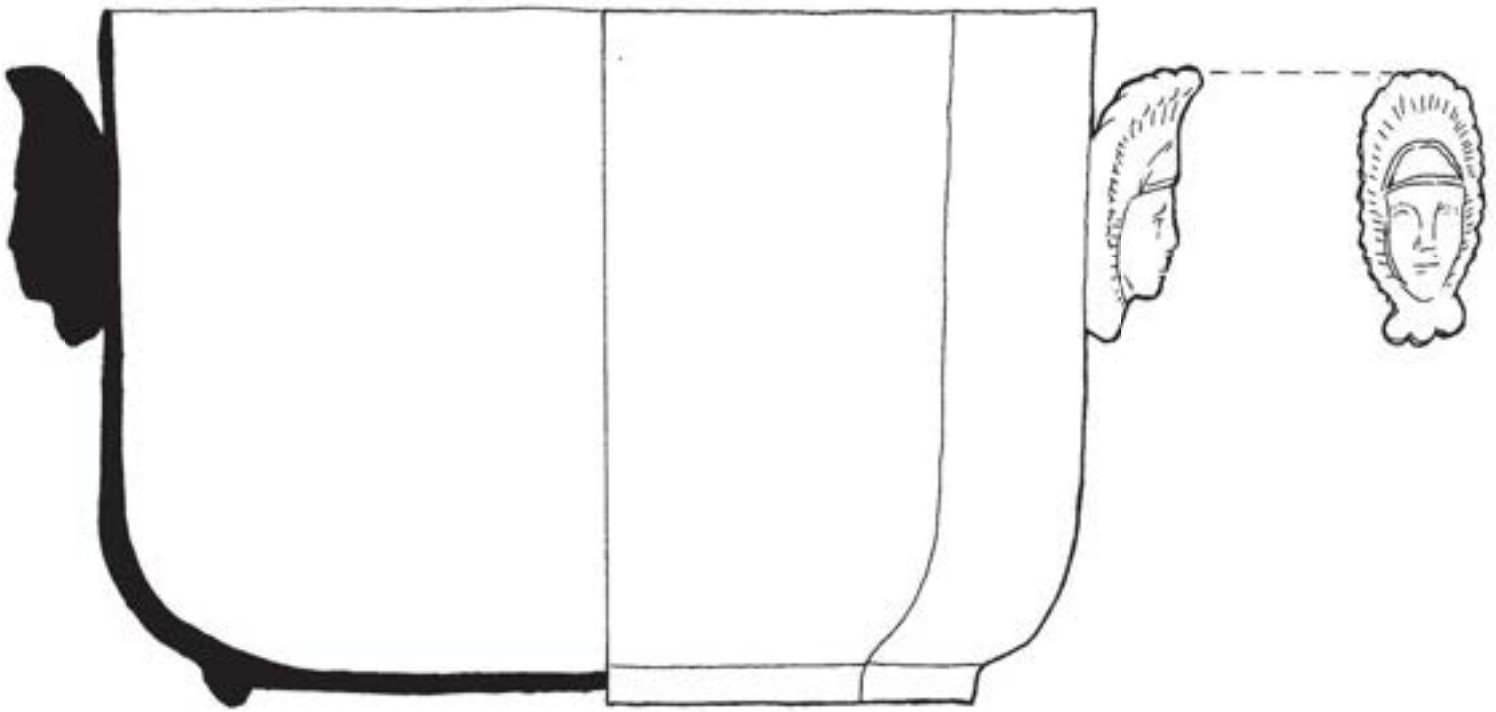


Figure 7.10

FIGURE 7.11

Porcelain serving dish



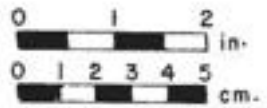


Figure 7.11

TABLE 7.1

Ceramic Summary Table

Provenience/Group	Form/Decoration	Sherds (Vessels)*
AREA I		
Feature 21		
Common Pottery	unknown	1 burned
	/clear glaze	1
Earthenware	tile/blue glaze	1
	/brown glaze	1
Parian	/molded	1
Porcelain	/handle	1
Stoneware	/brown glaze	1
	unknown	1 burned
Stoneware (red)	floor tile?	1
White Improved Earthenware	/blue print	1 burned
	miscellaneous	9
Yellow Ware	/Rockingham	1
Layer 4		
Common Pottery	/glazed	1
Opaque Porcelain	pitcher/molded	1
	miscellaneous	8
Porcelain	miscellaneous	4 - 2 burned
Stoneware	bottle	3 (1)
White Improved Earthenware		3
	cup/multi-sided	3
	cup	3
	saucer/paneled	3 (2)
	bowl	3
	oval serving dish	1
	plate	17
	saucer	2
	miscellaneous	53

*The number of vessels indicates the minimum number of vessels recovered. Within features, the number of vessels by form is usually exact; non-reconstructable, small sherds are included under Miscellaneous.

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds (Vessels)
AREA I , continued		
Layer 9		
Common Pottery	tile?	1
	/glazed	1
Porcelain	electrical fitting	2
Stoneware	bottle	3
	crock/salt-glazed	6 (1)
White Improved Earthenware	cup/multi-sided	1
	bowl	1
	saucer	1
	plate	7 (3)
	miscellaneous	36
Layer 12		
Common Pottery	flower pot	1
	unknown	1
Opaque Porcelain	pitcher/molded	4 (1)
	miscellaneous	6
Porcelain	/banded	1
White Improved Earthenware	plate	9
	cup/multi-sided	2 (1)
	cup	2 - 1 burned
	handle/molded	1
	miscellaneous	34
Yellow Ware	/Rockingham	1
Layer 15		
Common Pottery	crock/glazed	3 (1)
	sewer pipe/glazed	2 (1)
	/glazed	1
Earthenware	tile/glazed	1
Opaque Porcelain	pitcher/molded	3 (1)
	miscellaneous	8
Porcelain	electrical fitting	1
	small knob	1
	door knob	1
	saucer	4 (3)
	plate/banded	1
	trinket box/molded	1
	figurine?/molded, glazed	1
	miscellaneous	7
Stoneware	bottle	7 (2)
	/Chinese brown glazed	1
	/brown glazed	2

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds (Vessels)
AREA I, continued		
White Improved Earthenware	lid/printed and painted	7
	/blue print	1
	saucer/paneled	2
	cup/multi-sided	7
	cup	9
	saucer	3
	small bottle?	1
	bowl	8
	serving dish	1
	plate	31
	miscellaneous	115
Yellow Ware	/Rockingham	1
Layer 19		
White Improved Earthenware	unknown	1
Layer 21		
Opaque Porcelain	pitcher/molded	1
Porcelain	small platter	2 (1)
	miscellaneous	2
Stoneware	bottle	1
White Improved Earthenware	plate	7
	miscellaneous	10
AREA II		
Unstratified		
Porcelain	/black print	1
	unknown	1
White Improved Earthenware	cosmetic jar lid	1
	miscellaneous	7
Yellow Ware	teapot lid/Rockingham	1
Layer 16		
Opaque Porcelain	pitcher	1
Porcelain	/gold design	1
Stoneware	tile	1
	bottle	1
	/black glaze	1
White Improved Earthenware	/blue print	2
	cup/multi-sided	1
	miscellaneous	11 - 5 burned

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds (Vessels)
AREA II, continued		
Layer 17		
White Improved Earthenware	miscellaneous	6 - 1 burned
Layer 18		
Stoneware	bottle	1
	unknown	1 burned
White Improved Earthenware	/blue print	1
	/green print	1
	tile/grey glaze	1
	tile/green glaze	1
	miscellaneous	11 - 3 burned
Layer 22		
Stoneware	unknown	1
White Improved Earthenware	miscellaneous	4 - 3 burned
AREA III		
Layer 24		
White Improved Earthenware	saucer/"Athens"	16 (1)
	bowl/"Athens"	10 (1)
	/blue print	4
	/brown print	1
	/black print	1
	/annular ware	1
	miscellaneous	7
Layer 89		
Earthenware	bowl/annular ware	1
Opaque Porcelain	cup/multi-sided	11 (1)
Porcelain	finial/molded	1
	plate	2 (1)
White Improved Earthenware	plate/flow blue print	1
	saucer/paneled	1
	cup/multi-sided	1
	miscellaneous	22
AREA V		
Layer 38		
White Improved Earthenware	/multi-sided	1
	miscellaneous	5

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds (Vessels)
AREA V, continued		
Layer 42		
Parian	/molded	1
White Improved Earthenware	miscellaneous	3
Layer 45		
White Improved Earthenware	miscellaneous	2
AREA VI		
Layer 26		
Earthenware	/white glaze	1
Porcelain	electrical fitting	3 (3)
White Improved Earthenware	unknown	1
Layer 28		
Porcelain	/Chinese blue painted	1
Stoneware	/green glazed	1
Layer 36		
White Improved Earthenware	platter	1
	pitcher/molded	5 (1)
Layer 40		
White Improved Earthenware	/bichrome print	1
	unknown	1
Layer 41		
Porcelain	cosmetic jar lid	1
White Improved Earthenware	/blue floral print	1
	/blue scenic print	1
	/molded	1
	unknown	6 (1)
Layer 48		
White Improved Earthenware	plate/"Hyson" print	1
	/blue print	1
Yellow Ware	/Rockingham	1
Layer 49		
White Improved Earthenware	/blue print	3 (3)

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds	(Vessels)
AREA VI, continued			
Layer 50			
Stoneware	/salt glaze	1	
White Improved Earthenware	/blue scenic print	1	
	/blue floral print	1	
	/blue print	1	
	/red print	1	
Layer 51			
White Improved Earthenware	/blue print	2	(2)
	unknown	1	
	/		
Layer 91			
Common Pottery	/glazed	1	
White Improved Earthenware	/blue scenic print	1	
	/blue print	3	(3)
	unknown	1	
AREA IV			
Feature 6			
Layer 27			
Opaque Porcelain	unknown	1	
Pearlware	miscellaneous	6	(1-3)
Porcelain	lid	5	(1)
	functional	2	(2)
	miscellaneous	1	
Stoneware	tile	1	
Stoneware, Chinese	small storage jar	6	
	large storage jar	24	(probably 1)
Stoneware	bottle	473	(at least 67)
White Improved Earthenware	small platter	3	(1)
	cup	3	(2)
	plate	10	
Yellow Ware	cuspidor/Rockingham, "diamond"	5	(2)
	teapot/Rockingham	3	(1)
	miscellaneous/Rockingham	10	
Layer 35		1	
Pearlware	/blue print	1	
	unknown	1	
Porcelain	toy pot	1	
Stoneware, Chinese	shouldered food jar	38	(1)

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds	(Vessels)
AREA IV, Layer 35, continued			
Stoneware	mineral-water bottle	1	
	blackening bottle	1	
White Improved Earthenware	plate	3	(1)
	miscellaneous	4	
Yellow Ware	pitcher/Rockingham	2	(1)
	/Rockingham	3	(1)
Layer 43			
Yellow Ware	lid/flint enamel, "diamond"	2	(1)
	/flint enamel, "diamond"	7	
	/Rockingham	2	
Scroddled Ware	unknown	2	
Stoneware	mineral-water bottle	3	(1)
White Improved Earthenware	/"fig"	5	(1)
	miscellaneous	22	
AREA VII			
Layer 44			
White Improved Earthenware	cup	1	
Layer 47			
Stoneware	bottle	1	
White Improved Earthenware	serving dish	2	(1)
	lidded vessel	1	
Layer 63			
Stoneware	unknown	1	
Feature 8			
Common Pottery	unknown	1	
Opaque Porcelain	small plate/"arches"	2	(1)
	ewer/"leaf and crossed ribbon"	18	(2)
	ewer/multi-sided	1	
	ewer	5	
	/molded	1	
	miscellaneous	7	
Pearlware	toy teapot	1	
	cosmetic-jar lid	2	(1)
	lidded vessel/multi-sided	7	(1)

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds	(Vessels)
AREA VII, Feature 8, continued			
Porcelain	cup/multi-sided	5	(4)
	cup	1	
	oval dish	40	(18)
	small oval platter	3	
	serving dish/molded head	15	(1)
	plate	14	(6)
	small plate	2	(1)
	saucer/paneled	3	
	/lattice work	1	
	miscellaneous	21	
Stoneware	bottle	3	(3)
	crock	32	(2)
	jug	1	
	miscellaneous	7	
White Improved Earthenware	/red print	2	
	pitcher/blue print	2	(1)
	/blue print	6	
	small plate/"arches"	14	(9)
	deep plate/"waves"	11	(4)
	ewer/"fig"	1	
	small dish/"fig"	2	
	small plate/multi-sided	6	(1)
	saucer/paneled	14	(7)
	plate/multi-sided	8	(2)
	cup/multi-sided	3	(2)
	plate/molded	2	(2)
	miscellaneous/molded	2	(2)
	lidded vessel/molded	9	(1)
	deep plate	29	(9)
	plate	29	(5)
	small plate	11	(4)
	oval dish	29	(14)
	small dish	2	(1)
	oval platter	4	(3)
	cup	3	(1)
	miscellaneous (mainly plates)	155	(w/11 marks)
Yellow Ware	mixing bowl	19	(2)
AREA VIII			
Feature 15			
Layer 53			
Common Pottery, Chinese	lid to stoneware jar	9	(1)
Opaque Porcelain	mug/multi-sided	1	
Porcelain	oval platter	2	(1)

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds	(Vessels)
AREA VIII, Layer 53, continued			
Porcelain	toy cup/painted	3	(1)
	miscellaneous	2	
Stoneware	bottle	24	(7)
Stoneware, Chinese	/green glazed	2	(1)
	shouldered food jar	1	
	unknown	3	(1)
White Improved Earthenware	bowl/red print	1	
	bowl/"arches"	2	(1)
	cup/molded	1	
	cup/block handle	1	
	cosmetic jar	2	(2)
	small plate	7	(2)
	plate	38	(5)
	saucer	3	(3)
	miscellaneous	10	
Yellow Ware	coffee-pot lid/Rockingham	2	(1)
	/Rockingham	3	(1)
Layer 59			
Common Pottery	flower pot	9	(1)
Pearlware	mug/molded	9	(1)
Porcelain, Chinese	/blue and white	1	
White Improved Earthenware	mug/multi-sided	6	(1)
	plate/shell edge	1	
	plate/blue print	1	
	cup/multi-sided	1	
	miscellaneous	5	
Layer 74			
White Improved Earthenware	/blue print	1	
Feature 20			
Opaque Porcelain	small plate	7	(1)
	ewer/multi-sided	22	(2)
	oval dish/molded	11	(1)
	/molded	3	
Porcelain	small plate	11	(1)
	oval dish	4	(1)
	platter	7	(1)
	plate	29	(4)
	miscellaneous	8	

Table 7.1, continued

Provenience/Group	Form/Decoration	Sherds	(Vessels)
AREA VIII, Feature 20, continued			
Stoneware	crock lid	10	(1)
White Improved Earthenware	hollow/printed and painted	13	
	/blue print	1	
	saucer/paneled	31	(4)
	small oval platter/ molded	18	(3)
	cup/multi-sided	8	(1)
	hollow/molded	3	(1)
	bowl/octagonal	7	(1)
	plate/multi-sided	23	(1)
	small plate	40	(10)
	deep plate	34	(4)
	saucer	46	(8)
	plate	124	(11)
	oval dish	44	(4)
	miscellaneous flatware	174	
Yellow Ware	handle/Rockingham	1	
Layer 87			
Opaque Porcelain	miscellaneous	3	
White Improved Earthenware	/blue print	1	
	miscellaneous flatware	9	

DESCRIPTION OF MAKERS' MARKS

The following outline provides descriptions of all makers' marks recovered from the Golden Eagle Hotel site, including those present on unstratified pieces found during backhoe work. Illustrations are provided for all sufficiently reconstructable marks.

Manufacturer: William Adams
Place of Origin: Tunstall, Staffs.
Date: 1853-1865
Mark: Fragmentary, printed; fragmentary impressed
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I), unknown (unstratified)
Reference: Jewitt 1883:563; Praetzellis and Praetzellis 1979b:2, marks 1 and 2

Manufacturer: W. Adams & Son
Place of Origin: Stoke, Staffs.
Date: 3 January 1849; parcel 2. Patent No. 56978
Mark: Printed registry diamond (figure 7.12a)
Fabric: White Improved Earthenware
Form (Provenience): Multi-sided bowl, saucer (Feature 3)
Decoration: "Athens" printed pattern
Reference: Cushion 1976:294

Manufacturer: John Alcock
Place of Origin: Cobridge, Staffs.
Date: 1853-1861
Mark 1: Fragmentary, impressed, circular; includes a nearly illegible registry diamond
Fabric: White Improved Earthenware
Form (Provenience): Oval platter (Feature 8)
Mark 2: Impressed: "Ironstone" above "John Alcock" above "Cobridge" above "China" (figure 7.12b)
Fabric: White Improved Earthenware
Form (Provenience): Plate (Feature 15), deep plate (Feature 20)
Reference: Godden 1964:27

Manufacturer: Unknown
Place of Origin: Birresborn, Germany
Date: c.1830-1914
Mark: Impressed: "Mineral Bruhnen" above "Birresborn" above "in der Eifel" (figure 7.12c)
Fabric: Stoneware
Form (Provenience): Bottle (Feature 6)

Manufacturer: T. & R. Boote
Place of Origin: Burslem, Staffs.
Date: 1842-1906
Mark 1: Impressed, circular. May occur with Mark 5
Fabric: White Improved Earthenware
Form (Provenience): 2 unknowns (Area I)
Reference: Praetzellis and Praetzellis 1979b:7, Mark 4

Mark 2: Impressed, square shape
Fabric: White Improved Earthenware
Form (Provenience): Unknown (unstratified)
Mark 3: Fragmentary, printed (figure 7.12d)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area V)
Reference: Thorn 1947:48, Mark 1; Kovel and Kovel 1963:155h
Mark 4: Impressed; "Warranted" (figure 7.12e)
Fabric: White Improved Earthenware
Form (Provenience): Plate and deep plate (Feature 8)
Date: 1890-1906
Mark 5: Fragmentary, printed (figure 7.12f). May occur with Mark 1.
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)
Reference: Godden 1964:Mark 440

Manufacturer: J. Bourne & Son
Place of Origin: Denby and Codnor Park, Derbyshire, England
Date: 1833-1861
Mark: Impressed (figure 7.12g)
Fabric: Stoneware
Form (Provenience): Bottle (Area I)
Reference: Godden 1964:Mark 473; Herskovitz 1978:114

Manufacturer: Bridgwood & Son
Place of Origin: Longton, Staffs.
Date: c.1870-1885
Mark: Fragmentary, printed (figure 7.12h). This mark lacks the "trade mark" of Godden's Mark #594.
Fabric: White Improved Earthenware
Form (Provenience): Plate (Feature 15)
Reference: Jewitt 1883:552; Godden 1964:101-02, 1971:59-60

Manufacturer: Burgess and Goddard
Place of Origin: Longton, Staffs.
Date: c.1870-1890
Mark: Fragmentary, printed
Fabric: White Improved Earthenware
Form (Provenience): Oval vessel (Area I)
Reference: Freeman 1954:12

Manufacturer: E. Challinor
Place of Origin: Fenton, Staffs.
Date: 1853-1862
Mark 1: Impressed: Victorian Royal Arms (figure 7.13b)
Fabric: White Improved Earthenware
Form (Provenience): Multi-sided mug (Feature 15), small plate, 2 plates, and unknown (Feature 20)
Fabric: Opaque Porcelain
Form (Provenience): Oval dish with molded rim (Feature 20)
Reference: Praetzellis and Praetzellis 1979b:10, Mark 4

Mark 2: Impressed: "E.C. & Co." (figure 7.13c)
Fabric: White Improved Earthenware
Form (Provenience): 3 saucers with paneled interiors (Feature 20)
Reference: Godden 1964:138; Praetzellis and Praetzellis 1979b:10, Mark 1
Mark 3: Printed (figure 7.13d)
Fabric: White Improved Earthenware
Form (Provenience): Multi-sided plate (unstratified)
Reference: Praetzellis and Praetzellis 1979b:10, Mark 5

Manufacturer: E. & C. Challinor
Place of Origin: Fenton, Staffs.
Date: 1862-1891
Mark 1: Impressed: "E. & C. Challinor" above "Fenton"
Fabric: White Improved Earthenware
Form (Provenience): Saucer with molded panels (Area I)
Mark 2: Impressed (figure 7.12i)
Reference: Praetzellis and Praetzellis 1979b:9, Mark 1
Mark 3: Printed (figure 7.12j). May occur with Mark 2
Fabric: White Improved Earthenware
Form (Provenience): Plate (Feature 15)
Reference: Godden 1964:137-38
Mark 4: Printed (figure 7.13a)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (unstratified)
Reference: Praetzellis and Praetzellis 1979b:9, Mark 2

Manufacturer: Edward Clarke
Place of Origin: Tunstall, Staffs.
Date: 1865-1877
Mark 1: Printed (figure 7.13e)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)
Reference: Godden 1964:147; Praetzellis and Praetzellis 1979b: 11, Mark 5
Place of Origin: Staffordshire
Date: 1865-1887
Mark 2: Impressed: "Edward Clarke"
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)
Reference: Godden 1964:147; Praetzellis and Praetzellis 1979b:11, Mark 1

Manufacturer: Davenport
Place of Origin: Longport, Staffs.
Date: c.1830-1887
Mark 1: Fragmentary, printed (figure 7.13f)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Feature 6)
Reference: Praetzellis and Praetzellis 1979b:15, Mark 1
Date: c.1850-1887

Mark 2: Impressed "figure eight" mark (figure 7.13g)
Fabric: White Improved Earthenware

Form:	Provenience	Anchor Dates	Below Anchor
Saucer	Area I	none	
Unknown	Feature 6	1853	none
Unknown	Feature 8	1860	2
Small dish	Feature 8	none	
Deep plate	Feature 8	1856	3
Deep plate	Feature 8	1856	3
Unknown	Feature 8	missing	
Deep plate	Feature 20	1856	3
Plate	Feature 20	1856	4
Oval dish	Feature 20	1856	3
Unknown	Feature 20	missing	

Reference: Praetzellis and Praetzellis 1979b:15, Mark 5
Date: c.1855
Mark 3: Impressed, triangular: "Davenport, Henderson & Gaines" (figure 7.13h)
Fabric: White Improved Earthenware
Form (Provenience): Plate (Feature 20)
Note: By 1836, Davenport was marking some of their imported wares with the name of their American agent, Henderson and Gaines, whose address was 45 Canal Street, New Orleans (Lockett 1972:111; Coysh 1974:28).
Reference: Praetzellis and Praetzellis 1979b:15, Mark 7

Manufacturer: James Edwards & Son
Place of Origin: Burslem, Staffs.
Date: 1851-1882
Mark 1: Printed (figure 7.13i)
Mark 2: Impressed: "Jas. Edwards & Son" above "Dale Hall"
Note: In this collection, all complete vessels possess both marks
Fabric: White Improved Earthenware
Form (Provenience): 4 deep plates, 4 plates, 3 deep plates with molded rims, 1 small plate, 7 unknowns (Feature 8)
Reference: Godden 1964:230

Manufacturer: John Edwards
Place of Origin: Fenton, Staffs.
Date: c.1880-1900
Mark: Printed (figure 7.13j)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)
Reference: Godden 1964:231

Manufacturer: Thomas Furnival & Sons
Place of Origin: Cobridge, Staffs.
Date: 1879-1890
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)

Mark: Fragmentary, printed: "Thomas Furnival & Sons" above the Victorian Royal Arms above "Trade Mark" above the Furnival Crest above "England"
Reference: Godden 1964:263; Praetzellis and Praetzellis 1979b:21, Mark 2

Manufacturer: J. Goodwin
Place of Origin: Seacombe, Liverpool, England
Date: 1852-1871
Mark: Fragmentary, printed
Fabric: White Improved Earthenware
Form (Provenience): Unknown (unstratified)
Reference: Jewitt 1883:329; Mankowitz and Haggar n.d.:98; Praetzellis and Praetzellis 1979b:23, Mark 1

Manufacturer: F. Grosvenor
Date: c.1869-1899
Place of Origin: Glasgow, Scotland
Mark: Impressed (figure 7.13k)
Fabric: Stoneware
Form (Provenience): 2 bottles (Feature 6)
Reference: Godden 1964:295

Manufacturer: Hope & Carter
Place of Origin: Burslem, Staffs.
Date: 1862-1880
Mark: Printed (figure 7.13l)
Fabric: White Improved Earthenware
Form (Provenience): Plate (Area I)
Reference: Godden 1964:334; Praetzellis 1979b:25, Mark 1

Manufacturer: Thomas Hughes
Place of Origin: Burslem, Staffs.
Date: 1860-1894
Mark 1: Printed (figure 7.14a)
Fabric: White Improved Earthenware
Form (Provenience): Plate (Area I)
Reference: Praetzellis and Praetzellis 1979b:25, Mark 1
Mark 2: Impressed (figure 7.14b)
Form (Provenience): Plate, 2 unknowns, 2 oval dishes (Area I); plate (Feature 15)
Reference: Praetzellis and Praetzellis 1979b:25, Mark 5
Mark 3: Printed. Occurs with Mark 2 (figure 7.14c)
Fabric: White Improved Earthenware
Form (Provenience): Unknown (Area I)
Mark 4: Impressed, circular (figure 7.14d)
Fabric: White Improved Earthenware
Form (Provenience): 6 oval dishes (Feature 8)
Reference: Godden 1964:339

Manufacturer: J. & T. L. (unidentified)
Mark: Printed (figure 7.14e)
Fabric: White Improved Earthenware
Form (Provenience): Multi-sided plate (Feature 8)

Manufacturer:	H. Kennedy (Barrowfield Pottery)
Place of Origin:	Glasgow, Scotland
Date:	1866-1929
Mark:	Impressed (figure 7.14f). The following numbers appear in the center: 4, 3, 37, 10.
Fabric:	Stoneware
Form (Provenience):	4 bottles with two-toned glaze, collar and double collar finish (Feature 6); 1 bottle with two-toned glaze (Feature 15)
Reference:	Godden 1964:369; Jewitt 1883:621

Manufacturer:	Kerr & Co.
Place of Origin:	Worchester, England
Date:	1852-1862
Mark:	Fragmentary, printed (figure 7.14g)
Fabric:	Porcelain
Form (Provenience):	Small plate (Feature 20)
Reference:	Godden 1964:696

Manufacturer:	John Maddock
Place of Origin:	Burslem, Staffs.
Date:	1842-1855
Mark 1:	Impressed: "Maddock's Patent" (figure 7.14h)
Fabric:	White Improved Earthenware, Opaque Porcelain
Form (Provenience):	1 saucer with molded rim (Feature 8), 3 small plates,3 plates (Feature 20)
Mark 2:	Impressed: "John Maddock Opaque China" (figure 7.14i)
Fabric:	White Improved Earthenware
Form (Provenience):	Plate (Feature 20)
Reference:	Godden 1964:405

Manufacturer:	T. J. & J. Mayer
Place of Origin:	Longport, Staffs.
Date:	1843-1855
Mark 1:	Impressed, circular (figure 7.14j)
Fabric:	White Improved Earthenware
Form (Provenience):	Deep plate (Feature 8), small plate (Feature 20)
Reference:	Praetzellis and Praetzellis 1979b:30, Mark 4
Date:	1851-1855
Mark 2:	Fragmentary, printed (figure 7.14k)
Fabric:	White Improved Earthenware; printed and painted
Form(Provenience):	Lid (Area I)
Reference:	Godden 1964:424
Date:	2 September 1851; parcel 4. Patent no. 80365
Mark 3:	Fragmentary, printed (figure 7.14l)
Fabric:	White Improved Earthenware
Form (Provenience):	Saucer with paneled interior (Feature 20)
Reference:	Cushion 1976:297; Praetzellis and Praetzellis 1979b:30, Mark 8
Date:	22 October 1853; parcel 1. Patent No. 93008-9

Mark 4:	Impressed registry diamond (figure 7.14m)
Fabric:	White Improved Earthenware
Form (Provenience):	Multi-sided plate (Feature 20)
Reference:	Cushion 1976:300; Praetzellis and Praetzellis 1979b:30, Mark 7
Manufacturer:	J. & G. Meakin
Place of Origin:	Hanley, Staffs.
Date:	1851-1891
Mark 1:	Impressed
Reference:	Praetzellis and Praetzellis 1979b:32, Mark 1
Mark 2:	Printed (figure 7.15a)
Reference:	Praetzellis and Praetzellis 1979b:32, Mark 2
Fabric:	White Improved Earthenware
Form (Provenience):	2 small plates (Feature 15); marks 1 and 2 occur on both vessels
Mark 3:	Impressed: "Pearl China" (figure 7.15b)
Fabric:	White Improved Earthenware
Form (Provenience):	3 oval platters, deep plate, and unknown (Feature 20)
Mark 4:	Printed (figure 7.15c). May occur with Mark 3
Fabric:	White Improved Earthenware
Form (Provenience):	Unknown (Feature 20)
Reference:	Godden 1964:427
Manufacturer:	C. Meigh
Place of Origin:	Hanley, Staffs.
Date:	1835-1849
Mark:	Impressed. Nearly illegible, may be C. Meigh & Son (1851-1861)
Fabric:	White Improved Earthenware
Form (Provenience):	Handled vessel (Area VI)
Reference:	Godden 1964:428
Manufacturer:	Charles Meigh & Son
Place of Origin:	Hanley, Staffs.
Date:	1851-1861
Mark:	Impressed (figure 7.15d)
Fabric:	Opaque porcelain, White Improved Earthenware
Form (Provenience):	Multi-sided mug (Feature 15), 3 saucers, 1 small plate, 1 plate, 1 unknown (Feature 20)
Reference:	Godden 1964:429
Manufacturer:	Mellor, Venables & Co.
Place of Origin:	Burslem, Staffs.
Date:	1834-1851
Mark:	Fragmentary, printed
Fabric:	White Improved Earthenware
Form (Provenience):	Unknown (Feature 3)
Reference:	Godden 1964:432

Manufacturer:	Murray & Co.
Place of Origin:	Glasgow, Scotland
Date:	1870-1898
Mark:	Impressed (figure 7.15f). The following numbers appear in the center: 4, 11, 12, 18
Fabric:	Stoneware
Form (Provenience):	9 bottles with clear glaze and double-collar neck finish (Feature 6)
Reference:	Godden 1964:455; Jewitt 1883:623-624

Manufacturer:	Murray & Buchan, Portobello Pottery
Place of Origin:	Edinburgh, Scotland
Date:	1867-1877
Mark:	Impressed (figure 7.15e). The following numbers occur above the name: 4,5
Fabric:	Stoneware
Form (Provenience):	26 Stoneware bottles, some with two-toned glaze, collar finish; one has a fragmentary paper label (Feature 6)
Reference:	Fleming 1923:181; Godden 1964:144, 455; Jewitt 1883:623-24.

Manufacturer:	Pacific Pottery
Place of Origin:	Sacramento
Date:	c.1854-1890
Mark:	Incised within geometrical pattern on crock lid: "Pacific Pottery" (figure 7.15h)
Fabric:	Stoneware
Form (Provenience):	Crock lid (Feature 20)
Reference:	Ketchum 1971:89; Sacramento Union 22 June 1877, 14 December 1872

Manufacturer:	Pinder, Bourne & Co.
Place of Origin:	Burslem, Staffs.
Date:	1862-1882
Mark:	Printed (figure 7.15g)
Fabric:	White Improved Earthenware
Form (Provenience):	Straight-sided bowl, "arches" molded pattern (Feature 15)
Reference:	Godden 1964:495; Praetzellis and Praetzellis 1979b: 35, Mark 1

Manufacturer:	Pinder, Bourne & Hope
Place of Origin:	Burslem, Staffs.
Date:	1851-1862
Mark:	Printed (figure 7.15i)
Fabric:	Opaque Porcelain, White Improved Earthenware
Form (Provenience):	4 small plates, "arches" pattern (Feature 8)
Reference:	Godden 1964:495

Manufacturer:	Port Dundas Pottery Company
Place of Origin:	Glasgow, Scotland
Date:	c. 1850-1932
Mark:	Impressed

Fabric:	Stoneware
Form (Provenience):	7 bottles, some with clear glaze and some with two-toned glaze, double collar (Feature 6); large bottle with clear glaze and double collar (Feature 15)
Reference:	Godden 1963:101, 1964:504; Jewitt 1883:620-621

Manufacturer:	Powell & Bishop
Place of Origin:	Hanley, Staffs.
Date:	1867-1878
Mark:	Printed (figure 7.15j)
Fabric:	White Improved Earthenware
Form (Provenience):	Unknown and plate (Area I and Feature 6)
Reference:	Cushion 1976:160; Godden 1964: Mark 3136

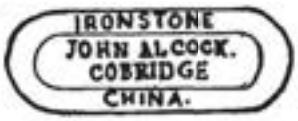
Manufacturer:	William Ridgway & Sons
Place of Origin:	Hanley, Staffs.
Date:	c.1838-1848
Mark:	Printed (figure 7.15k)
Fabric:	White Improved Earthenware
Form (Provenience):	Plate (Feature 6), plate (unstratified)
Reference:	Godden 1964: Mark 3307

Manufacturer:	Union Porcelain Works
Place of Origin:	Greenport, New York
Date:	c.1877-1899
Mark:	Printed in green (figure 7.15l)
Fabric:	Porcelain
Form (Provenience):	Cup (unstratified)
Reference:	Barber 1904:80

Manufacturer:	George Wooliscroft
Place of Origin:	Tunstall, Staffs.
Date:	1851-1853 and 1860-1864
Mark:	Fragmentary, impressed
Fabric:	White Improved Earthenware
Form (Provenience):	Saucer with molded rim (Feature 8)
Reference:	Godden 1964:692

Table 7.2 provides a summary of makers' marks from the four features used in the analysis. "Star" graphs (figs. 7.16 through 7.19) illustrate the date ranges of each mark, the terminus post quem, and the primary period of deposition of each feature's contents.

a



b

c

d

T. & R. BOOTE
WARRANTED

e

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g

h

i

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Figure 7.12

a

b

c

d

e

f

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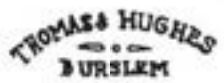
l

Figure 7.13

a



b

c

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f

g

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m

Figure 7.14

a

b

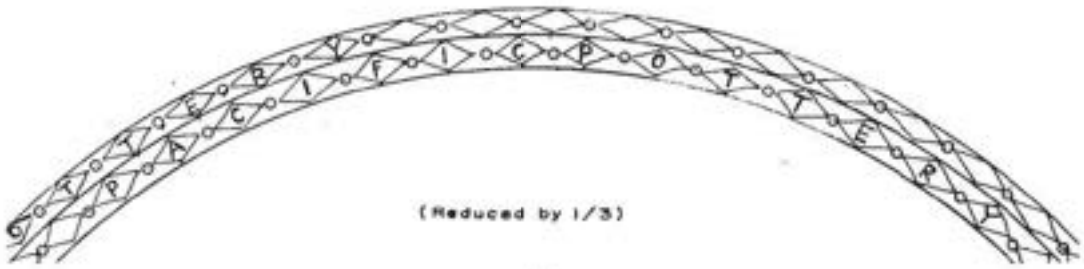
c

d

e

f

g



h

i

j

k

l

Figure 7.15

TABLE 7.2

Manufacturers by Feature

Manufacturer Locality	Attributed Dates	Quantity in Features 20	8	6	15
John Alcock (1) Cobridge, Staffordshire	1853-1861	1	1		1
Birresborn Germany	c.1830-1914			1	
T. & R. Boote (2) Burslem, Staffordshire	1842-1906		2		
Bridgwood & Son (3) Longton, Staffordshire	c.1870-1885				1
E. Challinor & Co. (4) Fenton, Staffordshire	1853-1862	8			1
E. & C. Challinor (5) Fenton, Staffordshire	1862-1891				1
Davenport (6) Longport, Staffordshire	c.1830-1887			1	
(7)	c.1850-1887	1	2		
(8)	c.1853			1	
(9)	c.1856	3	2		
(10)	c.1860		1		
Davenport, Henderson and Gaines (11) Longport, Staffordshire	c.1855	1			
James Edwards & Son (12) Burslem, Staffordshire	1851-1882		19		
F. Grosvenor (13) Glasgow, Scotland	c.1869-1899			2	

Table 7.2, continued

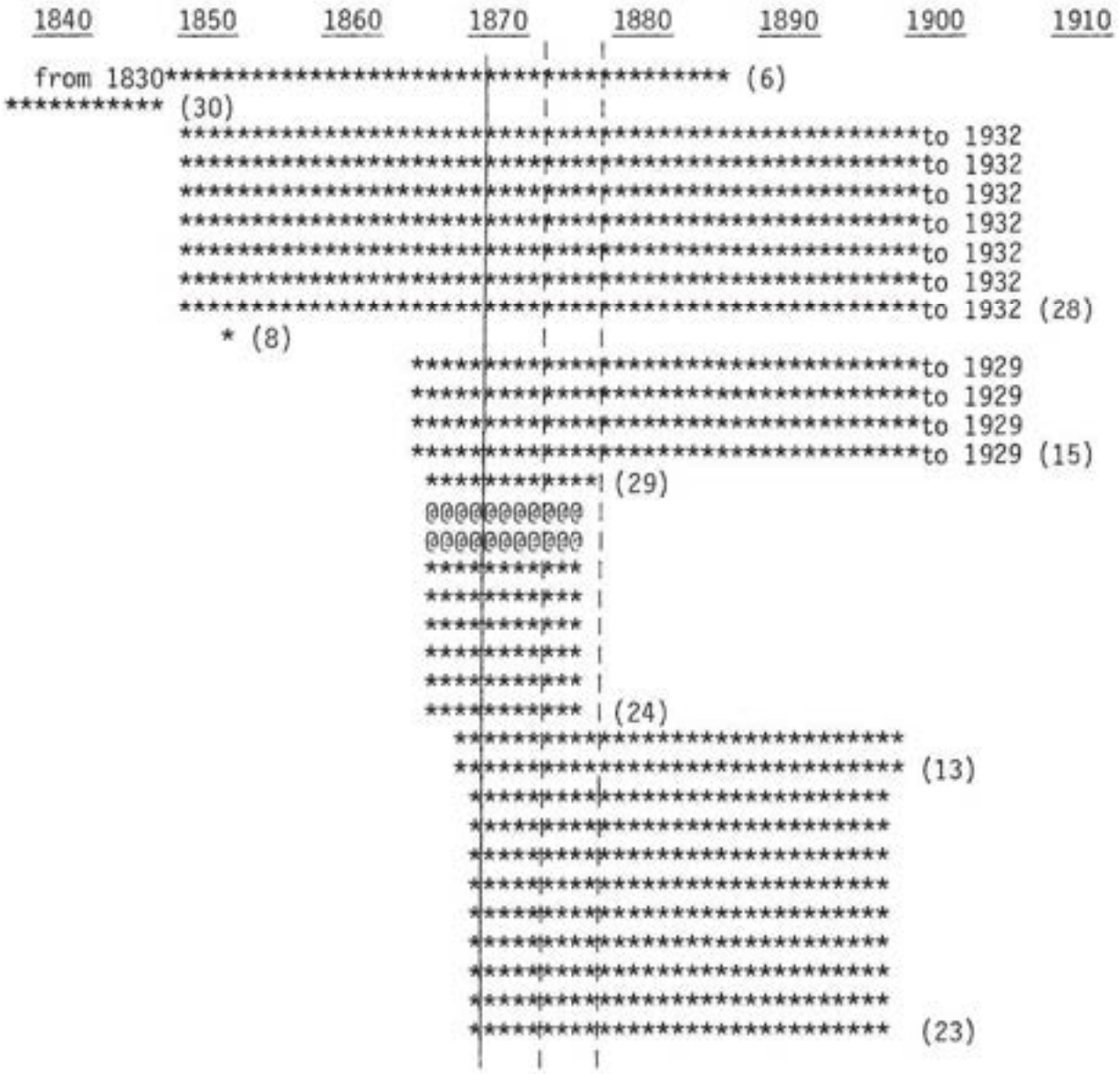
Manufacturer Locality	Attributed Dates	Quantity in Features 20	 8	 6	 15
Thomas Hughes (14) Burslem, Staffordshire	1860-1894		6		1
H. Kennedy (15) Glasgow, Scotland	1866-1929			4	1
Kerr & Co. (16) Worchester, England	1852-1862	1			
John Maddock (17) Burslem, Staffordshire	1842-1855	7	1		
T. J. & J. Mayer (18) Longport, Staffordshire	1843-1855	1	1		
(19)	2 Sept. 1851	1			
(20)	22 Oct. 1853	1			
J. & G. Meakin (21) Hanley, Staffordshire	1851-1891	5			2
Charles Meigh & Son (22) Hanley, Staffordshire	1851-1861	6			1
Murray & Co. (23) Glasgow, Scotland	1870-1898			9	
Murray & Buchan (24) Edinburgh, Scotland	1867-1877			26	
Pacific Pottery (25) Sacramento, California	1854-1890	1			
Pinder, Bourne & Hope (26) Burslem, Staffordshire	1851-1862		4		
Pinder, Bourne & Co. (27) Burslem, Staffordshire	1862-1882				1

Table 7.2, continued

Manufacturer Locality	Attributed Dates	Quantity in Features 20	 8	 6	 15
Port Dundas (28) Glasgow, Scotland	1850-1932			7	1
Powell & Bishop (29) Hanley, Staffordshire	1867-1878			1	
William Ridgway & Sons (30) Hanley, Staffordshire	c.1838-1848			1	
George Wooliscroft (31) Tunstall, Staffordshire	1851-1864		1		
J. & T. L. ?	?		1		

FIGURE 7.16

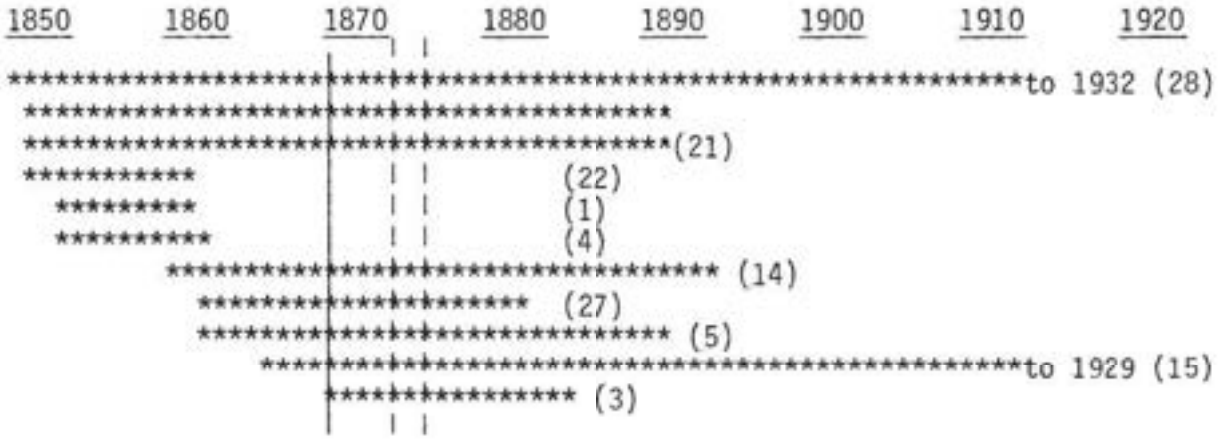
Dates of Feature 6 Makers' Marks



Each * or @ equals one year
Each line of * equals one specimen bearing the mark
Each line of @ equals ten specimens
Solid line indicates ceramic terminus post quem
Broken lines contain primary period of deposition
Numbers in parentheses refer to marks listed on table 7.2

FIGURE 7.17

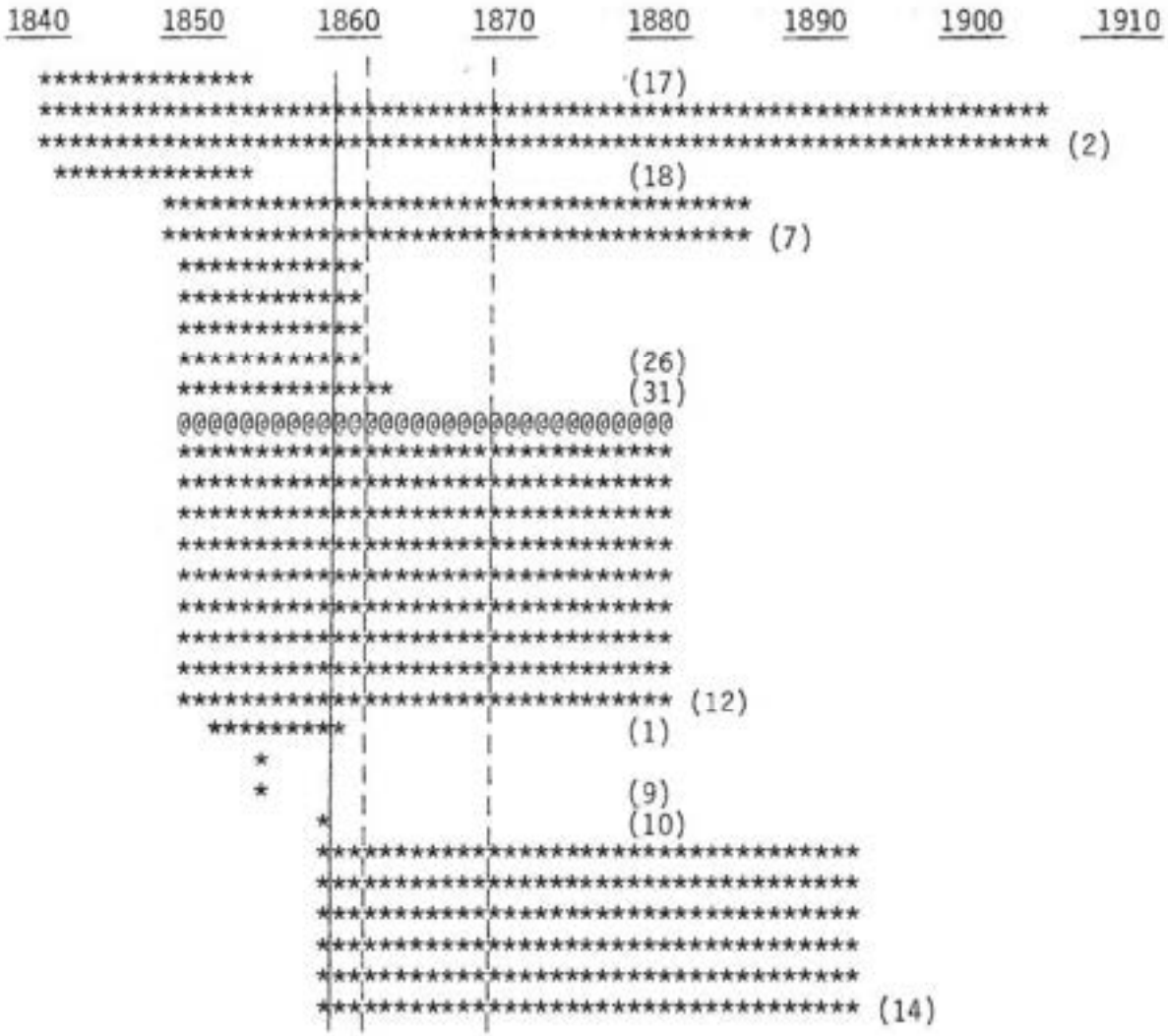
Dates of Feature 15 Makers' Marks



Each * equals one year
Each line of * equals one specimen bearing the mark
Solid line indicates ceramic terminus post quem
Broken lines contain primary period of deposition
Number in parentheses refer to marks listed on table 7.2

FIGURE 7.18

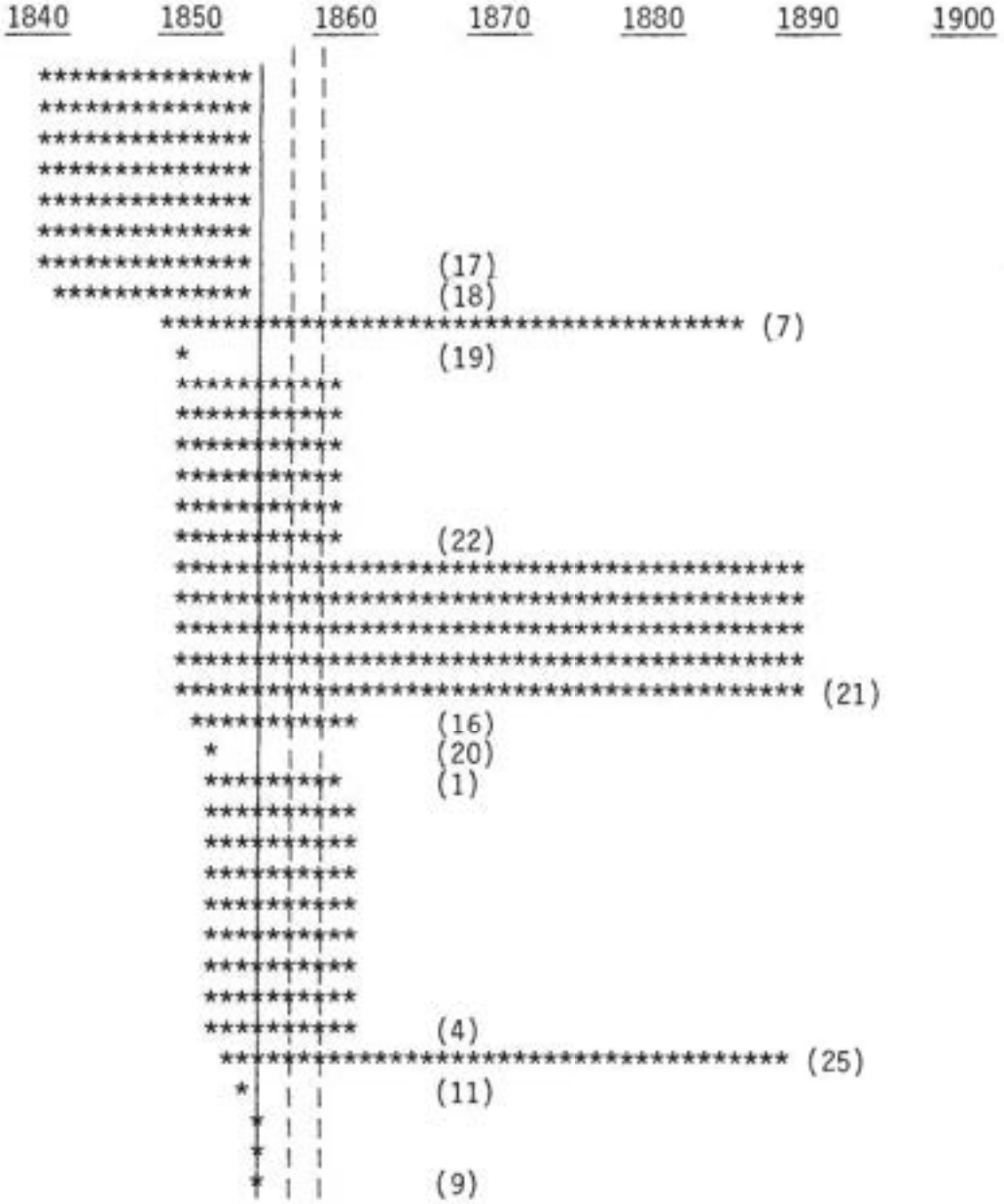
Dates of Feature 8 Makers' Marks



Each * or @ equals one year
Each line of * equals one specimen bearing the mark
Each line of @ equals ten specimens
Solid line indicates ceramic terminus post quem
Broken lines contain primary period of deposition
Numbers in parentheses refer to marks listed on table 7.2

FIGURE 7.19

Dates of Feature 20 Makers' Marks



Each * equals one year
Each line equals one specimen bearing the mark
Solid line indicates ceramic terminus post quem
Broken lines contain primary period of deposition
Number in parentheses refer to marks listed on Table 7.2

DISCUSSION

MAKERS' MARKS

Price (1979:1) questioned the applicability of South's Ceramic Mean Date Formula to 19th-century sites, and South himself did not intend the formula for use on sites dating later than the early 19th century. As can be seen from the typology represented at the beginning of this report, 19th-century body types and decorative techniques cannot, at this time, be dated as precisely as those from the 18th century (Cf. South 1978:72). The long span of production of undecorated whiteware--the largest component of many mid-19th-century sites--make this body type useless for absolute dating. Many of these plain pieces possess maker's marks, however, which can be very useful in dating because of their short date ranges.

In table 7.3, I have applied South's Ceramic Mean Date Formula (South 1978:75) on the marked vessels recovered from the Golden Eagle features. On all features, except for Feature 6, I have applied the formula twice: first, to the number of sherds belonging to marked vessels, and second, to the number of marked vessels. As can be seen from the calculations, the use of either sherd or vessel count makes only a slight difference in the end result.

Table 7.4 compares the results of this method with other dates derived for the features. The significance of these dates and of the method is discussed in the final section of this chapter.

DATA DISCUSSION BY FEATURE

The collections from individual features differ in terms of their date, depositional pattern, ratio of commercial versus private ownership and use, and variety. The ceramics from each feature will be discussed separately prior to a general discussion of variation among features on the site as a whole.

Feature 6

Association: Barbers; Hillebrand bootmaker; W. Cronin's Oyster Saloon
Date of Primary Deposition: 1874-1878

Feature 6 was made up of material which had accumulated beneath the floor of 179 K Street. The fill consisted mostly of oyster shell and bottles associated with the Golden Eagle Oyster Saloon. As can be seen in plate 7.1, the majority of ceramics from this feature are ceramic ale bottles, evidently discarded shortly after the consumption of their contents. Since these vessels could have been classed by function and analyzed with the glass bottles, they are not included on the "weighted" ceramic bar graph (figure 7.21).

TABLE 7.3

Ceramic Mean Dates: Marked Vessels

Feature 6

(Mark #) Date	Median	x_i	Quantity	Product
(8) 1853	1853	53	1	53
(6) 1830-1887	1859	59	1	59
(13)1869-1899	1884	84	2	168
(15)1866-1929	1898	98	4	392
(23)1870-1898	1884	84	9	756
(24)1867-1877	1872	72	26	1872
(28)1850-1932	1891	91	7	637
(29)1867-1878	1873	73	1	73
(30)1838-1848	1843	43	1	43
Total			52	4053

Ceramic Mean Date: 1877.9

Feature 15

(Mark #) Date	Median	x_i	Sherds (Vessels)	Product
(1) 1853-1861	1857	57	8 (1)	456 (57)
(3) 1870-1885	1878	78	10 (1)	780 (78)
(5) 1862-1891	1877	77	8 (1)	616 (77)
(4) 1853-1862	1858	58	6 (1)	348 (58)
(14)1860-1894	1877	77	7 (1)	539 (77)
(15)1866-1929	1898	98	6 (1)	588 (98)
(21)1851-1891	1871	71	7 (2)	497 (142)
(22)1851-1861	1856	56	1	56
(27)1862-1882	1872	72	2 (1)	144 (72)
(28)1850-1932	1891	91	1	91
Total			56 (11)	4115 (806)

Ceramic Mean Date: 1873.5 (1873.2)

Table 7.3, Continued

Feature 8

(Mark #) Date	Median	x_i	Sherds (Vessels)	Product
(1) 1853-1861	1857	57	2 (1)	114 (57)
(2) 1842-1906	1874	74	9 (2)	666 (148)
(9) 1856	1856	56	7 (2)	392 (112)
(10)1860	1860	60	1	60
(7) 1850-1887	1869	69	3 (2)	207 (138)
(12)1851-1882	1867	67	71 (19)	4757 (1273)
(14)1860-1894	1877	77	18 (6)	1386 (462)
(17)1842-1855	1849	49	5 (1)	245 (49)
(18)1843-1855	1849	49	2 (1)	98 (49)
(26)1851-1862	1857	57	10 (4)	570 (288)
(31)1851-1864	1858	58	3 (1)	174 (58)
Total			131 (40)	8669 (2694)

Ceramic Mean Date: 1866.2 (1867.4)

Feature 20

(Mark #) Date	Median	xi	Sherds (Vessels)	Product
(1) 1853-1861	1857	57	14 (1)	798 (57)
(4) 1853-1862	1858	58	73 (8)	4234 (464)
(9) 1856	1856	56	19 (3)	1064 (168)
(7) 1850-1887	1869	69	1	69
(11)1855	1855	55	17 (1)	935 (55)
(16)1852-1862	1857	57	11 (1)	627 (57)
(17)1842-1855	1849	49	66 (7)	3234 (343)
(18)1843-1855	1849	49	4 (1)	196 (49)
(19)1851-1854	1853	53	6 (1)	318 (53)
(20)1853-1856	1855	55	23 (1)	1265 (55)
(21)1851-1891	1871	71	30 (5)	2130 (355)
(22)1851-1861	1856	56	43 (6)	2408 (336)
(25)1854-1890	1872	72	7 (1)	504 (72)
Total			314 (37)	17782 (2133)

Ceramic Mean Date: 1856.6 (1857.6)

TABLE 7.4

Ceramic Mean Dates and Historic Dates for Features

Feature	Ceramic Terminus Post Quem	Ceramic Mean Date	Primary Deposition
6	1870	1877.9	1874-1878
15	1870	1873.5	1874-1875
8	1860	1866.2	1862-1870
20	1856	1856.6	1857-1860

Although only a portion (10 percent) of Feature 6 was excavated, it appears from the sample that rubbish was discarded at a fast and steady rate. In a restaurant, one would expect tableware to have been broken and discarded at a reasonably constant rate, but ale bottles and shell vastly outnumber the tableware vessels.

Some of the ceramics within this feature were probably present beneath the floor prior to the rapid buildup of refuse from the oyster saloon. In this category are the blackening bottle, mineral-water bottles, and probably some of the small, decorated and undecorated earthenware sherds.

The presence of 68 sherds of Chinese brown glazed stoneware within this feature,comprising at least three vessels, is noteworthy. Whether these remains indicate the presence of Chinese working on the premises, the use of foodstuffs imported from China, or the reuse of vessels for storage of non-Chinese foodstuffs has been discussed elsewhere in this report. The ceramic evidence alone, however, tends to negate the third possibility: there is good evidence to show that the Golden Eagle Oyster Saloon did not reuse ceramic containers.

Feature 15

Association: Barbers; Hillebrand bootmakers; W. Cronin's Oyster Saloon
Date of Primary Deposition: 1874-1875

As discussed elsewhere in this report, Feature 15 is believed to have been the result of at least two depositional episodes. One of these involved the transferral of the premises from A. Hillebrand to W. Cronin. At this time, the property left by the bootmakers, and by the barbers who preceded them, was discarded in the brick feature at the back of the lot. Some of the refuse within the feature may have built up prior to this, but the whole condition of many vessels supports the clean-up hypothesis for the majority of the collection. Whatever its original function, Feature 15 was no longer appropriate for use by the oyster saloon. In the second depositional phase, the feature was filled with saloon refuse, mainly shell, and abandoned when full (see plate 7.2).

The mugs, cosmetic jars, and perhaps the flower pot are believed to have been left by the barbers who worked at this address prior to Hillebrand's occupancy. During the mid-19th century, barber shops had "mug racks" that contained the privately owned shaving mugs of their regular customers. The variety in mug form and makers' marks represented here suggests that these regular customers did not retrieve their shaving mugs when the property changed hands.

The lid to the Chinese brown glazed stoneware vessel lends further support to the suggestion that Chinese foodstuffs were consumed on the premises, as this earthenware lid was too fragile to have been reused. There is no evidence to suggest that the barbers or Hillebrand employed Chinese; if this was the case, it seems unlikely that they would have stored or consumed food on the premises. This lid, some of the stoneware bottles, and the plain earthenware plates can be attributed to the oyster saloon phase of deposition.

Feature 8

Association: Golden Eagle Hotel
Date of Primary Deposition: 1862-c.1870

Although this feature was located on a blacksmith's lot and not on Golden Eagle Hotel property, there can be little doubt that the majority of the ceramics recovered here relate to the Golden Eagle. The small decorated, earthenware sherds are an exception; they are probably the result of a separate depositional activity, perhaps at an earlier period, or their presence may be flood-related.

Feature 8 appears to have been backfilled when the streets and businesses in the area were raised to prevent flooding. The historic evidence for the lack of domestic occupation on this and the adjacent lot, coupled with the repetitiveness of the ceramic assemblage and the similarities between material from this feature and that from Feature 20, all indicate that a number of businesses helped to backfill this feature, with the Golden Eagle Hotel responsible for most of the ceramic artifacts. Filling activities within other parts of Sacramento support this conclusion. In some parts of town, refuse was brought in and used to raise the level of the property to that of upgraded streets. In contrast to the present collection, ceramics obtained from archaeological excavations in areas raised through bringing in fill from outside are characterized by a wide variety of decorative types (Praetzellis, unpublished data).

Plate 7.3 shows the repetitiveness of ceramic form and decoration within this feature. Nonetheless, considerable subtle variety becomes evident upon closer inspection: porcelain fabric and molded patterns are more common within this feature than in other parts of the site. Variety, however, is very controlled; the same designs occur on porcelain and earthenware fabrics, and the molded designs are very simple and unobtrusive. Makers' marks also show a combination of repetition and subtle variety. Over 60 percent of the marks belong to two firms: Thomas Hughes and James Edwards and Son. The remaining marks belong to a total of eight other firms.

Feature 20

Association: Golden Eagle Hotel
Date of Primary Deposition: 1857-1860

Feature 20 is the only feature on the site in which all artifacts can be attributed to the Golden Eagle Hotel; it also shows the least variety of functional and decorative ceramic classes.

From the lack of variety in ceramic forms and marks, this feature appears to have been filled relatively quickly prior to its abandonment. Some of the ceramics within the feature may have been whole when discarded, but, falling upon bricks or other hard surfaces, they shattered. The

porcelain vessels broke into relatively few pieces, and five of the seven vessels were totally restored. Earthenware vessels broke into smaller and, consequently, more numerous pieces; they were also more common, making them difficult to reconstruct. There therefore may be more complete vessels represented by these sherds than were reconstructed (see plate 7.4).

The forms within this feature are notably plain; those molded-rim patterns which do occur are barely noticeable from any distance. These vessels originated from a variety of Staffordshire manufacturers and, although certain forms correspond to particular marks, the basic pattern is one of similar plain vessels from several sources. Flatware serving and eating vessels clearly dominate the collection.

Plate 7.1 Ceramics from Feature 6

Plate 7.2 Ceramics from Feature 15

Plate 7.3 Ceramics from Feature 8

Plate 7.4 Ceramics from Feature 20

INTRASITE COMPARISON

Each of the four features is the result of a discrete filling activity restricted to a short period in time, therefore, intrasite comparisons are perhaps most productive when viewed chronologically. Feature 20, deposited around 1860 (certainly after 1857), is the earliest feature on the site and the only one related solely to the Golden Eagle Hotel. It shows the least variety in ceramic functional and decorative types, but the greatest variety in manufacturers' marks. Tableware, including a large number of serving vessels, predominates. Ceramic mean dates, ceramic terminus post quem, and the end date on many marks are earlier than the presumed date of deposition, indicating the use or storage of these vessels for a number of years prior to their disposal.

Feature 8 is similar to Feature 20 in a number of ways. Both include the same range of forms, with Feature 8 showing more variety in functional and decorative types (see figures 7.21 and 7.23). Feature 8 has less flatware and a higher percentage of hollow ware vessels than Feature 20. Collections from both features include many oval dishes and small plates that were probably used for serving individual portions. Although perhaps fortuitous, it is noteworthy that the stoneware crock lid from Feature 20 fits the stoneware crock from Feature 8.

Few makers' marks appear in both features, indicating that there was a space of several years between their respective depositions. The ceramic mean date, ceramic terminus post quem, and the beginning date range from the marked pieces in Feature 8 indicate a shorter period of storage and use, and more rapid breakage and subsequent discard of these pieces.

Feature 8 shows much less variety of marks, perhaps indicating a change in purchasing patterns and trade networks. Marks in Feature 20 are nearly evenly distributed between six Staffordshire potteries, while the Staffordshire firm of James Edwards & Son clearly predominated within Feature 8. Although it is possible that the Golden Eagle Hotel ordered their ceramics directly from Mr. Edwards, it is much more likely that the warehouse(s) from which the hotel purchased its wares stocked goods from fewer firms than in previous years, or perhaps that they stocked the whole range of ceramic vessel forms from a single manufacturer. The Warren building, which burned in 1852, carried a wide range of ceramics, but the majority of marked pieces within the establishment related to the earlier firm of James Edwards. Some Staffordshire potters, including James Edwards (& Son), energetically marketed their wares. Edward displayed his pieces at the London Great Exhibition in 1851 (Jewitt 1883:457) and at the Philadelphia Centennial Exhibition in 1876 (McCabe 1876; Anonymous 1876:155). At this time, documentary evidence directly linking ceramic distributors in Sacramento to Staffordshire manufacturers is very incomplete. There may have been no direct connection between Sacramento warehouses and Staffordshire potteries, with trade being conducted instead through distributors such as Henderson and Gaines in New Orleans (see Davenport mark). In time, however, Sacramento dealers may have successfully eliminated the role of these middlemen. As early as 1849, C. Whalley was importing ceramics to Sacramento; this trade was later continued by C. M. Pershbaker and Joseph Genella (Sacramento Bee 4 January 1860, 25 December 1860; Praetzellis and Praetzellis 1979b:43).

Material from features 8 and 20 show continuity in ceramic patterns and forms discarded from a "high-class" restaurant during two separate depositional activities separated by a few years in time. They also show an entrenchment of trade networks between Staffordshire potters and American distributors. Most importantly, and perhaps surprisingly, the plainness of the ceramics indicates that expensive meals were not served on ostentatious vessels. Aside from the prevalence of porcelain within these features, the high-status nature of the establishment is not inferable from the ceramic collection alone.

Features 6 and 15, contained within one parcel, were deposited during the same period of time and reflect a change in business activities. Feature 15 contained the greatest variety of functional ceramic types (figure 7.23); it also yielded the only evidence on the site of personal, rather than commercial, property, as indicated by the mugs, cosmetic jars, and flower pot. These articles are believed to have belonged to the barbers and their customers who used these premises prior to 1868. Hillebrand, the boot manufacturer, who had succeeded the barbers moved in 1874 and the Golden Eagle Oyster Saloon opened. The orientation of this establishment is clearly shown in the ceramic ale bottles (see figure 7.20) and the nature of the faunal remains.

Features 15 and 20 were contiguous and of approximately the same size. The difference between a collection of personal goods associated with a place of occupation (though mixed with a saloon phase) and of goods associated with a public restaurant is clear when comparing the recovery from these two features of similar proportion (plates 7.2 and 7.4). The differences in menu and general orientation of the Golden Eagle Hotel restaurant and the Golden Eagle Oyster Saloon are discussed further in other sections of this report. Although the greater consumption of British ale at the oyster saloon appears to be an obvious difference, this may have been a function of chronology: deposition of the two pairs of features was separated by approximately 10 years.

INTERSITE COMPARISON

Due to the lack of comparable ceramic material from an excavated post-1850 hotel site, intersite comparisons are made with two non-commercial assemblages of similar date. This discussion should elucidate the differences between commercial and household collections in terms of variety, "timelag," patterns of purchase, and of deposition.

Owen Hannan ran a saloon at 325 K Street, just a few blocks away from the Golden Eagle Hotel, from at least as early as 1866 until 1884. He and his wife, both Irish immigrants, and their children lived in the back of their saloon on K Street. The contents of Privy 1 were apparently deposited by the Hannan family at the time that the streets were raised in 1866 (Schulz 1977). It is not known what, if any, portion of the ceramics in this collection relates to the saloon business itself.

The Menefees were rural southerners displaced by the Civil War. James Menefee and Sarah (Hardesty) Menefee, both born in Kentucky to

Kentuckian parents, farmed in Missouri prior to moving west to Santa Rosa, California, in 1866. By this time, the Menefees had five children and appear to have had financial difficulties. In 1867 Sarah's brother, Henry Clay Hardesty, gave Lot 20 of Kessing's Addition to Sarah and her children on the condition that she neither sell nor mortgage it during her lifetime. James Menefee adapted to urban life and became a "paper-hanger;" later, both he and his son listed themselves as "painters." All of the Menefee's children, including a sixth born in 1870, survived at least to puberty (Pratezellis and Praetzellis 1979d).

The well shaft containing the Menefee collection is believed to have been backfilled in 1873, at which time piped water became available. Unfortunately, this feature had been disturbed by pothunters years previous to its discovery during archaeological monitoring. Through archaeological excavation, it was discovered that the scavengers had nearly totally excavated the well, removed the whole bottles and perhaps other artifacts, and then backfilled with the original well fill (Praetzellis and Praetzellis 1979d).

The summaries of makers' marks (tables 7.5 and 7.6), and ceramics (tables 7.7 and 7.8) are presented for these two sites to elucidate the intersite comparisons and to make the data from these two important collections more readily available to other researchers. The Hannan collection, including many illustrations and discussion of the other artifact classes from this and later phases of the site, is presented by Schulz (1977); the ceramics alone are illustrated and described in Praetzellis and Praetzellis (1979a). The Menefee family and the collection from their well are more fully described in Praetzellis and Praetzellis (1979d). A full comparison between the apparently successful, urban, immigrant family and the struggling, rural southerners transplanted into a western urban setting is, unfortunately, outside the scope of this report.

The abandonment of all six of these features was related to urban development within the three neighborhoods. The Golden Eagle features and the Hannan privy were abandoned because of business expansion and an organized city-wide attempt to solve the problem of flooding. A municipal water supply rendered the Menefee's well unnecessary. As the 19th century progressed, organized civic endeavors replaced former haphazard, private initiative in dealing with such problems as water supply, flood and fire control, and sewage and garbage disposal. The remnants of the former systems--wells, privys, and cisterns--now no longer necessary and perhaps hazardous, were backfilled with materials at hand. This process appears to have occurred fairly rapidly in all of the features under discussion.

The pattern of deposition is expressed in part by correlating the ceramic terminus post quem, the mean date of marked sherds, and the historic date of deposition; this pattern varies considerably between features. Golden Eagle Hotel Feature 20 shows the tightest relationship between the three measures, while the Hannan privy displays the widest divergence. With this small sample, it is impossible to postulate the reasons for these differences or to evaluate the significance of the

TABLE 7.5

Ceramic Mean Date (Marked Vessels): Hannan Collection

Maker	Date	Median	x_i	Vessels	Product
W. Adams & Sons	1819-1864	1842	42	1	42
T. & R. Boote	1842-1906	1874	74	2	148
E. Challinor & Co.	1853-1862	1858	58	1	58
E. & C. Challinor	1862-1891	1877	77	1	77
Edward Corn	1853-1864	1859	59	1	59
Davenport	1852-1855	1854	54	2	108
Davenport	1861-1864	1863	63	1	63
Davenport	1856-1859	1858	58	2	116
T. Goodfellow	1828-1859	1844	44	2	88
Lyman, Fenton & Co.	1849-1858	1854	54	1	54
T. J. & J. Mayer	1843-1855	1849	49	2	98
Charles Meigh	1835-1849	1842	42	1	42
?	1858	1858	58	1	58
Total				18	1011

Ceramic Mean Date: 1856.1
Ceramic Terminus Post Quem: 1862
Historic Deposition: c.1866

TABLE 7.6

Ceramic Mean Date (Marked Vessels): Menefee Collection

Maker	Date	Median	x_i	Sherds (Vessels)	Product
Henry Alcock	1861-1891	1876	76	7 (2)	532 (152)
W. Baker & Co.	1839-1893	1866	66	18 (4)	1188 (264)
T. & R. Boote	1842-1906	1874	74	3 (1)	222 (74)
J. Bourne & Son	1850-1861	1856	56	1 (1)	56 (56)
E. & C. Challinor	1862-1891	1877	77	5 (3)	385 (231)
Edward Clarke	1857-1887	1872	72	1 (1)	72 (72)
Cockson, Chetwynd & Co.	1867-1875	1871	71	18 (7)	1278 (497)
Davenport	1853-1855	1854	54	10 (1)	540 (54)
Davenport	1856	1856	56	1 (1)	56 (56)
James Edwards & Son	1851-1882	1867	67	17 (4)	1139 (268)
Total				81 (25)	5468 (1724)

Ceramic Mean Date: 1867.5 (1868.9)
Ceramic Terminus Post Quem: 1867
Historic Deposition: c.1873

TABLE 7.7

Ceramic Summary Table: Hannan Collection

Group	Form/Decoration	Minimum Vessels
Chinese Porcelain	wine cup/"Four Seasons"	1
	wine cup/handpainted	1
	jar/Canton ware	1
Common Pottery	flower pot	2
Pearlware	mug/"Ben Franklin"	1
	mug/"dancing dogs"	1
Porcelain	plate	2
	bowl/molded	1
	mortar	1
White Improved Earthenware	cosmetic jar and lid	3
	oval dish	2
	plate	2
	saucer	2
	toiletry dish	1
	bowl/multi-sided	3
	serving bowl/octagonal	1
	cup/multi-sided	2
	pitcher/multi-sided	1
	plate/10-sided	2
	small plate/12-sided	1
	bowl/molded	1
	dish lid/molded	1
	dish lid/"fig"	1
	plate/"decagon"	2
	plate/"fig"	2
	small plate/molded	1
	relish dish/molded	1
	saucer/paneled	1
	washbasin/molded	1
	plate/"Tivoli"	1
	plate/purple-brown scenic print	1
	bowl/printed and painted	1
Yellow Ware	slop jar/Rockingham	1
	pie dish/flint enamel	1

TABLE 7.8

Ceramic Summary Table: Menefee Collection

Group	Form/Decoration	Sherds (Vessels)
Opaque Porcelain	cup/multi-sided	7 (4)
	bowl/multi-sided	3 (1)
	lidded vessel/"fig"*	7 (1)
	serving vessel/"fig"*	4 (1)
Porcelain	cup/multi-sided	2 (1)
Stoneware	bottle	1
	crock lid	1
White Improved Earthenware	cup	5 (3)
	plate	43 (14)
	deep plate	1
	saucer	7 (3)
	vessel w/no foot rim	2 (1)
	cup/multi-sided	7 (3)
	saucer/paneled	9 (5)
	chamber pot/molded	8 (1)
	cup/molded	2 (1)
	plate/"decagon"	10 (1)
	plate/"Syndenham"	4
	plate/molded	3
	/"forget-me-not"	1
	/molded	1
Yellow Ware	/banded	1
	unknown	2 (1)

* Imitation of Davenport "fig"

mean date in terms of behavior patterns and deposition date. The purchasing strategy and use of ceramic in restaurants probably differed from that of private households, and these differences should be reflected in the dates. Cultural variables also are in effect: the Hannans appear to have brought some of their possessions from Ireland, while the Menefees began life anew in California with the purchase of cheap, plain ceramics. The relationship between the three dates on tables 7.4, 7.5 and 7.6, presumably reflect this behavior.

Intersite comparison can most profitably be used to elucidate the difference in variety between domestic and commercial ceramic collections. Both the Menefee and Hannan features yielded a higher proportion of decorated earthenware than did the features from the Golden Eagle site (see figure 7.22). These molded and printed patterns reflect the fashion of the era, and the tastes and, perhaps, pretentions of individuals. A child's mug from the Hannan privy contains a didactic message, which seems appropriate for an immigrant family: "By diligence and perseverance the Mouse eat the cable in two. Diligence is the mother of good luck and God gives all things to Industry." The Menefee's social aspirations are indicated by their purchase of cheap imitations of a popular design, of which, incidently, the Hannans owned the original.

The Golden Eagle Hotel restaurant's plain porcelain and earthenware served to simplify the vessels' replacement and maintain their fashionability. In a period of fast-paced changes in style, a restaurant catering to a large, variable clientele could, by opting for simplicity, avoid offending anyone's sense of fashion. Although greater variety in ceramic function may be related to domestic as opposed to commercial sites, this is not necessarily the case (see figure 7.24). The Hannan privy contained the greatest variety of ceramics, whereas the Menefee and Golden Eagle Hotel features were dominated by tableware vessels. Functional variety, therefore, may be related to differences in site function, economic differences, or both. In the same vein, although the presence of certain artifacts may indicate demographic characteristics--toys, for example, to represent children--the absence of such indicators does not necessarily indicate the absence of the characteristic. The seven discarded toys in Hannan Privy 1 provide evidence of the Hannan children, 7 to 11; evidence of the existence of five little Menefees between ages 3 and 13 is completely lacking in their well fill. The toy tableware from features 6 and 8 indicate the presence of children in the site, probably as guests in the hotel.

Comparison of makers' marks from the three sites show participation in the same international trade network. Nearly all marked pieces originated from Staffordshire potters who were known to have catered, at least in part, to the American trade. The higher proportion of vessels from fewer potters in the later features suggests the solidification of certain aspects of the ceramic trade.

FIGURE 7.20: Ceramic Cecorative Types by Feature, Golden Eagle Site

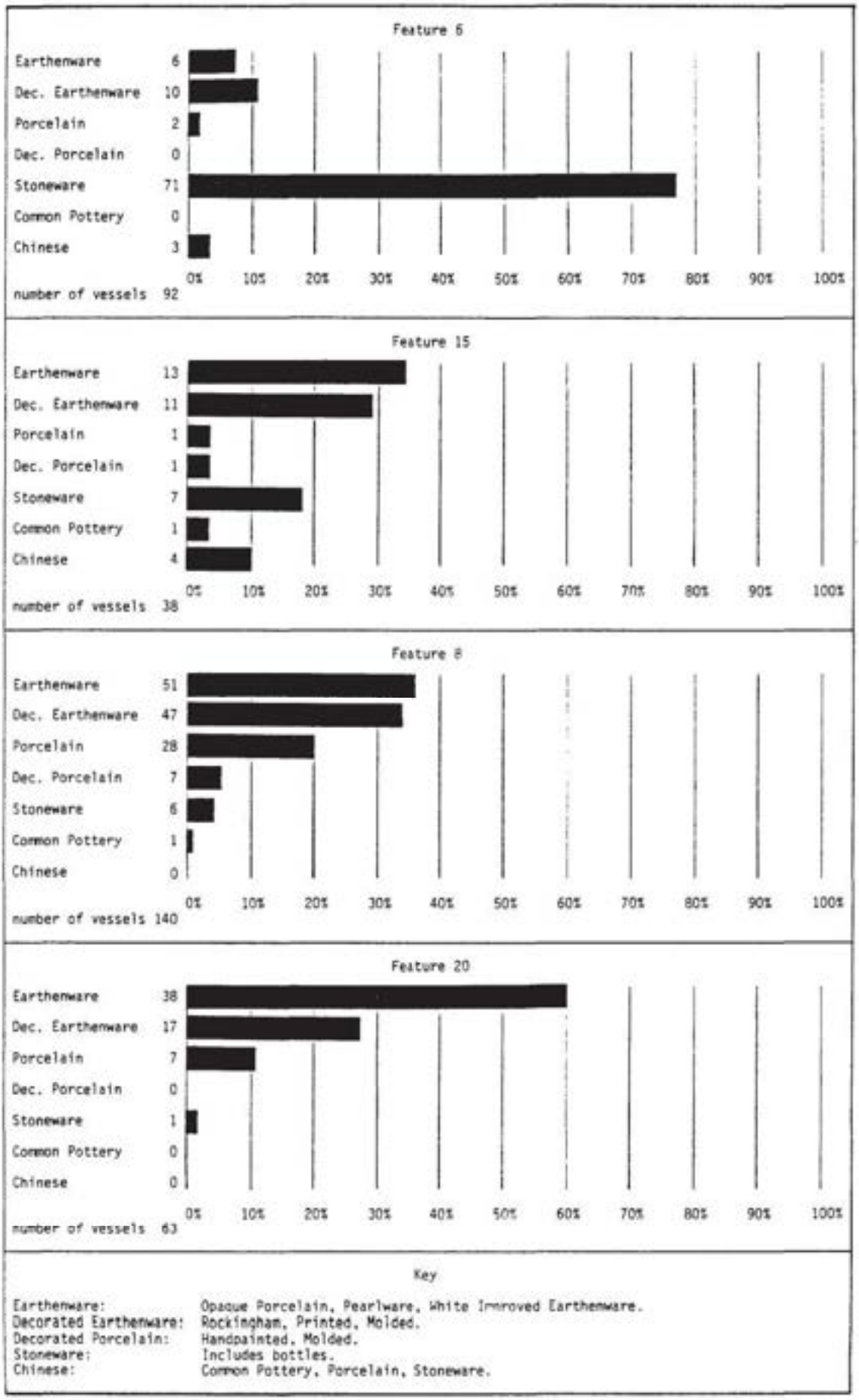


FIGURE 7.21: Weighted Ceramic Decorative Types by Feature, Golden Eagle Site

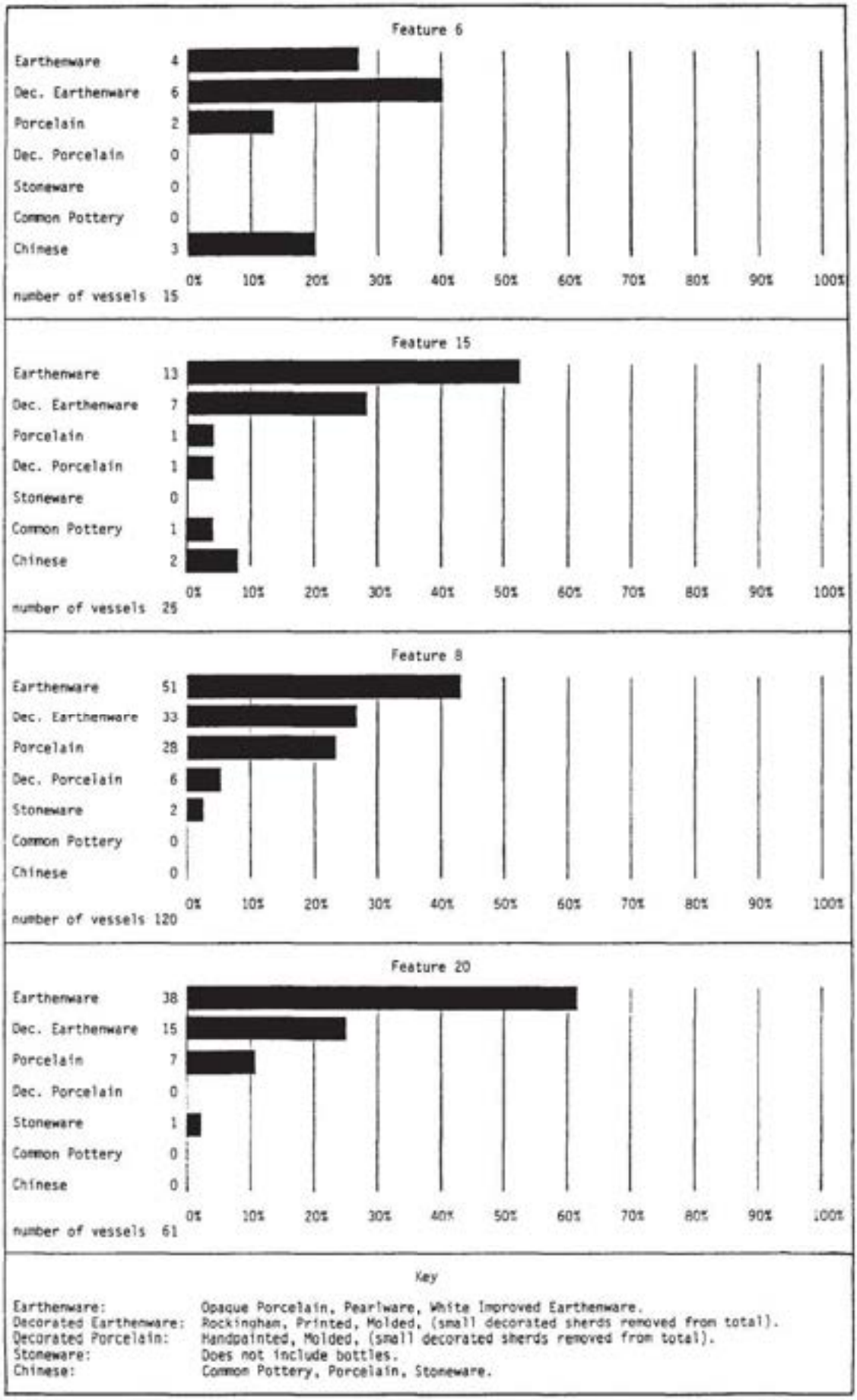


FIGURE 7.22: Ceramic Decorative Types by Site: Golden Eagle, Hannan Privy, Menefee Well

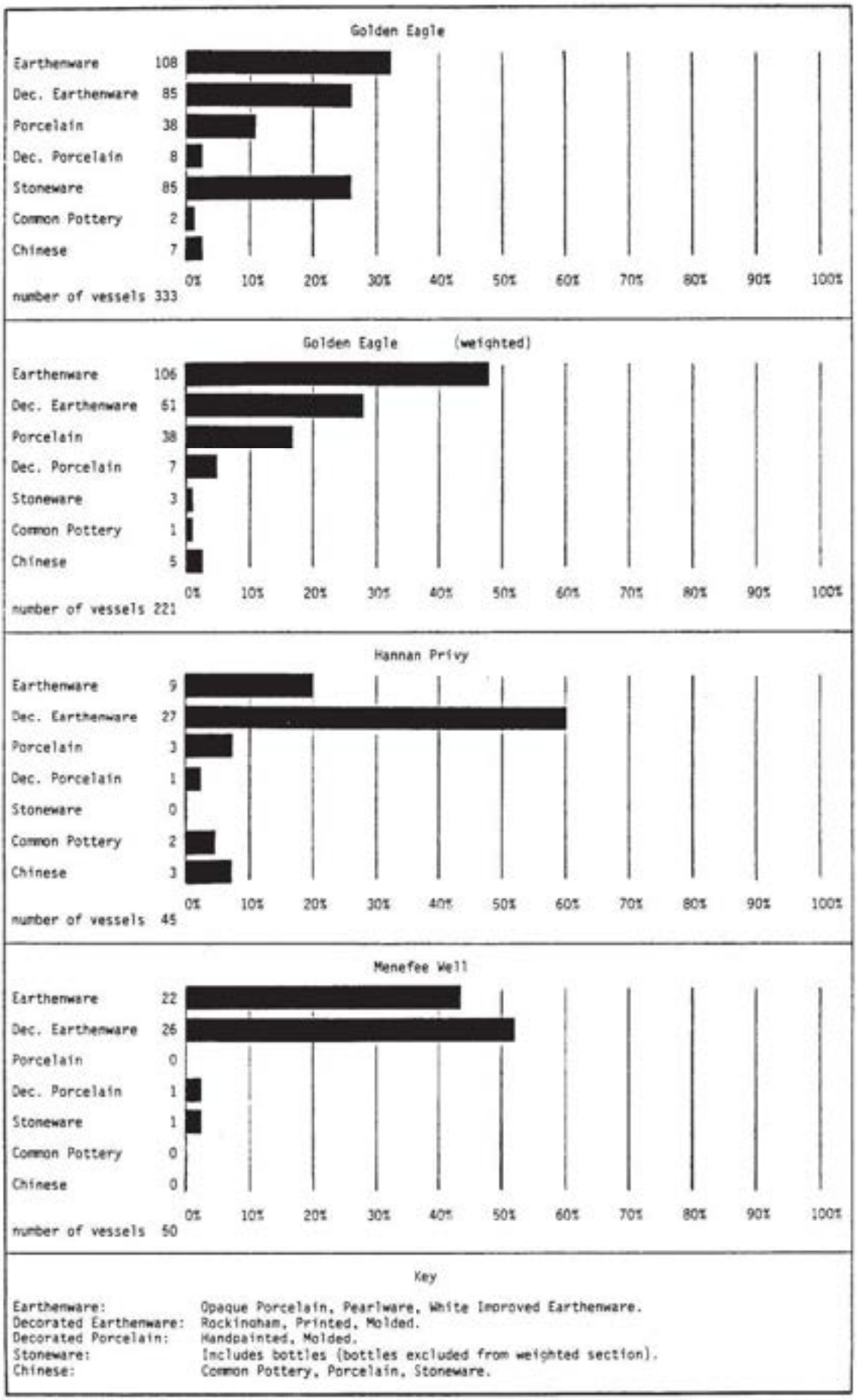


FIGURE 7.23: Ceramic Functional Types by Feature, Golden Eagle Site

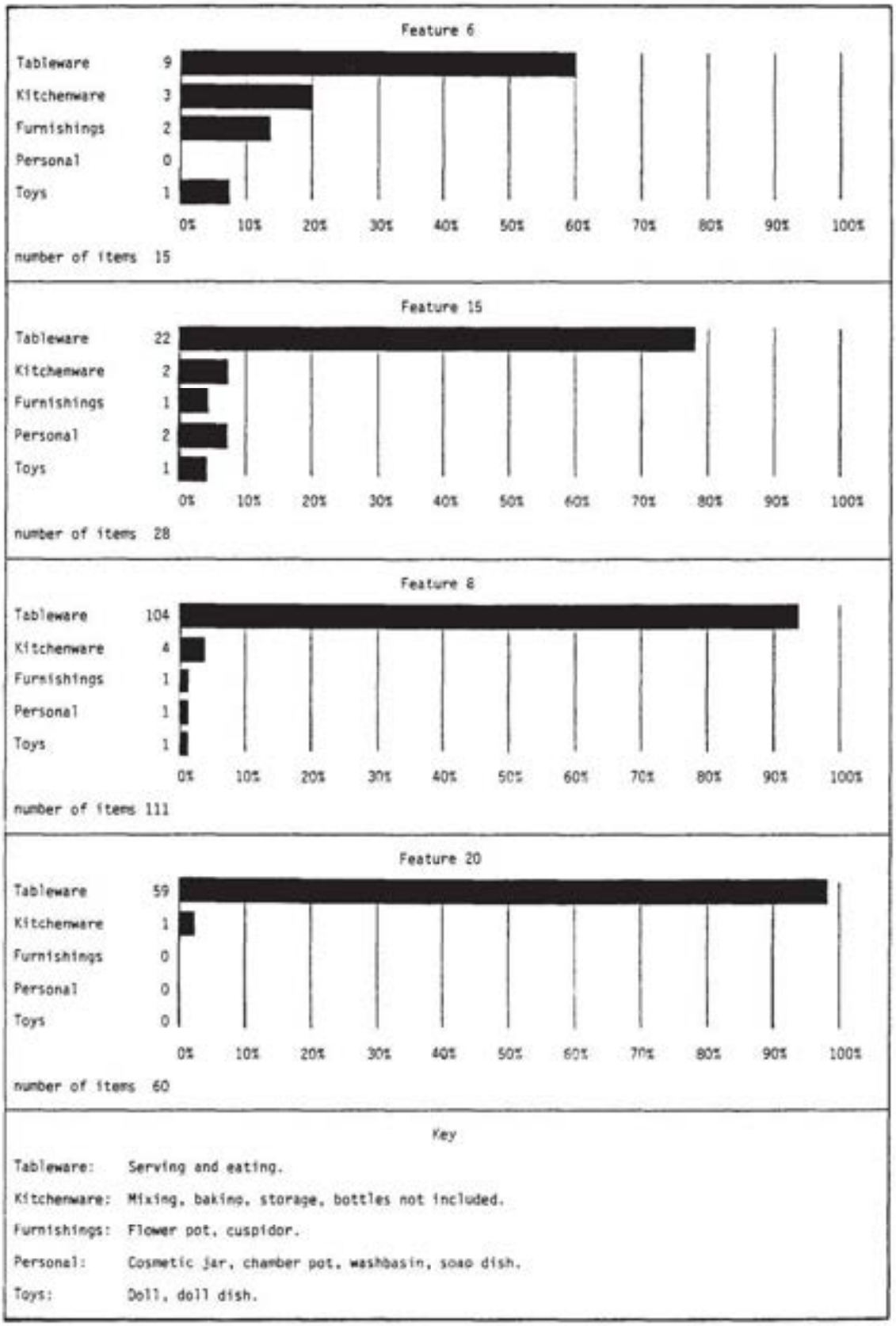
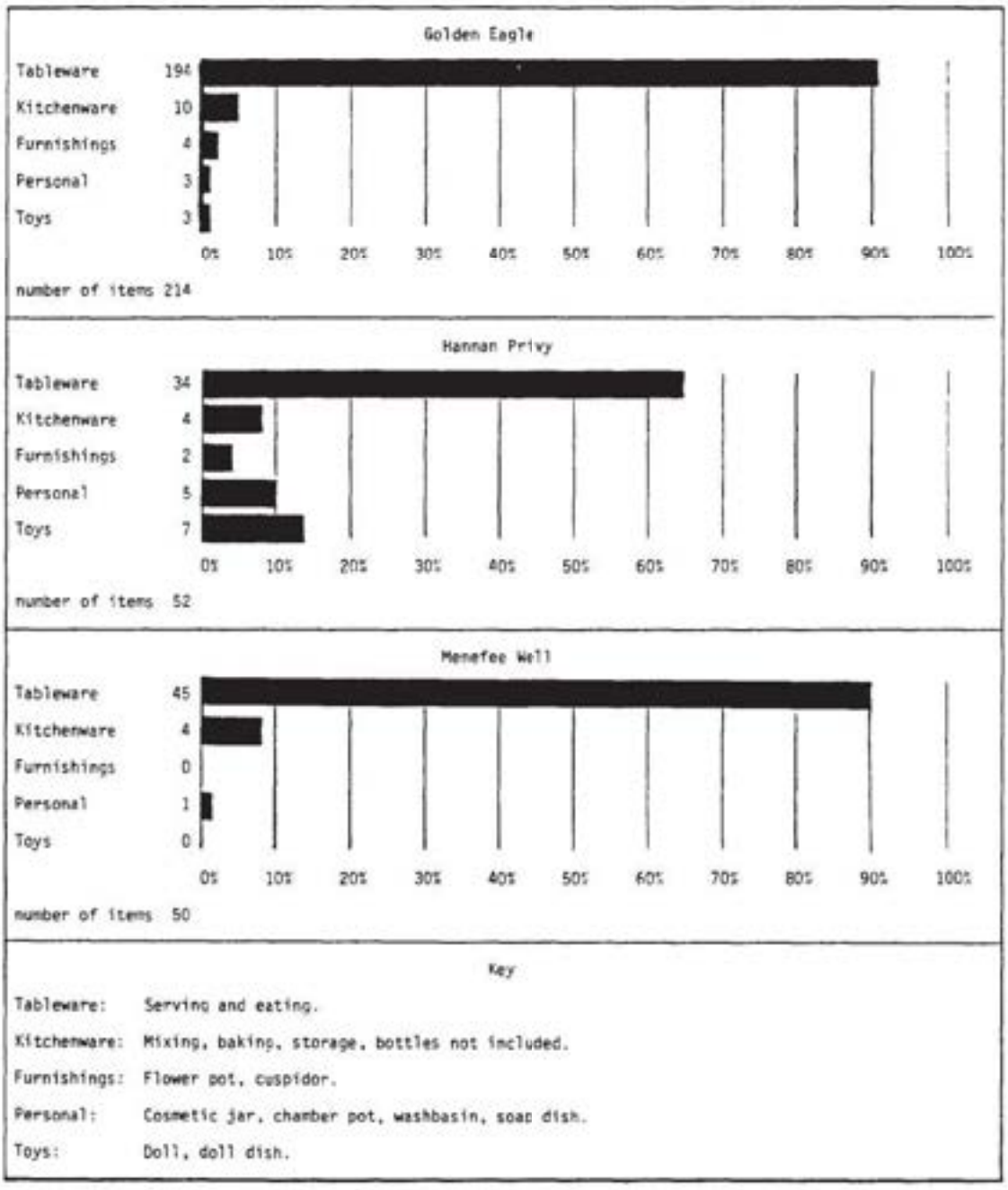


FIGURE 7.24: Ceramic Functional Types by Site: Golden Eagle Site, Hannan Privy, Menefee Well



SUMMARY

The purpose of this report has been threefold: to provide detailed descriptions and the basis for a type collection; to date the deposits and discuss the meaning of different dating techniques; and, finally, to propose interpretations of behavioral patterns using the ceramic collection, historical data, and anthropological theory.

Comparisons were made with the Menefee and Hannan collections to elucidate the characteristics of domestic assemblages as opposed to commercial establishments. It is believed that the aesthetics of the Golden Eagle Hotel's middle- and upper-middle-class clientele are partially reflected in its ceramic collection. The hotel's management purposefully created a well-appointed material atmosphere in which their guests would feel comfortable. As one element of this environment, the ceramics from the Golden Eagle may be used as a base line from which to measure cultural diversity and economic status on other sites, both commercial and domestic.

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CERAMIC WEAR PATTERN ANALYSIS

by

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INTRODUCTION

This chapter presents a brief analysis of wear patterns on 19th-century ceramics recovered during 1979 excavations in Sacramento, California. Because scratches and abrasions marking ceramic vessels can reveal patterns of use and storage, a sample of vessels from the Golden Eagle site was studied with this objective in mind. The vessels selected came from two features representing 1860s deposits associated with the Golden Eagle Hotel. Over 50 pieces of porcelain and white improved earthenware of several types were examined.

Distinctive features of various types of scratches and marks have been fully described in Dorothy Griffiths' paper, "Use Marks on Historic Ceramics: A Preliminary Study " (1978), which provided the inspiration for this study. Griffiths, who worked with 18th-century materials, rubbed the ceramic surfaces with a soft lead pencil to highlight scratches caused by wear. Perhaps due to the harder surfaces of 19th-century porcelain and earthenware, during the present analysis it was necessary to dust ceramic surfaces with graphite to produce the same result.

Analysis of use marks is made in an attempt to go beyond identification and dating of artifacts to look at the behavioral context in which they were used. In the case of use-mark, or wear-pattern, analysis of ceramics, the behaviors are the foodways, or cooking and eating habits of the group which ate from, washed, and stored the dishes.

Contemporary documents, such as mail order catalogues, shop inventories, and etiquette books, identify ceramic vessels as to their intended function, but their use in reality may have been different, especially among differing social and ethnic groups. Marks on vessels should indicate whether objects were used for their intended purpose, had multiple functions, or were used as substitutes for other vessels. Substitution of one vessel shape for another could be due to unavailability of some types of ceramics on the market or to individual choice. Knowledge of actual use of vessel shapes is potentially very useful to the archaeologist attempting to distinguish between the "ideal culture" people were said to have aspired toward and the "real culture." In a frontier society, which was inhabited by diverse groups and may have lacked some of the comforts of home, the differences between the real and the ideal culture may have been considerable.

In addition to disparities between object shape and object function, wear-pattern analysis can be used to determine styles of eating, or how knives, forks, and spoons were actually used. It would be expected, for example, that different types of marks would result on vessels used by left-handed people than on those used by right-handed people. It would also be expected, and of more interest to a student of ethnic or class differences, that the American pattern of eating, in which the knife is only picked up to cut meat, would leave a separate wear pattern than would the Continental eating style.

METHODS

One drawback to this study was the relative hardness of the glazes used on the ceramics from the Golden Eagle site. As previously noted, 19th-century ceramics have harder surfaces than do 18th-century fine earthenwares; they therefore show fewer scratches by cutlery. During the 19th century, earthenware manufacturers strove to produce a leadless glaze; the glazes produced after 1850 were harder than the pure lead variety and less vulnerable to abrasion and scratching (Griffiths 1978:80). Because of the hardness of the glaze in the present collection, such subtle distinctions as type of cutlery (i.e., horn, silver, bone) and the manner of holding cutlery were not analyzed. Instead, the patterns of wear on the ceramics were compared with those on an assemblage of very soft modern dishes to determine their probable function.

Patterns of scratches were divided into three categories. The first category of marks considered are those scratches in the glaze caused by contact with eating and cooking implements. Diagnostic patterns of scratches can reveal the object's actual function, which is often different from what the maker intended; an example of this is a saucer used under a flower pot. Three types of use marks are considered: knife cuts, fork or spoon scratches, and stirring or beating marks.

The second category of marks consists of those that result from the care and treatment of ceramics. Abrasion of footring and scratches from scouring or storage are indicative of social and economic values placed upon the ceramics. Valued ceramics, which were carefully washed and stored and used on a tablecloth, show minimal storage wear, whereas ordinary or institutional dishes characteristically exhibit signs of rougher treatment.

A third category of marks, those resulting from excavation, and washing and cataloging, were easily differentiated from the above two categories and will not be discussed in this paper.

RESULTS

Wear patterns caused by implements were quite consistent with expectations (table 8.1). Plates usually exhibited deep knife and fork-type scratches, whereas soup plates were characterized by a circular pattern of sweeping marks caused by a fork or spoon. Small plates and saucers tended to be generally abraded, having few specific scratches. Large oval platters were marred by scratches from both knives and forks, probably as a result of carving.

The oval dishes, referred to here as "au gratins," are of unknown use. Although some of them showed deep scratches which could be attributed to knife cuts, others exhibited short, circular scratches. This pattern suggests that they were small serving dishes.

Virtually all the vessels studied in this analysis exhibit signs of long use and careless treatment. Footrings are chipped and abraded, and surfaces are scratched from contact with other vessels. Many ves-

sels appear to have been chipped before they were broken and discarded. This pattern of rough use is expected from the discards of a restaurant, even one associated with the "best hotel on the coast" (St. Helena Star 16 October 1874).

There were no obvious and uniform differences in wear patterns between the two features. The porcelain vessels studied show fewer scratches than do the white improved earthenware ceramics. Porcelain has a harder glaze which is less easily scratched than that of earthenware, making it a less suitable material for this type of analysis. Creamware, which Griffiths used in her study, is probably still more suitable than earthenware, being a less dense material that would scratch more deeply.

The method of analysis using patterns of wear on ceramics could be useful in identifying functions of a vessel or group of vessels. Whole wear patterns should be studied, however, rather than individual scratches, and a collection of vessels, rather than a single specimen, should be analyzed. As a means of identifying sherds as having been parts of, for example, soup plates or chamber pots, this method would be highly speculative. Vessels acquire all manner of scratches and marks throughout their lifespans; only by studying the developed pattern can one identify the day-to-day function of a piece.

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TABLE 8.1

Results of Ceramic Wear Analysis

Feature	Fabric	Form	Number	Types of Scratches: Fork and knife	Stacking/ footrim wear	Fork or spoon	General abrasion	Stirring marks
8	W.I.E.*	Plate	3	1	3	1	1	0
8	W.I.E.	Deep plate	8	0	7	4	3	0
8	W.I.E.	Small plate	6	0	6	3	1	0
8	W.I.E.	Saucer	2	0	1	1	2	0
8	W.I.E.	Cup	1	0	0	0	0	1
8	W.I.E.	"Au gratin"	4	0	4	2	0	0
20	W.I.E.	Plate	4	3	4	1	0	0
20	W.I.E.	Small plate	1	0	1	0	1	0
20	W.I.E.	Saucer	2	0	2	1	1	0
20	W.I.E.	"Au gratin"	1	0	1	0	1	0
20	W.I.E.	Oval platter	2	1	1	1	0	0
8	Porcelain	Plate	2	2	2	0	0	0
8	Porcelain	Small plate	1	1	1	0	0	0
8	Porcelain	Cup	1	0	1	0	0	0
8	Porcelain	"Au gratin"	9	0	8	6	1	0
8	Porcelain	Oval platter	1	1	1	1	0	0
20	Porcelain	Plate	4	3	4	2	0	0
20	Porcelain	"Au gratin"	1	0	1	1	0	0
20	Porcelain	Oval platter	1	1	0	1	0	0

*White Improved Earthenware

FABRIC

by

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Five fabric samples were sent to Dr. Howard Needles of the University of California at Davis, College of Agriculture Division of Textiles and Clothing for identification. Dr. Needles' (personal communication 12 December 1979) analysis as to fiber content, fabric count, and type of weave is reproduced below:

Sample	Fiber Type	Fabric Count Warp and Fill (yarns/inch)	Weave
79-17-59-116	flax	70 x 120	plain
79-17-53-162	flax	70 x 205	plain
79-17-53-163	wool	can not distinguish	
79-17-81-317	wool	40 x 40	2/2 twill
79-17-35-	wool	32 x 40	1/3 satin

According to Dr. Needles, "There is little else that can be said with regard to the fabrics other than such weaves and fiber contents would be expected for middle 19th-century fabrics."

GLASSWARE

by

Jane Russell Armstrong

Sonora, California

INTRODUCTION

The glassware recovered from the Golden Eagle site was analyzed from a functional perspective. Such an analysis can provide a basis for determining a site's dates of occupation and can provide further insight into the kinds of activities which occurred there. For example, a large proportion of the present collection consisted of condiment bottles, beer and ale bottles, and numerous fragments of heavy, standard (no crystal), hotel glassware--all items that might be expected in an early Sacramento hotel.

The bottles are divided into the following functional categories: condiment; medicine (including bitters); perfume/toiletries; whiskey/spirits; wine/champagne; soda/mineral water; beer/ale; and miscellaneous, including tableware (see table 10.1). While all recovered glass artifacts are described, only those items from temporally controlled areas are included in the distribution table and in the feature discussions. Plates 10.1 to 10.4 show the glass collection, minus non-diagnostic body sherds, from each of the four features analyzed.

The bottles' original contents and dates were determined from embossed brand names (table 10.2), the shape and/or color of the bottle, and reference to old trade catalogues, comparative specimens, or early advertisements. The dates were further determined by mold types, lip finishes, and basal characteristics.

GLASSWARE DESCRIPTION

CONDIMENT

The best-represented functional category in the Golden Eagle glassware collection is that of condiment bottles, including containers of preserves, relishes, pickles, sauces, olive oil, and capers.

Brandied Fruit

The largest single type within the category is that of the large, brandied-fruit or preserve bottles (plate 10.5a), of which there are 173 examples. These aqua-colored bottles are of two- or three-piece molds. None of the bottles from the collection is complete; had they been so, they would have averaged 12 inches in height. These tall, cylindrical bottles had a volume of approximately 22-24 ounces. Body diameters range from 2-3/4 to 3 inches. The neck finishes are either an applied, rounded ring or a collar-type finish (plate 10.5b). The diameters of the neck openings range from 1-1/4 to 1-1/2 inches. The bases are concave, with a small nipple in the center. The bottles were originally stoppered with corks. These bottles are identical to those described in the Bertrand collection as "brandied cherries" (Switzer 1974:45-46).

Shipping manifests from the 1850s indicate that brandied fruit was imported to San Francisco from France (Praetzellis, unpublished data). During the Gold Rush, "Brandy Peaches," served either alone or with rice pudding, appear to have been a popular item in restaurants. At $2.00 a

TABLE 10.1

Distribution of Bottles and Glassware by Feature

DESCRIPTION	ORIGIN	6	15	8	20
Condiments					
Brandied fruit		0	3	116	18
Pickle		0	2	0	1
Olive oil	France (poss.)	0	6	13	0
Capers	Mediterranean	0	0	0	1
Worcestershire sauce	England	1	0	4	0
Mustard	France	1	0	0	0
Peppersauce	San Francisco	0	1	0	2
Peppersauce		1	0	11	6
Relish		0	0	4	0
Alcoholic Beverages					
Ale (stoneware)*	Scotland	67	7	3	0
Porter/ale (glass)	U.K. and U.S.A.	54	13	8	3
Wine/Champagne	France (3 from Germany)	12	15	4	10
Whiskey/spirits		1	3	0	0
Soda Water					
Soda/mineral water	U.S.A.	0	1	0	0
Soda/mineral water (stoneware)*	Germany	1	0	0	0
Soda/mineral water (glass)		5	1	3	0
Medicine					
Bitters	U.S.A.	1	6	2	1
Medicine	U.S.A.	2	4	1	0
Medicine		5	51	5	16
Perfume/toiletries		0	5	2	0

*See Chapter 7, ceramics.

TABLE 10.1, continued

DESCRIPTION	ORIGIN	6	15	8	20
Miscellaneous					
Chimney lamps		12	23	0	0
Mucilage container		0	0	1	0
Insulator	U.S.A.	0	1	0	0
Bar tumbler		3	18	0	5
Stemmed goblet		0	0	25	5
Dishes/compotes, etc.		0	4	3	9

TABLE 10.2

Embossed Bottles from the Golden Eagle Site

Quantity	Embossing	Location	Dates	Type of Bottle
Area I				
1	Lea & Perrins (A.C.B.)	England	1850-1877	Sauce
2	Lea & Perrins (J.D.S.)	New York	1877-	Sauce
1	Schiedam Schnapps		1852-1860	Gin
1	J. Club . . .	New York	c.1859	Gin
1	J. Moore	Louisville	c.1876	Whiskey
1	C.J. Fell	Philadelphia		Medicine
Area VI				
1	A.B. Co.	Chicago	1905-1916	Beer
1	Phil Caduc	Sacramento	1873-1881	Soda
1	E.L. Billings	Sacramento	1873-1884	Soda
1	R.J.C.		1845-1860	Condiment
Area IX				
1	D.S. & Co.	San Francisco	1861-1864	Soda
Feature 6				
1	G. Gunther Williams	New York		Medicine
1	Moutarde Diaphane	France	1845-1860	Condiment
1	Mrs. Winslow's	U.S.A.	1862-1875	Medicine
3	C & S	England ?		Ale
1	C & I	Pittsburgh	1865-1879	Ale
1	L.G. Co.	Louisville	1873-1886	Beer
1	Wood-Portobello	Scotland	1868-1875	Ale
1	Bremen . . . Hamburg	Germany	1860-1875	Ale

TABLE 10.2, continued

Quantity	Embossing	Location	Dates	Type of Bottle
Feature 15				
1	Lyon's Kathairon	New York	c.1857	Medicine
1	Barry's Tricopherous	New York	c.1859	Medicine
1	Sweet's Linament	Vermont	c.1860	Medicine
1	Perry Davis	Massachusetts	c.1866	Medicine
1	Jas. Delamater		c.1850-1860	Medicine
1	Dr. Hostetter's	Pennsylvania	c.1864	Bitters
1	Dr. Renz's	San Francisco	1867-1882	Bitters
2	Murray & Lanman	New York		Cologne
1	Burgin & Sons	Philadelphia	c.1856	Soda
1	Chs. Bernard	San Francisco		Condiment
1	Tillotson & Co.	New York	1860-1870	Insulator
Feature 8				
1	Fahnestock's	U.S.A.	1852-1856	Medicine
1	Lubin Perfume	Paris	1852-1860	Perfume
2	Lea & Perrins (A.C.B.)	England	1850-1877	Sauce
Feature 20				
2	W.H. Bovee	San Francisco	1860-1867	Condiment
2	C.W. & J.	England/Ireland		Ale

serving, "Brandy Peaches" was the single most expensive dish on two early menus (Askin 1978).

Pickle Bottles

Of the approximately three "cathedral" or "gothic" shaped pickle bottles in the collection, only one was reconstructable (plate 10.5c). The height of this bottle is approximately 11 inches, and the basal measurement is 3-1/2 inches square. Many variations on the basic gothic shape were produced; all bore elaborate decoration in molded relief, with one side left blank for labeling. They contained pickled vegetables, or honey.

The bottles in this collection are colored aqua, from two-piece molds, with molded gothic designs on three sides. Their volume was approximately 20 ounces. The bases are concave. Due to patination and wear, it is difficult to determine if they were embossed. One base bears an embossed "C," which may match the "CR" on a pickle bottle from the Bertrand collection (Switzer 1974:51). The top of this particular bottle is missing, but finishes on similar bottles are usually of an applied ring type. Pickle bottles were stoppered with corks.

Olive Oil

Nineteen condiment bottles in the collection are olive oil containers, which were commonly imported from France. These bottles are asymmetrical and free-blown, with very deep push-ups (plate 10.5d). In contrast to the Bertrand bottles, some of these specimens bear pontil marks. The light-green bottles range from 10-1/2 to 11 inches in height; they are approximately 2-1/2 inches in diameter and contained 14 ounces. The finish was usually sheared with a crude, laid-on ring.

Capers

Capers are the greenish flower buds or berries from any species (especially *Capparis spinosa*) of prickly shrubs found in the Mediterranean region. There are three capers bottles in the collection. Two of the bottles are identical: approximately 6-1/2 inches in height, 1-3/8 inches in diameter, and contained 4 fluid ounces. The bottles are aqua colored, of two-piece molds, with concave bases and flat finishes. There is a crown embossed on one side and the remnants of a foil seal around the neck (plate 10.5e).

The third capers bottle in the collection was from the unstratified group; it is described here because it does not appear in other Sacramento collections. It is paneled and beveled, with a flat finish. The bottle measures 8-1/2 by 1-1/2 inches, and had a volume of 4 ounces.

Lea & Perrins Worcestershire Sauce

Approximately seven Lea & Perrins bottles and one glass stopper were recovered. These bottles are aqua colored, of two-piece molds, and are of two sizes: approximately 8-5/8 by 2-1/2 inches (6 oz.) and

7 by 2 inches (11 oz.). The necks have a unique finish, which can be called a "Worcestershire" or "triple-ring" finish (plate 10.5f). The bottles are vertically embossed on the side with "Lea and Perrins," and, around the shoulder, with "Worcestershire Sauce." The bases are concave, with the initials of the company embossed in a circular pattern. Earlier bottles (before 1877) were imported from England and were made by A C B Co.; later ones were manufactured by John Duncan and Sons of New York and were embossed with the initials J D S and usually a mold number. Both types appear in the collection.

The glass stopper is embossed with "Lea and Perrins." The stem is tapered, not ground; according to Switzer (1974:59), stems were encased in cork.

Moutarde Diaphane, Louit Freres and Co.

The single, clear-glass, barrel-shaped French mustard jar was made in a two-piece mold. It measures 5 by 3-1/8 inches and contained approximately 9 fluid ounces (plate 10.6a). The bottle is embossed horizontally on the front with "Moutarde Diaphane, Louit Freres." The base has a crude pontil mark.

"R.J.C."

A paneled, pale aqua bottle of uncertain content is placed in the condiment section on the basis of its color and shape. The bottle is six-sided, from a two-piece, chilled-iron mold (plate 10.6b). The surface has a rippled appearance, which earlier bottle hunters attributed to its having been made in a wooden mold. It measures 6-1/4 by 2 inches and contained approximately 10 fluid ounces. The neck finish is a crude, applied collar, and the base is marked with a jagged pontil scar. One side of the bottle is embossed vertically with the initials "R.J.C."

"W. H. Bovee and Company, San Francisco"

There are two Bovee bottles in the collection; one is fragmentary and one whole. The bottles are aqua colored, of a two-piece mold, with "W. H. Bovee and Co., San Francisco" embossed on one side panel. They measure 6-3/4 by 2-1/4 inches and contained 6 ounces. The bottles are shaped like the peppersauce bottles described below. Each has an infolded lip finish and a flat base with a pontil mark (plate 10.6c). According to Wilson and Wilson (1971), these bottles probably contained ground pepper or similar seasoning. The William H. Bovee Spice Company operated in San Francisco around 1860.

Chs. Bernard, San Francisco

One bottle, similar in shape to the Bovee bottles, has vertical embossing on the two side panels. The bottle is aqua colored, of a two-piece mold, with an applied flat finish and a flat base (plate 10.6d). Its dimensions are 6 by 2-3/8 inches, with a volume of 4 ounces. Like the Bovee bottles, it contained either ground seasoning (pepper or cinnamon) or peppersauce.

Relish or Sauce Bottles

Each of these four bottles has eight vertical ribs. The bottles are aqua colored, with three rings around the neck (plate 10.6e). The finish is broken on all specimens. They were made in a two-piece mold, and each base bears a crude pontil mark. They are approximately 8 by 2 inches and held 6 fluid ounces. They probably contained peppersauce or spices.

"Peppersauce" Bottles

The 22 peppersauce bottles are shaped like the Bovee and Bernard bottles but are not embossed, since they usually had a paper label on the front. These bottles are aqua, made from two-piece molds, and have infolded finishes. The bases are flat, and some have a rough pontil mark (plate 10.6f). They measure 6-7/8 to 7-1/4 inches in height, are 2-1/2 inches wide at the base, and contained approximately 6 fluid ounces. These bottles probably contained peppersauce, ground pepper, cinnamon, or similar condiments.

Miscellaneous

Catsup. There is one fragment of an aqua-colored, fluted, catsup bottle made from a two-piece mold. The base and the finish are missing.

Cruet. This bottle is of clear glass, with a broken finish and concave base.

Canning Jar. There is one rim fragment of an aqua-colored canning jar, with a continuous thread finish.

There are also two unidentified condiment container fragments--possibly pickle jars. One has a crude pontil mark and both are aqua colored.

MEDICINES

Embossed Medicines

"Barry's Tricopherous for the Skin and Hair, New York." This aqua-colored, rectangular bottle, made from a two-piece mold, measures 6 by 2 inches and contained 4 fluid ounces. It has a flat base and a collar finish (plate 10.7a). This particular bottle was produced about 1859.

Alexander C. Barry was originally in the wigmaking trade. He moved to New York City in 1843 and, approximately five years later, began promotion of the "Tricopherous." At this time, he proclaimed himself to be a "professor," as did many other patent medicine promoters. He concocted other preparations, including Barry's Pain Relief and, later, a malaria antidote. The proprietorship was sold to George C. Barclay in 1871 (Wilson and Wilson 1971:106).

"Perry Davis' Pain Killer." Only a small fragment of the side panel of this bottle was recovered. It is aqua colored and has vertical embossing.

The product, which was advertised as a universal remedy, was developed in 1840 and registered in 1845. It apparently had no trouble surviving the restrictions of the Pure Food and Drug Acts of 1906: "More than 118 years after it had made a new man of Perry Davis himself, the painkiller was still to be had in all its pristine potency" (Holbrook 1959:149). In 1843 Davis moved to Providence, Rhode Island, and listed himself in the city directory as a physician (Holbrook 1959:151). When he died in 1862, the business was taken over by his son, Edmund, until his death in 1880. In the years after World War I, the painkiller was still popular, and by 1920 it was also used as a hangover remedy. As recently as 1958, it was still on sale in Canada and the United States, where it was labeled "Liniment (Painkiller Brand)" and bore a picture of Dr. Davis (Holbrook 1959:151).

"Jas Delamater, Sole Proprietor . . . D's . . .by." This fragmentary, oval, aqua-colored bottle is embossed vertically on the side panels. It has a concave base and pontil scar. No information was found on this proprietor.

"B A Fahnestock's Vermifuge." This complete aqua-colored, cylindrical bottle is from a two-piece mold; it measures 4 by 7/8 inches and contained 1 fluid ounce (plate 10.7b). It has an infolded finish and a rough pontil scar.

Samuel Fahnestock was a Pittsburgh, Pennsylvania, dealer in paints, oils, and patent medicines in 1821. His son, B.A., who is said to have been trained in pharmacology, introduced the "vermifuge" during the early 1830s. The formula consisted of castor oil, oil of worm seed, turpentine, and tincture of myrrh. The business apparently lasted through the turn of the century (Wilson and Wilson 1971:114).

"C.J. Fell and Bro., Philadelphia." There is only one small, aqua-colored, paneled, basal fragment of this bottle in the collection. No information was found on this company.

"Lyon's Kathairon for the Hair, New York." This whole, rectangular, aqua-colored, paneled bottle measures 6 by 1-7/8 inches and contained 4 fluid ounces (plate 10.7c). It is embossed both vertically and horizontally on all sides. The bottle, made in a two-piece mold, has a double-ring neck finish and a concave base with a crude pontil scar. This particular bottle was made in about 1857.

According to Wilson and Wilson (1971:126), Emanuel Thomas Lyon was a graduate of Princeton and a professor of chemistry before going to New York in about 1850 to promote his products. His hair tonic was sold until 1859.

"Stephen Sweet's Infallible Liniment." This rectangular, aqua-colored bottle is embossed on all sides. It measures 5 by 2-1/4 inches and contained 3 fluid ounces. The base is flat, and the neck has a collar finish (plate 10.7d).

Stephen Sweet was a country doctor who practiced near Lebanon, Connecticut. The sole proprietor of Sweet's medicine was Edmund B. Richardson, a Norwich, Vermont, druggist, who began marketing it around 1859 (Wilson and Wilson 1971:140).

G. Gunther Williams, New York. This small, clear jar, which has one flattened side, measures 1-5/8 by 1-5/8 inches and contained approximately 1 fluid ounce. It is possible, but by no means certain, that it was an eye cup.

"Mrs. Winslow's Soothing Syrup." Only a small, aqua-colored fragment of this bottle, which originally measured approximately 1 by 5 inches, was recovered (plate 10.7f).

Charlotte Wood-Newman Noyes married Joseph Winslow of Falmuth, Maine, in 1804. At this time, she developed a preparation for soothing the gums of teething children. The proprietorship was given over to her daughter, Lucy Wood Winslow, who married Jeremiah Curtis. In 1846 Curtis was established in the Bangor, Maine, drug trade with Benjamin Perkins, and, in 1848, they became partners in wholesale and retail business.

In 1852 Curtis and Perkins moved to New York City, where they distributed their medicines. In 1855 Curtis formed his own company, and his sons joined him in 1860. After 1880 the product was distributed through the Anglo-American Company, and, after 1883, also through the Curtis and Brown Manufacturing Company. The Anglo-American Company continued until 1933. The main ingredient of this preparation was morphine. The concoction resulted in the deaths of many infants and young children, even when the recommended dosage was given (Hales 1979:121-122).

Bottles bearing the following fragmentary embossings were found:

". . . Wholesale Druggist, San Francisco . . ." This is a clear, paneled fragment with a flat neck finish.

". . . (dy)sentery syrup . . . enberg co. . ." This fragmentary, aqua-colored bottle would have been approximately 5 by 1-5/8 inches. It is made from a two-piece mold, and its concave base has a pontil mark (plate 10.7g).

Unembossed Medicines

Fluid Extracts. There were six fluid-extract bottles recovered from the site. All but one are complete. They are either aqua colored or clear, range in size from 4 to 6 inches in height and from 1-1/2 to 2-1/2 inches in diameter, and contained 2-1/2 to 8 ounces (plate 10.8a). They are from two-piece molds and have infolded or simple flared finishes. All have pontil marks.

The fluid extract was considered the most elegant form for administering medicinal agents, since it was concentrated and contained just enough alcohol to preserve the product.

Homeopathic Vials. The collection includes 10 clear, fragile, glass homeopathic remedy vials, all of which are whole. They are free-blown, with round bases and flared finishes (plate 10.7i). They measure 2-1/2 by 3/4 inches and contained approximately 1/2 ounce. Homeopathy is the theory or practice of medicine which claims that a disease is cured by remedies that produce, in a healthy person, similar effects to the patient's symptoms. These remedies, usually administered in minute doses, were an important part of any 19th-century physician's medical kit.

Syringe

One whole, glass syringe--complete with plunger-- was recovered (plate 10.7h). It is approximately 1/2 by 4 inches and was probably free-blown.

Miscellaneous Medicine

There are a variety of medicine bottles--most of them fragments--of clear or aqua glass with indeterminate specific content. Thirteen of the bottles are complete. Most were mold blown; seven bottles, including one whole specimen, appear to have been free-blown. They are aqua colored, round shouldered, prescription-shaped bottles, measure 5-1/4 by 2-1/8 inches, and contained 9 fluid ounces. They have crude pontil marks and simple, flared finishes.

Bitters

"Dr. J Hostetter's Stomach Bitters." Fragments of two of these bottles are in the collection. Both are dark olive-green, were made from a two-piece mold, and have concave bases with no manufacturer's marks (plate 10.8b). The necks have collar-type finishes.

Upon his retirement from practice in 1853, Dr. Jacob Hostetter gave his son, David, consent to manufacture and sell this remedy. He and George W. Smith, a civil engineer, became partners and began to produce the family bitters in Pittsburgh. By the Civil War period, a half million bottles were filled annually. The contents included small amounts of cinchona bark, gentian root, orange peel, anise, and a less than modest amount of alcohol--47 percent by volume (Holbrook 1959:166). During the late 19th century, Hostetter's bitters retailed for 75¢ to $1.00 a bottle (Schulz et al. 1980: 60).

"Dr. Renz's Herb Bitters." Only a single, small, dark, olive-green fragment of this bottle was recovered from the site.

John Renz, a German, moved to Sacramento in 1856. He began marketing his product in paper-labeled bottles in 1867. In 1868 Charles Langley, a wholesale San Francisco drug manufacturer, took on sole agency of the brand, which was apparently quite popular in the Sacramento area. After his death in 1895, Renz's business was briefly taken over by his sons (Wilson and Wilson 1971:134).

"_. . . Simons . . . ted . . . Bitters._" The full name of this product is not known. This fragment, which is shaped like a French square medicine bottle, is smokey amber in color and measures approximately 2-1/2 by 9-1/2 inches. It is paneled, from a two-piece mold, and has a flat base with a concave center.

"J. Walker's V. B." (Vinegar Bitters). This fragment is blue-green with a flat base. The product was marketed during the 1860s by R. H. McDonald and Company, which had offices in San Francisco and New York. This particular product was largely responsible for the success of the company (Wilson and Wilson 1971:111).

PERFUME AND TOILETRIES

There were only nine perfume or toiletry bottles recovered from the site.

"Lubin Parfumeur, A Paris"

There are three Lubin perfume bottles. The only whole example was found with its ground-glass stopper in place (plate 10.8c). The bottles are 3-1/8 by 1-1/2 inches and contained approximately 1-1/2 fluid ounces. They are of clear glass from a two-piece mold, with a concave base, flared neck finish, and horizontal embossing on the front.

Lubin perfumes and extracts, advertised in 1852, were usually floral fragances.

"Murray & Lanman Florida Water"

Of the three aqua-colored Florida water bottles from the site, only one was whole (plate 10.8d). They were made in two-piece molds and have concave bases with a nipple in the center. The measurements are 9 by 2 inches; the embossing is vertical. The bottles were marketed in three sizes: the largest had a volume of 9 ounces and the smallest, 3 ounces. The product contained 75 percent alcohol and was advertised for both men and women as the "universal perfume" for handkerchief, toilet, and bath.

The druggist firm of Murray and Lanman was established about 1825. The partnership continued through 1849, at which time Lanman formed his own wholesale drug firm, with George Kemp as his partner. Florida water was sold through the turn of the century (Hales 1979:77).

Unembossed Perfumes

One whole, French, square bottle, with the remnant of a glass stopper in the neck, was recovered. The bottle is from a two-piece mold, measures 4-1/2 by 1-1/2 inches, and contained approximately 2 ounces. It has a bead or ring finish and a flat base with a concave center.

One small bottle, 2-1/8 by 7/8 inches, is of very heavy, clear, flint glass. It is from a two-piece mold, with a flat base and flared

finish, and contained approximately 1/2 ounce. The bottle is decorated with molded faceting around the bottom, tangential with the base (plate 10.8f).

The collection also contains one small, square jar which may have contained cream or sachet. It measures 3/4 by 1-1/4 inches and was made from a two-piece mold. It has a sheared top (plate 10.8e). Since a bottle of this quality is not likely to have a crude, sharp top--it would at least have been ground or fire-polished--the finish had probably broken off. The area where the finish is applied to a bottle is usually a structurally weak point and is especially susceptible to fracture.

WHISKEY AND SPIRITS

Twelve bottles in the Golden Eagle collection were identified as whiskey or spirit containers.

"J. . . Club . . ."

This embossed mark is found on a green fragment of a schnapps or gin bottle. It is probable that it is a remnant of "J. T. Daly Clubhouse." John T. and William H. Daly were wholesale liquor dealers in New York who bottled several kinds of liquor beginning in the mid-1850s (Wilson and Wilson 1968:59). The J. T. Daly Clubhouse bottle dates from the 1850s to 1870s.

". . . Moore, Louisville"

One small, amber fragment is probably from a Jesse Moore bourbon whiskey bottle.

Schiedam Schnapps

Fragments of three olive-green Schiedam schnapps bottles were recovered. Schiedam is a city in southern Holland which was famous as the center of a large, gin-manufacturing area. As a result, the name "Schiedam" was often used as a synonym for gin in the 19th century. Other early names for gin were Genever and Hollands.

The beverage, gin, is a neutral spirit distilled with juniper berry extract. It was first developed by Francisco de la Boc (1614-1672), a professor of medicine at the University of Leyden, Holland. By the end of the 18th century, the Dutch were producing 14 million gallons annually.

Unembossed Whiskey or Other Liquor

Of the seven unembossed whiskey or liquor-bottle fragments, only one could be assigned to a particular form category. The other six are very small amber fragments which could only be identified as general liquor bottles.

The fragment was part of a "pumpkin-seed" or picnic flask. This specimen is made of clear glass, with a double-bead neck finish. These flat-sided bottles were oval or "pumpkin-seed" shaped when viewed from

the front and were quite common in the late 19th century. Primarily a whiskey container, they were also used for other liquor products.

MISCELLANEOUS

The items included in the miscellaneous category are a mucilage bottle, an insulator, some lamp chimney fragments, and many items of tableware.

Mucilage

Mucilage, or "Gum Arabic Paste," was used as an adhesive for paper labels. This typical example is conical, with a ring around the shoulder (plate 10.8g). It measures 3-1/4 by 2-1/4 inches and contained 2 fluid ounces. The bottle was from a two-piece mold, with a concave base and sheared neck finish.

"Tillotson and Co., 16 Broadway, New York"

This aqua-colored electrical insulator measures 3-1/2 by 2-5/8 inches. This item is not threaded and probably dates to the 1860s. The body was made in a two-piece mold and the top was applied (plate 10.8h).

Lamp Chimneys

Thirty-five fragments are present in the collection. Unfortunately, because of their small size, their form(s) could not be reconstructed. They are all of a very fragile, thin, clear glass; rim fragments are simple and smooth.

Tableware

Three main forms of glass tableware vessels are represented in the collection. These are bar tumblers, stemmed goblets, and compotes. All vessels are made of pressed rather than cut glass. Plates 10.1 to 10.4 give a clear indication of the forms, number, and condition of glass tableware vessels recovered.

WINE AND CHAMPAGNE

There are 106 wine and champagne bottles represented in the collection.

Champagne

Of the 48 champagne bottles which are represented, only 5 are whole. These olive-green bottles are of two sizes: 10 by 3 inches (14 oz.) and 11 by 3-1/2 inches (21 oz.) The bases have a very deep push up. The glass, when compared to the wine bottles, is very thick (plate 10.9b).

The bottles are mold blown. Although the mold seams are not visible, the bottles were probably made in a turn or paste mold. The finish is an applied "laid-on ring" or "champagne" finish. Each had been stoppered with a cork, which was held in place with wire. The style and shape of champagne

bottles has changed very little in the last 150 years. The only difference between an early 19th-century bottle and its modern counterpart is the deeper basal push on the older bottle. These bottles, like their contents, were imported from France.

French Wine

There are 55 wine bottles represented; all but three of these once contained French wine.

These bottles, of which only two are whole, are olive-green and tall, measuring 11-1/2 by 2-3/4 inches and containing approximately 24 fluid ounces (plate 10.9a). They have sheared tops with crudely applied "laid-on ring" finishes. The bases have deep push ups with convex knobs. Since they do not have visible seams, it is probable that they were free blown.

Rhine Wine

The three Rhine wine or "Hock" bottles are of deep ruby-amber glass. Taller (approximately 14" in height) and more tapered than their French counterparts, they have "laid-on ring" finishes and shallow push ups. These bottles are all fragmentary. The glass of Rhine wine bottles is extremely fragile, and they are very rarely found whole in archaeological contexts.

SODA WATER

Eighteen soda-water bottles are included in the collection, only six of which are whole or nearly whole. The remainder are small, cobalt-blue or aqua glass fragments with blob tops.

"E. L. Billings, Sac City, Geyser Soda"

This aqua-colored bottle, made in a two-piece mold, has a blob top and a flat base (plate 10.9c). It measures 7 by 2-1/2 inches and contained 8 fluid ounces. This bottle was made between 1873 and 1884.

Ephraim L. Billings opened up the Union Soda Works in 1865 or 1866 at 49 Front Street, Sacramento. He began acting as an agent for Geyser Soda in 1873 at his new location on K Street (Hales 1979:135). By 1884 the firm had ceased business.

"Burgin & Sons, Philada Glassworks"

There are two aqua-colored bottles in the collection bearing this embossed mark. They were made in two-piece molds and have applied blob tops (plate 10.9d). One has a plain, concave base; the other has a concave base with an improved pontil scar. The improved, or "bare iron," pontil was a solid-iron pontil rod without a glass tip. The pontil was heated red-hot and applied directly to the bottom of the bottle. In heating, the iron oxidized, and some oxides adhered to the glass. The characteristic mark of this type of pontil is a red, reddish black

or black deposit covering most of the base. This feature is usually found on soda-water or condiment bottles.

The embossing is horizontal. The bottle measures 7-1/2 by 2-1/2 inches and contained 8 fluid ounces.

Sometime between 1849 and 1853, the firm of Burgin and Sons, dealers of green glassware, was created in Kensington, Pennsylvania. By 1856 they were manufacturing both white and green glassware. The firm remained active until after the turn of the century; they went out of business, or moved, between 1910 and 1927 (Hales 1979:13).

"Phil Caduc, Napa Soda Natural Mineral Water"

Two Napa Soda bottles, both aqua colored and made in two-piece molds, are in the collection. Both have applied blob tops and concave bases, measure 7 by 2-5/8 inches, and contained 8 ounces (plate 10.9e).

On 29 June 1861, the first supply of Napa soda water became available in Sacramento. By 1867, Philip Caduc had become an agent for the Napa Soda Company (Hales 1979:143-44). In 1881 Louis Leloy took over Caduc's distribution of Napa sodas (Markota 1971:65).

"D. S. & Co., San Francisco"

This complete bottle is cobalt blue, was made in a two-piece mold, and has a blob top and concave base (plate 10.9f). It measures 7-1/8 by 2-1/2 inches and contained 7 ounces. The "D. S. & Co." was embossed with a slug plate.

In 1861, John Delahanty, Michael Skelly, and Co., operated the Empire Soda Works at 29 Third Street, San Francisco. They continued as joint proprietors until 1864, when Skelly apparently quit the partnership (Markota and Markota 1972:24).

BEER AND ALE

This category, which contains 117 beer, ale, or porter bottles, is subdivided into aqua, amber, and black glass. Black glass makes up the largest proportion of the collection, typical of the pre-1875 period.

Aqua

All of the eight, aqua-colored beer bottles are fragmentary. They are from two-piece molds with concave bases. The one finish fragment in the collection is a crown top.

Amber

There are 15 bottles, only four of which are complete or nearly complete, in this category. Six of these were marked. The bottles are all of the 14-ounce size and averaged 9-1/2 to 10 inches in height and 2-5/8 to 3-1/4 inches in diameter (plate 10.10a). The bottles, made

from two-piece molds, have concave bases and collar-with-ring neck finishes.

The following embossed manufacturer's marks were present:

"A B Co" (American Bottle Co.). This company manufactured beer, ale, and soda bottles. In 1916 the company was purchased by the Owens Bottle Machine Company (Toulouse 1971:30-32). The bottle in this collection dates from between 1905 to 1916.

"C & I". This mark probably represents the firm of Cunningham and Ihmsen of Pittsburgh, Pennsylvania. The bottle was made between 1865 and 1879 (Toulouse 1971:32-33).

"L G Co" (Louisville, Kentucky, Glass Works). This company was in business in Louisville from 1873 to 1886.

"MG Co." (Modes Glass Co). This company was in operation in Cicero, Indiana, from 1895 to 1904. The firm was renamed "Indiana Bottle and Glass Company" in 1904 (Toulouse 1971:360).

Black Glass

There are approximately 78 bottles in the black-glass category. All of these dark olive-green, or "black" glass, bottles are from three-piece molds (plates 10.10b, 10.10c, 10.10d and 10.10f). They average 8-1/2 to 9-1/2 inches in height; the diameters vary from 2-1/2 to 3-1/2 inches. They contained 14 to 20 fluid ounces. All have applied finishes--usually a "brandy" or "collar-with-ring" type. Most have a concave base or a conical push-up, which sometimes bears the remnant of a pontil mark. Some are embossed with their manufacturer's names or initals.

These specimens may have contained ale or porter, since black-glass bottles were the most common container, together with stoneware bottles, for non-lager beers. It is possible that some of these bottles contained wine, rather than ale, since the black-glass bottle was a general utilitarian container.

There are eight unusual black-glass bottles in the collection; in these specimens, the neck tapers into the shoulder. They, too, were made in three-piece molds, but they have a lower horizontal seam than the other black-glass bottles. The neck finish is a laid-on ring, instead of the usual brandy type. The bottles measure 9-1/2 by 2-3/4 inches and contained 14 fluid ounces.

The following manufacturer's marks or names were embossed on the black-glass bottles:

"Bremen . . . Hamburg". This is a basal fragment. No information regarding this company was obtained.

"C & S". There are two bottles with this unidentified mark. It is likely that they were British.

"C W & J". There are two bottles marked with these initials; the J is reversed. One of the bottles is whole, measuring 9-5/8 by 4-5/8 inches and had a volume of 25 fluid ounces. It is from a three-piece mold and has a collar finish. These bottles are probably of British manufacture.

"Portobello . . . Wood". The Wood Bottle Works of Portobello, Scotland, was in operation from 1868 to 1923. It was then acquired by the United Glass Ltd., Company (Toulouse 1971:514).

DISCUSSION OF GLASSWARE BY FEATURE

FEATURE 6

Comparison of the ceramic collection (plate 7.1) and the glass collection (plate 10.1) from Feature 6 indicates that most vessels of these two materials served the same primary function: as shipping containers for beer and ale. Although local breweries operated in the neighborhood and, by the 1870s, American lager beer competed successfully with English beer (Baron 1962:228), W. Cronin's Golden Eagle Oyster Saloon collection shows a marked preference for British porter and ale. Though some of the glass beer bottles from this feature are certainly American, several of the black-glass bottles still bear labels from the B. Byass Company in London. Paper labels from this same firm also occur on ceramic ale bottles from this feature. One of the ale bottles is from Germany, indicating the range of selection offered in the oyster saloon.

Most of the glassware from this feature is believed to relate to the oyster saloon phase of occupation. It clearly indicates the drinking orientation of the establishment; although wine was served, beer was the favored beverage (see table 10.1).

FEATURE 15

This feature yielded the greatest variety of glass types (plate 10.2). Artifacts abandoned by previous owners and discarded during renovations prior to the opening of the oyster saloon can be distinguished from artifacts associated with the saloon itself through differences in date and functional types. According to dates, all of the embossed medicine bottles were probably discarded prior to the opening of the Golden Eagle Oyster Saloon in 1874 (see table 10.2), and many of the medicine and cologne bottles probably relate to the barber shop that occupied the premises prior to 1868. The numerous kerosene lamp chimneys here and in Feature 6 were also probably discarded during renovations. The liquor and oil bottles and tumblers relate primarily to the saloon.

FEATURE 8

Feature 8 contained the greatest amount of glass found on the site. The restaurant origin of the vast majority of the glass is indicated by

Plate 10.1 Glass from Feature 6

Plate 10.2 Glass from Feature 15

Plate 10.3 Glass from Feature 8

Plate 10.4 Glass from Feature 20

PLATE 10.5

a) Brandied fruit bottle
b) Brandied fruit bottle neck
c) "Cathedral" or "Gothic" pickle bottle
d) Olive oil bottle
e) Capers bottle
f) "Lea & Perrins Worcestershire Sauce" bottle and stopper

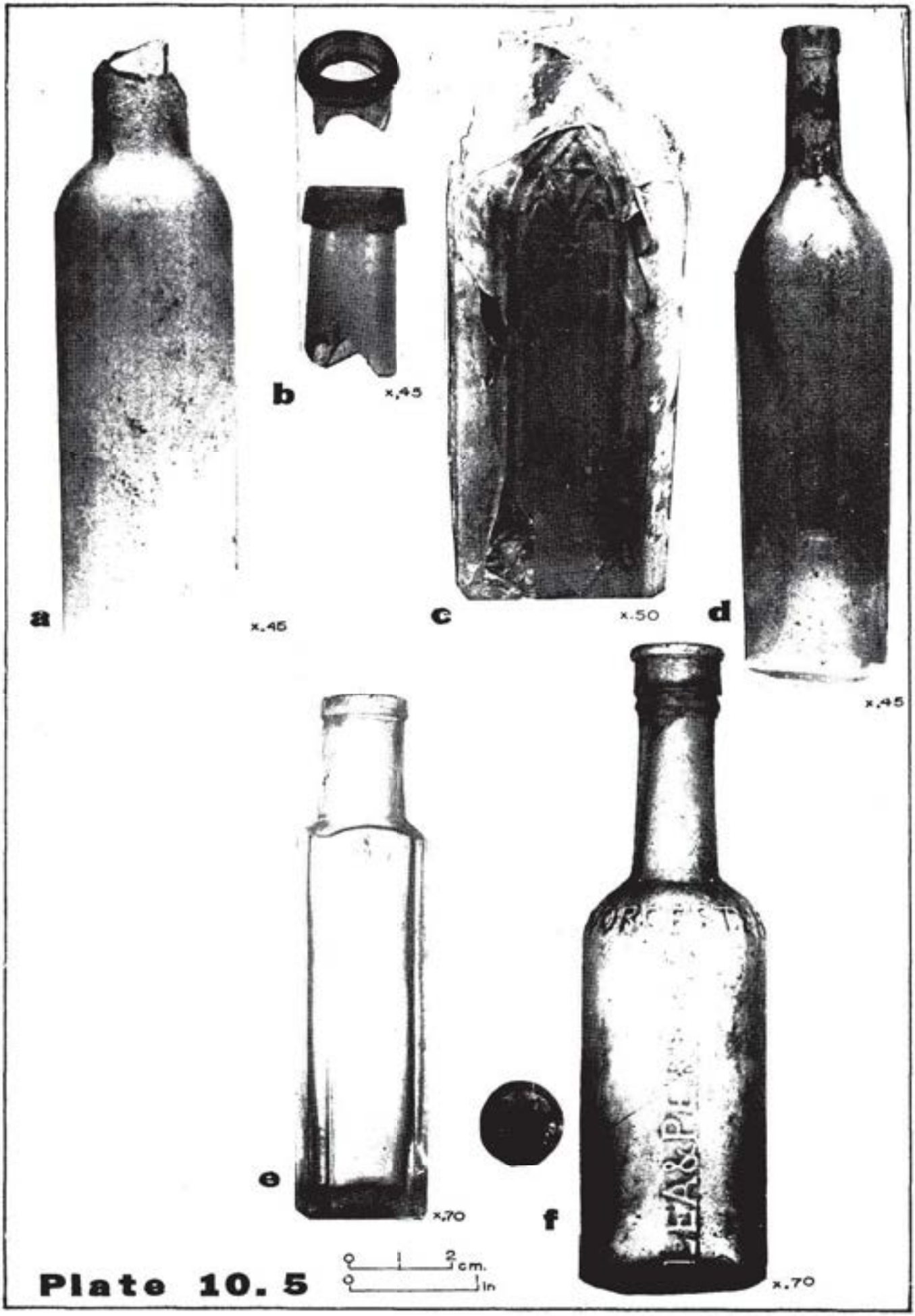

Plate 10.5

PLATE 10.6

a) "Louit Freres" French mustard bottle
b) "R.J.C." condiment bottle
c) "W. H. Bovee" bottle
d) "Chs. Bernard" bottle
e) Relish or sauce bottle
f) Peppersauce bottle

x.65

a

x.60

b

x.56

c

x.56

d

x.55

e

x.53

f

0 1 2 cm.

0 1 in.

Plate 10.6

PLATE 10.7

a) "Barry's Tricopherous for the Skin and Hair"
b) "B A Fahnestock's Vermifuge"
c) "Lyon's Kathairon for the Hair"
d) "Sweet's Infallible Linament"
e) "G. Gunther Williams"
f) "Mrs. Winslow's Soothing Syrup"
g) "Dysentery syrup"
h) Syringe
i) Homeopathic vials

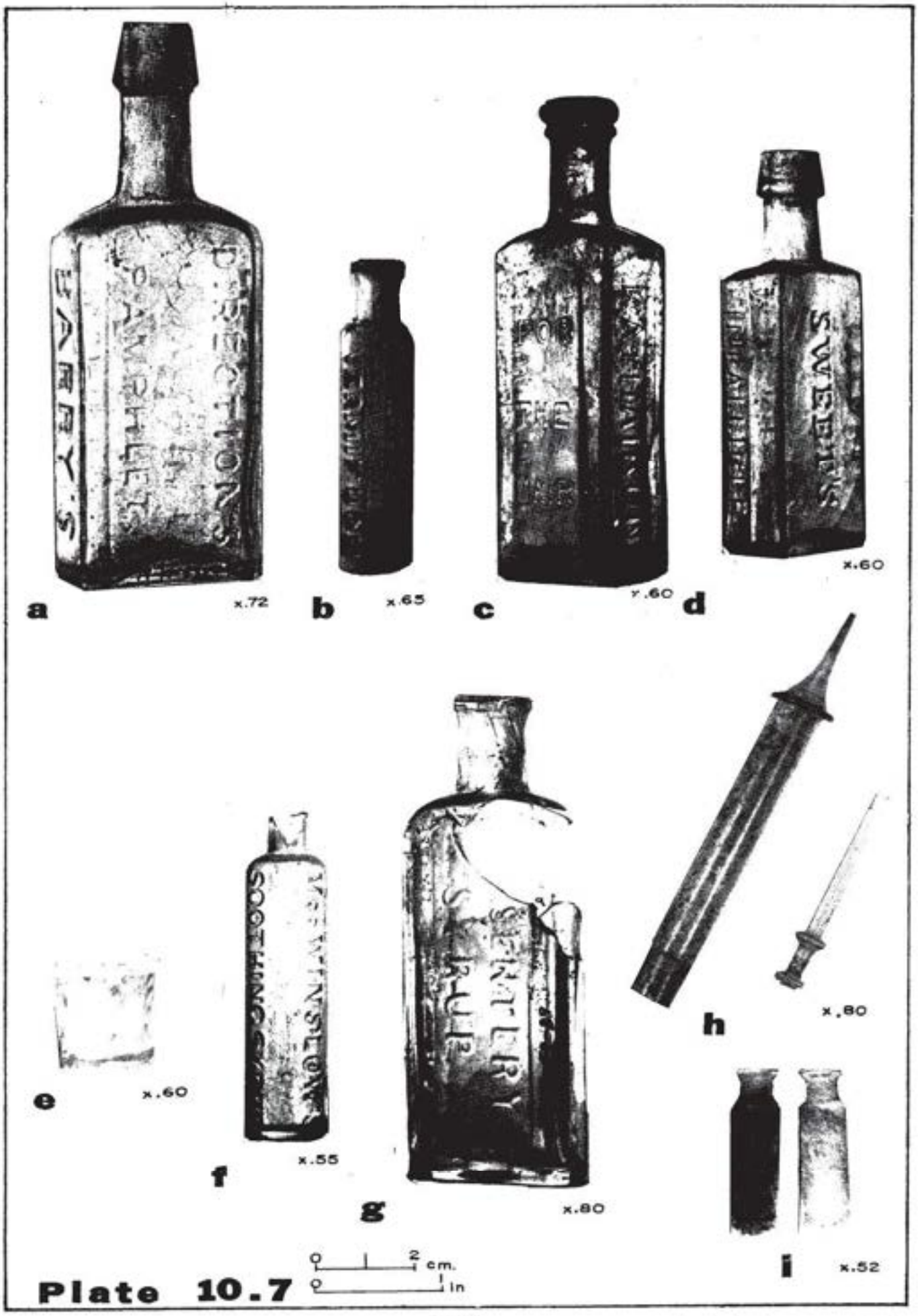

Plate 10.7

PLATE 10.8

a) Fluid extract bottle
b) Dr. J. Hostetter's Stomach Bitters"
c) "Lubin Parfumeur"
d) "Murray & Lanman Florida Water"
e) Cream or sachet jar
f) Perfume bottle
g) Mucilage bottle
h) "Tillotson & Co." insulator

Plate 10.8

PLATE 10.9

a) Wine bottle
b) Champagne bottle
c) "E.L. Billings, Sac City, Geyser Soda"
d) "Burgin & Sons, Philada Glassworks"
e) "Phil Caduc, Napa Soda"
f) "D.S. & Co." soda water

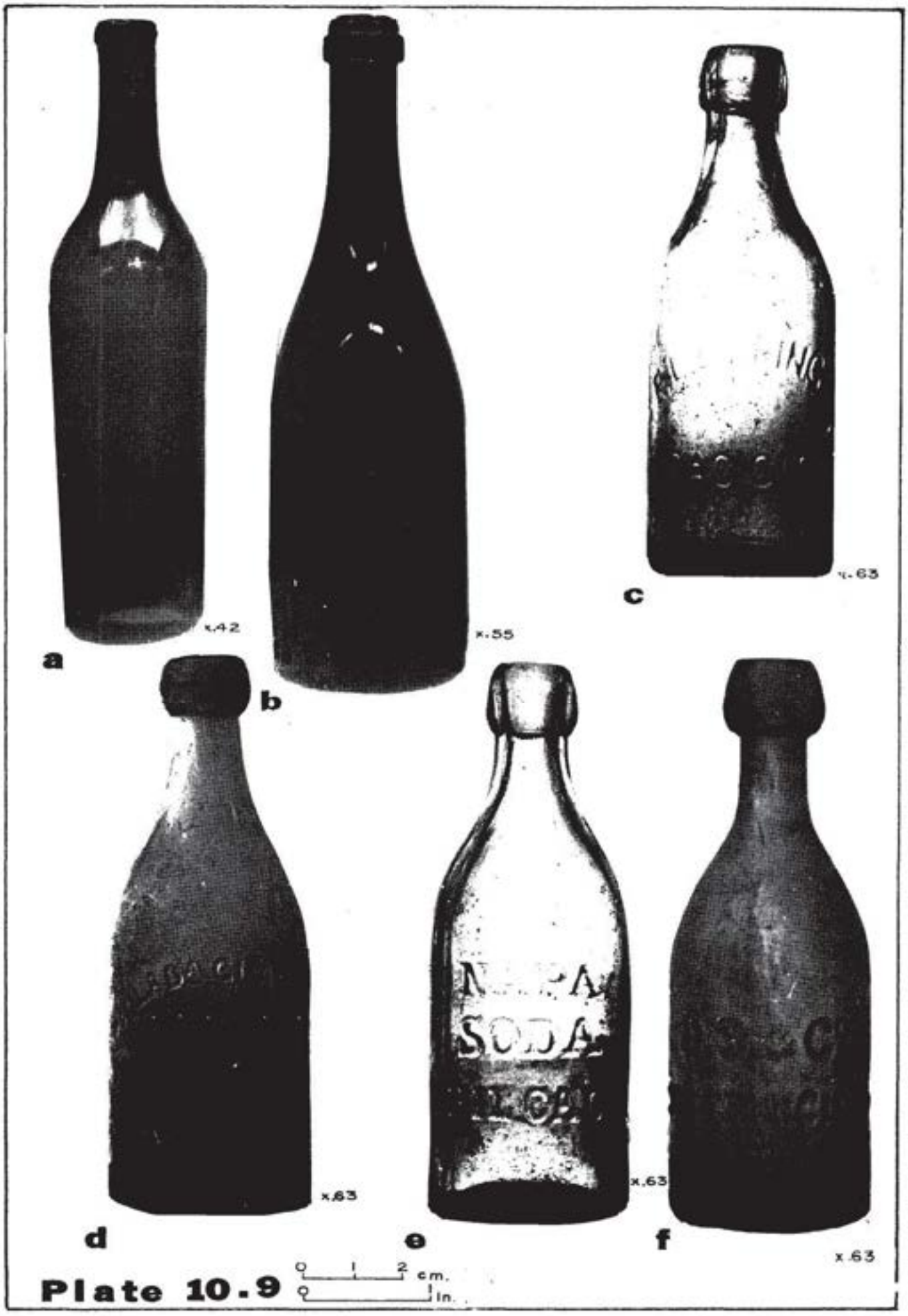

Plate 10.9

PLATE 10.10

a) Beer, ale,or porter bottle
b) Ale or porter bottle
c) Ale or porter bottle
d) Ale or porter bottle
e) Ale or porter bottle
f) Ale or porter bottle

Plate 10.10

the collection's repetitiveness (plate 10.3). The forms within this feature are very similar to those from Feature 20. The large number of "brandied-fruit" bottles, olive-oil bottles, and stemmed goblets indicate a restaurant as opposed to a drinking establishment.

FEATURE 20

Features 15 and 20 were of approximately the same dimensions and shared a common wall. They differed considerably in contents. Feature 15 contained a small amount of ceramic and a large amount of glass, while Feature 20 showed inverse ratios of these materials. Within Feature 20, the greater proportion of wine bottles, stemmed goblets, thinner-walled bar tumblers, and compotes indicates the different orientation of this establishement (plate 10.4). Feature 20 is associated with the Golden Eagle Hotel restaurant, while Feature 15 is associated with the Golden Eagle Oyster Saloon.

GENERAL DISCUSSION

As historical research into glass containers advances, it is predicted that glassware will become increasingly valuable to the interpretation of historic-period archaeological sites. Glass containers are more reliable dating devices than ceramics, because they proceed more rapidly through the contexts of manufacture, distribution, use, and discard. They also can aid in reconstructing the eating and drinking habits of a site's occupants. Care must be taken, however, in interpreting the absence of glass containers of a particular variety. The data in table 10.1, for example, cannot be interpreted as signalling a preference for wine over liquor without supportive documentary or archaeological evidence, such as the absence of bar tumblers. Liquor bottles are absent because Callahan bought his whiskey and brandy not in bottles, but in barrels (Edith Pitti personal communication 1980). Cronin, Callahan's former bartender, appears to have done likewise.

The use of alcohol or drugs by the occupants of a site can be seen in part through the glass remains. During the 19th century, many people relied upon popular patent medicines in lieu of a physician's care. The high content of alcohol and other addictive substances in these preparations caused some individuals to become dependent upon them. As the private consumption of alcohol and patent medicines was a personal affair, it is not known to what degree the "average" 19th-century adult partook of these concoctions or the social characteristics of the imbibers. Comparisons of glass containers from many archaeological features could lead to a better understanding of the range of behavior involved in this activity. Without a basis for comparison, the large number of medicine bottles in Feature 15 could indicate any one of three possibilities: heavy use of medications by one or more occupants (bootmakers, barbers, or their customers); the steady, "average" accumulation of discarded medicine bottles; or the barbers' continuation of a traditional role as "healers," dispensing medications to their customers.

The large number of porter/ale and champagne bottles indicate the high status of the clientele frequenting both the oyster saloon and

the restaurant. English porter and ale were consistently higher priced than locally brewed lagers; a bottle of porter or ale was priced from 75 cents to $1.00, while a glass of lager cost 5 cents. In fact, very few contemporary menus display both beverages (Askin 1978), perhaps indicating the social status of their respective preferred clientele. However, a possible bias in the Golden Eagle sample must be acknowledged, as American lager may have been sold in unmarked, reusable bottles or by the keg, neither of which would have been detected archaeologically.

There can be little doubt as to the social status connected with champagne. According to Schulz et al., "the champagne of France has traditional connotations of ceremony, refined manners, and comfortable economic position, as well as luxurious taste. In the nineteenth century, even more than in the twentieth, the bubbles in the glass symbolized social status, along with pleasure," (1980:101). Champagne is consistently the highest priced alcoholic beverage, as well as the single highest priced item, on contemporary menus (Askin 1978), selling from $2.50 to $5.00 a bottle.

None of the wine or champagne bottles possessed foil seals, shoulder seals, or glass stoppers to indicate their contents or origin. The banquet menus contained in appendix 3.1, however, suggest the quality of wines served from special occasions. The bill of fare for the Central Pacific Railroad Banquet lists the very best wines of the period, which are described in the following brief summary (Betty Rivers personal communication 1980). The meal began with sauterne, which should indicate a good or fine quality white wine, as the name was used technically at this time to refer to wines of the Sauternes district. "Amontilla la Sherry" is a misspelling of Amontillado sherry, which was a fine and popular sherry. Château Rersessac, also misspelled, can be identified as Château Rieussec, a very high-status wine. Château Rieussec was classified in 1855 as one of the ten finest Sauternes wines, a premier cru (Aussel 1865:304); in 1886 it still ranked as a premier cru (Cocks and Feret 1886:317). Château Lafitte, the next wine served at the banquet, was the absolute top wine of Bordeaux at this time (Aussel 1865: 93). It maintained the highest wholesale price of any wine in the Gironde from 1864 through 1875 (Penning-Rowsell 1970:306). These two great wines were followed by two wines of lesser quality, but still of good to superior class. The names of these wines are also misspelled; St. Christaly for St. Chrystoly, while Chateau de Frands probably indicates Château de France.

The meal ended with champagne: Piper Heidsick [sic] and Verzeney. Due to an energetic sales campaign, Piper Heidsieck was the best-selling champagne on the American market for a 30-year period in the second half of the 19th-century. For many people, Heidsieck became synonymous with champagne. By 1851 Piper Heidsieck was distributed through San Francisco (Schulz et al. 1980:101-103). Verzeney, which was served with the Heidsieck, was probably a champagne as well, perhaps of a higher quality than the former. Of this type, Vizetelly writes, "Verzenenay [sic] ranks as a premier cru, and for three years in succession--1872, 1873, and 1874--its wines fetched a higher price than either those of Ay or Bouzy" (1882:134).

Certainly this banquet was a high point in the history of the Golden Eagle Hotel. Over 200 persons attended, including Leland Stanford, Charles Crocker, Admiral Farragut, and Generals Redington and J.B. Frisbie (Sacramento Bee 29 September 1869). The wines served at the Sacramento Union Banquet six years later are not of the same great quality, but would still be classified as superior wines at the time.

The discussion of social status based on wine lists indicates the possibilities of analysis based on glass artifacts, when combined with menus, cookbooks, and documentary records indicating the cost and availability of consumer goods for the period. Much work remains to be done in this area.

ACKNOWLEDGMENTS

Betty Rivers researched the wines listed in the banquet menus. Mary Praetzellis wrote the discussion sections in this chapter.

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LEATHER

by

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INTRODUCTION

Archaeological excavations of the Golden Eagle site in Sacramento, California, resulted in a large collection of leather artifacts. Of the 209 fragments of footwear recovered, 129 pieces came from Feature 6, a trash dump, while 36 pieces were recovered from Feature 15, a brick-lined pit. Both features were associated with the shop of a bootmaker, Hillebrand, located on K Street between 1868 and 1873. The remaining 44 footwear specimens, as well as harness and strap leather and miscellaneous leather pieces, were recovered from undated areas of the site.

The leather artifacts recovered from features 6 and 15 comprise an important collection of examples of pre-mechanized shoe construction. The kinds of fasteners used to construct and repair the soles are indications of bench work. The non-mechanized nature of the artifact collection can also be seen in the repair techniques employed on soles and heels: All repairs suggest a specialized and individualized approach to each worn heel or sole, depending on the degree and area of wear.

INTERPRETIVE VALUE

The success with which leather artifacts may be used to interpret archaeological deposits is related to the amount of comparative data available and to limitations in the artifact class itself. Information in the available reports on archaeologically recovered footwear is not sufficient to address interpretive questions. The written history of the shoemaking industry chronicles major developments--such as the shift from bench-made to machine-made products--and offers little information concerning changes in specialized techniques used in bench-made modes of shoe construction. At present, therefore, leather artifacts are not sensitive dating markers.

Determination of demographic variables, such as sex, is also limited using leather artifacts. Many of the Golden Eagle specimens are of very sturdy construction with heavy reinforcement, clearly representing men's footwear. The cowboy boot heel, for example, which was especially designed to keep the boot in the stirrup, is easily identified because of its height and pitch, or angle. It is possible, therefore, to recognize a general boot type from a distinctive heel style which was particularly associated with men rather than women. During the 1860s, however, both men's and women's fine shoes had similar, tiny, stacked heels, making it impossible to distinguish between them.

Inferences regarding socioeconomic status based on footwear fragments would be necessarily skewed, as gentlemen's fine shoes and ladies' delicate slippers would be the least likely to survive in most archaeological deposits. The condition of footwear at the time of disposal and the amount of repair a specimen was subjected to during its use suggest socioeconomic variables that might be useful in interpretation, but extensive use and repair might reflect limitations of supply rather than economic status. Before the question of the interpretive value of fragments of boots and shoes can be adequately addressed, a data base of comparative materials must be created.

A HISTORY OF THE FOOTWEAR INDUSTRY

During the 1860s and 1870s, when the shoemaker, Hillebrand, was in business on the Golden Eagle block, the footwear industry was undergoing a gradual transition from a pre-industrial, bench-made mode of shoe construction to machine production. There was a lag between the patented introduction of machinery and its industrial application, however, and the industry did not become completely mechanized until well after the turn of the century. Among the reasons for this delay were the limitations of early sewing machines, the great investment required, and the strong opposition to mechanization by the working members of the industry.

In 1851, Isaac Singer of New York introduced a foot-powered sewing machine which introduced the era of machine shoemaking. Early sewing machines were not popular because they could only be used for simple seams, while more complex sewing operations still had to be done by hand. The transition from cobbler-shop production to factory manufacture required considerable capital, as new machines were costly. Usually, the manufacturer would lease a machine until it had proved its worth or until he could afford to buy it. In addition, he had to pay royalties for the use of a machine or for its patented processes.

Workers in shoe factories opposed the introduction of machinery, fearing it would reduce their numbers, shorten their period of employment each year, and make them more dependent upon the manufacturer. Foremost in the opposition were the hand lasters. They were strongly organized and secured a high wage, for even after the introduction of the sewing machine, it was still necessary to last shoes by hand. Lasters boasted that a machine would never replace them. By 1883, however, the consolidated lasting machine had been perfected. Its motions were like those of hands and fingers, drawing the parts of leather into place upon the last and fastening them by tacks. Old lasters said that this machine sang to them as it worked, "I've got your job! I've got your job!"

Machines were also resisted because it was felt that inferior products resulted from mechanized mass-production. In the handcraft industry, the shoemaker dealt with the individual foot, producing a shoe or boot which, for fit, comfort, flexibility, and strength of cut, could not be approached by machine-manufactured products (Baynes and Smith 1907:869). In the early factory system, however, all feet of the same length were treated alike, and little attention was given to width or to the differences between right and left feet. "Straights" was a term given to shoes with neither right nor left orientation; "crooked" referred to those products which distinguished the right from the left shoe. Proponents of mechanized shoe production, however, claimed that not only were shoes quickly and cheaply made by machinery, but they were more durable than those made by hand. "It has been attested that army shoes made by machinery lasted 8 months, while handmade shoes did not last more than a month" (Bishop 1868:509).

With machinery, shoemaking was transferred from small shops to large factories several stories high, with each floor devoted to a separate

aspect of the work. An example of this transition is given here to illustrate the profound changes that the shoe industry underwent during the 1860s.

In 1843, Edwin C. Burt of New York established a house to sell goods manufactured at the bench of his father--principally gentlemen's fine boots. The firm was known first as Burt, Sears, and Burt, but in 1846 it became Burt Brothers, a wholesale firm whose specialty was ladies' fine shoes.

For several years, Burt had been deterred from exploring the venture of machine manufacture by "the constantly expressed opinion that it was impossible to produce any but inferior goods in this manner" (Bishop 1868:690). In 1856, however, Burt became "dissatisfied with the old methods of making them /shoes/ by hand and conceived the idea that shoes could be best produced by a regular organized division of labor, with the aid of machinery" (Bishop 1868:690). His brother was apparently not confident about the transition and was not willing to risk his interest in the business; the co-partnership was dissolved, and Edwin Burt went into business on his own. The firm soon gained a reputation for producing superior shoes, particularly fine slippers and gaiters.

In 1859, Burt was machine-manufacturing ladies', misses', and children's fine, channel-nailed shoes, "not only cheaper but better than by the old process" (Bishop 1868:691). Because sewn work was considered more desirable for ladies' wear than construction-nailed products, Burt purchased four McKay sole-sewing machines in 1862. The new factory was organized into gangs, or teams, of shoemakers who were responsible for different aspects of production. Burt employed about 200 people who were paid by the piece for their labor, earning an average of $20.00 a week. The factory produced about 3,000 pairs of ladies' and children's fine shoes weekly, or 150,000 pairs annually. At the Paris Exposition in 1867 Burt received the highest award for his collection of ladies', misses', and children's shoes.

With the advent of sophisticated machinery, quality shoes could be produced by machine manufacture at prices comparable to those of bench-made products. In addition, the manufacture of boots and shoes employed more people than any other branch of American industry in 1860: the total number of people employed was approximately 123,000; almost one fourth, or 28,514, were women (Bishop 1868).

But the shoe industry did not become completely revolutionized by the machine until the turn of the century. Machine-manufactured shoes, once proven, coexisted with bench-made products for several decades. Hillebrand, the K Street bootmaker, is an example of the successful persistence of bench manufacture. He was a native of Germany who had practiced his trade in Sacramento for 12 years before establishing his shop near the Golden Eagle Hotel in 1868. During that year, Hillebrand employed six men. His shop was apparently only one of a number of small manufactories in Sacramento and San Francisco during the 1860s and 1870s that continued to operate despite the presence of the huge San Francisco Pacific Boot and Shoe Factory and the increasing importation of shoes from eastern factories (Pitti 1980).

ARTIFACT DESCRIPTIONS

METHODS

All leather artifacts in the Golden Eagle collection were treated with Ceresin, a solution which satisfactorily prevented further decay. Because the solution is extremely flammable, the conservation process was a cautious one, conducted out-of-doors. First the artifacts were brushed clean; then the Ceresin was applied, using rubber gloves and an eyedropper. The solution was applied conservatively; if too much is used, a greasy film forms on the surface of the artifact. (Ceresin is available from Conservation Materials, Inc., of Sparks, Nevada.)

Classification schemes for footwear found in the literature are based on the principal methods of mechanized shoe construction. In the absence of a scheme for bench-made footwear, specimens in the Golden Eagle collection were classified into groups according to the shoe parts represented: soles, sole fillers, heels, heel-seat pieces, upper fragments, and miscellaneous items. The distributions of different leather artifacts and shoe elements within the features are illustrated in tables 11.1 and 11.2. The artifacts are described in this chapter using the basic terminology of the footwear industry; definitions are given in appendix 11.1.

FASTENING FORMS

Fasteners on archaeologically recovered footwear fragments can be used to distinguish handmade from machine-made specimens. The footwear specimens recovered from the Golden Eagle site contain screws and nails which have broad heads and narrow, wedge tips--indicators of bench-made construction. The pointed tips facilitated driving the nails by hand into the soles and heels, a method which makes a strong, but stiff, shoe. In the mechanized production of a standard screwed sole, a wire with a continuous screw thread is driven through the outsole to the insole. When the screw reaches the inside of the shoe, the machine automatically cuts it off and feeds to the next fastening (Allen 1906:127). Machine-made screwed soles, therefore, have fasteners with blunt, flat ends.

A similar process is used for pegged soles. The machine cuts the pegs from a strip of wood, hard rubber, or rawhide, depending on the degree of flexibility desired, punches the holes in the sole, and drives the pegs in with a single operation (Bishop 1868:509). This process produces strong and firm, but often inflexible and heavy, bottoms to footwear. Approximately seven-eighths of the shoes made in the United States in 1860 were pegged (Bishop 1868:464). Only one pegged shoe was recovered from the Golden Eagle site, a fact that lends further support to the determination that a specialized, non-mechanized mode of shoe construction and repair occurred on the site.

The distinction between machine-made and bench-made artifacts was not discussed in the archaeological literature consulted. Photographs of leather artifacts found at Fort Bowie, Arizona (Herskovitz 1978:124,125), however, indicate that the shoes in that collection were predominantly

TABLE 11.1

Leather Artifacts by Feature

	Quantity by Feature			
Description	6	15	8	20
Sole	23	1	1	0
Sole Filler	8	2	0	0
Heel	20	16	2	3
Upper	6	3	0	0
Heel Seat	0	3	0	0
Miscellaneous Fragments	7	8	0	0
Total	64	33	3	3

TABLE 11.2 Shoe Elements by Feature

Description	Quantity in Features 6	15	20
Sole:			
Three-ply sole			
Screwed	1	0	0
Iron nails	2	0	0
Copper-alloy nails	3	1	0
Two-ply Sole			
Iron nails	1	0	0
Copper-alloy nails	1	0	0
Insole			
Iron nails	1	0	0
Copper-alloy nails	1	0	0
Sewn	1	0	0
Outsole			
Patch w/screws	1	0	0
Patch w/copper-alloy nails	2	0	0
Iron nails	4	0	0
Sewn	1	0	0
Copper-alloy nails	3	0	0
Sewn, w/ copper-alloy nails	1	0	0
Sole Fillers:			
Fragments	4	0	0
Shank	3	2	0
Felt fragment	0	1	0
W/copper-alloy nails	1	0	0
W/iron nails	1	0	0
Heel (Stacked):			
Iron nails	11	2	0
Iron nails w/tar	0	1	2
Broad iron nails	7	2	0
Copper-alloy nails	0	5	0
Copper-alloy nails w/patch	0	1	0
Iron and copper-alloy nails	2	4	1
Heel Seat:			
Copper-alloy nails	0	1	0
Rand	0	2	0
Upper:			
Counter	0	2	0
Sewn w/eyelets	6	0	0
Miscellaneous			
Lift w/copper-alloy nails	0	3	0
Lift w/iron nails	0	3	0
Fragments	6	3	0
Total	64	33	3

machine-manufactured, as evidenced by the shoe screws. These photographs illustrated the structural difference between mechanized hardware, with its flat, blunt ends, and the pointed-tip traditional nails associated with the footwear recovered from the Golden Eagle site.

The Golden Eagle collection contained six distinct fastening forms: broad nails; copper-alloy nails; iron nails; clinching nails; screws; and wooden pegs.

Broad Nails

Broad nails are thick, square, iron nails which appear to have broad heads when seen protruding from the heel face (pl. 11.1a). The function of the broad nail was similar to that of the hobnail: to provide traction and durability. A hobnail has a short shank and broad head, however, and is altogether different from the broad nail, with its long, thick shank and its small head, which is actually an unmodified extension of the shank.

The report from Johnny Ward's Ranch (Fontana and Greenleaf 1962) was valuable in providing comparative data on hobnails. The report described a Hungarian shoe nail, or hobnail, whose function was similar to the broad nail. The hobnail was used on mountain climbers' boots or other boots and shoes requiring additional traction on the outer soles. From this description and a picture of a hobnailed sole in the Fort Bowie report (Herskovitz 1978), it was determined that the difference between broad nails and hobnails concerned their form and placement and not their function: hobnails were placed on shoe soles, while broad nails were used on heels. There are no hobnailed soles in the Golden Eagle collection, but many heels were studded with broad nails.

Copper-Alloy Nails

The term "copper alloy" has been given to those nails in the collection which contain a mixture of copper and other metals and are sufficiently decomposed to make further identification impossible. Under magnification, the copper-alloy nails appeared crystalline in form; a cross section revealed a honey-colored and white outer surface and blue-green center. None of the copper-alloy nails is complete; they appear only as square fragments embedded in the leather heel or sole.

A similar nail type appeared in the Fort Bowie collection of shoe nails (Herskovitz 1978). Those nails that are referred to as "copper alloy" in this chapter were distinguished as lead/zinc nails in the Fort Bowie report. Lead and zinc may, in fact, be the composition of the nails in the Golden Eagle collection. Because a metal analysis was not possible for the Golden Eagle specimens and because the nails are seemingly of a copper-alloy derivative, the general term "copper alloy" has been adopted.

Iron Nails

Iron nails are also found in the collection. One variety is square, with threaded or serrated shanks and wedge tips used to join the outsole

with the insole (pl. 11.1c). On most specimens the threads are etched into the edges of the nail, just beneath the head, and continue from one-quarter to three-quarters of the length of the shank. At the end of the shank is a pointed, wedge tip to facilitate driving the nail into the sole. The large, square iron nails were used to join heel lifts (pl. 11.1b). Minute variations in length and width separated the nails into small and large types.

Clinching Nails

The clinching nail has a distinct bend in the middle of the shank (pl. 11.1e). The nail was driven through the sole plies, struck the metal last, and bent in half, resulting in a durable fastening. This nail has a raised head with a smooth, square shank and pointed, wedge tip.

Screws

Tiny, threaded screws with raised heads were also used to join sole plies, or lifts (pl. 11.1d). These screws differ from the nails in that they are round, not square, and have a continuous threaded shank and a round, tapered tip instead of a wedge tip.

Wooden Pegs

One heel with three square, wooden pegs attached to a McKay sewn sole was found in Area VI. This was the only artifact in which wooden pegs had been used for construction. These pegs, approximately 1/4-inch high, were placed at the breast of the heel to secure three heel lifts to the outsole.

LEATHER ARTIFACTS

The majority of the artifacts in the leather collection are heels and sole fragments from features 6 and 15. Feature 6 yielded equal quantities of sole and heel specimens, while Feature 15 had few soles and many heels and miscellaneous fragments.

Heels

It is particularly difficult to determine whether a heel was originally bench-made or machine-made, as literature consulted did not distinguish between the two modes of construction. It appears that mechanized production borrowed the traditional steps of shoe assemblage from the handcraft industry. For example, machine-made heels are attached to the shoe on a heeling machine. Nails are automatically driven through the heel, outsole, upper leather, and insole, where they are clinched on the inside. The nail heads are left extending far enough outside the heel to receive the top lift. This top lift is made from fine leather which has been solidified. With a coating of glue, the lift is placed in position and then driven down over the protruding nails--a process known as "blind nailing" (Allen 1906:221). Afterwards, short nails or slugs of brass or other metal are driven into the top lift by a slugging machine to increase the durability of the heel. All of the

above steps were apparently followed in constructing bench-made heels as well, and it is extremely difficult to distinguish between them and a machine-made product.

Examination of two specimens from Feature 6 revealed a two-phase construction process in the attachment of the heel to the sole and the face lift to the heel. One stacked heel is very well intact, except for the face lift. The face lift, which is not as dense as the other lifts, is worn along the back heel edge. Along this edge, eight square, iron nails have been inserted. Smaller nails have been used to tack the face lift onto the heel. The top lift shows the tips of the large, square, iron nails which join all the lifts in the heel, except the face lift (pl. 11.1f, right). The heel had been constructed in two separate steps: First the heel lifts were joined by long, square, iron nails; then the face lift was applied with smaller, square, iron nails. After the face lift had become worn, the heel had been repaired with broad nails to prevent further wear. Another stacked heel in the collection represents a similar, two-part construction, in which the first seven lifts have been joined by large, square, iron nails and the face lift has been attached with many broad, iron nails and a metal tap applied to prevent wear and increase traction (pl. 11.1f, left).

Many of the heel samples from features 6 and 8 had become considerably worn and, later, repaired. The wear pattern is evident on the face lift; on very worn specimens, wear extends to adjoining lifts. Among the indications of repair in this collection are double rows of square, iron nails or broad, iron nails which extend along all or part of the outer margin of the heel. In major repairs, in which the entire outer margin has been nailed, the face lift has often been reconstructed with metal instead of leather (pl. 11.1g). A minor repair is recognized by sporadic clusters of nails, rather like a patch.

Two specimens from Feature 6 illustrate different repair techniques. The first example represents a major heel repair, in which 38 broad, iron nails have been inserted along the outer margin of the heel. The pattern of repair differs on each side of the heel: one side contained a single row of nails; the other, a double row (pl. 11.1h). This technique, in which square, iron nails have been inserted to balance the heel face wherever the lifts had become worn, was the most common type of repair employed in the Golden Eagle collection. The second example stands out as a unique form of minor patch repair in this artifact assemblage. In this specimen, a completely new face lift had been added, while the adjoining lift had been repaired with a leather patch to rebalance the heel. Square, copper-alloy nails, instead of square, iron nails, attached the leather patch. In no other specimen was there any indication that leather had been used to repair heels--only square, iron nails, broad, iron nails, or metal taps. Perhaps this heel represents a better quality shoe than the heavy grade workboot indicated by iron-nail repair.

The number of nails used to join heel lifts--in both construction and repair--is surprisingly high in Feature 15; from 33 to 52 nails per heel. One stacked boot heel with approximately 10 lifts was noticeably

wider at the top than at the face. It appears that the first seven lifts had been nailed together with square, iron nails, while the last three lifts had been added with additional nails. A two-phase construction of the heel, and not a repair technique, is suggested, because the first seven lifts show no sign of wear. It seems likely that there were no nails long enough to join all the lifts of high-stacked heels, so the heel was constructed in two parts with both long and short, thick, iron nails. Along the outer margin of the heel, a metal plate, similar to a horseshoe, had been attached (pl. 11.1j). Another stacked boot heel with nine lifts contains 33 square, iron nails joining the lifts. An additional eight broad, iron nails line one half of the outer margin of the heel, clearly indicating repair work designed to increase durability and traction.

Two heel specimens contain both copper-alloy nails and iron nails. In one, square, copper-alloy nails join all the lifts; later a single row of 19 square, iron nails was added to repair half the heel. Another eight iron nails cross the heel in a diagonal row from the back face edge to the breast (pl. 11.1i). The other specimen had been joined by 40 copper-alloy nails before approximately 12 iron nails were inserted along the breast of the heel and the back face edge.

Two lifts from a partial heel contain 1/4-inch metal plates which extend along the outer margin of the heel. Square, iron nails pierce through the metal plates and the leather lifts. It would be impossible to determine the frequency of metal plates in the heels of this collection unless all the specimens were disassembled and thereby destroyed. One consultant remembered wearing shoes about 60 years ago that had heels with metal plates. He referred to this specimen as a "Donkey Heel," because its shape resembled the letter "D" (pl. 11.1k).

Tar was a noticeable feature in many of the heels. Although there is no mention in the literature consulted of the use of tar in heel construction, it is probable that tar was used in bench-made shoes to secure the heel lifts before the nails were driven through. In the Sears and Roebuck Catalog for 1907, cement glue was said to be used for this purpose, and it is possible that tar preceded the use of glue in heel construction. One account (Baynes and Smith 1907) stated that a shoemaker filled in between the insole and outsole with a piece of "tarred" felt when a three-ply sole was desired. As early as 1608 at the Jamestown Colony, historical accounts document that tar and pitch were made for domestic colonial use and also for export, and tar continued to be an important export item in the eastern states (Bishop 1868). The fact that North Carolina is nicknamed the "Tar Heel" state (Bishop 1868) because of its manufacture of tar, pitch, and turpentine from colonial times to the present may be indicative of the early assoication of tar production with the use of tar in heel construction.

Soles

The majority of sole specimens are from Feature 6. They have been primarily constructed with nails. In general, the fragments are three-

ply soles, with double, alternating rows of copper-alloy nails along the outer margin of the sole. One representative specimen consists of an outsole, two strips of welting along the outsole edge, a shank, and an insole. Another sole fragment has a distinctive beveled edge (pl. 11.2a). A shoe sole which stands out as an example of wear and repair has two patches, one on top of the other (pl. 11.2b). These patches cover the original wear on the outsole and are attached by copper-alloy nails in single and double rows. These patches apparently represent half-soles applied to the outsole at two different times. All three outsoles--the original and the two subsequent patches--had completely worn through to the mid-sole or insole before being discarded.

Some outsole fragments from Feature 6 had been joined with iron nails and screws. One sole had been attached with clinching nails, used in lasting the outsole to the insole. In the lasting process, the nail is driven through the outsole and into the insole, before it is clinched against the steel or wooden last. Two other outsole fragments had been joined with a shank and an insole by threaded screws with small, wedge tips. Because these screws have tips and heads, the shoes were most likely bench-made rather than machine-made.

One sole specimen is a particularly interesting example of the heavier grade of shoes characteristic of the Golden Eagle assemblage (pl. 11.2c). This two-ply sole had apparently once been the bottom of a workboot. Two alternating rows of closely spaced, square, copper-alloy nails pierce the outer margin of the sole fragment. At the ball of the boot is a curious nail pattern applied to the sole for durability, strength, and traction. One nail is in the center of four nails, which are surrounded by a ring of 13 nails, which is enclosed by another ring of 26 nails. The wear on the outsole is between the ball and the toe of the shoe.

Two partial shoe toes from Feature 6 had been constructed of metal. One is a distinct steel box toe with a three-ply sole joined with square, copper-alloy nails. A double row of square, iron nails edge the toe along the outer margin of the outsole. It appears that the broad, iron nails pierce a metal plate, which frames the square toe. The other shoe toe is of similar construction, although it does not have a metal plate or iron nails, indicating that it is not a steel box toe. Both toe specimens represent durable, heavy work boots.

The distinctive features of all the fragmentary sole specimens in the collection are their double-or triple-ply count and strong, metal joinery. These characteristics suggest heavy and inflexible shoes or boots which were very well worn.

LEATHER ARTIFACTS FROM AREA VI

One sewn shoe from Area VI is a unique artifact in the Golden Eagle assemblage. The shoe appears to have no relation to the bootmaker, Hillebrand, for two reasons: it was found in Area VI, where there once was a blacksmith's shop; and the construction of the shoe is like none found in Feature 6 or Feature 15. The shoe is probably McKay sewn,

PLATE 11.1

a) Broad nail used in heel construction
b) Square iron nail used in heel construction
c) Threaded iron nail with wedge tip
d) Threaded screws
e) Clinching nail
f) Military style heel constructed in two parts with square iron nails; later repaired with: (left) a metal tap on heel face; (right) broad nails along the outer margin of the heel face
g) Heel face repaired with a single row of broad nails
h) Heel face repaired with broad nails in single and double rows
i) Heel constructed with copper-alloy nails (left); later repaired with broad nails (right and center)
j) Heel face repaired with broad nails and a metal tap
k) "Donkey" heel repaired with broad nails in single (left) and double (right) rows

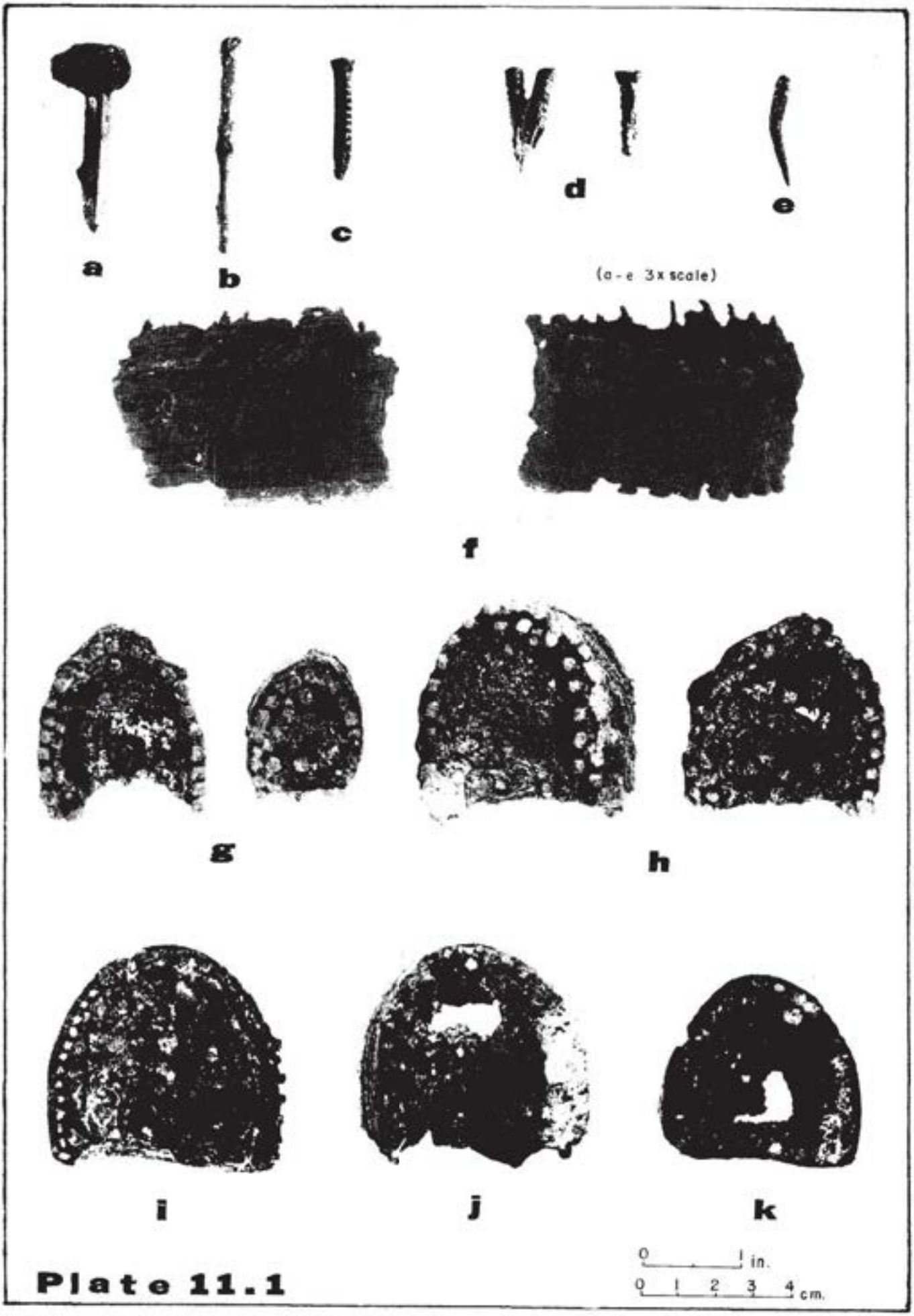

Plate 11.1

PLATE 11.2

a) Outsole worn at the ball of the foot; constructed with a single row of iron nails
b) Outsole with two worn patches or half soles
c) Outsole constructed with a double alternating row of threaded screws; circular patch of nails in center of sole to provide durability
d) Cuban (?) heel
e) Flange (?) heel
f) Heel
g) Military style heel

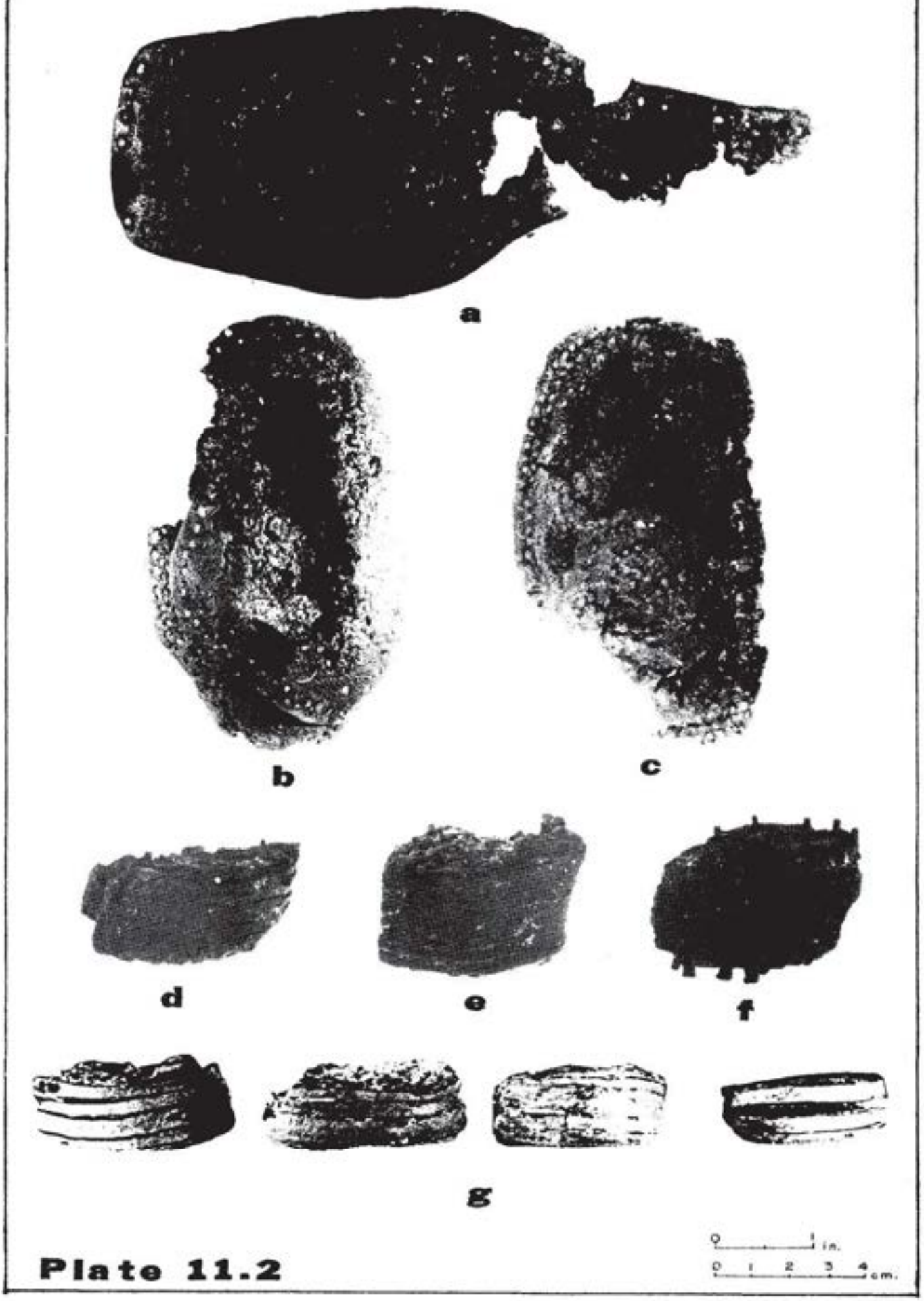

Plate 11.2

that is, machine manufactured. What remains of the shoe is a three-ply sole, a stacked heel, and the counter. The heel has four lifts, two rands, and a heel pad. One rand is shaped like a horseshoe and the other has a very thin center. Approximately 30 square, copper-alloy nails, which had attached the two rands with the outsole, heel counter, and four heel lifts, stud the outer margin of the heel. Next to this row were 20 marks where tacks had once been inserted. In the top lift, three, square, wooden pegs secure the heel to the outsole. This shoe represents a combination of nailed, pegged, and sewn shoe construction.

Also found in Area VI were leather fragments associated with the blacksmith's shop. One interesting artifact seems to have been part of a bridle, although it is too fragmentary to allow identification. Five copper-alloy rivets join two wide strips of leather approximately 4 inches in width. The face of the riveted fragment has a smooth, finished surface, while the back is rough. Two leather straps, approximately 2-1/2 inches wide, may also have been part of a bridle or harness. One of the strap ends has a curious repeating pattern of deep grooves, probably a series of holes at one time. Apparently, the strap had been severed to release whatever went through the holes.

DISCUSSION

The nature of the leather materials associated with Hillebrand's boot shop indicates that shoes had been discarded after they had become too worn for repair or further repair. Hillebrand's customers apparently discarded their extensively worn shoes at his shop when they purchased new footwear. The majority of the Golden Eagle collection of leather artifacts represents this pattern of wear, repair, further wear, and replacement.

The cost and availability of leather boots and shoes are pertinent to an interpretation of the extensive repair found on most of the leather artifacts. To adequately address this question would require an understanding of the economy during the 1860s and 1870s and knowledge of the trade networks that supplied boots and shoes to California to meet the increasing demand. In an 1880 manufacturing census (Government Printing Office 1883:11, 20, 21, 448, xx, xxi), the wholesale cost of factory-produced boots and shoes made in San Francisco was given as $4.07 for boots and $1.64 for shoes. In New York, Massachusetts, and Pennsylvania, three leading eastern shoe-producing states, the wholesale price for boots was from one-third to two-thirds less than their cost in California. Although these data represent prices for factory-produced boots and shoes rather than the handmade products manufactured by a bootmaker such as Hillebrand, they do reveal a relatively high price for boots in California. This high cost, coupled with a supply that never met the demand, could be the reason for the extensive repair to the boots and shoes from the Golden Eagle site.

Further research using fashion catalogues, newspaper advertisements, and other descriptive data is needed to determine the relative cost and availability of handmade products as opposed to factory-produced footwear. Other research questions concerned with the interpretive value of fragments from boots and shoes must await the availability of comparative archaeological collections of 19th-century footwear.

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APPENDIX 11.1

Terms Used in Shoemaking

Presented here are some common construction and shoe-part terms with their definitions. They have been divided into four categories: general, sole, upper, and heel.

GENERAL

Footwear may be classified according to the portion of the foot it covers and the means by which it is held on. The term shoe refers to all outdoor footwear, exclusive of sandals and boots. The word boot is usually restricted to footwear with a high-cut upper; although boots are sometimes laced and have tongues of firm leather (Allen 1906:302), the term was once reserved for high footwear with no fastening. A man's laced brogan was a heavily pegged or nailed work shoe of medium height. Women's high-cut shoes are often referred to as boots, but for clarity they should be considered botines. During the 1860s, for a short period of emancipation, women's ankle botines were allowed to show under shortened crinolines (Britannica Encyclopedia 1974:755).

A bench-made shoe is one made by hand at the cobbler's bench. The last is a wooden or metal form upon which the bench-made shoe is constructed, and which gives the shoe its distinctive shape. The ball of the foot is located behind the toes and refers to the corresponding part of the shoe or of the last. The term arch is also used to refer to the corresponding portion of the shoe bottom.

SOLE

The insole is an inner sole of a shoe, attached to both the upper and the outsole. The welt is a narrow strip of leather sewn to the insole, upper, and outsole. Sole sections vary in ply count. A three-ply sole has a middle sole, referred to as the "filler section," "mid-sole," "half-sole," or "bottom filling," sandwiched between an outer sole and an inner sole. Sometimes the shank, a strip of metal or solidified leather, is placed between the inner and outer sole to stiffen the sole of the shoe. (The shank may refer to the general part of the shoe between the heel and the ball.) The single sole has only one ply, which serves as an outsole and an insole. Soles are attached to uppers using nails, pegs, screws, or screw nails. A tap is a metal piece attached to the outsole or heel to prevent wear.

UPPER

The upper is a collective term for the parts of a shoe above the sole and heel. A counter is the stiffening in the back or heel area of a shoe, made of leather, leatherboard, felt, or canvas, stiffened with shellac or paste. The counter supports the heel and prevents it from running over. Crimping refers to shaping any part of the upper to conform to the last. A reinforced toe is known as a box toe or steel toe, depending on the material used to form it. The box may be constructed of nails or a series of metal plates placed along the outer margin of the toe and applied between the leather sole plies.

HEEL

The heel is comprised of leather or other material attached to the rear of the sole, or heel seat, to give the shoe a desired height. Heels are made of layers called lifts. The lift is a single thickness of leather, wood, leatherboard, or other leather substitute. The top lift is a complete layer beneath the heel seat, while the face lift is the final lift attached to the heel, which wears against the ground. The breast of a heel is its front face towards the toes.

The heel's pitch is its direction or angle under the foot. The flange heel which flares out at the bottom has perhaps the most noticeable pitch (pl. 11.2e). Other distinctive heel styles are the French heel (pl. 11.2f) (extremely high with a curved outline), the Cuban heel (pl. 11.2d) (high with a straight outline), and the military (pl. 11.2g) (similar to the Cuban, but lower) (Allen 1906:308).

The lifts of the heel are attached by nails and tar to the heel seat, which includes the rand. The rand, shaped like a horseshoe of sole leather, fits around the top of the heel to balance it. Nails that pierce the insole of the shoe are generally covered with a small piece of felt, called a heel pad.

After a shoe has been constructed, the soles and heels are burnished and finished with a mixture of lamp-black and grease known as "blackball" (Allen 1906:301). Then the shoe is ready for distribution and/or sale. The pasteboard box or carton used to pack shoes was a late development in the trade, correlated to the standardization of shoe sizes. In the 19th century, shoes were fastened together by strings at the heel and wrapped in ordinary paper.

METAL

by

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INTRODUCTION

This chapter presents the findings of a functional and descriptive analysis of the metal artifacts recovered during the summer of 1979 from the Golden Eagle site archaeological excavations in Sacramento, California. Over 5,000 whole and fragmentary metal objects were collected, representing a broad range of functional classes, as well as functionally specific, one-of-a-kind items. After the initial cataloguing of the metal by area, feature, and layer, the next task was to clean the materials as efficiently as possible. Most of the metal artifacts came into the lab as corroded, amorphous lumps, and many remained as such. The state of preservation was generally very poor and artifacts were cleaned only when it was felt that the effort would be repaid by more complete identification. The amorphous lumps which were transformed into recognizable artifacts bear witness to the great patience of the metal conservator, John Holson. A description of the conservation techniques used on the Golden Eagle metal collection is provided in appendix 12.1.

Once the cleaning process was completed, each recognizable artifact was measured (U.S. system). A description and/or drawing of each artifact was recorded on a corresponding catalogue card. Due to the size of the collection and extreme diversity represented by the metal artifacts, artifacts were initially sorted according to broad, functional categories. The following functional groups were developed: Hardware and Construction (fasteners, architectural hardware, and miscellaneous items); Household (kitchen and table ware, furnishings, and containers); Personal (clothing hardware, miscellaneous personal items, and arms and ammunition); Tools; Horse and Mule Trappings; and Miscellaneous and Unidentified Artifacts.

ARTIFACT DESCRIPTIONS

HARDWARE AND CONSTRUCTION

Items in the hardware and construction category included fasteners, architectural hardware, and miscellaneous items such as barrel hoops and wire.

Fasteners

For hundreds of years, iron nails have been the most efficient means commonly available for fastening pieces of wood together. Because Euro-American society in California relied heavily on wood for its built environment, any archaeological excavation of post-1850 habitation sites will invariably uncover a quantity of iron nails. Whether a miner's shack with only a few dozen nails or an urban site like the Golden Eagle Hotel where thousands of nails were used and recovered, the ubiquitous iron nail will usually form a large percentage of the metal artifacts in a site's assemblage.

Over 4,000 nails were recovered for analysis. Most of the nails were so highly oxidized that much of their length and thickness had been lost to corrosion. In addition, most if not all of the nails from the Golden Eagle sample had been used for construction purposes and were fragmentary or bent, or their heads were misshapen from hammer blows. Due to use, corrosion, and the time constraints involving the cleaning process, only 246 square cut nails, 15 wrought nails, and 14 specimens representing a variety of other types of fasteners were identified and sized during analysis.

Wrought Nails. Thirteen of the 15 wrought nails came from Area VII. All are made from 3/16-inch square stock, and all appear to have been clinched. The broken specimens are all missing tips at the point where the bend occurs when a nail is clinched (pl. 12.1a). The practice of "clinching"--bending over the protruding tip--is now regarded as poor workmanship, but the efficiency of this technique is obvious. Early batten doors with wrought nails on the outside and bent tips on the inside are cemented together so well that it is nearly impossible to pry them apart (Sloane 1964).

Although less expensive, machine-cut, square nails were readily available in Sacramento throughout the American period, wrought nails continued to be used for certain architectural features, such as the battens of doors, door latches, and lathed room partitions. For doors, wrought nails were better fasteners than the machine-made nail, because they withstood jarring and could be more easily clinched than cut nails. The wrought nails from the Golden Eagle assemblage probably represent the remains of door or sash manufacturing.

Square Cut Nails. Square cut nails from the Golden Eagle were classified into two functional types according to their head and shank characteristics: common nails (including square cut spikes) and finishing nails. Over 95 percent of the square cut nails analyzed were "common cut" (pl. 12.1b, c). Only 10 specimens were identified as finishing nails. When the square-cut nails were measured and their total length rounded off to the nearest 1/8 inch, they fit nicely into "a nineteenth-twentieth century penny sizing system which defined specific nail sizes in relation to standard lengths in inches. Thus, a 2d nail equaled one inch, 6d equaled 2 inches, 10d equaled three inches, 20d equaled four inches and 40d equaled five inches" (Ross 1976:889).

When the frequency of occurrence for each nail size is plotted on a graph (fig. 12.1), it is apparent that the carpenters and contractors who constructed the Golden Eagle Hotel and surrounding buildings preferred certain sizes over others. Nail size correlates directly to the type of construction for which the nail was used. It was customary for 4d nails to be used for shingling and slating, 6d for clapboarding, 6d and 8d for finishing, 8d and 9d for flooring, 9d and 10d for boarding, and 40d and larger for heavy framing, rafters, and studding for partitions (Fontana and Greenleaf 1962). Based on these distinctions, the high proportion of 10d common nails suggests two possibilities: boarding was the primary construction activity which took place on the site; the 10d nail was used for purposes other than boarding. The 10d nail was medium sized (3 inches in length) and could be easily substituted for many fastening functions which traditionally required a smaller or larger nail.

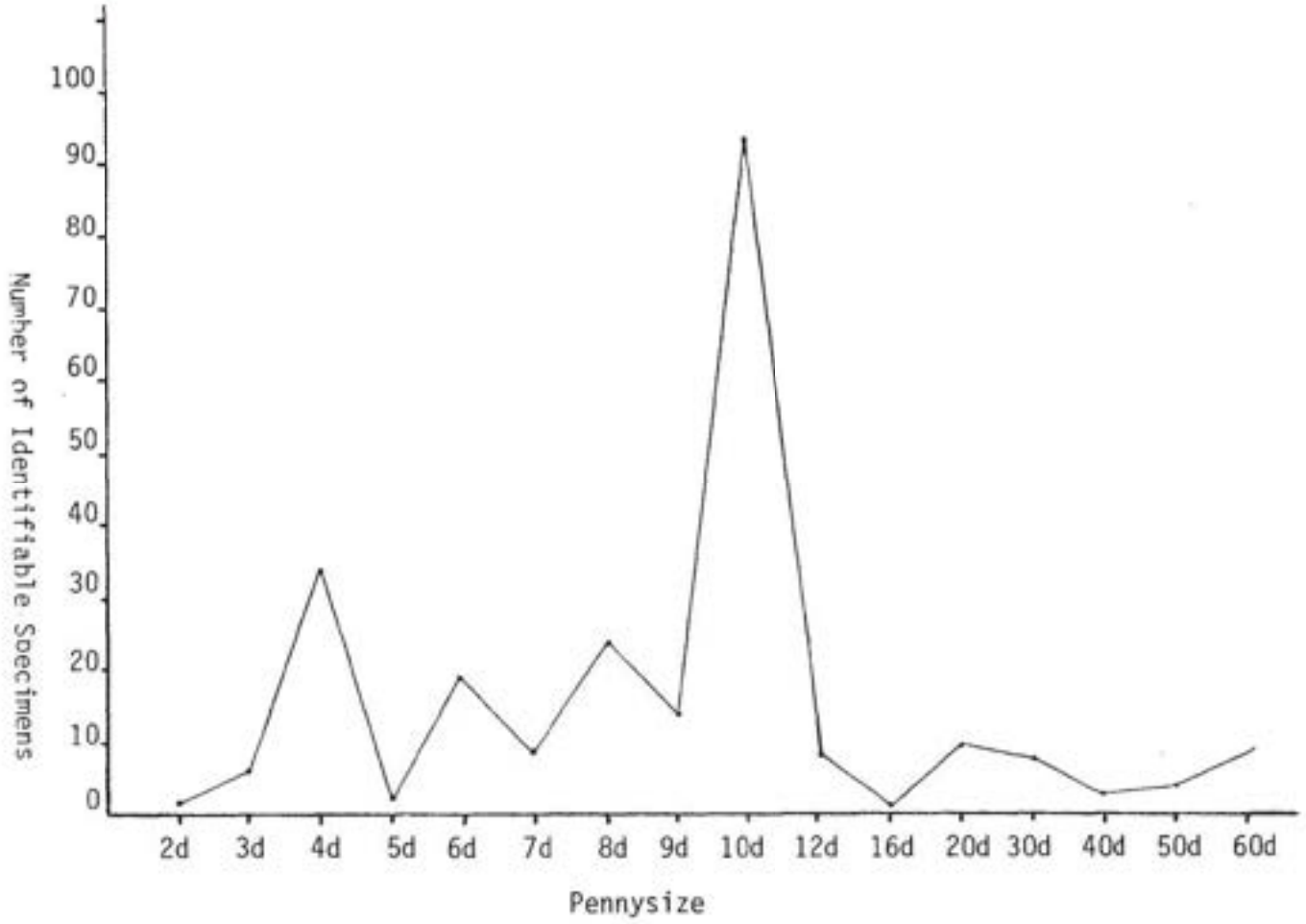

FIGURE 12.1: Frequencies of Square Nail Types by Size

Square cut nails were not made locally; they were manufactured in the eastern United States and shipped to Sacramento in kegs containing thousands of nails. Since nails were "imported" and each size was bought by the thousands, contractors may have used certain standard sizes for many purposes in order to save on expenses. Whan a job came up that customarily required a nail size that was not on hand, the contractor would most likely use the size he had available. Due to the abundance of 10d nails used for construction activities in the hotel and surrounding areas, it appears that this nail was a very versatile and popular size for building contractors active in Sacramento in the mid-1800s.

Machine-cut square nails were the predominant nail type sold from about 1800 until 1890, when wire nails became the most common fastener. Until about 1825, nails were headed by hand hammering; after 1825, water-driven machines were used to cut and head the nails in one process. Between 1825 and 1830, the stamped heads were thin and lopsided. It was not until the 1840s that the heads of cut square nails became uniform (Fontana and Greenleaf 1962). About 1871, manufacturers began to anneal cut nails--a process in which nails are heated and then slowly cooled. This process softened and toughened the metal at the same time and made square cut nails suitable for clinching. Using this dating framework, the Golden Eagle assemblage of nails can be placed after the 1840s and before 1871.

Cast Nails. One cast copper-alloy nail with a round head was recovered from Area VII. Its function is unknown.

Screws. Five iron wood-screws were recovered from Feature 8. All were found rusted into place in L-shaped iron brackets.

Tacks. Five tacks were found in areas VII and VIII. Four were badly corroded, iron, square cut tacks. One specimen found in Feature 15 had a 3/8-inch head diameter and may have been an upholstery tack.

Rivets. Two hand-forged, iron rivets were recovered from Feature 20. What they riveted together remains unknown.

Staples. One iron staple was found. Its form is almost identical to a modern fencing staple, but this piece of hardware could have been used for any of a variety of purposes.

Architectural Hardware

Architectural hardware in the Golden Eagle collection is strictly utilitarian in form, with no ornamentation. The heavy-duty iron brackets found in Feature 8 are particularly diagnostic of large commercial buildings such as the Golden Eagle Hotel. The other architectural hardware recovered was related to interior fixtures associated with doors, furniture, and plumbing.

Hinges. Three hinge fragments were recovered: one from Feature 20, another from Feature 15, and a third from Feature 8. All were badly oxidized and fragmentary, making it difficult to determine their function. The hinges from features 15 and 20 appear to be fragments of iron butt

hinges, a type commonly used for doors and furniture. The hinge from Feature 8 is some form of strap hinge (pl. 12.1d).

Brackets. Three L-shaped brackets from Feature 8 (pl. 12.1e, f) were identified. Screws used to fasten the brackets to wood beams are still intact in two specimens. The brackets had served as braces and load-bearing, anchoring devices.

Pipe and Pipe Fittings. Three pieces of pipe were recovered. One piece of copper-alloy pipe from Feature 15 was 1/2 inch in diameter and threaded on one end (pl. 12.1h). Its form suggests a gas pipe, but it might have been used for other purposes. Two fragments of lead pipe, 3/4 inch in diameter, were found in Feature 20. Two brass, threaded pipe fittings were identified, although their function is unknown. One piece came from Feature 15, the other from Area VI.

Plumbing Fixtures. Two fragments of plumbing fixtures were recovered from Feature 15. One fragment suggests a spigot, the other is possibly a handle.

Miscellaneous Hardware

Artifacts in this category include a large quantity of wire, bundling strap and bar stock associated with blacksmithing, and several barrel hoops.

Wire. Three hundred and twenty-five iron wire pieces were identified. The diameter of the wire ranged from 1/16 to 1/4 inch. Wire of these gauges might have served a variety of functions, including use as stove-pipe wire, baling wire, and heavy, smooth fence wire. The urban nature of the site and the recovery of only one staple fragment (possibly related to fence building) suggested that the recovered wire functioned as baling or stove-pipe wire. Four pieces of narrow copper wire, 1/32 inch in diameter, were recovered from Feature 6. Their function is unknown.

Bundling Strap and Bar Stock. Fifty-four metal artifacts were identified as straps used to bundle blacksmith's iron stock for shipment. The bundles of bar stock were held together by twisting the free ends of the straps together. The iron straps recovered were square, round, and rectangular in cross section. Nine of the straps were found in Feature 8, while the remaining 45 came from Area VI, associated with a blacksmith's shop. In addition, 31 fragments of round, square, and rectangular iron bar stock were recovered from Area VI. Iron bar stock was the primary raw material used in a blacksmith's shop to shape and form a myriad of metal items and implements. The quantity of bundling strap and bar stock found in Area VI is strong evidence of blacksmithing activities.

Barrel Hoops. Fifteen barrel-hoop fragments were identified; two hoop fragments were recovered from Feature 8, while the remainder came from Feature 6. Many of these banding fragments had riveted junctures (pl. 12.1i,j). Wooden barrels were the most popular containers for shipping most commodities during the mid-1800s, and many large-scale

shippers employed their own coopers to make them. Depending upon size, commodity, and country of origin, wooden barrels were identified by a multitude of terms, such as casks, firkins, hogsheads, kegs, pipes, puncheons, tierces, and tubs (Ross 1976).

Hooks. Two hand-forged hooks were found in Area VI. One hook had an attached stirrup, the function of which has not been determined.

Chain. Six fragments of chain links were recovered from Area VI. Several of the fragments appeared to be chain repair links. These were made in an open spiral, to be forged closed by a blacksmith when repairing broken lengths of chain.

HOUSEHOLD

Kitchen and Table Ware

All kitchen and table ware in the collection came from Feature 15 associated with the Golden Eagle oyster saloon (pl. 12.2a, b, c). Two fork fragments, one complete spoon, a spoon fragment, and five tableware handle fragments comprised the collection of eating utensils; they exhibited only minimal engraved decoration. All the tableware was made of "nickel silver," an alloy of 55-75 percent copper, 18-27 percent nickel, and 5-18 percent zinc. This alloy was popular in the latter half of the 19th century because of its chemical resistance to acid foods and also because it was an inexpensive imitation of fine silverware (Callaway 1978). One fragment of an iron pot or kettle was also found in Feature 15. Its original size could not be determined.

Furnishings

Nine cast-iron fragments recovered from Feature 20 were identified as stovetop parts. Since most of the fragments fit together, it is probable that they represent the remains of one stove, certainly not more than two. One brass ring pull from Feature 15 would have served as a drawer handle (pl. 12.2e). Two brass lamp fittings from Feature 15 were the remains of a single kerosene lamp (pl. 12.2d).

Containers

Sixteen tin-can fragments were recovered from Feature 6, a deposit associated with the Golden Eagle Oyster Saloon No complete cans were found, and preservation of the fragments was very poor. Identifiable fragments were all "hole-in-top" cans. These cans were first patented in 1810 and were used throughout the century. The body of the can was formed around a cylinder, and the seam was soldered. Separate top and bottom pieces were cut and soldered to the body. Before the Civil War, a hole was left in the top of the can through which the contents of the can were forced. A smaller cap was then soldered on to fill this opening, and the can was heated to cook the contents. During processing, a pinhole was left in the can top for venting steam. One last drop of solder over this pinhole completed the canning process.

Around the time of the Civil War, a series of open-top cans was developed. These cans were similar to the original hole-in-top cans, except that they were filled and capped in one step. Pinholes were still needed to vent gases during the heating process, and solder-drop final closures continued to be used (Teague and Shenk 1977). The can fragments from Feature 6 appear to be of this later type.

Fifty-four fragments of lead foil were recovered from Feature 20, associated with the Golden Eagle Hotel restaurant, while only one fragment came from Feature 15. Several of the fragments had turned edges. No embossed stamps or markings of any kind could be discerned on the foil fragments. Lead foil in the mid-19th century served to cover the tops of corked bottles. Large pieces might have been used for some food-packaging purpose.

Feature 6 also contained the body fragments, rim fragments, and wire handles of at least four iron pails or buckets (pl. 12.2f). During the 19th century, metal pails were all-purpose containers. Eleven fragments of smaller metal containers were recovered; their function is not known.

PERSONAL ITEMS

In keeping with the commercial context of the Golden Eagle site, relatively few personal items were recovered. Artifacts in this category included clothing, hardware, miscellaneous items, and arms and ammunition.

Clothing Hardware

With the exception of one triple-tongued, brass buckle fragment found in Feature 8, all clothing hardware came from Feature 15 (pl. 12.2g, h). Two buckles were very fragmentary, and their analysis was therefore impossible. Identifiable pieces included: one single-tongued, cuprous metal buckle; one double-tongued center-post, brass buckle; and one brass buckle for a vest strap or suspenders.

Miscellaneous Personal Items

A fragment of a pocketknife handle was found in Area VI. Two eyelets and two shoe tacks were recovered from Feature 6, which was associated with the bootmaker, Hillebrand, from 1868 to 1873. Feature 6 also contained a cuprous metal child's toy cup which was 11/16 inch high and had a broken handle. Several personal items were recovered from Feature 15: the brass ends of two wooden handles, possibly the remains of artist's paint brushes; a brass case for a pocket watch (pl. 12.1j); and one complete, although badly corroded, pocketknife with a mother-of-pearl inlaid handle (pl. 12.2j).

Arms and Ammunition

Two pistols and 10 percussion caps were recovered from Feature 15. Because the pistols were highly oxidized, x-ray photographs were taken

to assist in their conservation and identification (pl. 12.3a, b, c, d). From the x-rays, it was established that the pistols were a single-shot cap-and-ball and a pepperbox. Both were percussion pistols--firearms using copper caps with fulminate of mercury as the powder ignition system.

The single-shot, percussion pistol is a good example of the belt handguns manufactured between 1830 and 1860. Belt handguns were a class of pistols larger than a derringer or pocket pistol, but small enough to fit comfortably into a belt or waistband. Percussion belt pistols were handmade, and most specimens were one-of-a-kind or at best follow stylistic trends of the era, with features peculiar to individual gunsmiths. If a maker's mark once existed on this specimen, it has long since corroded. The following features were identified during analysis of this specimen: brass furniture and mountings; octagonal steel barrel with a relatively large bore--probably 45 caliber; checkered handle for a good grip; and a compartment in the butt that held four spare percussion caps. The discovery of this compartment illustrates the importance of x-ray photography in the analysis of multi-component historic artifacts; because corrosion obscured the compartment's opening, this feature might otherwise have gone unnoticed. These features point to a well-made, relatively expensive handgun. One knowledgable collector whom the author consulted felt the pistol was American made, possibly by a Philadelphia gunsmith.

The pepperbox was firmly identified as an Allen, manufactured at Worcester, Massachusetts, between 1847 and 1865. Although there are no factory records of Allen models, they have been the subject of extensive research, due to their extreme popularity and the frequent references to them in contemporary literature. Some of the features that served to identify this specimen were the Worcester-style, bag-shaped handle and rounded mainspring; the flat ribs between the six, smooth-bore, 31-caliber, steel barrels; a bar hammer; a nipple shield; and an overall length of 7-1/4 inches.

The Allen was the fastest-shooting handgun of its day and was very popular with 49ers and other frontiersmen. There was one major problem with the pepperbox and other percussion revolvers: it was not uncommon to have all six barrels go off in unison! Mark Twain knew of this phenomenon. In Twain's book Roughing It, a character named Bemis tells of shooting a tree-climbing buffalo with an Allen pepperbox and of a man named Hank, who questioned his story. Bemis said, "I should have shot the long gangly lubber they called Hank if I could have done it without crippling six or seven other people--but, of course, I couldn't, the old Allen's so confounded comprehensive."

Finding these two artifacts at the Golden Eagle site raises a puzzling question: Why were these guns thrown away? The percussion belt pistol was a well-made, expensive gun, and the Allen pepperbox, although quite common, cost as much as $15.00--a good deal of money at a time when hourly wages were as low as 10 cents. One plausible explanation is that both pistols had developed certain defects that contributed to their disuse and deposit in a trash pit. Since the guns were found very close to one another in the same layer, they may have been discarded at the same time, perhaps by the same person.

When analyzed with x-ray photographs, the mainspring of the belt pistol was found to be fully depressed; the hammer, therefore, should have been fully cocked (pl. 12.3d). Although the hammer was completely oxidized, its shadow remains to show that it was in a half-cocked or forward position. Something was apparently amiss with the internal mechanism, possibly a broken spur or mainspring.

Looking at the pepperbox, again using the x-ray photographs, the top barrel appears very irregular and faint (plate 12.3c) indicating that the barrel may have blown out on the last shot fired. This accident would have reduced the gun's value considerably. In addition, the trigger guard was missing and part of the walnut handle had broken off.

These defects could have been repaired by a gunsmith, especially in the case of the belt pistol. The imperfections might well have lowered the guns' value in the eyes of their owners, however, so that they were replaced rather than repaired. By 1860 the types of pistols found in Feature 15 were becoming outmoded by the single-barreled revolver introduced by Samuel Colt. For the first dozen years of the Colt revolver's production, the Allen pepperbox far outsold it; the Allen was double-actioned and could fire as fast as the trigger was pulled, whereas the Colt was single-actioned. The drawbacks to the Allen were a heavy trigger pull, revolving barrels which spoiled one's aim, a small bore, and a great lack of accuracy. The belt pistol could only fire one shot between reloadings, which was a serious drawback if its user was being attacked by more than one person at a time. The Colt and other revolvers, having none of these faults, largely replaced the earlier styles during the Civil War.

The disposal of two repairable guns indicates the availability and popularity of handguns in Sacramento during the mid-1800s. In the 1850s and 1860s, owning a handgun of either type found at the Golden Eagle site was similar to owning a moderately priced Timex watch today. If your old Timex should break, quite often you would throw it away, rather than repair it, and purchase a new style watch, probably a digital. It is possible that these guns were discarded in a refuse pit because innovations in pistol design rendered them obsolete. Much of the material in Feature 15 apparently resulted from a cleanup of the bootmaker's shop when the building was being remodeled for the oyster saloon. The suggestion that Hillebrand or the barbers preceding him abandoned these guns, and that Cronin disposed of them, supports the hypothesis that such firearms were no longer considered valuable by the early 1870s.

TOOLS

Seven tool fragments were recovered from the Golden Eagle site. Two file fragments were recovered from Area VI, one of which was identified as a flat, smooth file. Another file fragment came from Feature 20 (pl.12.4b). Due to oxidation, two of the file specimens had no visible chisel marks. One fragment of a cold chisel bit and the head of a shingling hatchet (pl. 12.4a) were found in Feature 6. Two tool-handle fragments were recovered from Area VI; their function could not be determined.

HORSE AND MULE TRAPPINGS

Fifty-two horseshoes and horseshoe fragments and two mule shoes were identified in the collection. Two complete horseshoes came from Feature 8 and one fragment was found in Feature 15. The remaining 49 horseshoes, 2 mule shoes and a partially completed horseshoe were recovered from Area VI, the site of a blacksmith's shop. Only 35 specimens were complete enough for analysis. The horseshoe collection appears to have been hand-made from wrought iron. The fibrous texture of the wrought iron is visible on many of the conserved shoes.

Most of the complete, recognizable shoes had been "fullered." The fuller was a groove on the underside of a shoe through which the nail holes were punched. When the horse was shod, the horseshoe nails were sunk into the fuller to prevent the nail heads from wearing against the ground, ultimately causing the loss of the shoe. All of the identifiable Golden Eagle horseshoes have four nail holes. Many of the shoes still have clinched number 5 and number 7 horseshoe nails in place.

Eleven of the horseshoes and the two mule shoes have toe and/or heel calks, and two of the horseshoes also have toe clips (pl. 12.4e, f, g, h, i). Shoes with calks were generally put on animals required to do heavy work. Clips were used to fasten shoes more securely and to diminish the number of nails required. Also an indication of heavy work, clips were used primarily on the hooves of draft horses employed on paved streets. Two wide-webbed horseshoes, broadened on the inside to protect and support fallen soles, were recovered (pl. 12.4g, k). Such shoes were specially made for horses with foot pathologies (Berge 1966). The remaining complete horseshoes would have been made for horses used in light work, such as riding animals and coach horses (pl. 12.4j).

Analysis of a site's archaeological horseshoe collection can provide information about the type and the varied use of the area's draft-animal population during the period in which the site was occupied. The archaeological recovery of one or two horseshoes could be attributed to an animal throwing a shoe accidentally, but the presence of 51 horse and mule shoes in Area VI clearly indicates that a farrier was practicing his trade there. Analysis of the collection also indicates that the farrier was a skilled craftsman with a knowledge of hoof care. There were a number of considerations that a skilled farrier took into account before making the shoe. The horse's weight, the type of work it was to do, its standing position, gait, hoof forms, and the ground surface on which the horse would be walking all influenced the type of shoe the farrier made. It is apparent from the Golden Eagle horseshoe collection that the farrier manufactured individualized shoes to suit the needs of each of his customers' horses. Since well over half of the identifiable horse and mule shoes were made with calks or clips, most of the horses brought to the farrier were probably used for heavy work. The use of toe clips in conjunction with calks suggests that some of the horses were walking on hard surfaces, such as paved or cobbled streets. Since nearly all the animal shoes were for horses, it is apparent that horses were more widely used for transportation and as draft animals than were mules. Oxen were either not used as work animals by the farrier's customers or they were not shod at his establishment.

DISCUSSION

The metal collection from the Golden Eagle site was on the whole poorly preserved, with most of the sample in fragmentary condition. Analysis of the identifiable items, augmented by historical records, led to interpretations of the areas of the site from which the metal was recovered. Distribution of the metal artifacts is shown in figure 12.2.

The metal artifacts from Feature 15, a brick-lined trash pit, represent three functional categories: household items, hardware associated with building interiors, and nearly all of the personal items found during the excavations. In the absence of historic records, the high proportion of personal and household items from Feature 15 would indicate domestic habitation rather than commercial or industrial use. One important element to be expected in a domestic site is absent: there was not a single artifact from the Golden Eagle metal collection which would be specifically related to female use. While artifacts that were considered exclusively male in the 1800s, such as vest buckles, shingling hatchets, files, and pocketknives, are present in abundance, the only suggestion from the archaeological metal collection that women were present is the child's metal toy cup found in Feature 6, also associated with the barbershop, bootmaker, and oyster saloon. The personal items in Feature 15, instead, might be seen to support the hypothesis that much of the material from this feature resulted from the cleanup of the bootmaker's shop prior to oyster-saloon renovations. The number of household and personal items is not more than might be expected to accumulate in the back of the barbershop and, later, the bootmaker's shop over a 15-year period. The only datable metal artifacts in this deposit, the two guns, were probably purchased before the mid-1860s and can therefore be attributable to the period prior to oyster saloon operation.

Feature 20, the brick-lined trash pit associated with the Golden Eagle Hotel restaurant, also shows a high proportion of household items on figure 12.2, but it contained no personal metal artifacts. These "household" items are actually the 54 fragments of lead foil, suggesting a commercial food establishment rather than a residence. Feature 8, a trash dump associated with the Golden Eagle Hotel and the blacksmith shop, contained the largest quantity of hardware related to building construction. Although much of this material may have been deposited by the blacksmith, some items may be associated with the Golden Eagle Hotel. Feature 6, associated with Cronin's oyster saloon, contained most of the site's barrel hoops, pails, and cans. Due to the quantity of these containers, a commercial establishment associated with food importation and storage is indicated. The child's cup and other personal items recovered from this feature may have been deposited before the oyster saloon was established.

Area VI would have been recognized as a blacksmith's and farrier shop, even if historical records had not documented this fact. The large quantities of horseshoes, bar stock, bundling straps, slag, and scrap metal mark this area as a locality of intensive metal-working activities.

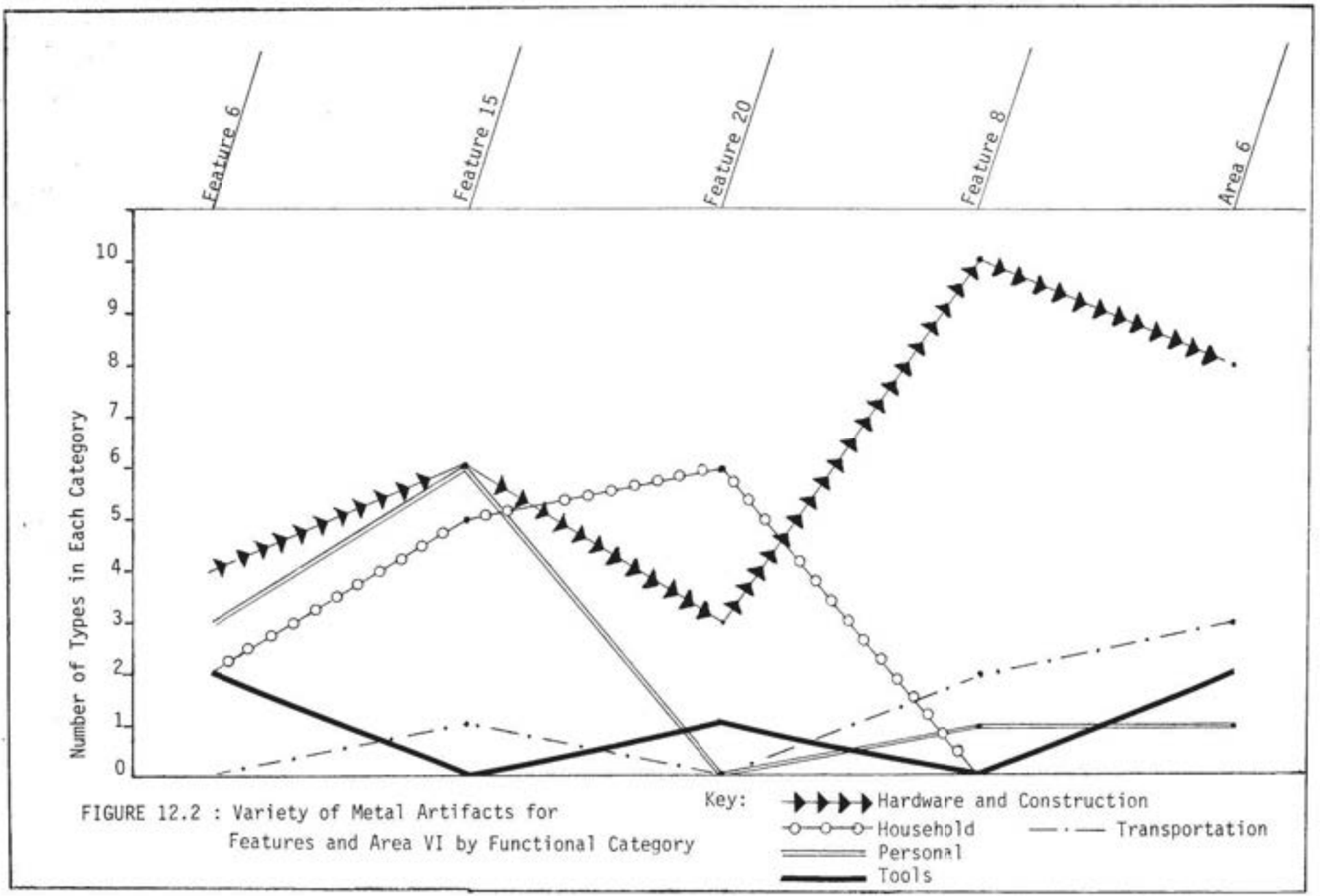

FIGURE 12.2 : Variety of Metal Artifacts for Features and Area VI by Functional Category

Although most metal artifacts can not serve as sensitive time markers, some of the metal items do suggest depositional chronology, even though no makers' marks were discovered. The nails which were recovered from all areas of the site provide reliable chronological data. Because most of the square cut nails recovered had been ruptured or broken during use, they were undoubtedly made before the practice of annealing was instituted in the early 1870s. Since the heads of the common and finishing nails among the identifiable specimens were uniform, the nails must have been manufactured after the 1840s. The analysis of the pistols, as well as the types of tin cans found, also supports a circa 1850 to 1870s deposition date for the metal collection recovered from the Golden Eagle site.

The functional requirements of the area's occupants, as reflected in the metal collection, were strictly utilitarian. Decoration was minimal at best and confined almost entirely to personal items. The only non-utilitarian metal artifact found was a personal item identified as a child's toy cup. It is clear from the archaeological record that highly decorative, non-essential metal artifacts were either very low on the priority list of the occupants of the site or were not thrown away.

PLATE 12.1

a) Wrought nails
b) "Common" cut nails
c) "Common" cut nails
d) Strap hinge
e) Bracket
f) Bracket
g) Bracket
h) Copper-alloy pipe
i) Barrel-hoop fragment with riveted juncture
j) Barrel-hoop fragment with riveted juncture

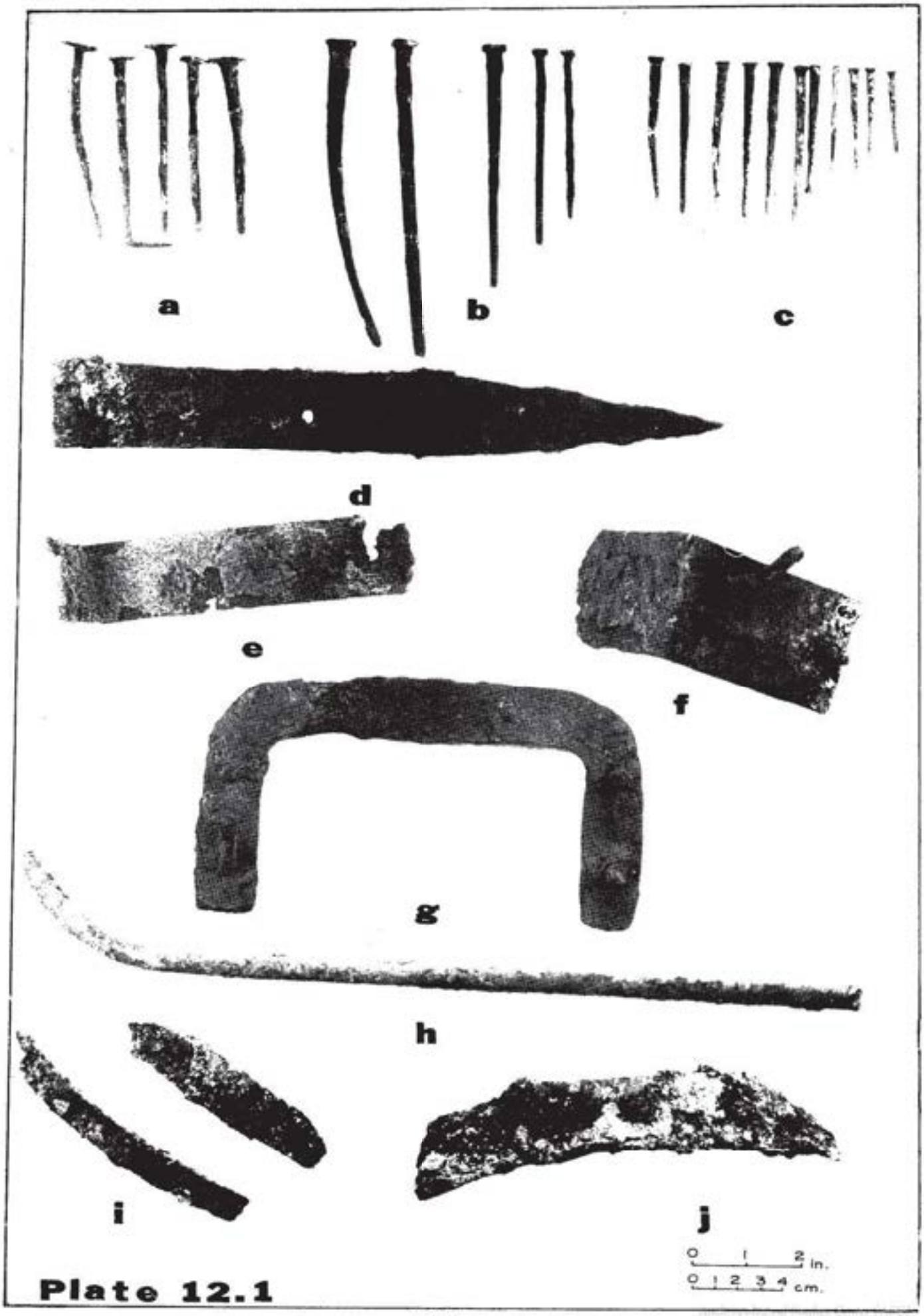

Plate 12.1

PLATE 12.2

a) Table fork
b) Spoon
c) Serving fork
d) Brass lamp fitting
e) Brass ring pull
f) Iron pail rim with handle fragment
g) Brass buckle fragments
h) Brass buckle from suspender or vest strap
i) Pocket knife
j) Pocket watch

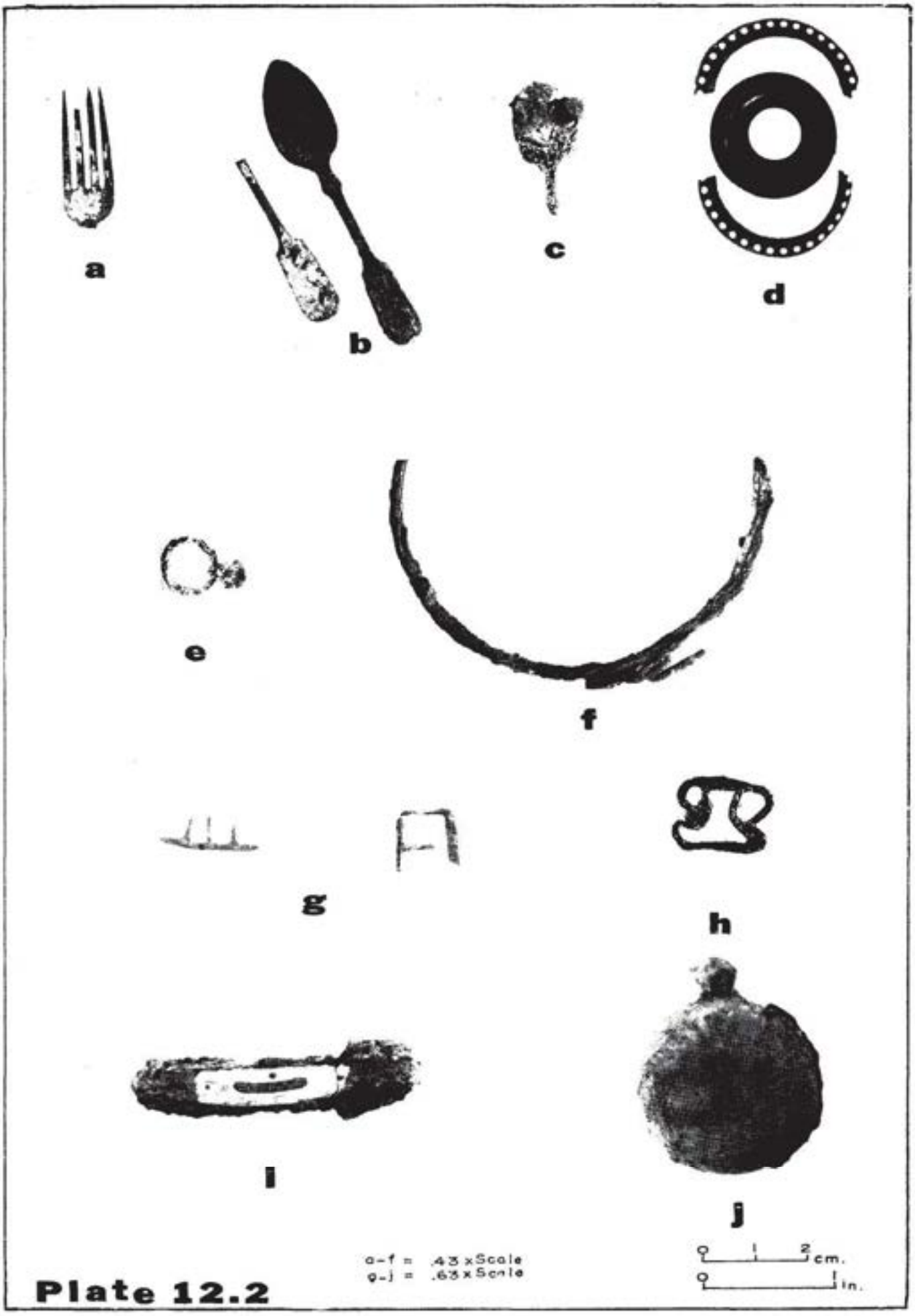

Plate 12.2

PLATE 12.3

a) Allen pepperbox pistol before cleaning
b) Percussion cap pistol before cleaning
c) X-ray of pepperbox before cleaning
d) X-ray of percussion pistol before cleaning
e) Pepperbox after cleaning
f) Percussion pistol after cleaning

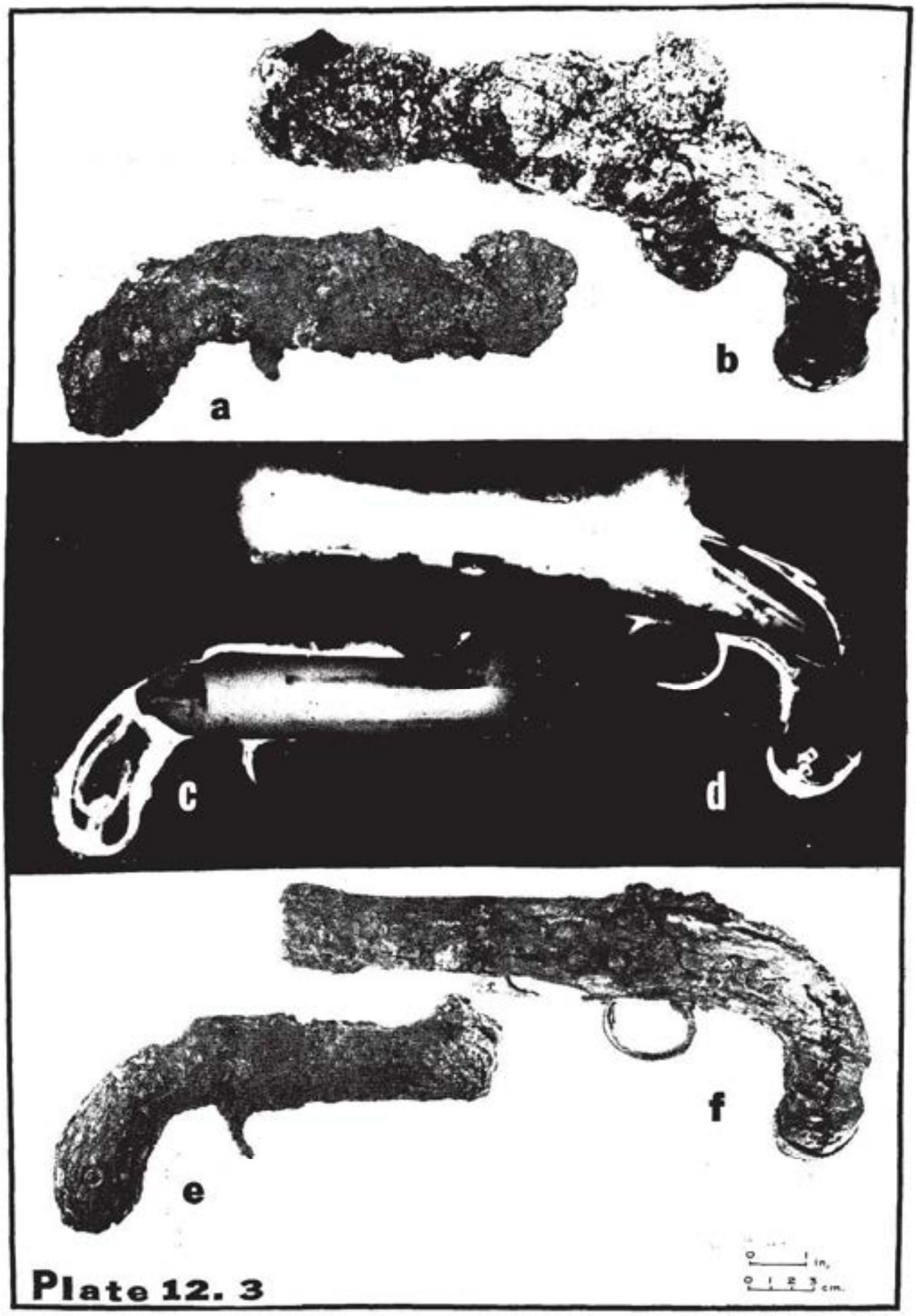

Plate 12. 3

PLATE 12.4

a) Shingling hatchet
b) File fragment
c) Horseshoe with toe and heel calks
d) Semi-completed horseshoe
e) Horseshoe nails
f) Horseshoe with toe and heel calks
g) Wide-webbed horseshoe with toe clip
h) Horseshoe with toe clip
i) Mule shoe with toe calk
j) Horseshoe
k) Wide-webbed horseshoe

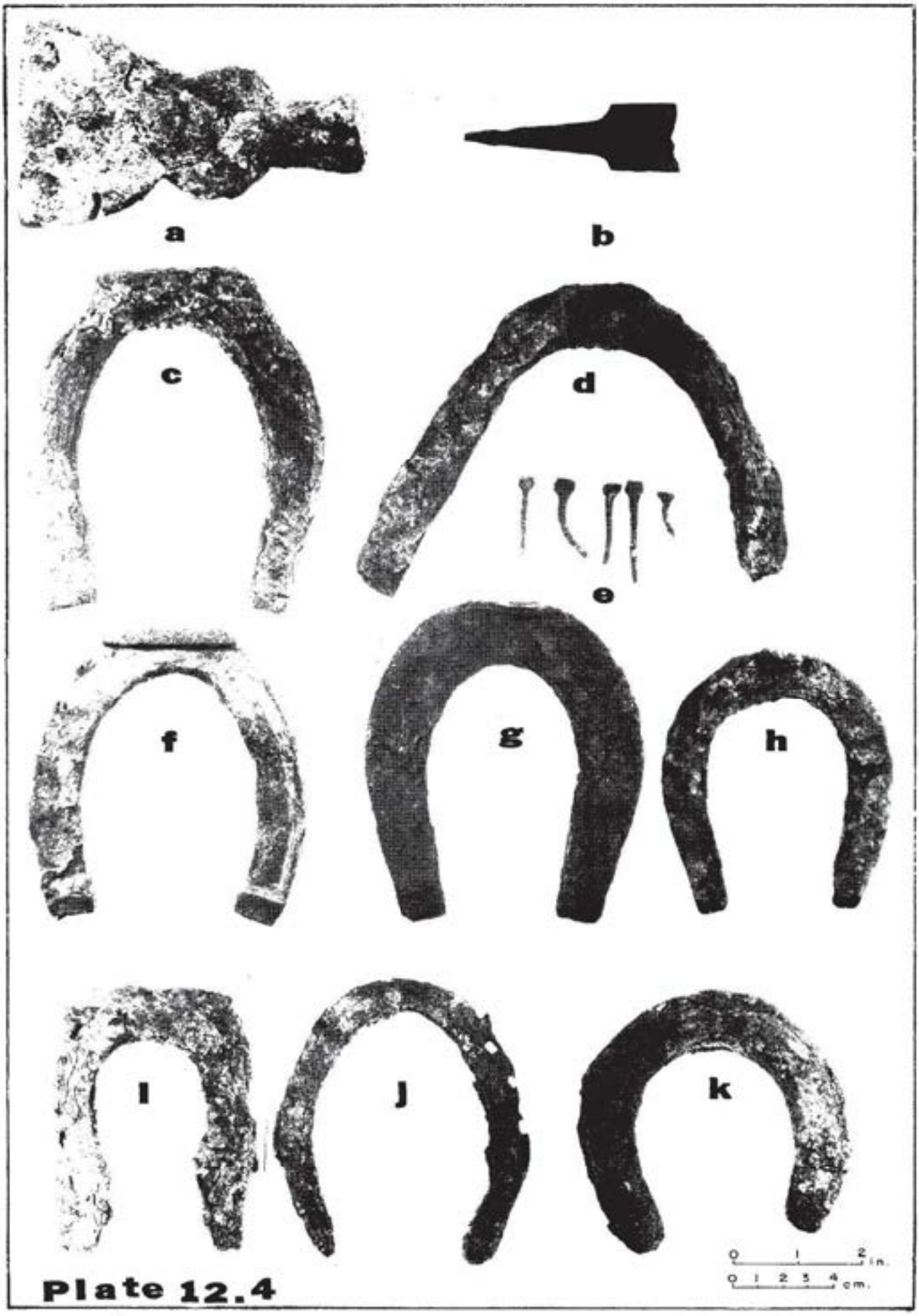

Plate 12.4

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APPENDIX 12.1

Metal Conservation
by John Holson

Three different methods of corrosion removal were used to clean the metal materials from the Golden Eagle site excavations: manual, electrolytic reduction, and chemical. The majority of the metal was cleaned by a combination of manual removal of loose, surface deposits, followed by the electrolytic reduction process. The primary purpose of cleaning the materials was to aid in the identification of artifacts with potential historical significance. Due to the time constraints of the contract, not all the metal was cleaned; instead, cleaning was limited to those artifacts which exhibited a potential for interpretation of the site.

The majority of the metal artifacts recovered from the excavations were of iron. Prior to the removal of any surface corrosion from an iron artifact, it was visually inspected for clues to its identification, such as decoration, makers' marks, or evidence of tool use or function. A magnet was then passed over the object to determine the amount of solid metal still present in the encrusted object, to identify areas of varying density of preserved metal, and as an aid in the treatment of the artifact. If it was determined that the body of the artifact was of a substantial metal content, a preliminary cleaning was accomplished using a variety of hand tools. In addition, an electric vibrating hand tool with a large needle and a small, high-speed rotary tool fitted with various brushes and grinders were utilized. In many cases, no further cleaning of the object was necessary.

When an item could not be satisfactorily cleaned using manual methods, or if it was of a sufficiently fragile nature that cleaning might damage it, then the electrolytic reduction method of cleaning, as outlined by Noel Hume (1975) and Plenderleith (1971), was used. Electrolytic reduction uses the phenomenon of electrolysis--the chemical decomposition of a material through use of an electrical current (Field 1973)--to clean the artifact. There must be a suitable electrolyte present, such as caustic soda or formic acid in solution, in order for reduction to take place (Charlambous 1975). The cathode, usually the artifact to be consolidated, is connected to the negative pole by means of a wire. The anode, a plate of metal compatible with the metal of the artifact (Lane 1975), is connected by wire to the positive pole. Electricity is usually supplied by a direct current (D.C.), as alternating current (A.C.) does not enhance corrosion removal in all cases. Further elaboration of this process can be found in Noel Hume (1975), Plenderleith (1971), Plenderleith and Toracca (1968), and Barkman (1975).

In the electrolytic cleaning of materials from the Golden Eagle site, a six-gallon polyethelene container was used as an electrolytic tank. The electrolytic solution used was a 5 percent sodium-hydroxide solution dissolved in water. The anode was a stainless steel plate measuring 6 inches by 6 inches. Both the anode and the cathode were suspended into the electrolytic solution by means of a copper wire attached to a 3/8-inch zinc-coated, iron bar. The electrical source was a

10-ampere battery charger. The amount of current applied varied from 6 to 15 amperes, depending on the material being cleaned. The length of time that an object was subjected to this process was also dependent on its material. Periodic cleaning and examination of the artifactual material was conducted while cleaning was in process.

After treatment in the electrolytic tank, the objects were scrubbed with a mild detergent to remove any solution and loose corrosion. The artifacts were then boiled in distilled water and wiped dry.

A limited amount of chemical cleaning was done to copper-alloy objects such as buttons, coins, and small nails. The primary goal in the cleaning of these materials was to remove the green carbonates deposited on the surface of the artifact, which generally obscured distinguishing features. For this treatment, the object was immersed in a 5 percent solution of four parts sodium bicarbonate and five parts sodium carbonate dissolved in water. This treatment loosened the carbonate layer, which was then removed with a variety of small tools and soft brushes.

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CLAY TOBACCO PIPES

by

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INTRODUCTION

The clay tobacco pipes discussed in this chapter were recovered during excavations of the Golden Eagle Hotel site, Sacramento, California, during the summer of 1979. The excavations were carried out by the Cultural Resources Facility of the Sonoma State University Anthropological Studies Center, under the supervision of Adrian and Mary Praetzellis.

Forty-one clay tobacco pipe specimens (and one content sample) were recovered. The dates of deposition of the three discrete features from which pipe specimens were recovered (features 8, 15, and 20) have been determined through ceramic and glass analysis, as well as documentary sources. Details of these features, their associations, and their dates are included as table 13.1.

HISTORY

The design of the European clay tobacco pipe was most likely derived from pipes fashioned by Indians on the east coast of North America during the latter part of the 16th century (I. Noel Hume 1963:261). Smoking clay pipes became extremely popular (and probably fashionable) by the 1620s, and clay tobacco pipe manufacture rose accordingly.

Some expensive, and often elaborate, pipes were made of Meerschaum or porcelain, but the inexpensive, white, ball-clay pipes (like those in this collection) enjoyed the widest popularity. The Chamber's Encyclopedia, for example, described the style as "too well known to need description" (1890:661). The cost of manufacturing the pipes was so slight that "the commoner kinds can be retailed at a profit for a farthing each" (Encyclopaedia Britannica 1885:111). White clay pipes were fragile and, because of their low cost, were readily disposed of when chipped or worn.

The ordinary clay pipe was first solely imported from pipe-making centers in England (Brosely, Staffordshire; and Amesbury, Wiltshire), but American production began in 1820. The earliest recorded manufacturer was Thomas Smith of the city of New York in 1847. The high tariff during the Civil War stimulated further manufacturing (Encyclopedia Americana 1971:108).

By 1885, a number of machines had been devised for automatic pipe-molding. Clay pipes were so inexpensive to make by hand, however, that there was little need to mechanize the industry when other manufactories were undergoing change (Encyclopaedia Britannica 1885:111).

> The first part of the operation is performed by trained children, who, with nice skill, roll out upon a board a small piece of clay into a long slender cylindrical rod, at the end of which is then attached a lump of clay, just enough to form the bowl. These rudimentary pipes are arranged by dozens on a board until they have become sufficiently hardened. Then they are handed to the pipemaker, who takes a pointed iron wire, and first dipping it

> into oil, pushes it into the end of the thin column of clay, and having passed it through, forms the bowl with a folding brass mould. The wire is then withdrawn; and after a slight dressing with a knife, the pipes, now complete, are slightly curved in the stem, and are laid by to dry for a few days, when they are removed to the kiln.... When thoroughly baked, they undergo a kind of polishing or dressing, and are fit for sale (Chamber's Encyclopaedia 1890:661).

During the second half of the 19th century, the first briars and wooden pipes were introduced, but clay pipes continued to be manufactured, in increasingly modest amounts, into the 20th century.

INTERPRETIVE VALUE OF PIPES

Clay tobacco pipes share some of the characteristics that have made ceramics an important tool for dating archaeological sites: frequent changes in form and decoration, short term of use, and ability to survive over long periods of time. Because of these qualities, clay tobacco pipes are being used increasingly for dating purposes wherever they occur in archaeological contexts. In fact, Ivor Noel Hume claimed that, "Of all the European objects of the colonial period that survive in the ground, the /clay/ tobacco pipe best fulfills the archaeological requirements of datable evolution and short life" (1963:261).

Throughout the 17th and 18th centuries, the clay tobacco pipe underwent stylistic changes on the bowl and the stem (I. Noel Hume 1963; Fowler 1965). The earliest European pipes, which were probably molded by hand, had small bowls and relatively short stems. According to I. Noel Hume, this small bowl most likely reflected the "scarcity and high price" of tobacco (1963:261). Later, during the late 17th and early 18th centuries, clay tobacco pipes were commonly produced in hand molds. Through time, the bowls became larger, while their stems became longer. As the stem lengthened, a thinner wire was needed to penetrate it.

J. C. Harrington, while working with a collection of clay tobacco pipe fragments from excavations at Jamestown, was the first to notice that, "the length of the stem seem/ed/ to bear a very definite relationship to the period of manufacture" (1978:63). Stem lengths, however, are not suitable for dating purposes, as whole stems are rarely found on archaeological sites. Harrington then recognized that the stem-hole diameters consistently followed a trend from early, larger holes to later, smaller holes. His chart (1978:64) showing the time periods to which each measurement (from 4/64" to 9/64") applied has proven to be a useful guide to dating sites, but there are limitations to the use of this method.

First, only stem fragments of English origin are amenable to this scheme; pipes from France, Holland, Scotland, and elsewhere do not follow the consistent lessening of stem-hole diameters. Secondly, and of more concern here, the usefulness of Harrington's system breaks down after 1780. There is, after all, a minimum size to which the hole diameter can be reduced before the pipe becomes non-functional. After 1780, stems become shorter and bore diameters become larger without any consistent trend.

The usefulness of Harrington's technique on sites with English stem fragments during the period between 1620 and 1780 has encouraged attempts to elaborate upon this method (Binford 1962). A lively discussion of this technique has been carried out in the literature (Chalkey 1955; Hanson 1971; A. Noel Hume 1963; Omwake 1956; Walker 1965).

Although Harrington's technique is of limited use on 19th-century sites, the measurement of bore diameters was carried out on the sample of clay tobacco pipes from the Golden Eagle in case of future developments.

Use of pipe makers' marks can also serve as a dating technique, but again, there are limitations for 19th-century sites. Humphrey noted that the popularity of the clay tobacco pipe "neatly overlaps the Industrial Revolution with its radical social and economic changes" (1969:13). Prior to the advent of mass-produced pipes, pipemakers usually marked their products with established symbols or initials (Humphrey 1969:13). After large-scale production became the norm, however, these established marks were either discontinued or plagiarized. A good example of this copying is the widely used "TD" pipe. The "TD" mark was, most assuredly, the original maker's initials, dating perhaps to the middle of the 18th century; by the 19th century, however, this mark had become synonymous with a type of pipe. Walker noted that, "The use of initials as marks was an entirely informal affair in England, unlike the strict registration of marks at Gouda, the centre of the Dutch pipemaking industry, where marks can be bought and sold, willed and inherited" (1966:86). Thus makers' marks are an unreliable means for dating, especially after the 18th century. Decorated, inexpensive clay pipes, which became very popular in the mid-19th century, could form a datable class if more research into their origins and more comparative archaeological data were available.

Few reports have been published on clay tobacco pipes from 19th-century sites, and most of the collections for which data are available were not recovered from reliably dated contexts. Thus, no useful chronology for 19th-century pipes has yet been formulated. Fortunately, the majority of clay tobacco pipes from the Golden Eagle site were recovered from temporally well-controlled deposits; as such, they offer a significant contribution to the development of a reliable comparative framework for this important artifact type.

The emphasis in clay-pipe analysis to date has been placed on chronology, yet the popularity of the pipes and the wide variety of pipe styles suggest potential for behavioral interpretations of archaeological deposits. Demography is one obvious variable: where clay pipes are found, men were certainly present. Insight into 19th-century manners can also be revealed: In what contexts did smoking occur, and where is evidence of smoking absent? There is insufficient information at present on the relative cost of different pipe types; further research on this subject might allow interpretations of the socioeconomic status of smokers represented in a site, as well as the value an individual may have placed on different pipe types. Changes in pipe styles through time may give a picture of changing attitudes, including, in the interesting case of patriotic pipes described here, political sentiments. Some marked specimens in the Golden Eagle collection indicate broad trade networks. Further correlation of pipe styles with place of origin can yield considerable information regarding 19th-century trade, as clay pipes were apparently imported in quantity from a variety of manufacturers.

DESCRIPTIONS

The specimens within this small collection represent a wide variety of pipe types. No complete all-clay pipes were recovered from the site, and only one complete detachable-stem bowl was found. Twenty-five specimens, representing about 60 percent of the total sample, were recovered from contexts to which fairly reliable dates have been assigned (see table 13.1). All pipe specimens are described below; only those specimens from datable deposits are considered in the discussion.

Pipes in the collection were classified into two distinct groups: (1) dark clay pipe bowls, also known as "elbow bowls," designed for use with detachable stems, usually of reed; and (2) all-white ball-clay pipes. Bowls and stems were measured (tables 13.2 and 13.3).

DETACHABLE-STEM PIPES

The three bowls in this group each represent a different pipe style. One partial bowl and three related fragments (79-17-21-50) were found in Area I (pl. 13.1c). They were made of reddish clay and the bowl has no mark or heel. No date of manufacture has been determined for this specimen; it may have been manufactured in France (Pfeiffer personal communication 1980). A complete bowl (79-17-74-31) was found in Feature 15 (pl. 13.1a). It was made of a medium-brown clay, exhibits no marks or special features, and is of a type that was manufactured in the Ohio River Valley (Pfeiffer personal communication 1980).

A partial bowl in this group (79-17-53-167), recovered from Feature 15, is smaller than the other two bowls and has a thick, brown glaze inside and out (pl. 13.1b). There is a rather prominent spur on the heel of this bowl and a small nodule on the base near the point at which the stem would have been inserted. This nodule may have served as a catch. Although its origin is uncertain, this pipe also may have been manufactured in the Ohio River Valley (Pfeiffer personal communication 1980).

ALL WHITE BALL-CLAY PIPES

Fifteen bowls or bowl fragments of this group were recovered. The group is represented by four distinct types: (1) plain-bowl pipes, (2) fluted pipes, (3) "TD" pipes, and (4) the roulette pipe. In addition, 23 stem fragments, several of which bear makers' marks, were recovered.

Plain-Bowl Pipes

One nearly complete plain-bowl pipe (79-17-59-113) was found in Feature 15 (pl. 13.1e). The bowl is oval, with vertical burnishing marks culminating at the heel; on the heel is a small and somewhat streamlined spur. The bowl and the stem meet at a slightly obtuse angle. The mark "Gisclon/M.E./a Paris" is impressed at a right angle into the stem. The Gisclon company was in operation before 1859 until 1895 (Walker 1971:31). Also, on the stem is a section of horizontal ribbing, banded at each end.

A plain fragment (79-17-82-123), also recovered from Feature 20, represents the rear (away from the smoker) portion of the bowl. It is entirely

TABLE 13.1

Summary of Dated Features

Provenience	Description	Association	Date
Feature 8	Large, unlined, round hole	Golden Eagle Hotel Blacksmith shop	c.1861-1870
Feature 15	Brick-lined pit	Barber shop	c.1858-1870
		A. Hillebrand, bootmaker	c.1868-1873
		W. Cronin Oyster Saloon	c.1874-1878
Feature 20	Brick-lined pit	Golden Eagle Hotel Restaurant	c.1857-1860

TABLE 13.2

Bowl Measurements

	Height	Length	Width	Thickness of Bowl (averages)	Volume
Detachable Stem Bowls					
a) 79-17-21-50	4.16cm	2.65cm	2.65cm	.32cm	*
b) 79-17-53-167	3.64cm	*	*	.26cm	*
c) 79-17-74-21	4.14cm	2.60cm	2.60cm	.35cm	7.2cc
All Clay Bowls					
Plain bowl:					
d) 79-17-59-113	3.82cm	3.15cm	2.50cm	.15cm	8.8cc
Fluted bowl:					
e) 79-17-53-165	3.70cm	3.25cm	2.65cm	.15cm to .21cm (between flutes/on flutes)	7.1cc
"TD" Bowls:					
f) 79-17-34-24	3.90cm	2.70cm	2.45cm	.30cm	8.5cc
g) 79-17-48-41	3.95cm	2.50cm	2.01cm	.18cm	6.0cc
h) 79-17-53-164	4.12cm	2.90cm	2.62cm	.29cm	9.5cc
i) 79-17-59-114	3.91cm	2.40cm	2.06cm	.25cm	*
j) 79-17-59-115	4.00cm	2.36cm	2.21cm	.22cm	7.0cc
k) 79-17-83-72	*	2.36cm	2.27cm	.22cm	*

*measurements unavailable

TABLE 13.3

Stem Measurements

Stem Fragments	Length	Width	Bore Diameters
Center Fragments:			
Plain			
a) 79-17-5-24	3.56cm	.65cm	6/64"
b) 79-17-19-7	3.02cm	.74cm	5/64"
c) 79-17-53-no #	2.92cm	.74cm	5/64"
d) 79-17-53-168	10.75cm	1.0cm to .73cm (bowl to butt)	5/64"
e) 79-17-53-169	4.35cm	.75cm	6/64"
f) 79-17-81-320	4.00cm	.63cm	5/64"
g) 79-17-82-126	1.70cm	.55cm	5/64"
h) 79-17-86-83	3.27cm	.84cm	4/64"
i) 79-17-86-84	4.36cm	.58cm	4/64"
j) 79-17-86-85	4.57cm	.61cm	4/64"
k) 79-17-91-17	2.34cm	.62cm	6/64"
l) 79-17-U/S II-13	3.82cm	.78cm	5/64"
Plain w/burned area			
m) 79-17-U/S-5	4.74cm	.68cm	4/64"
Impressed w/McDougall (left) and Glascow (right)			
n) 79-17-29-10	4.11cm	.90cm	5/64"
o) 79-17-32-11	7.74cm	1.05 to .75cm (bowl to butt)	4/64"
With yellow glaze (uneven)			
p) 79-17-27-208	1.50cm	.62cm	5/64"
With raised 355 on left			
(q) 79-17-28-9	2.58cm	1.07cm	5/64"
Impressed w/DAVI (left) and ( ) ASCOW (right)			
r) 79-17-12-109	3.25cm	.88cm	5/64"

Table 13.3, continued

Stem Fragments	Length	Width		Bore Diameters
Impressed w/Dumeril a St Omer Depose s) 79-17-82-119	2.34cm	.81cm		5/64"
Impressed w/Gambier Paris *M t) 79-17-82-120	3.45cm	.78cm		5/64"
Raised w/GOUD u) 79-17-22-31	3.35cm	.61cm		5/64"
End Stem Fragments Oar-shaped w/end butt v) 79-17-82-124	4.81cm	.58cm to .54cm (top)	.58cm to .87cm (side)	5/64"
Circular w/end butt w) 79-17-82-125	3.99cm	.60cm		5/64"

without markings. Another plain fragment (79-17-53-166) consisted of a small portion of the bowl and a fragment of the stem. The spur, which is completely broken off, appears from the evidence remaining to have been rather prominent. There are no marks on this fragment, which was recovered from Feature 15.

Fluted Pipes

One oval-shaped bowl and partial stem (79-17-53-165) from Feature 15 is covered with a brown glaze inside and out (pl. 13.1d). Twelve fluted panels decorate the bowl, extending from the top and narrowing until they meet on the stem. The bowl is set at a very slight, obtuse angle to the stem; the stem bears the impressed mark, "Gisclon/M.E./a Paris."

Two very small, fluted bowl fragments (79-17-48-42 and -49-12) were recovered from Area VI, an undated context. Between the flutes on each specimen is a thin, raised line.

Roulette Pipe

This collection has only one specimen (79-17-82-120) of this pipe type, reconstructed from several fragments recovered from Feature 20. The plain bowl fragment has very crude rouletting impressed along the rim. On the base of one fragment, a fleur-de-lis is found in the area where the spur is usually placed (pl. 13.2e). Its matching stem is impressed with the mark "Gambier/Paris/*M" at a right angle (pl. 13.2h). The Gambier firm had branches in Paris and Givet, France (Walker 1971:30).

"TD" All-White Ball-Clay Pipes

Two sub-types of the TD pipe appear in the collection. The first is the plain TD, represented by three specimens which vary slightly in the size and shape of the mark and in their overall dimensions (see table 13.2). The second type is more elaborate; in addition to the TD mark, specimens bear decorations of stars and, in some cases, leaves. The type belongs to that class which Humphrey (1969:25) termed, "The 13-Star Patriotic Pipe."

Plain TD Pipes. One bowl (79-17-34-24) is plain except for a crude "TD" impressed on the front, facing the smoker (pl. 13.1g). The mark appears to have been stamped on, and a circular impression encloses it. The height of the "TD" mark is .61cm. The mold line has been burnished off the bowl, but it reappears along the large spur. This specimen was recovered from Area VI.

Another specimen (79-17-53-164), recovered from Feature 15, is similar to the one above, with the same burnishing of the mold line (pl. 13.1f). The mark, although crude, is larger (.81cm in height) and more distinct than that described above.

A TD bowl (79-17-83-72) was recovered from Feature 8 (pl. 13.1h). Unlike the specimens above, the "TD" mark on the front of this specimen is raised, and the two letters are of unequal size: the "T" measures

.62cm in height and .66cm in width, while the "D" measures .70cm in height and .54cm in width. The mold lines have been crudely flattened along the bowl but are burnished more completely along the stem. The bowl is narrow and tall, sitting at a slightly obtuse angle to the stem; a very small spur is located on the heel. The top of the bowl is broken. The bowl contained what is assumed to have been its original contents, although this material was not analyzed.

Patriotic TD Pipes. One bowl recovered from Area VI (79-17-48-41) has a raised "TD" mark facing the smoker with 13 six-pointed, raised stars encircling it; seven stars are on the right, and six are on the left of the mold line (pl. 13.2b). The diameter of the star circle is 2.17 cm. A ring of 13 raised stars encircles the rim of the bowl. No attempt to burnish the mold lines appears to have been made. Some extremely crude representations of leaves join the rear mold line, extending from the spur to the rim. The spur is small and flat.

Another patriotic pipe bowl (79-17-59-115), recovered from Feature 15, bears a slightly larger star circle (2.27cm) (pl. 13.2a). The mold line on the front of this specimen has been flattened, and a crude leaf motif has been added to the rear line. The stars are extremely worn but appear to have had five points. On a bowl fragment (79-17-82-122), the stars are also quite worn, and the number of stars points cannot be determined. This fragment was found in Feature 15.

A striking variation of the patriotic bowl was recovered from Feature 15 (79-17-59-114). The front of the bowl had broken off, but the missing fragment was recovered nearby (pl. 13.2c). The bowl is cross-hatched, except for the raised leaves along the rear mold line and the ring of stars along the rim of the bowl. The TD mark is encircled by 13 six-pointed stars and both the mark and the stars are set off from the cross-hatching by a raised circle with a diameter of 2.00cm. A prominent mold line runs through the center of the mark.

A front bowl fragment (79-17-82-121) was recovered from Feature 20 (pl. 13.2d). It has a raised TD mark encircled by 13 six-pointed stars. Stars also encircle the rim. The mold line that runs through the TD mark is prominent. Diameter of the star circle is 2.00cm.

MARKED PIPE FRAGMENTS

Nearly half of the Golden Eagle pipe collection consists of all-clay pipe fragments that are too small to classify. Several of these bear makers' marks or decorations that may serve to identify them in the future.

On a small portion of a bowl and stem fragment (79-17-41-54), a rather large spur is still attached, with the number 4 raised on the left side. The mold line, which has been completely removed from bowl and stem, appears along the spur. This specimen was found in Area VI.

One stem fragment (79-17-12-109) has "DAVI..." impressed on one side and "...ASGOW" impressed on the other (pl. 13.2i). It was most likely manufactured by the Davidson firm located in Glasgow, Scotland. This

firm was established about 1861-62, when Davidson bought out Murray, the previous owner (Walker 1971:25). The fragment was recovered from Area I.

Another stem fragment (79-17-22-31), from Area II, has the raised mark "GOUD..." on one side (pl. 13.2f). Half of the fragment is decorated with swirl lines and raised dots. This fragment may be from a pipe made in imitation of those manufactured by Peter Dorni, who worked in northern France around 1850. Pipes from this firm were so popular that "they were widely imitated by pipe-makers of Gouda, Holland..." (Omwake 1965:130).

One very wide stem fragment (79-17-28-9) has a raised "355" on the side (pl. 13.2m). It was recovered from Area VI.

Two stem fragments (79-17-29-10, -11) recovered from Area VI, have the mark "McDougall" impressed on one side and "Glasgow" on the other (pl. 13.2j and k). The McDougall firm was in operation in Scotland from about 1846 to 1967.

A stem fragment (79-17-82-119) found in Feature 20 is impressed with "Dumeril/St. Omer/Depose" at a right angle to the stem (pl. 13.2g). The Dumeril company, located in St. Omer, France, operated from 1845 to 1895.

A very small fragment (79-17-27-208) from Area VI has a small amount of sporadic, yellow glaze.

UNMARKED FRAGMENTS

Two end stem fragments representing different types were recovered from the Golden Eagle site.

One specimen (79-17-82-124), recovered from Feature 20, is plain white and unglazed. The round stem becomes flattened toward the end, and a raised bit has been added, giving it an oar-shaped appearance (pl. 13.2l). The other round fragment (79-17-82-125) does not flatten toward the end; an added, raised bit gives it the appearance of the end of a baseball bat (pl. 13.2n).

Twelve plain, center stem fragments were recovered from the following contexts: Area II, unstratified (1); Area I (2); Feature 15 (3); Feature 8 (1); Feature 20 (4); and Area VI (1).

DISCUSSION

The small sample of clay pipes from the Golden Eagle Hotel features and the paucity of comparative data from 19th-century sites place severe restrictions on analysis. Some interesting patterns are revealed, however, which might be tested in future excavations.

The collection as a whole displays great variety. No two pipe fragments recovered from the datable features are alike, with the exception of the plain stem fragments. The TD all-clay pipes represent the largest type in the collection, but each specimen shows slight variation in the size of the mark and other attributes, indicating different dates of manufacture or points of origin.

PLATE 13.1

a) Complete "elbow bowl"
b) Partial "elbow bowl" with spur; brown glaze in and out
c) Partial "elbow bowl;" red clay
d) Fluted pipe with Gisclon/M.E./a Paris impressed into stem
e) Plain white pipe bowl with stem decoration and Gisclon/M.E./a Paris impressed into stem
f) Pipe bowl with impressed "TD"
g) Pipe bowl with impressed "TD"
h) Pipe bowl with raised "TD"

Plate 13.1

PLATE 13.2

a) "Thirteen-star Patriotic Pipe" bowl
b) "Thirteen-star Patriotic Pipe" bowl
c) "Thirteen-star Patriotic Pipe" bowl with cross-hatching
d) Front bowl fragment with raised stars and "TD" mark
e) "Fleur-de-lis" on base of bowl fragment
f) Stem fragment with raised lines and dots and GOUD mark
g) Stem fragment with Dumeril/a St. Omer/Depose impressed
h) Stem fragment with Gambier/Paris/*M impressed
i) Stem fragment with impressed DAVI mark
j) Stem fragment with impressed McDougall mark
k) Stem fragment with impressed GLASCOW mark
l) End fragment; oar shaped
m) Stem fragment with raised 355
n) End fragment; baseball-bat shaped

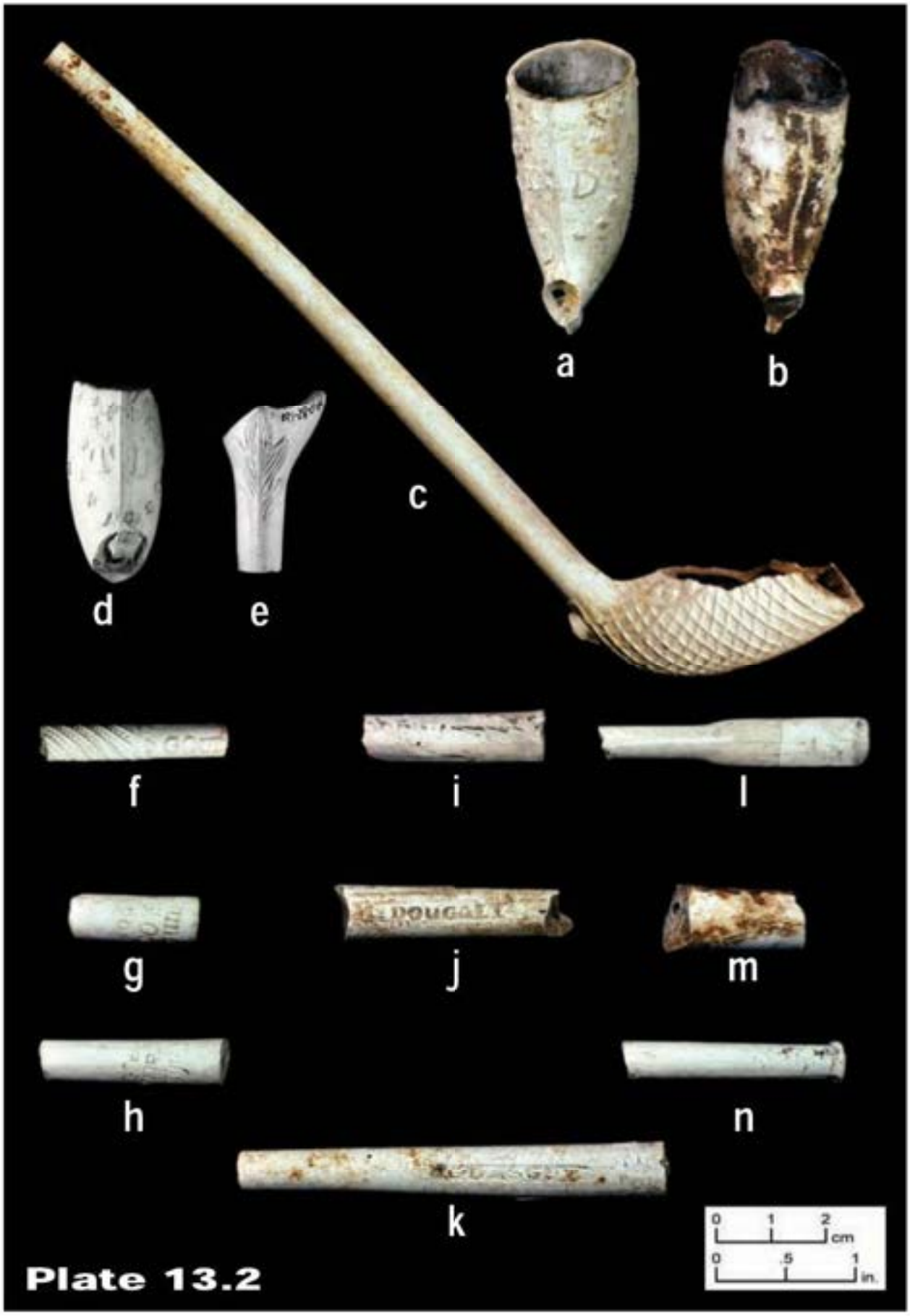

Plate 13.2

Within the total collection, pipes from France, Holland, and Scotland are represented, as well as specimens from the United States, specifically the Ohio River Valley. This variety suggests that Sacramento pipe retailers were involved in a broad trade network. It also implies that tobacco smoking was extremely popular in California at this time: a great number of men must have smoked to provide the impetus for such broad importation. Personal preferences were obviously at play as well.

The portability of pipes introduces a variable not present among other artifact types in the total Golden Eagle collection (with the exception of buttons and, possibly, leather): the hotel, and presumably the nearby oyster saloon, catered to guests from throughout the country and, possibly, foreign countries as well. A comparison of the Golden Eagle pipe collection with those from Sacramento sites which had more sedentary occupants would be valuable.

The overwhelming majority of pipes in the collection were of the all-clay group: only two detachable-stem pipe bowls were recovered from datable features (and only one additional specimen from a non-datable area). The abundance of all-clay pipes in the collection is probably related to their very low cost; they would be more readily discarded when chipped or worn. Another reason for discarding clay pipes was suggested in an encyclopedia of 1890. Referring to briar pipes, it was stated, "...although the stem is short, they partially absorb the oil produced in smoking which, however, is perhaps as much the case with the common clay pipe when it is new" (Chamber's Encyclopaedia 1890:661). All-clay pipes may have been kept only as long as they gave a clean-tasting smoke. There is some indication, however, that this type was cherished by individuals, as suggested by the following anonymous poem cited in Walker (1971:86-88):

> You may take your meerschaum with amber bit,
> And the briar too--for not one whit
> Will I miss them after a day or two;
> But without the other I could not do,
> For some bond hold us, don't you see?--
> I never could part with my old 'T.D.'
> A bond of friendship that seems to grow
> With the years that come, and the years that go:
> A something mingling our lives in one--
> Old tasks performed, new works begun
> And sometimes musing I sit and think,
> What binds us fast in this friendly link?
> While then, in answer it seems to say--
> 'Old pal, we both have been formed from clay.'
> Then I understand how it comes to me,
> This love I bear for my old 'T.D.'

Certain pipes for certain people, apparently, represented extremely personal property.

The relative cost of the detachable-stem pipe is not known. Whether it represents a more expensive and permanent pipe, less likely to be lost, is not certain. One possibility may be that the detachable-stem pipe was restricted for use in a context not represented by the hotel features.

The same individual might have used both types, smoking only the all-clay variety when dining out or on a voyage. Perhaps more valuable types, such as the Meerschaum and even the detachable-stem pipe, would have been left at home to prevent loss. Again, collections from differing site types within the Sacramento area might elucidate this question.

DISCUSSION OF PIPES BY FEATURE

The distribution of pipes by feature, shown in table 13.4, shows a marked contrast in the amount of pipe use for different areas of the Golden Eagle site. Most notable is the complete absence of pipes in Feature 6, a deposit built up beneath the floor of the Golden Eagle Oyster Saloon. As this feature was only partially excavated, however, no conclusions can be drawn.

Feature 8

Feature 8 is also notable for the negative information it contained. Only one TD pipe bowl and a non-diagnostic plain stem were recovered from this feature.

Feature 20

This feature, associated with the Golden Eagle Hotel restaurant, yielded a number of pipe specimens, suggesting that it may have been the fashion for men to smoke after a meal. The date of this feature, c.1860 by glass terminus post quem, and the presence of a patriotic pipe specimen in this feature, raises the relationship of this kind of pipe with patriotic sentiments surrounding the Civil War. Patriotic pipes were found in abundance (approximately one-quarter of the pipes in stock) in a Sacramento warehouse dating to 1852 (Butler 1979:30), suggesting that the pipes might instead have related to an earlier period. Support of the American, or "Know Nothing," Party at this time in California, which derived from various patriotic, secret societies such as the Order of the Star Spangled Banner, may instead be reflected.

Feature 15

Evidence from analysis of other artifact types has suggested that Feature 15 may represent, in part, the results of a cleanup of the boot-maker's premises prior to the opening of the oyster saloon. Pipe specimens recovered from this feature could support this hypothesis. The only examples of the detachable-stem pipe were recovered from this area. One of these was a complete bowl, presumably still usable. The presence of this pipe type in Feature 15 may represent a functional difference between the two types in the collection. Early refuse from the site apparently resulted from a workshop and, earlier, a barbershop. It may be that detachable-stem pipes were smoked in a place of business or with other men at the barbershop, but not when dining out.

Several patriotic TD pipes (three of the four specimens from datable contexts) appear in Feature 15. Their co-occurrence in Feature 20, deposited 10 years earlier, supports the hypothesis that much of the material in Feature 15 represented cleanup prior to renovation.

TABLE 13.4

Distribution of Pipes by Feature

	Feature 8	Feature 20	Feature 15
ALL CLAY			
	1 TD bowl	1 bowl w/rouletting	1 plain bowl w/stem
		1 fleur de lis bowl (Gambier)	1 Gisclon (plain)
			1 Gisclon (fluted)
	1 plain stem	1 Patriotic bowl	1 TD
		1 Dumeril	2 Patriotic
		4 plain stems	1 Patriotic w/cross-hatching
		1 plain stem (oar)	
		1 plain stem (bat)	3 plain stems
DETACHABLE STEM			1 partial bowl
			1 complete bowl

Although answers to most of the questions regarding pipes in the 19th century await further research, the data from the Golden Eagle pipe collection suggests that archaeologically recovered pipe collections have interpretive value beyond dating of deposits. The data presented here, and future reports, may also aid in developing a much-needed chronological framework in which to compare pipes uncovered from other 19th-century sites. Twenty-five specimens, representing about 60 percent of the total sample, were recovered from contexts to which fairly reliable dates--ranging from the late 1850s to the mid-1870s--have been assigned. Using this information as a starting point, tighter chronological controls for pipes uncovered from 19th-century sites may be promulgated.

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BRICKS

by

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Several hundred bricks were recovered from the Golden Eagle site during 1979 excavations in downtown Sacramento, California. Because construction of the hotel in brick began in 1852 and no other brick structures were known to have existed on the site before that date, it is assumed that the earliest bricks found date to that year. They all appear to have been molded or pressed by machines, probably by more than one manufacturer, as brick dimensions vary widely within the collection.

The first recorded brick-manufacturing plant in California was that of a Mr. Zins in Sutterville, which was operating as early as 1847 (Leighton and Ries 1909:69). The first brick house in San Francisco was erected in that year, at the corner of Clay and Montgomery streets, but the source of their bricks is not known. In Sacramento, the first brick houses were built in 1849, on Front Street south of M, opposite the Harbor Master's Office; the bricks for their construction were imported (Sacramento Bee 27 January 1860:3).

The brick industry expanded rapidly during the Gold Rush years, and by 1852 many plants were supplying bricks to the new urban centers of California (Leighton and Ries 1909:12). At least one brickyard was in operation in Sacramento by 1857; this was a factory utilizing French brick-making machines, located on J Street beyond the old Fort (Sacramento Bee 2 October 1857). Perhaps due to the floods in Sacramento, the brick-making industry underwent a "lengthy resting period," but by 1862 manufacturers had resumed work and were shipping large loads of bricks to San Francisco (Sacramento Bee 7 June 1862:3).

Because none of the bricks recovered at the Golden Eagle site bears an impressed maker's mark, it is not possible to state which plant manufactured bricks for the construction, or even if they were made locally. The use of maker's marks became common practice in the brick industry about 1870 (Kelly and Kelly 1977:85), indicating that bricks at the Golden Eagle were probably manufactured before that date, or between 1852 and 1870.

Table 14.1 presents a description of a representative sample of bricks, according to a method developed by Karl Gurcke of the University of Idaho (Gurcke 1976).

TABLE 14.1

Description of Bricks from the Golden Eagle

Catalogue Number	Length	Width	Thickness	Munsell	Description
(1) 22-14A	broken	3-1/2"	2-1/2"	10R 5/6	Dense, rough, dark/light inclusions
(2) 22-15	broken	4"	2"	5YR 5/8	Chalky, soft
(3) 22-16	broken			10YR 8/4	Granular, striations on flat side
(4) 38-15	broken			5YR 5/8 2.5YR 5/6 5YR 6/6	Porous, not uniform, blue/white paint
(5) 39-7	broken	3-7/8"	2-1/4"	10R 6/1	Granular, burnt
(6) 28-8	broken	3-1/4"	1-3/4"	5YR 8/1	Black inclusions, large pores, chalky inclusions
(7) 47-17	broken	4"	broken	2.5YR 6/8	Porous, uniform color
(8) 53-161	7-7/8"	3-3/4"	2-1/4"	2.5YR 5/6	Rough
(9) 59-104	broken	3-3/4"	2-3/8"	5YR 6/6	Chalky surface, crude appearance
(10) 82-360A	7-3/4"	3-7/8"	2-1/2"	2.5YR 5/8	Iron staining, sandy mortar surface
(11) 22-14B	broken	3-5/8"	2-1/8"	2.5YR 4/6	Possibly burnt (7.5YR 4/6)
(12) 82-360B	8-1/8"	broken	2-3/8"	2.5YR 5/8	Iron staining, lt. inclusions, mortar
(13) 82-360C	7-7/8"	3-3/4"	2-1/4"	2.5YR 4/8	Dark inclusions, mortar
(14) 82-360D	broken	3-7/8"	2-1/8"	10R 5/8	Sandy surface, mortar
(15) 82-360E	7-7/8"	3-3/4"	2-1/4"	10R 5/8	Some chalky inclusions, mortar
(16) 82-360F	7-7/8"	3-7/8"	2-1/8"	2.5YR 5/6	Iron staining, mortar
(17) 82-360G	7-7/8"	3-7/8"	2-1/4"	10R 5/8	Iron staining, large pores, mortar
(18) 82-360H	8"	3-3/4"	2-3/8"	10R 5/8	Iron staining, large pores, mortar
(19) 35-100	6-7/8"	3-3/8"	2"	2.5YR 5/6	Dark/light intrusions, center is 2.5Y 4/ with intrusions

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WINDOW GLASS

by

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INTRODUCTION

Window-glass fragments from the Golden Eagle site in Sacramento, California, were analyzed in an attempt to correlate glass thickness with temporal and behavioral variables. The sample recovered was quite small and represents a time period of less than 30 years.

Accurate dating of sites is of major concern to the archaeologist. In the field of historical archaeology, various techniques have been developed to facilitate dating. Initially, ceramics constituted the artifact group most frequently used as a temporal indicator, giving rise to one of the most notable dating techniques used by historical archaeologists: Stanley South's ceramic mean dating formula. Later, historical research and archaeological work led to the recognition of other artifact types as viable temporal indicators, including nails, clay pipes, bottles, and window glass. A need to organize the perceived artifact changes into sequences suitable for use in dating led to duplications of South's technique, such as Walker's experimental application of the mean dating formula to window glass data (Walker in Roenke 1978:104). Attempts to transfer South's techniques to other artifact categories met with criticism, as the use of formulas generated precise and sometimes misleading dates. Subsequent investigators of window glass have therefore developed new techniques of analysis.

The present analysis is based on Roenke's (1978) comparative study of flat glass from several 19th-century archaeological sites in the Pacific Northwest. It is his contention that overall shifts in the data through time can reveal patterns of behavior which are not adequately reflected in the single indices provided by formulas (Roenke 1978:104). Roenke established a regional sequence of thickness changes through time based on the modal distributions of the window-glass samples from each site. Variation in major and minor modal distributions recorded are believed to be indicators of structural additions, subsequent renovations, or the existence of more than one structure on the same site. The advantage of concentrating on modal distributions is that the raw data is readily available, not having been altered for interpretation. This technique is believed to be particularly useful for intrasite study, in which the sample sizes may be relatively small. Median and mean values are considered more appropriate for the larger samples present in intersite studies; these weighted values help to interpret the extent to which behavioral patterns have affected the data base over time. Conclusions regarding the behavioral significance of modal, median, and mean values are supported by study of the historical record (Roenke 1978:49).

METHODS

The Golden Eagle site contained several structures housing different activities (e.g., oyster saloon, blacksmith, hotel). In addition, the activities occurring in some structures changed over time (e.g.,

barbershop to boot manufacturer to oyster saloon). It is the purpose of this analysis to determine the extent to which the archaeological record in the form of window-glass fragments can help to elucidate these differing activities.

An analysis of window glass should be guided by two areas of concern: chronology and behavior. First, the analysis should attempt to establish correlates between the sequence of events described by the historical record and the sequence of glass fragments in the archaeological record, the assumption being that window-glass thickness will increase through time. If a sequence is established, it could be used for sites similar in composition and/or location which cannot be adequately dated through examination of the historical record or through analysis of other artifacts. The analysis should also be concerned with determining how the fragments reflect behavior described in historical records, such as the possible renovation of a structure prior to a change in the type of activities taking place in it. If it can be determined that statistics derived from the raw data, as Roenke suggested, provide indices for this behavior, these indices might be applied to the interpretation of similar sites.

The purpose and concerns outlined above are basically those of Roenke's study. There are major differences, however, between the Golden Eagle site and the sites analyzed by Roenke. While the sites investigated by Roenke were early frontier outposts and settlements, the Golden Eagle is a complex site in an urban area. Each structure and activity found on the Golden Eagle site would have had different window requirements. In cities, the homes of the wealthy, stores, and shops usually had higher quality glass than that used by the majority of people. Some of these buildings might have contained high-quality glass in the front windows and lower quality glass in upper-story and back windows (Roenke 1978:40). Any one structure, therefore, might contain window glass of varying thickness, depending on the technique used to produce the glass. In terms of significance to the Golden Eagle site's archaeological record, the presence of glass of differing quality complicates the attempt to establish a chronological sequence. Mode, median, and mean values would be affected not only by the types of structures and activities represented in a feature through time, but also by the varying quality of glass which might have been present in any one structure. Modal values would therefore not be clearly represented. This problem is further complicated by the probability that thinner-paned windows were more prone to breakage.

Such confusion might be avoided if the time period involved were singificantly long or if the sample size were large enough to detect these trends. However, the roughly 25-year time span represented by the four analyzed features of the site may be considered relatively short, and the sample sizes, which do not exceed 200 fragments for any feature (less than 500 fragments for the four features combined) are well below most of those used in Roenke's study (1978:51, table 4). Conclusions regarding differences in the mode, median, and mean values among sequence layers and among features are therefore highly speculative. The final outcome of the analysis fell short of its goal of providing additional elucidation of the behavior of the Golden Eagle

site's occupants and correlating the deposition of glass with the historical record.

Glass samples from layers within features 6, 15, 8, and 20 were analyzed. The methodology employed in measuring window-glass thicknesses and graphically displaying them was based on that outlined by Roenke (1978:48). Glass fragments were measured to the nearest five-hundredth of a millimeter with a Fowler Dial Caliper. The midpoint of a thickness range was recorded for fragments displaying varying thicknesses. Arbitrary range classes were established, and the range class midpoint was used for graphing purposes.

RESULTS

Table 15.1 records the primary modes, median, and mean values for each sequence layer and feature. (It should be noted that flat glass of unusually thick size was recovered from Feature 6. It is doubtful that this glass had been used as a door or window pane. These fragments would have weighted the sample toward thicker values. For comparative purposes, therefore, new values were calculated using only fragments of thicknesses less than 4.0mm.) Figure 15.1 displays this information on line graphs. These allow easy determination of the amount of skewing of each sample. Table 15.2 records the number of fragments found in each range class out of the given total number for each layer and feature particularly noting the primary mode populations. Figure 15.2 displays this information in the form of frequency polygons.

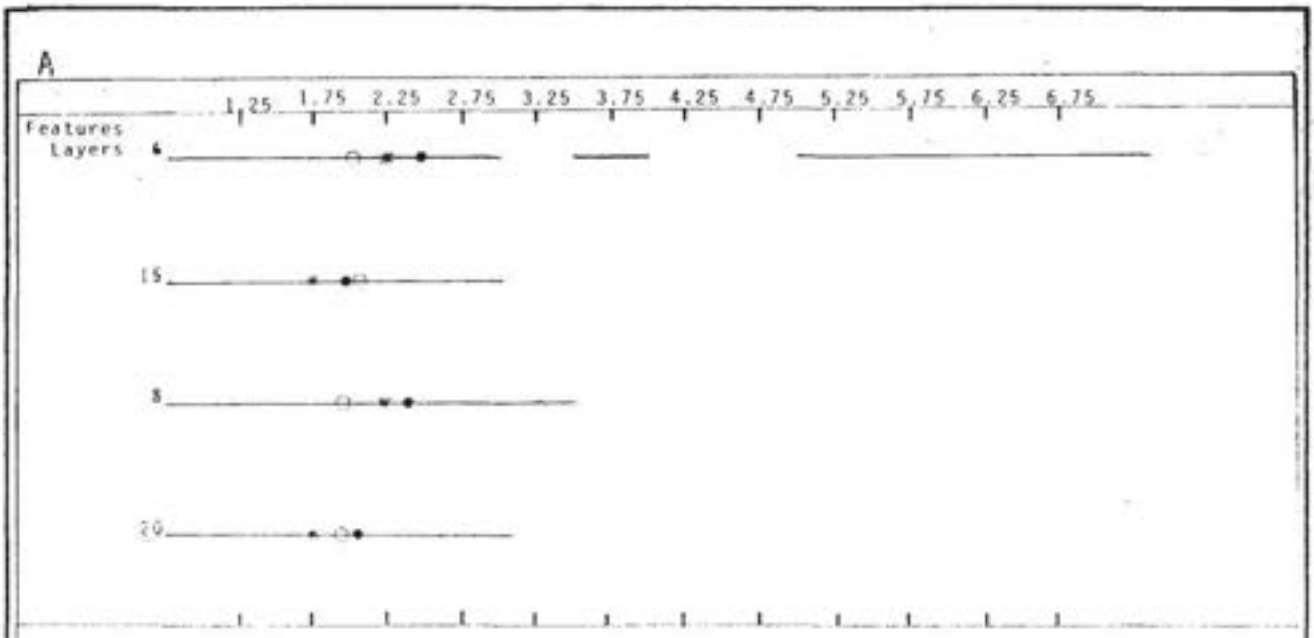
Feature 6 and Feature 15 were both associated with the A. Hillebrand boot-manufacturing shop (c. 1868-1873) and W. Cronin's oyster saloon (c. 1874-1878). Feature 6 primarily contained remains from the oyster saloon, with a few remains from the earlier boot manufacturer, while Feature 15 was primarily the result of a cleanup of items left by the boot business and the preceding barbers, with a few remains from Cronin's saloon. This change in ownership should be reflected in a lower mode for the feature associated primarily with the earlier activity. Comparison of the results supports this supposition: Feature 15 shows a primary mode of 1.75 mm, representing 48.7 percent of the total, with 37.2 percent of the sample occurring at 2.25 mm. Feature 6 (excluding fragments thicker than 4.0 mm) shows a reversal of this trend: a primary mode of 2.25 mm, representing 43.5 percent of the total, with 42.1 percent of the total sample occurring at 1.75 mm. This trend can be recognized in the layers. The results show an increase in primary modes from the deepest layer to the shallowest in both features.

Feature 8 and Feature 20 were both associated with the Golden Eagle Hotel. Feature 8, located on the lot of a blacksmith, contained debris from both the blacksmith and the hotel. This feature went out of use when the streets were raised in about 1870. This abandonment is supported by the archaeological record: glass and ceramic terminus post quem dates are 1861 and 1860 respectively, and the ceramic mean date is 1866. Feature 20 contained material from the Golden Eagle Hotel restaurant. Glass and ceramic terminus post quem dates of 1860 and 1856, respectively,

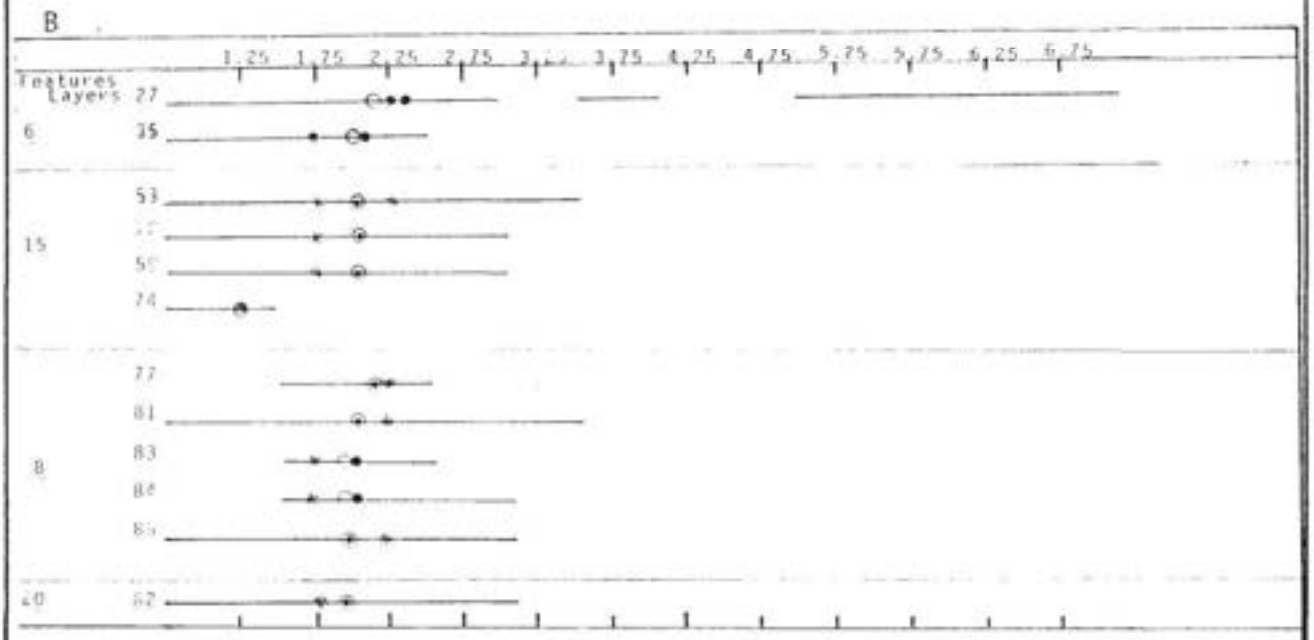
TABLE 15.1

Thickness of Window-glass Samples from the Golden Eagle Site (millimeters)

Feature	Layer	Primary Mode	Median	Mean
6		2.25	2.00	2.03
(Feature 6 includes only fragments < 4.0 mm.)	27	2.25	2.05	2.08
	35	1.75	1.92	1.93
15		1.75	2.00	2.01
	53	1.75 & 2.25	2.00	2.03
	72	1.75	2.05	2.04
	59	1.75	2.00	2.05
	74	1.25	1.08	1.08
8		2.25	2.00	2.33
	77	2.25	2.18	2.16
	81	2.25	2.05	2.02
	83	1.75	1.98	2.06
	84	1.75	2.00	2.15
	85	2.25	2.08	2.09
20		1.75	2.00	2.04
	82	1.75	2.00	2.04



General Distribution of Window-Glass Thickness Data by Feature
(in millimeters)



General Distribution of Window-Glass Thickness Data by Layer
(in millimeters)

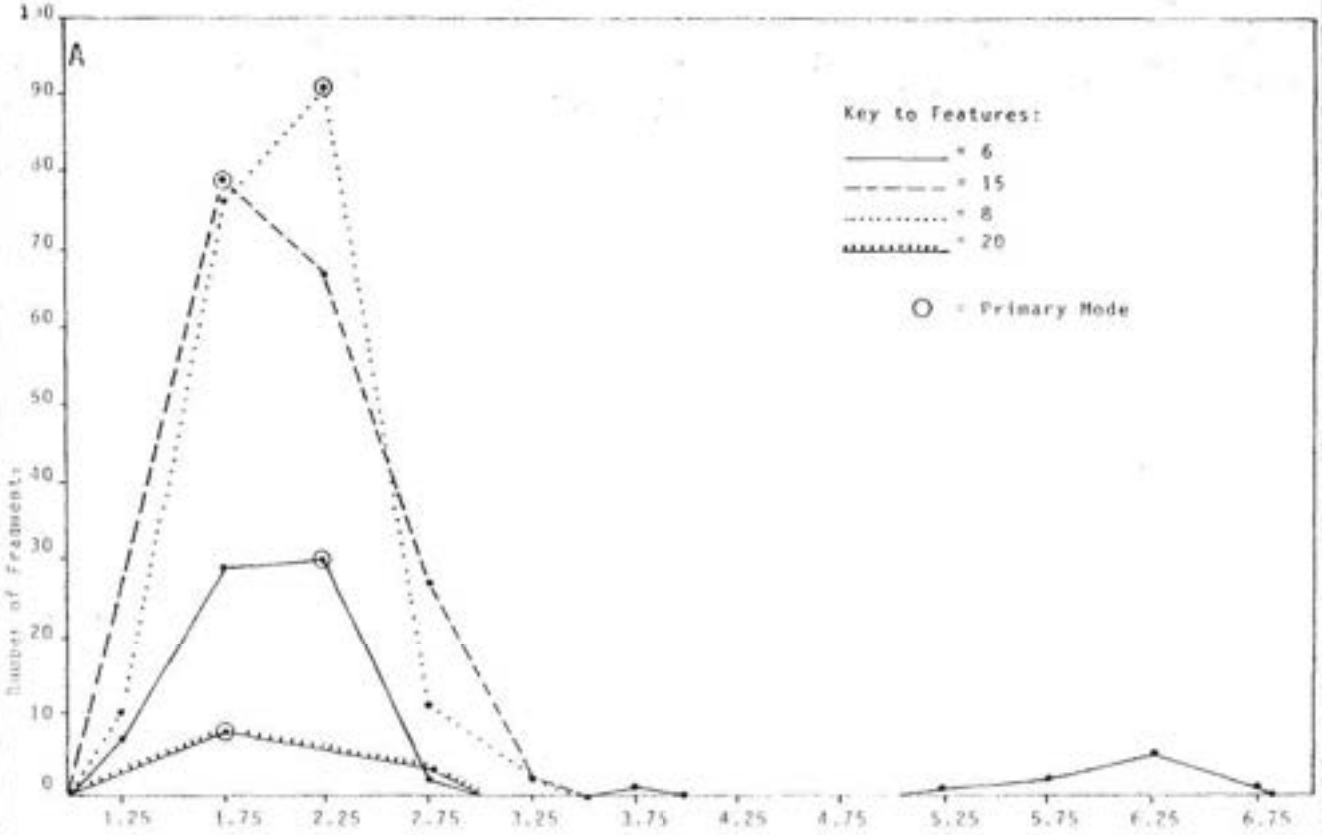
FIGURE 15.1

TABLE 15.2

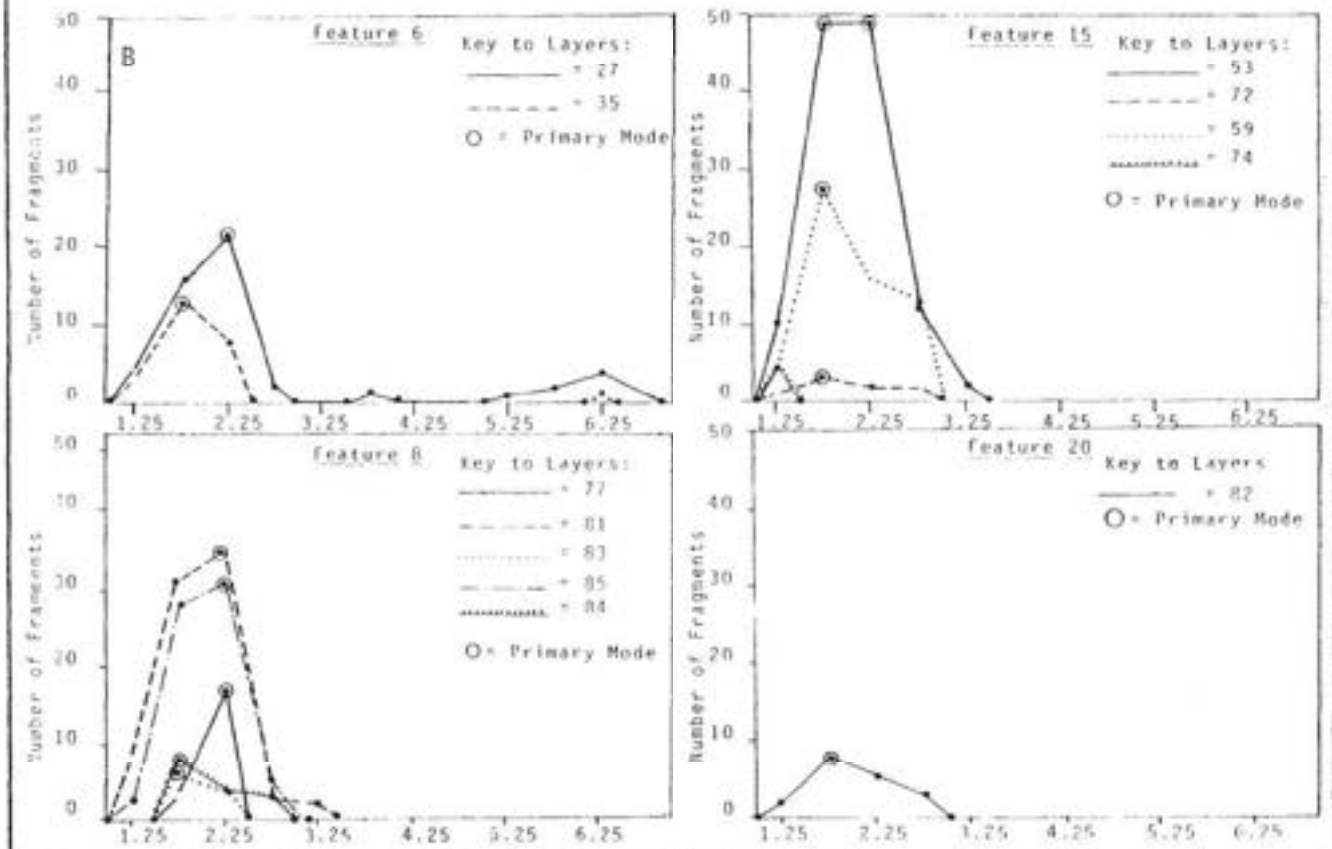
Frequency Distribution of Window-Glass Thickness (in millimeters)

Feature	Layer	1.25	1.75	2.25	2.75	3.25	3.75	4.25	4.75	5.25	5.75	6.25	6.75	n =
6		7	29	30	2		1			1	2	5	1	78
	27	4	16	22	2		1			1	2	4	1	53
	35	3	13	8								1		25
15		22	79	67	27	2								197
	53	10	49	49	12	2								122
	72	1	3	2	2									8
	59	6	27	16	13									62
	74	5												5
8		10	76	91	11	2								190
	77		3	17										20
	81	8	31	35	3	2								79
	83		6	4										10
	84		8	4	3									15
	85	2	28	31	5									66
20		2	8	5	3									18
	82	2	8	5	3									18

Note: Primary modes for each sample are underlined



Frequency Distribution of Window-Glass Thickness by Feature (in millimeters)



Frequency Distribution of Window-Glass Thickness by Layer (in millimeters)

FIGURE 15.2

and a ceramic mean date of 1856 suggest that the materials were deposited several years earlier than those in Feature 8. The material from these two features should reflect the earlier deposition of the materials by having mode, median, and mean values equal to or less than those recorded for Feature 15.

Feature 8 has a primary mode of 2.25 mm, representing 47.9 percent of the total, with 40.0 percent of the sample occurring at 1.75 mm. Feature 20 has a primary mode at 1.75 mm, representing 44.4 percent of the total, with 27.8 percent of the sample occurring at 2.25 mm. These figures do not support the hypothesis correlating specific window-glass thickness with time. The modal value for Feature 8 is equal to that for Feature 6, a feature which presumably contained materials deposited 10 to 15 years later. The value for Feature 6 is higher than that for Feature 15, which primarily contained materials accumulated over a decade and deposited at the same time.

A possible explanation for this finding could be that the hotel had installed some double-strength glass. (It should be noted that "double-strength" glass was in fact only about 1-1/2 times the thickness of regular glass /Gaffield in Roenke 1978:36/). For the period following 1850, Roenke stated, "Double-strength glass was used in finer dwellings where large panes were in vogue, in store fronts, in show cases, and was recommended for skylights, steamboats and lighthouses" (1978:36). It is not unlikely that a hotel would have such double-strength glass installed in common areas where there would be a concern for impressing the clientele. The other establishments on the Golden Eagle site--a blacksmith and a boot manufacturer--would probably be less inclined to install prestige markers such as large-paned, thick, window glass.

As time passed and dominant techniques for the production of window glass changed, the establishments responsible for the later features--the boot manufacturer and the oyster saloon--would have had ordinary glass available to them which was becoming as thick as the double-strength glass available 20 years earlier. One would therefore expect to find a large portion of the glass in Feature 8 located below the 2.25 mm range. This thinner glass would have represented contributions by the blacksmith shop and areas of the hotel that did not contain the thicker glass. The data support this hypothesis, with 40 percent of the total occurring in the next lower range, at 1.75 mm. Although a similar pattern would be expected for Feature 20, this is not the case. This discrepancy may be due in large part to the fact that the sample size from Feature 20 was extremely small, containing only 18 fragments. It is quite possible that it does not adequately represent the normal variation of window-glass thickness at the Golden Eagle Hotel.

If this suggestion is accepted it is possible to make some conclusions regarding the changes in window-glass thickness at the Golden Eagle site. A tentative sequence of primary thickness of 1.75 mm can be established for the period from 1855 to 1875, followed by a primary thickness of 2.25 mm until at least 1878. These thicknesses are thought to represent the glass most frequently installed during the 23-year span Thick glass present in the earlier deposits may represent fragments from

structures which contained a less frequently used, higher quality glass for large-paned windows.

Roenke (1978:116) obtained similar values in his study, defining three ranges of glass thickness: 0.075 inch (or 1.875 mm) for the period from 1850 to 1865; 0.085 inch (or 2.125 mm) for the period from 1855 to 1885; and 0.095 inch (or 2.375 mm) for the period from 1870 to 1900. His sites, which were primarily early frontier outposts and settlements, undoubtedly used the window glass most readily available. Differences in the number of ranges used and the values of the range-class mid-points are a result of Roenke's use of the U.S. system of measurement. The values are basically the same: 0.07 inch/1.75 mm, 0.09 inch/2.25 mm; compared to 0.075 inch/1.875 mm, 0.085 inch/2.125 mm, 0.095 inch/2.375 mm. The present study used a different grouping of data.

DISCUSSION

During the course of this analysis, certain areas of concern became apparent. Measurements of window-glass thickness would be ideally suited to the more complex statistical analysis which can be obtained through the use of computers. Hand manipulation of data required the selection of arbitrary range classes, as grouped values could be more easily studied than individual values. This grouping of data may tend to obscure variations found in the archaeological record that might have provided clues to differing patterns of behavior (e.g., preferential use of thicker glass in certain areas of a building). Future investigators may wish to apply finer analytical techniques and impose fewer constraints on the raw data. In addition, it is most important that as large a sample as possible be collected from each site. Complex urban sites such as the Golden Eagle should provide a sufficiently large data base for making inferences about intrasite differences. Of course, meticulous collection and measurement of window-glass fragments may be both time-consuming and expensive. An attempt should be made to determine a sampling technique that would adequately represent the window glass from the site.

Other questions regarding archaeologically recovered window glass might be pursued in future studies. The phenomenon of "flow", that is, the physical alteration of glass through time, and the significance it poses for archaeological interpretation has not been addressed. Urban sites present an excellent opportunity to study the types of structures that contained double-strength glass. The presence of this type of glass can suggest the affluence of the owners, as double-strength, large-paned windows were a more expensive, prestige item. This information could then be correlated with the activities associated with the structure. It might be possible to see trends in the neighborhood, the type of businesses present, and their social status. On the other hand, the information might help to break down stereotypes concerning the past economic position of ethnic groups. If questions such as these are addressed, it takes window glass out of the realm of merely an artifact which may be used for dating and elevates it to a position where it can help to elucidate the form of past social structures.

This analysis should be considered a test of techniques established by Roenke. Similar studies on urban sites in California should provide the broad data base necessary for establishing a temporal sequence for window-glass thickness, leading to use of window-glass fragments as a dating tool for California's historical sites. This study is only an initial step in that direction. If this goal can be achieved, the information available can be used to interpret the behavior of past societies.

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1978 "Flat Glass: Its Use As A Dating Tool for Nineteenth Century Archaeological Sites in the Pacific Northwest and Elsewhere," Northwest Anthropological Research Notes, Memoir No. 4, Vol. 12, No. 2, Part 2, University of Idaho, Moscow, Idaho.

MISCELLANEOUS MATERIALS

by

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This brief section describes noteworthy artifacts which do not fit into the other chapters of this report.

TRADE BEADS

Among these are two glass trade beads. These beads were examined by Dr. James Bennyhoff, Sonoma State University, whose comments comprise much of the following description.

The bead from Feature 20 is barrel-shaped. A total of four alternating red and green stripes extend along the yellow body of the item. This decoration is apparently not a surface treatment, but rather an element of the glass tube from which the bead was originally cut. The bead is 2.5mm in length by 3.5mm in diameter; the threading hole is 1.3mm in diameter.

The second bead, from Feature 6, is of black glass; it is of a slightly crooked donut shape. This item was made of a straight piece of glass rod which was bent around a metal form of circular cross section; the ends were cut and fused together. The bead is 3mm in thickness by 1.2cm in diameter; the threading hole is, on average, 6mm in diameter.

BONE ARTIFACTS

Three bone artifacts were recovered from Feature 6: one toothbrush (plate 16c), one hair brush (plate 16a) and one handle of an unidentified object (plate 16b). None of the bristles, which were fastened into holes drilled into the head of the brushes, have survived. The toothbrush has four parallel rows of holes, with a total of 65. Indicating this arrangement and the quality of the bristles, "extra hard extra fine" is stamped into the handle, as is "S & Co. London Warranted." Fragments of bone cutlery handles were recovered from features 15 and 20.

Bone was commonly used in the 19th century for the manufacture of knife handles, toothbrushes, babies' teething rings, and a variety of other articles. The shin and "buttock" bones of oxen and calves were almost exclusively used for this purpose. These bones were boiled, bleached, shaped, soaked in turpentine, boiled again, then polished and finally waxed (Lock 1882:521).

OTHER

A rectangular marble washstand attachment, with a scroddled-ware, ceramic handle (plate 16d), and a slate pencil were found in Feature 6. This pencil would have been used on a slate writing tablet, such as that found in Feature 15. This slate tablet was originally rectangular or square and has parallel, horizontal lines incised into the surface as an aid to the scribe.

A broken set of porcelain false teeth, as well as two human canines, were found in Feature 15.

PLATE 16.1

a) Bone hairbrush
b) Bone handle
c) Bone toothbrush, "S. & Co. London"
d) Marble washstand attachment, with scroddled ware, ceramic handle

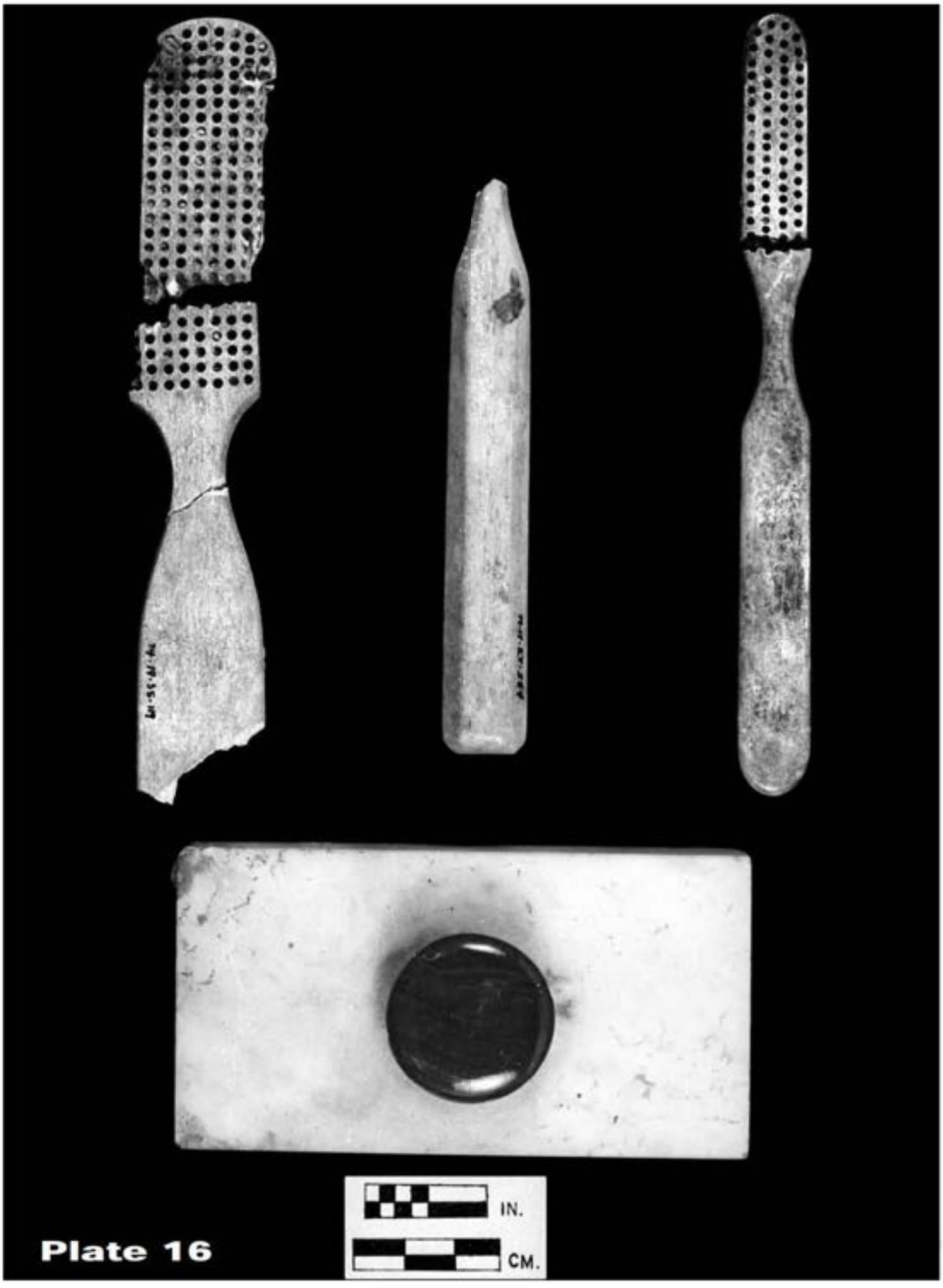

Plate 16

REFERENCE

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1882 Spon's Encyclopedia of the Industrial Arts, Manufactures and Commercial Products. London: E. & F.N. Spon.