

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

<u>Description</u>	<u>Quantity by Feature</u>			
	<u>6</u>	<u>15</u>	<u>8</u>	<u>20</u>
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	<u>7</u>	<u>8</u>	<u>0</u>	<u>0</u>
Total	64	33	3	3

TABLE 11.2 Shoe Elements by Feature

<u>Description</u>	<u>Quantity in Features</u>		
	<u>6</u>	<u>15</u>	<u>20</u>
<u>Sole:</u>			
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
<u>Sole Fillers:</u>			
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
<u>Heel (Stacked):</u>			
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
<u>Heel Seat:</u>			
Copper-alloy nails	0	1	0
Rand	0	2	0
<u>Upper:</u>			
Counter	0	2	0
Sewn w/eyelets	6	0	0
<u>Miscellaneous</u>			
Lift w/copper-alloy nails	0	3	0
Lift w/iron nails	0	3	0
Fragments	6	3	0
<b>Total</b>	<b>64</b>	<b>33</b>	<b>3</b>

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 re-balance 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 association 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.

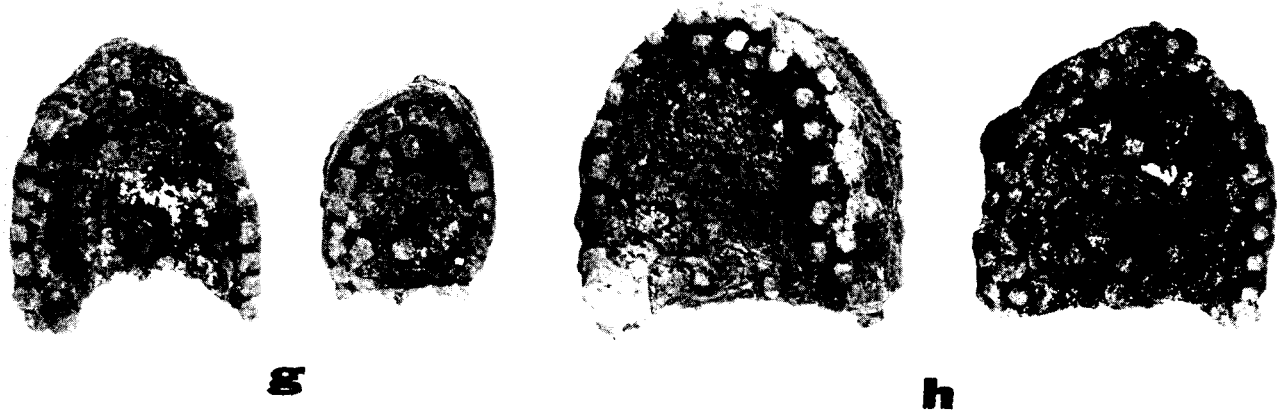
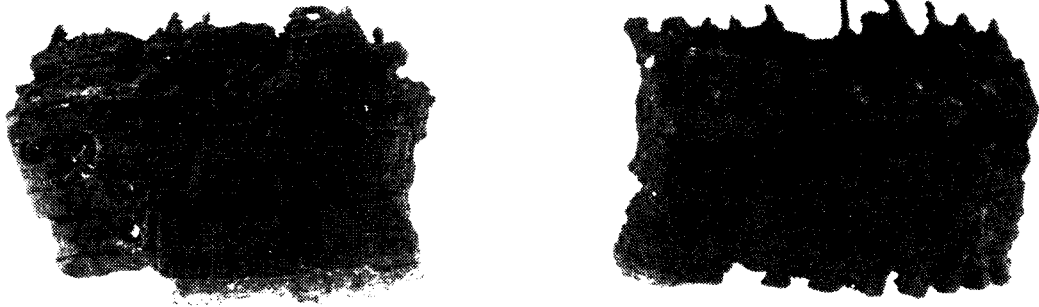
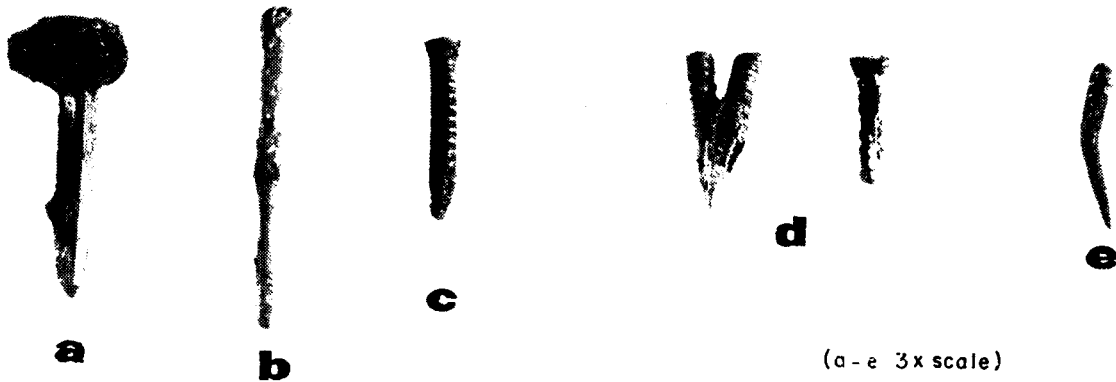
The distinctive features of all the fragmentary sole specimens in the collection are their double-or triple-ply count and strong, metal joinery. These characteristics suggest heavy and inflexible shoes or boots which were very well worn.

#### 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**

0                      1 in.  
0                      1                      2                      3                      4 cm.

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



a



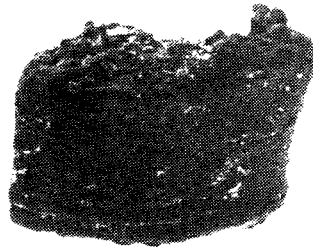
b



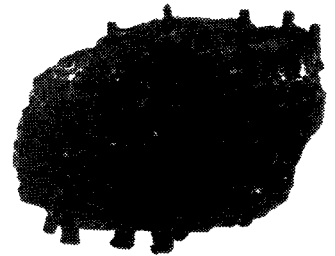
c



d



e

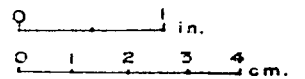


f



g

**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.

## Appendix 11.1, continued

### 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.

