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The Bottles of the Hoff Store Site

INTRODUCTION

When the Hoff Store site collapsed into San Francisco Bay during the conflagration of May 3rd and 4th, 1851, hundreds of glass bottles containing preserved foods, alcoholic beverages, medicines, toiletries, and various other contents for retail purchase were deposited onto the muddy floor of the Bay. The waters and sediments of the Bay, combined with landfill from expansion of San Francisco's shoreline in the year following the fire, "sealed" these glass containers. As a result, many still retain their original contents.

In addition to a purely descriptive account of the functional types of glass retail containers present in the Hoff Store site assemblage, the collection will also be viewed with the specific goal of determining whether the production methods exhibited help define either the nascent or terminal dates currently associated with 19th-century bottle production technologies.

During excavation, all complete bottles, bottle bases, and bottle finishes were collected. Body or shoulder sherds were collected when deemed temporally or functionally diagnostic, or when excavated as part of a feature. Non-diagnostic glass sherds were discarded. A total of 3,983 pieces of bottle glass was recovered, representing at least 874 bottles. Of these, 77 were complete or nearly complete. The remainder is a minimum number derived from base and finish counts, or distinctively-embossed fragments. Measurements taken of the individual bottle classes include basal dimension, total container height, and, where applicable, volume measurement at brimful capacity. The extremely fragmentary condition of the majority of glass recovered is undoubtedly due to the intense heat of the fire, followed by immersion in the cold Bay waters. The bottle fragments exhib-

iting thermal deformation or extreme hairline fracturing attest to this occurrence (Fig. 7-1).

The Hoff Store site bottles are divided into five functional classes: alcoholic beverage, culinary, medicinal, toiletry, soda and mineral water bottles. A sixth class includes those fragments which could not be identified and incorporated into one of these five classes.

By far the largest functional class of bottles represented by the Hoff Store site assemblage is that of the alcoholic beverage bottle. A total of 401 alcoholic beverage bottles were recovered, constituting 45.9% of the bottle assemblage. The great majority of these containers are "black glass" beverage bottles, totaling 259 specimens (64.6%). Other types of alcohol containers are wine and champagne bottles ($n=140$) and two "Ale" bottles. These latter two are identified on the basis of body embossing.

Culinary bottles represent the second largest functional class ($n=262$, or 30.0%). Bottles in this class include wide-mouth preserve bottles, spice and condiment bottles, and cooking oil bottles.

Medicinal bottles comprise the third functional class ($n=182$, or 20.8%). The majority of these are small unembossed vials, although embossed medicine bottles and a small variety of other unembossed types also occur in the assemblage. Toiletry bottles are next in frequency, represented by 22 specimens totaling 2.5% of the collection. Soda and mineral water bottles form a small minority of the total ($n=3$, or 0.3%). The remaining glass containers, represented by four specimens (0.4% of the total), were functionally unidentified.

ALCOHOLIC BEVERAGE BOTTLES

Alcoholic beverage bottles consist of two types, those of black glass and those for wine or champagne. Each type is described more fully below.

Black Glass

Black glass bottles blown from dark olive or amber colored "metal" (glass) dominate the alco-

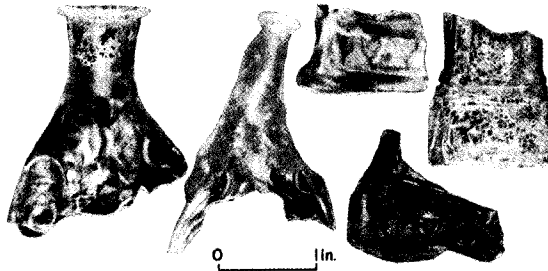


FIGURE 7-1. Figured cologne bottle fragments exhibiting fire damage.

holic beverage class, totaling 259 specimens (64.6%). Eighty specimens that exhibit identical morphological characteristics are thought to have contained brandy—four complete specimens still retain brandy. However, one cannot discount the possibility that some bottles may have been recycled to contain other goods (Busch 1987). Indeed, six black glass bottles were found to contain caraway seeds and ground black pepper. In short, the specific contents of the majority of black glass bottles cannot be stated for certain at the time of their deposition, but wine, porter, ale, brandy, distilled spirits, or liqueurs are the most likely prospects (cf. McKearin 1970:32; Switzer 1974:9; Felton and Schulz 1983:47).

The basic profile of all black glass bottles consists of a cylindrical body, a rounded shoulder, either a tapered or slightly bulbous neck, and an applied, slanted collar with a lower beveled ring formed with the use of a hand-held finishing tool. However, basal diameters, container height, and volume vary within the assemblage. Basal diameter ranges from 2.5–3.8 in., with a mean value of 3.1 ± 0.33 in. Container heights vary from 9.4–11.8 in., with a mean of 10.8 ± 0.78 in. Volume measurements range from 16 fl. oz.–29 fl. oz., with a mean of approximately 24 fl. oz.

All but two of the 259 black glass bottles were formed within molds. The two exceptions exhibit characteristics typical of free blown containers (Table 7-1; Toulouse 1969a:530; Jones et al. 1985:22). The bodies and bases are asymmetrical in horizontal cross section. Mold seams are absent.

Basal edges and resting points are rounded, and the glass is evenly distributed throughout the various parts of the bottle. Both free-blown specimens exhibit “rounded cone” push ups with blowpipe pontil scars present at the push up apex (cf. Jones et al. 1985:113, Figure 80).

Of the 257 black glass bottles formed with the use of contact molds, the specific mold type could be positively identified for only 84 specimens. Eighty of these were formed in three-part molds utilizing a single piece dip mold to form the body and a hinged two-piece upper to form the shoulders and occasionally the lower neck. Included within this number of three-part molded bottles are eight specimens which exhibit a manufacturer’s or proprietor’s basal embossing, denoting the use of Ricketts-style three-part molds utilizing a removable basal mold insert (see discussion below). The four remaining were blown in single piece, open top dip molds which form the base and body of the bottle. Shoulders and necks are formed outside the mold by hand manipulation. The remaining 173 specimens are too fragmentary to permit the distinction between these mold types; however, the technique used was surely one or the other.

Fully 180 mold-blown bottles exhibit bases that were formed in the mold, while the 77 remaining bottles display bases with push ups that appear to have been formed manually after removal from the mold. This latter style of push up displays a deep, conical profile, usually with a small pointed or dome-shaped depression at the push up apex, presumably resulting from the tool used to indent the base (Figure 7-2). Bases similar to these have been found primarily on dark green glass “wine” bottles that were probably manufactured during the second and third quarters of the 19th century (Jones 1971:67).

Bases formed within molds were identified by a mold seam line circling the base at or inside the basal resting point, by basal embossings, or by the presence of one or three raised dots (or mamelons) on the indented basal surface. The latter are possibly the result of mold vents (Peligot 1877:304–305). One bottle base displays an embossed decorative motif on the push up (Figure 7-3a). Eight bottles blown in Ricketts-style three-part molds ex-

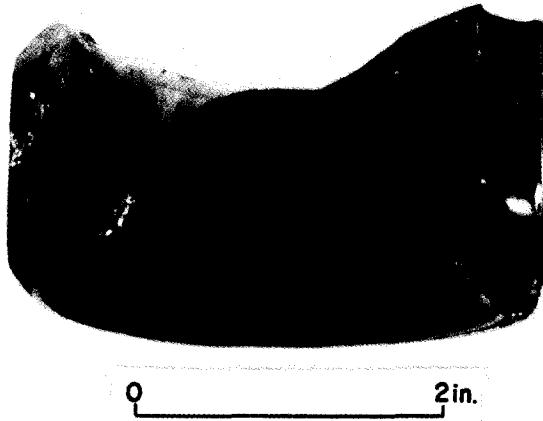


FIGURE 7-2. Black glass alcoholic beverage bottle base showing cross-section of conical push up with dome-shaped depression at push up apex.

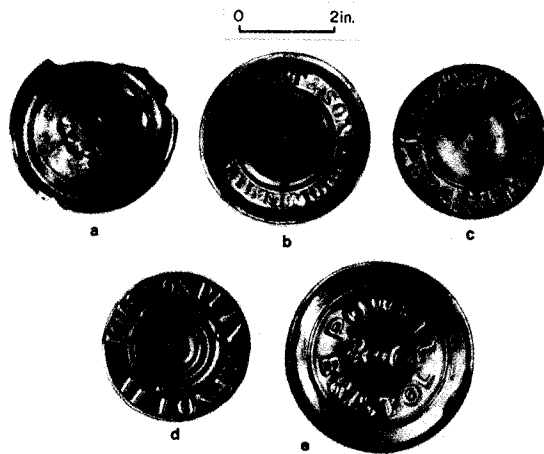


FIGURE 7-3. Embossed black glass alcoholic beverage bottle bases: (a) decorative motif; (b) A. HART & SON BALTIMORE; (c) J & W PETERS HAMBURG; (d) IOH VON PEIN ALTONA; (e) POWELL & Co BRISTOL.

hibit a circular seam on the push up surrounding a manufacturer's or proprietor's embossing. Bases of this description indicate the use of a basal mold insert, such as Henry Ricketts' 1821 patent in England (McKearin and Wilson 1978:216; Jones et al. 1985:30). This removable mold part facilitated embossing the base with the glass manufacturer's or proprietor's name. The names identified from

the eight bottles exhibiting basal embossings include "POWELL & CO. BRISTOL," "A. HART & SON BALTIMORE," "IOH VON PEIN ALTONA," and "J. & W. PETERS HAMBURG" (Figure 7-3b-e). The bottles displaying the "IOH VON PEIN" and "J. & W. PETERS" basal embossings also exhibit the identical embossing laterally around the shoulder of the bottle.

It is probable that the "POWELL & CO. BRISTOL" embossment refers to a British glass manufactory operated by Powell prior to incorporating the Powell, Ricketts, and Filer firm in 1853 (McKearin and Wilson 1978:217; Smith 1981:152). Archibald Hart and Son are listed as wholesale and retail grocers residing at 252 W. Baltimore Street, Baltimore, from 1845 to 1851 (Murphy 1845:54; Matchett 1847:149, 1849:171, 1851:119). Unfortunately, little historical information could be gleaned from available resources about the "IOH VON PEIN" or "J. & W. PETERS" embossings.

A total of 198 (77.0%) of the mold-blown black glass bottles exhibit sand pontil scars. These include 121 bottles with bases formed within molds and all the bottles displaying manually formed push ups. For the bottles with molded bases, the sand pontil scar appears as a thin line of glass chips encircling the push up. The use of sand pontils on bottles with molded bases was preferable to using other pontil types, as the sand pontil would conform to the shape of the molded base without distorting it (Jones 1971:69). For the bottles with bases formed outside the mold, the sand pontil is less well defined. Often the pontil scar starts near the basal resting point and covers nearly the entire surface of the push up. The surface of the push up contacted by the pontil may appear orange peel-like in texture (Figure 7-4a), or, alternatively, may appear shiny or polished and occasionally may display cobalt coloring (Figure 7-4b). Bits of glass or grains of quartz sand are often embedded within the empontilled surface. However, care should be taken not to confuse the orange peel surface of a sand pontil, caused by the sand or glass chips adhering to the surface of a glass-tipped pontil indenting the push up's surface, with a push up formed from glass containing extremely minute seed bubbles which have risen to the surface of the

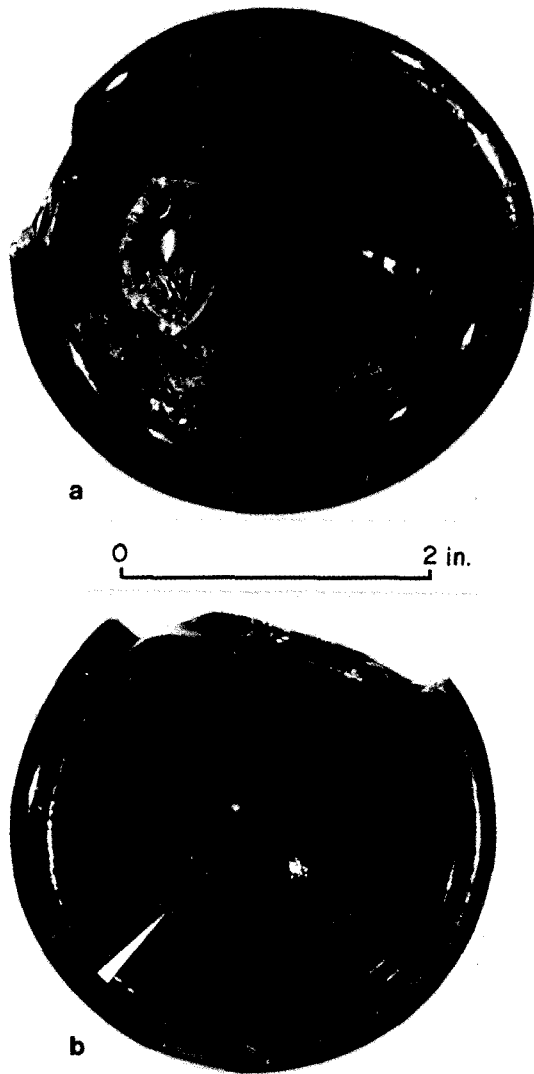


FIGURE 7-4. Sand pontilled black glass alcoholic beverage bottle bases: (a) push up showing orange peel-like texture resulting from sand pontil—excess glass adhering to push up torn from pontil; (b) push up exhibiting shiny or polished sand pontilled surface. Arrow is pointing to cobalt colored area.

push up and burst open during formation of the push up. The “indentations” on the latter surface will normally be ovoid in shape and not contain any particles of sand or glass, while the true in-

dentations associated with the sand pontil will be irregular and angular in shape and often retain particles of sand or glass. Examination of the suspected surface under magnification will help differentiate between the two.

The 59 black glass bottles that do not exhibit any sort of pontil scar were undoubtedly held by some form of snap case holding device during the finishing process. Many of these specimens bear indentations around the lower body resulting from the use of this type of device.

Two bottles blown from olive-green glass are identified by the embossing “JOHN DOVE’S/CELEBRATED ALE/GLASGOW,” which is displayed on the body of the bottle in three vertical lines (Fig. 7-5). Both bottles were shaped in two-piece cup bottom molds and exhibit a cylindrical body, rounded shoulders, a slightly tapered neck, and an applied, slanted collar with a lower beveled ring. Bases are 2.4 in. in diameter and feature a dome-shaped push up with centrally located mamelon. Container height and capacity measurements were obtainable from only one specimen which measured 9.4 in. in height and 12 fl. oz. in volume. One specimen exhibits a sand pontil scarred base, while the second specimen must have been held in a holding device during the finishing process.

Wine and Champagne

A total of 140 wine bottles were recovered from the site. These are divided into three distinct styles: Champagne-style, Bordeaux-style, and Hock-style (Schulz et al. 1980:75, Figure 23).

Champagne bottles are represented by a minimum of 134 specimens, including five complete bottles—two of which still retain their alcoholic contents—and 129 bases. Eighty-four champagne finishes were also retrieved.

All champagne bottles were blown from dark olive-green glass and display the profile typical of modern day champagne bottles. Bottles averaged 11.7 in. high \times 3.7 in. in basal diameter. Volume averaged 29 fl. oz. All but three of the 134 champagne bottles were blown in dip molds (Table 7-1). Of these, 105 specimens exhibit bases with

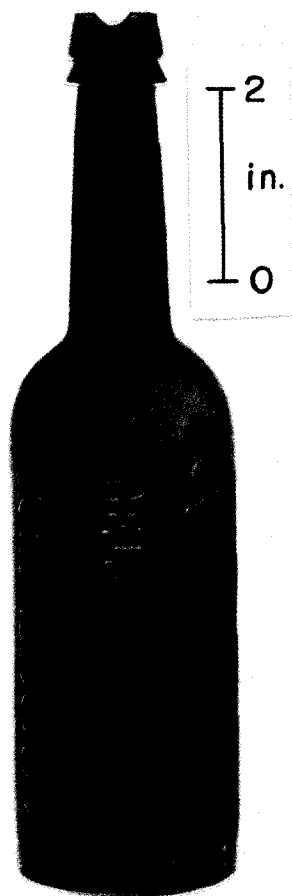


FIGURE 7-5. Alcoholic beverage bottle: JOHN DOVE'S CELEBRATED ALE GLASGOW.

deeply indented "bell-shaped" push ups with large mamelons present at the push up apex (Jones et al. 1985:114, Figure 81). The 26 remaining dip molded bottles exhibit deeply indented, rounded cone push ups. The three champagne bottles not blown in dip molds display the asymmetrical characteristics of free blown bottles, and also exhibit rounded cone push ups.

The 89 champagne finishes recovered—including those on the five complete bottles—exhibit two lip styles. Sixty-nine of the finishes have flat, sheared lips while the 20 remaining exhibit beveled lips. Both lip styles are accompanied by laid-on-rings, tooled to a uniform shape.

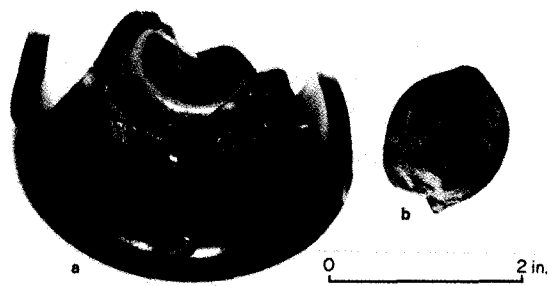


FIGURE 7-6. Wine and champagne bottles: (a) champagne bottle base showing sand pontilled surface of push up; (b) Bordeaux-style bottle finish with lead foil label embossed NELSON DUPOY A BORDEAUX.

Pontil scars are present on 41% of the champagne bases ($n=55$). Sand pontils predominate ($n=43$). Each sand pontilled specimen is a dip molded bottle featuring a bell-shaped push up with large mamelon. The pontil scar usually covers the upper half of the push up (Figure 7-6a), although occasionally the scar will occupy a larger portion of the push up surface. Twelve specimens exhibit a blowpipe pontil scar at the apex of the push up. This type of pontil scar was found only on bottles lacking mamelons, with rounded cone push ups, including the three free-blown specimens and nine dip molded bottles.

Bordeaux-style wine bottles blown from transparent olive-green glass are represented by basal and finish fragments, presenting a total of only four bottles. Basal asymmetry suggests that two of the specimens were free blown to shape, while the other two were probably formed in dip molds. Due to the fragmented condition of these bottles, basal diameter is the only possible measurement and averages 2.7 in. These bases have rounded cone push ups, with one specimen exhibiting a sand pontil scar. Finishes are characterized by flat, sheared lips with casually applied, untooled, laid-on-rings.

One Bordeaux-style bottle finish retains the lead foil label covering the cork. This label reads "NELSON DUPOY/A BORDEAUX" (Figure 7-6b). Unfortunately, the written resources available and numerous inquiries of wine merchants familiar with 19th-century French wines have failed to shed any historical information concerning Nelson Dupoy Bordeaux.

Hock bottles, presumably containing Rhine wine, were recovered in fragmented condition. A minimum of two bottles are represented from the collected fragments, which include two bases and two finishes with portions of the necks intact. These specimens were blown in dip molds from both amber and transparent green colored glass. The finishes recovered exhibit sheared lips with tooled laid-on-rings. Bases average 2.8 in. in diameter and are characterized by wide, flat resting points surrounding dome shaped push ups with small, centrally located mamelons. One base displays the "J. & W. PETERS HAMBURG" embossment previously described (Fig. 7-3c). This embossment is located on the flat area surrounding the push up. This base also displays a sand pontil scar within the dome push up.

CULINARY BOTTLES

Glass culinary bottles are the second largest functional group of retail containers recovered from the Hoff Store site. The majority of culinary bottles were recovered in fragmented condition. Fortunately, however, bottles were usually found and collected in groupings of distinct bottle types—probably representing individual packing crates—which, though broken, made identification, quantification, and association of the various sherds to a specific bottle type feasible. Complete specimens were occasionally found within the concentrations of broken bottles, often with their original contents intact.

Bottles identified as containing or having contained ground black pepper are the most numerous type of culinary container found at the Hoff Store site (Figure 7-7a-b). A minimum of 122 specimens are represented (46.6% of the total assemblage), three of which are complete, including one that still retains black pepper, which proved decisive in the functional characterization of these bottles. These bottles were recovered in two sizes. The smaller size averages 2.2 in. square at the base, 5.6 in. high, with an average capacity of 7 fl. oz. (Figure 7-7a). The larger variety averages 3.1 in. square at the base, 7.6 in. high, with an average



FIGURE 7-7. Wells, Miller, and Provost ground black pepper bottles: (a) small 7.0 fl. oz. variety; (b) large 28.0 fl. oz. variety containing ground black pepper.

capacity of 28 fl. oz. (Figure 7-7b). All 122 specimens were blown from aqua colored glass in two-piece post bottom molds. Bottle bodies are long, square, octofoil shaped with a central narrow rib on each side. Shoulders are conically tapered, joining a short, cylindrical neck that terminates in a rounded, everted collar. Bases have beveled heels, flat resting points, and dome shaped push ups. All specimens exhibit pontil scarred bases, with 113 specimens displaying blowpipe pontil scars and the nine remaining specimens displaying bare iron pontil scars.

Many of the specimens recovered retain a lead foil cap covering the cork, collar, and uppermost portion of the neck. The proprietors identified by these lead foil caps are "WELLS . MILLER & PROVOST/217/Front/ST/NEW YORK" (Fig-

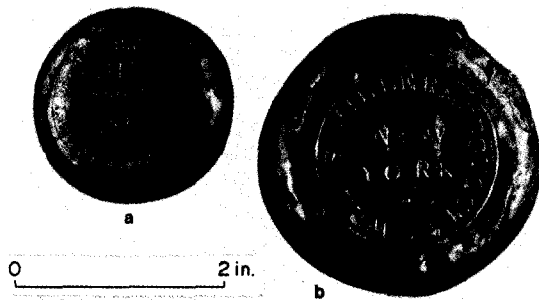


FIGURE 7-8. Culinary bottle lead foil labels: (a) WELLS . MILLER & PROVOST 217 FRONT ST NEW YORK; (b) WELLS MILLER & PROVOST NEW YORK.

ure 7-8a). John B. Wells, Ebenezer Miller, and Stephen H. Provost were known as one of the leading manufacturers and distributors of preserved foods and condiments during the mid-19th century. They were located at that address from 1844 to 1852 (Zumwalt 1980:428, 431).

Large, wide-mouth bottles identified by the embossing "Wm. UNDERWOOD/& CO./BOSTON" are the second most numerous type of culinary bottle recovered from the Hoff Store site, totaling 50 specimens. Only one of these bottles was recovered intact (Figure 7-9). These containers were blown from deep, aqua-green colored glass, in two-piece post bottom molds. The cylindrical bodies are scallop-edged in horizontal cross-section. A bulbous ring joins the body to a conically tapered, scalloped shoulder. Another bulbous ring is present at the junction of the shoulders and short, cylindrical necks which terminate in everted, tooled collars. Bases averaged 3.9 in. in diameter and have narrow, flat resting points and conical push ups. All specimens exhibit blowpipe pontil scars at the apex of the push up. Maximal container height and volume measurement is obtainable only from the complete specimen: 11.1 in. high, with a capacity of approximately 57 fl. oz. Embossings are located on opposing sides of the body near the base, with "Wm. UNDERWOOD/& CO." located on one side and "BOSTON" opposite.

William Underwood and Company, probably

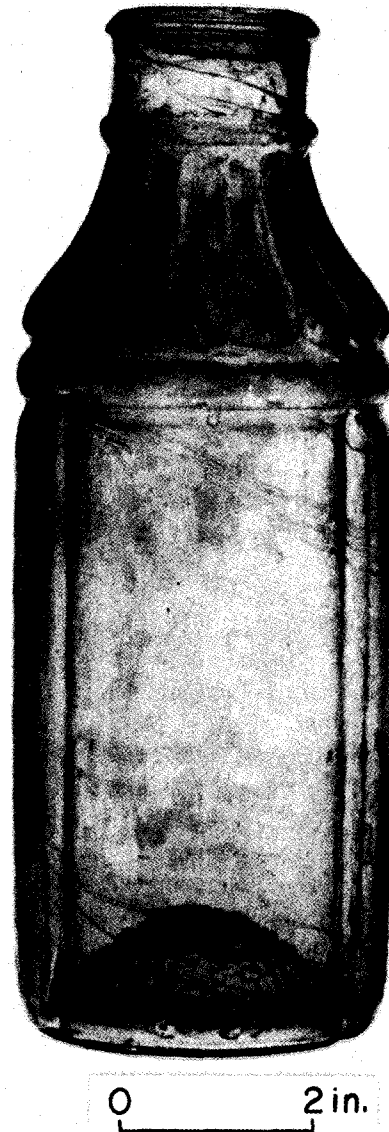


FIGURE 7-9. Large preserve bottle utilized by William Underwood & Co. of Boston.

most famous for their current product "Underwood Deviled Ham," was first established in 1822 on Boston's Russia Wharf. The company originally packed all their preserved foods in glass or ceramic containers imported from Europe but soon turned to domestically produced glassware (Zum-

walt 1980:407). The Ellenville Glass Company of Ellenville, New York, established in 1836, provided the primary source of glass containers used by the Underwood Company (Switzer 1974:78; McKearin and Wilson 1978:110). In 1846 the company began the large scale use of hermetically sealed tin containers for the packaging of meats and seafood. However, perishables such as sauces, mustard, cranberries without sugar, cranberry jam, spiced meats, and pie fruits continued to be packaged in glass containers (Switzer 1974:78).

The specific contents of the Underwood bottles found at the Hoff Store site cannot be determined, but foodstuffs such as those mentioned above are likely prospects. It is also probable that these bottles are products of the Ellenville Glass Company, which manufactured "bottles and hollow ware" from 1836 to 1896 (McKearin and McKearin 1948:602; McKearin and Wilson 1978:221).

A minimum of 21 olive oil style bottles are represented by bases and finishes. These bottles were blown from extremely pale, aqua colored glass. Bases display the asymmetrical characteristic of free blown bottles and exhibit rounded resting points with deep, conical push ups. Due to the fragmented condition of these bottles, basal diameters were the only measurement obtainable, averaging 2.1 in. in diameter.

All but one specimen were held in holding devices while being finished. The pontilled specimen exhibits a glass tipped, pontil scarred push up.

Thirteen large, wide-mouth, cylindrical bottles have been identified as olive containers. These bottles are represented by two base fragments and 11 complete specimens, nine of which are still corked and packed full of green olives in pickling solution (Figure 7-10a). All of these bottles were blown from aqua colored glass in hinged bottom molds. Shoulders are conically tapered. Necks are cylindrical and finished with plain, rounded, everted collars. Bases average 3.8 in. in diameter, are slightly indented, and display blowpipe pontil scars. Container heights average 8.3 in. Volumes average 34 fl. oz.

Thirteen bottles which presumably contained some sort of oil or condiment are represented by one complete specimen and 12 bases. All were

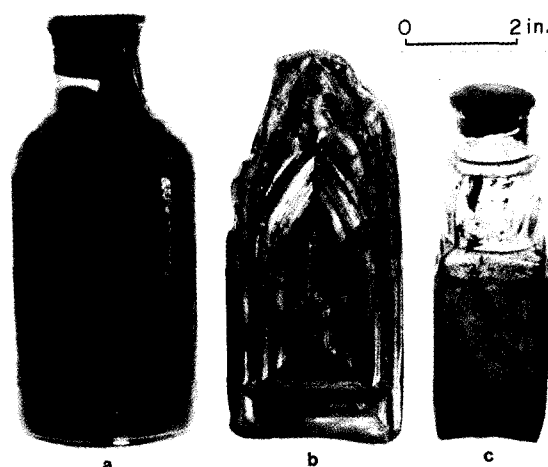


FIGURE 7-10. Culinary bottles: (a) olive bottle; (b) Gothic panelled preserve bottle depicting Baltimore's Washington Monument; (c) S. WARDELL bottle.

blown from aqua colored glass in two-piece post bottom molds. These bottles display cylindrical bodies, rounded shoulders, and long tapered necks terminating in an applied, slanted collar tooled to form. Bases average 2.7 in. in diameter and have flat resting points and dome shaped depressions with central mamelons. All 13 specimens exhibit blowpipe pontil scars. The only complete specimen recovered measures 10.0 in. high, with a brimful capacity of 19 fl. oz.

These bottles were included in the culinary group because of their extreme similarity to the Class V, Type 14 bottles described by Switzer (1974:60, Figure 85) recovered from the hulk of the steamship *Bertrand* and found to contain lemon syrup. The color of the glass used for the specimens recovered at the Hoff Store site also makes unlikely their use as containers for alcoholic beverages or other substances that were believed to deteriorate in sunlight.

Thirteen fragmented Cathedral-style preserve bottles displaying an embossing of Baltimore's Washington Monument are represented by 13 bases, only one of which retains a portion of the Cathedral body panel (Figure 7-10b).

These bottles were formed in two-piece cup bot-

tom molds from aqua colored glass. Bases are square with chamfered corners, have relatively flat resting points surrounding dome shaped depressions, and average 2.8 in. square. Blowpipe pontil scars are present on all 13 bases. The base with adjoining body portion displays a narrow, horizontal panel recessed one step immediately above the base. Above this narrow panel, a Cathedral-style arched panel with a central embossing of Baltimore's Washington Monument, without the statue of Washington, is recessed two steps from the outer columns which form the corners of the bottle. A trefoil motif stemming from a central lobe decorates the top of the arches. Due to the fragmented condition of these containers it is unknown whether this design is portrayed on more than one side of the bottle. Characteristics of the shoulders, neck, and collar are also unknown.

Historical flasks designated as types GI-20, GI-21, GI-73, and GVI-2 by McKearin and Wilson (1978:528-529, 542-543, 605) are the only other known glass containers that portray Baltimore's Washington Monument without Washington's statue adorning the top. All of these flasks are attributed to the Baltimore Glass Works, possibly established as early as 1789 but certainly producing "all kinds of glassware and bottles" by 1800 (McKearin and Wilson 1978:71; Van Rensselaer 1926:192). It seems reasonable to assume that the present specimens are also products of the Baltimore Glass Works.

Eight bottles exhibiting the proprietor's embossing "S WARDELL" are represented by one complete specimen (Figure 7-10c) and seven incomplete specimens. These small, wide-mouth containers were blown in two-piece post bottom molds from aqua colored glass. Their bodies are rectangular. Each of the four body sides displays a raised escutcheon. The embossing "S WARDELL" is located on one side of the body, directly above the escutcheon but below the shoulder. Shoulders are short and abruptly squared. A medial neck ring separates the bulbous lower portion of the neck from the cylindrical upper portion of the neck. Finishes are simple, rounded, everted collars. Bases average 1.9 in. square and exhibit flat resting points and dome shaped depressions.

All specimens exhibit bar iron pontil scars. Average container height is 6.1 in. Container volumes average 7 fl. oz. The complete specimen exhibits a brown, fibrous residue adhering to the bottle's inner surface, and it has been speculated that this residue might be the remnants of chutney (James Deetz 1988, pers. comm.).

Solomon Wardell is listed as a pickle grocer at 110 W. 19th Street, New York, New York, during 1850 and 1851. In 1852 the firm's name changed to "S. & J. Wardell," when Solomon joined partnership with Jeremiah Wardell and changed their business location to 234 West [Street], New York, New York. This partnership was short lived, however, as from 1853 to 1858 Solomon Wardell is listed as being in partnership with Joseph M. Pease at the same address (Doggett 1850:526; Rode 1852:62, 1853:75, 1854:735; Trow 1855:858, 1857:862, 1858:834). Using this chronological framework, the bottles described above were likely blown during 1850 or 1851.

The purveyors "Wells, Miller, and Provost" are once again represented in the bottle assemblage of the Hoff Store site, this time by a minimum of seven large preserve bottles exemplified by seven bases, seven finishes displaying "W., M., & P." lead foil caps, and assorted embossed body sherds. All specimens were blown in two-piece post bottom molds from dark aqua-green colored glass. Bases are square with chamfered corners, and have wide, flat resting points surrounding shallow, dome shaped depressions. Four bases display bare iron pontil scars. The three remaining exhibit blowpipe pontil scars. Due to the fragmented condition of these containers, basal dimensions—which average 3.3 in. square—were the only measurement obtainable. Bodies are long and rectangular. A slight constriction in the lower body forms a slightly footed base. Each side of the body has large oval panels in relief. The "WELLS/MILLER/& PROVOST" embossing is located just above the oval panels, one name to a side. These embossings contour the convex top of the oval panels. Shoulders are scallop-edged and taper conically. Necks are short and cylindrical and are separated from the shoulders by a bulbous ring. Collars are everted and round. Each finish retains the

cork, either partially or totally covered by lead foil caps displaying "WELLS MILLER PROVOST/NEW/YORK" (Figure 7–8b). A complete example of this bottle type is illustrated by Zumwalt (1980:427, 428).

A minimum of two large preserve bottles are represented by eight pale-aqua-colored fragments, including one finish with the neck and portion of the embossed shoulder attached and one embossed body panel. Embossing appears on opposing sides of a conical shoulder, just above and contouring the apex of a pyramidal, recessed shoulder panel. "Wm. BODMAN" occurs on one side, "BALTIMORE" on the other. A narrow body panel also exhibits the "Wm. BODMAN" embossing, vertically. Recessed shoulder panels suggest these bottles were Cathedral-styled. A bulbous ring separates the shoulder from a cylindrical neck terminating in an everted, rounded collar. Mold type, volume, and specific dimensions of this bottle type cannot be determined.

William Bodman is listed as a Baltimore merchant from 1833 to 1859. From 1849 through 1854, Bodman's business is described as a "preserving and pickling establishment & vinegar depot," located at 46 and 48 S. Howard Street, Baltimore (Matchett 1849:42, 1851:31, 1853:36).

Two bottle shoulder fragments displaying the embossing "LEWIS & Co./BOSTON" were recovered. These bottle fragments are composed of aqua colored glass, and appear to be portions of Cathedral-style preserve bottles. More detailed characteristics of these bottles could not be ascertained from the fragments present in the assemblage.

During the years 1833–1836, William K. Lewis was an employee of the William Underwood firm of Boston. It was not until 1847 that Boston business directories listed the Lewis pickling concern at 56 Broad Street (Zumwalt 1980:277, 407).

Four unembossed bottles missing the upper portions of the neck and collar were recovered. These aqua colored specimens were blown in two-piece post bottom molds and exhibit blowpipe pontil scars inside dome shaped push ups. Bases average 3.1 in. in diameter. Bodies are cylindrical. Shoulders and necks are faceted and tapered, with no

clear transition point between the two. Collar type is unknown.

Complete bottles exemplifying the incomplete specimens recovered from the Hoff Store site are illustrated by Zumwalt (1980:385–second from left, 431–top left). One of these complete specimens exhibits a brass label adhering to the body displaying the "WELLS, MILLER, & PROVOST" insignia, which identifies the contents as preserved berries.

Three complete, wide-bodied, wide-mouth containers blown from aqua colored glass are included in the culinary group because of their similarity to the "32 oz." cylindrical bottle utilized by the Underwood firm (Zumwalt 1980:408). These specimens display plain, wide, cylindrical bodies; rounded shoulders; cylindrical necks; and flared collars. Bases are slightly indented and display blowpipe pontil scars. These specimens occur in two sizes. The smaller specimen has a basal diameter of 3.1 in., a container height of 8.0 in., and a capacity of 25 fl. oz. The two larger specimens have basal diameters averaging 3.8 in., container heights averaging 8.3 in., and an average volume of 37 fl. oz. Three-part molds were used to mold the larger specimens. The smaller specimen was blown in a two-piece post bottom mold.

Two condiment bottles are represented by one specimen, lacking only the upper neck and collar, and one basal section. Both specimens were blown in two-piece post bottom molds from aqua colored glass. Bases average 2.3 in. in diameter and have flat resting points surrounding dome shaped depressions displaying blowpipe pontil scars. Bodies are basically cylindrical but are octagonally scalloped in horizontal cross-section. Shoulders are conical, and octagonally faceted. The specimen with the partially intact neck exhibits three medial, bulbous neck rings. Collar type is unknown. These specimens appear morphologically identical to a bottle type recovered from the storeship *Niantic* (Smith 1981:142, Figure 20c) which was tentatively proposed to have contained catsup (Smith 1981:155). However, the nearly complete specimen recovered from the Hoff Store site is filled to one-third capacity with small red peppers and seeds, suggesting the contents were peppersauce.

One aqua-green bottle was recovered that suggests a "mustard" or "horseradish" style bottle (e.g., Whittall, Tatum & Co. 1971:49; Jones 1983:75, Figure 8). The base and body of this container is rectangular with chamfered corners in cross-section. All sides of the body are slightly concave. The base measures 2.6×1.8 in., has a beveled heel, flat resting point, and an oval depression displaying a blowpipe pontil scar. Mold seam lines denote a two-piece post bottom mold construction.

In addition to being used as containers for dried mustard and horseradish, this bottle type was also known to contain ground black pepper, cinnamon, allspice, cloves, thyme, or similar dried or powdered condiments and spices (Switzer 1974:60; Zumwalt 1980:153, 187, 253). The specific contents of the specimen recovered from the Hoff Store site could not be ascertained.

One complete condiment or sauce bottle was found with a dried black powdery substance adhering to the inside. This aqua colored specimen was blown in a hinged bottom mold. The base measures 2.1 in. in diameter, is slightly concave, and features a blowpipe pontil scar. The body is plain and cylindrical. Shoulders are rounded. The neck is long and cylindrical and is finished with an applied, slanted collar. Total container height is 8.7 in. Container capacity was not specifically measured because of the dried substance adhering to the glass but is estimated to be approximately 8 fl. oz.

The specific contents of this bottle can only be guessed. The black substance adhering to the inside of the bottle could be the dried remnants of a Worcestershire type sauce. Morphologically similar bottles recovered from the steamer *Bertrand* were found to contain catsup (Switzer 1974:48).

MEDICINAL BOTTLES

Medicinal bottles identified by contents, embossings, or morphology total 182 specimens, or 20.8% of the assemblage of bottles recovered from the Hoff Store site. Small, unembossed vials total 120 specimens, or 66.0% of the medicinal bottles recovered (Figure 7-11a). Twenty-two of the 31



FIGURE 7-11. Medicinal bottles: (a) vial with contents; (b) medicinal bottle with ground glass stopper closure.

complete vials recovered contain a camphorous smelling clear liquid. These small aqua colored, cylindrical bottles were blown in hinged bottom molds and average 1.0 in. in diameter, 3.8 in. in height, and contain approximately 1 fl. oz. All 120 specimens exhibit blowpipe pontil scarred bases.

Twenty-seven bottles with ground glass stopper closures were also recovered (Figure 7-11b). Only two of the bottles found were complete. The remainder are represented by bases or finishes. However, 57 ground glass stoppers were collected, suggesting many more of these bottles were originally present in Hoff's merchandise. Whether the missing specimens were too fragmentary for recognition and collection during excavation, or displaced previous to archaeological investigation by 20th-century construction activity remains undetermined. These containers were blown in hinged bottom molds from aqua colored glass. All but six

specimens exhibit sand pontilled bases. Bodies and bases are rectangular with chamfered corners. Bases average 2.1×1.6 in. Shoulders are short and rounded and join short, cylindrical necks finished with narrow, everted, rounded collars. The complete specimens measure 5.5 in. in height and have a capacity of 6 fl. oz.

The necks and finishes recovered exhibit ground bores to accommodate a glass stopper, obviously those found in association. The stoppers conform to the "flat oblong head stopper" style described by Jones et al. (1985:153, Figure 130). The finial is flat and rectangular and vertically oriented. The stopper shank is slightly tapered and exhibits grinding on the sides and bottom.

It is uncertain whether these bottles actually contained medicine, or, indeed, whether they ever contained anything at all. Because each stopper is uniquely ground to fit the individual bottle it is intended for, bottles such as these were desirable for contents necessitating a hermetic seal and figured prominently in druggist's glassware catalogues (e.g., Maw 1913:61-65, 636-637). However, because of the custom-fit needed for each of these containers and accompanying stoppers, prices for this type of bottle were two to three times higher than similar corked bottles. The higher manufacturing costs thus limited the use of glass stoppered bottles as commercial retail containers (Jones et al. 1985:151-154). Therefore, it is indeed likely that these bottles were imported and stocked without contents, to supply druggists arriving in San Francisco during the Gold Rush.

Fifteen bottles of "Ayer's Cherry Pectoral" were collected, represented by broken bases and fragments of embossed body panels. Each of these aqua colored containers was blown in a hinged bottom mold and exhibits a blowpipe pontil scar. Bases are rectangular with chamfered corners, average 2.0×1.4 in., and are slightly indented through application of the pontil. Body embossing is located on three sides: "AYER'S" is shown in a recessed, arched panel located on the obverse side just below the shoulder; "CHERRY" and "PECTORAL" are located individually in two recessed side panels. Necks and finishes are cylindrical, terminating in an applied, rounded collar

with a lower beveled ring. Height and volume measurements are unobtainable due to the fragmented condition of the bottles. However, similar "Ayer's" bottles are 6.1 in. tall (e.g., Baldwin 1973:46).

James Cook Ayer established his drug trade in 1841, introducing "Ayer's Cherry Pectoral" for the relief of respiratory illness. Embossed bottles, such as those found at the Hoff Store site, were first distributed by the Ayer firm in 1847 (Fike 1987:94, 199).

Eight bottles of "Shaker Syrup No. 1" are represented by two complete specimens and bases or embossed panels. One of the complete specimens retains the cork and syrup at original filling capacity. All specimens were blown from aqua colored glass in hinged bottom molds. Bases are rectangular with chamfered corners, average 2.6×1.7 in., and are slightly indented. All bases exhibit blowpipe pontil scars. Bodies are rectangular and display embossed, recessed, side panels. "No 1 / SHAKER SYRUP" is located on one side panel, "CANTERBURY N.H." is shown on the other. Necks are short and cylindrical, terminating in an applied, slanted collar. Container height averages 7.3 in. Liquid volume measured 11 fl. oz.

"Shaker Syrup" is actually a sarsaparilla compound originally formulated by Dr. Thomas Corbett in the 1820s (Fike 1987:230). In the intact bottle from the Hoff Store site, the syrup appears as a viscous, dark brown liquid.

Two complete aqua colored "plain oval" style prescription bottles blown from two-piece cup bottom molds were recovered (Putnam 1965:33). Both specimens exhibit blowpipe pontil scarred bases and applied, slanted collars. Basal dimensions average 2.7×1.5 in. Container height averages 6.6 in. Capacity of these specimens is 8 fl. oz. The specific contents of these bottles is undetermined. However, one complete specimen exhibits a dried out, rusty-brown substance caked to the inside of the bottle.

Ten miscellaneous aqua colored bottle bases were included in this functional class because of their basic morphological similarity to many of the medicinal bottles previously described. However, dimensional variations or slight morphological dif-

ferences preclude these specimens from being integrated into known type categories. Five bottle bases are rectangular with fluted or channeled corners. These bases average 2.0×1.1 in. Mold seam lines denote the use of hinged bottom molds. Bases are slightly indented and exhibit blowpipe pontil scars. Three bottle bases are rectangular with chamfered corners. However, all body corners and basal edges are rounded. Bases average 2.6×1.7 in., have shallow concave depressions, and exhibit blowpipe pontil scars (Jones et al. 1985:115, Figure 82). Bodies expand slightly from the base. This fact, combined with the absence of mold seams, suggests these containers are the products of dip molds. Two bottle bases are rectangular with chamfered corners, average 2.0×1.2 in., and were blown from hinged bottom molds. Both specimens exhibit blowpipe pontil scars.

TOILETRY BOTTLES

Toiletry bottles are the fourth functional type of retail glass container recovered from the Hoff Store site. A minimum of 22 individual bottles are represented, totaling 2.5% of the entire bottle assemblage.

Twenty Cathedral-style figured bottles identified as cologne containers are represented by 20 bases, 20 accompanying finishes, and numerous decorative, paneled body fragments (McKearin and Wilson 1978:392, No. 8).

These bottles depict an embossing of the Madonna and Child on the obverse panel (Figure 7-12a) and were blown from extremely thin, fragile, aqua colored glass in hinged bottom molds. Bases are rectangular with chamfered corners, average 2.1×1.1 in., and exhibit blowpipe pontil scars. The bases form pedestals, and have recessed panels on all four sides. The obverse and reverse basal panels display four embossed Y-shaped ribs, while the side panels portray a diamond lattice pattern with a central dot within each diamond. Bodies also display recessed panels on all four sides, with two columns rising from a narrow plinth forming each corner. The reverse body panel is vacant. The



FIGURE 7-12. Toiletry bottles: (a) Cathedral-style figured cologne bottle depicting the Madonna and Child on obverse panel; (b) unidentified perfume (?) bottle.

side panels exhibit the same latticed design shown on the base panels. Shoulders are sloped, with recessed ogival panels on all sides. Necks are slightly bulbous at their bases, then become cylindrical. Finishes are simple, narrow flanges. Due to the fragmented nature of these specimens, container height was obtainable from only one specimen, which measured 5.5 in. Volume measurements were unobtainable. However, similar bottles have been documented to contain approximately 3 fl. oz. (McKearin and Wilson 1978:392, Nos. 7, 8).

One complete 1-fl.-oz. French perfume bottle was recovered, displaying the embossing "LUBIN/PARFUMEUR/A PARIS" horizontally on the body. This small cylindrical container was blown in a hinged bottom mold from colorless glass. The base is roughly flat and measures 1.5 in. in diameter. The body is cylindrical, shoulders are rounded, and the neck is short, cylindrical and finished with a narrow flange. Total container height measures 3.1 in. This bottle was recovered

with glass stopper closure in situ. The stopper is "disc" style, consisting of a vertically oriented, flat, circular finial with a ground tapered shank (Jones et al. 1985:155).

Archival resources indicate that of all perfumes manufactured either in Europe or the United States, Lubin's was the most popular perfume sold on the American market during the early 1850s (Anonymous 1853:284, 285).

A broken bottle base with partial body also presumably contained perfume or cologne (Figure 7-12b). This specimen appears to have been formed in a two-piece cup bottom mold from colorless glass. The base is square with rounded corners in horizontal cross-section, has a relatively flat bottom exhibiting a glass tipped pontil scar, and measures 1.3×1.3 in. The base forms a foot consisting of two narrow, rounded rings. Above the footed base the lower body is square with rounded corners horizontally, but roughly violin-shaped in vertical cross-section. Five ribs are located at each corner, vertically contour the shape of the body, and meet in arched fashion on each side just below a bulbous ring which truncates the upper portion of the violin shape. Above the bulbous ring the bottle appears to become cylindrically fashioned. The missing portions of this container cannot be characterized. Unfortunately, complete examples of this bottle type could not be located in the resources consulted.

MINERAL WATER BOTTLES

Saratoga-style mineral water bottles are the final functionally identifiable containers found at the Hoff Store site (Schulz et al. 1980:118, Figure 30a). Only three specimens are represented, totaling 0.3% of the bottle assemblage. Each is of dark green glass, including one complete specimen and two embossed sherds which display the embossing "CLARKE & Co/NEW YORK" located horizontally on one side of the body. The complete specimen was blown in a hinged bottom mold. The base measures 4.3 in. in diameter, has a flat resting point surrounding a dome shaped push up with centrally located mamelon, and exhibits a bare iron

pontil scar. The body is cylindrical, and shoulders are rounded. The neck is cylindrical and finished with an applied slanted collar with a lower beveled ring. Total container height measures 7.5 in. Liquid volume at brimful capacity is 16 fl. oz.

Bottles exhibiting the "Clarke & Co." embossing are dated from 1846 to 1852. These bottles presumably contained mineral waters from the Columbia Spring or famed Congress Spring of New York (McKearin and Wilson 1978:235).

BOTTLES OF UNKNOWN FUNCTION

Four bottle bases which could not be specifically included in any single functional class previously described comprise the remainder of the bottles from the Hoff Store site, totaling 0.4% of the collection. Three bottle bases appear to be from globular, demijohn style containers. The bases are aqua colored, are slightly depressed with blowpipe pontil scars, and range from 5.0–5.4 in. in diameter at their resting points. However, because of the incomplete nature of these specimens and the typically globular profile of this type of container, maximum container diameter could not be estimated. The asymmetrical shape, even distribution of glass, and rounded resting points suggest free blown manufacture.

Demijohns generally occur in sizes from one quart to five gallons. A variety of "noncorrosive and bland liquids such as spirits, wines, and other beverages, medicinal cordials, fruit juices, oils, honey, and toilet water" were known to have been contained within this type of vessel (McKearin and Wilson 1978:256). However, the specific contents of the specimens recovered from the Hoff Store site could not be determined.

Finally, a single bottle base was recovered with a British Registry Mark embossed on the push up (Figure 7-13). This base is aqua colored, measures 2.6 in. square, and was formed in a two-piece cup bottom mold. Other characteristics include a chamfered basal heel, flat resting point, and dome shaped push up.

Registration marks were used in Britain from 1842 to 1883 to indicate that the particular design



FIGURE 7-13. Embossed push up exhibiting British Registry Mark; manufacturing date represented = April 2, 1849.

or pattern was registered, or "patented," and thus secure it from imitation for a period of three years (Zumwalt 1980:459). Because these registry marks changed frequently, they provide an effective, firm chronological tool. The precise date of manufacture specified by the Hoff Store specimen is "April 2, 1849" (Kovel and Kovel 1953:viii, ix; Zumwalt 1980:459).

CONCLUSIONS

Apart from the bottled medicinal supplies and non-effervescent alcoholic potables contained in black glass bottles, both of which could reflect the wants or needs of the gold miner, the majority of the bottled commodities recovered from the Hoff Store site seem to reflect the desires of the more affluent or sedentary population of San Francisco in 1851. Indeed, it is hard to imagine the transient gold seeker stocking provisions of preserved foods packed in fragile Cathedral-style glass bottles, potentially explosive bottles of champagne, and so on. In addition, the bottled preserved foods strongly reflect an Anglo-Saxon taste preference, and belie the cultural diversity that characterized the gold seeking population, so colorfully de-

scribed by Soulé et al. (1855:257, 258). In this respect, the Hoff Store bottle assemblage is similar to the collection of bottled goods recovered from the storeship *Niantic*, although the Hoff Store site yielded a much wider variety of bottled foods and medicinal supplies (Smith 1981). However, the lack of variety in the *Niantic* assemblage is undoubtedly due to the limited area of the storeship available for sampling (12%), and the severely limited time available for archaeological investigation (Smith 1981:203, 207). Therefore, the results of a comparative study of these two collections would be questionable.

The manufacturing techniques exhibited by the Hoff Store site bottles are compatible with glass technologies currently accepted to have been in use in the United States and Europe during the mid-19th century (e.g., Jones et al. 1985). However, some refinements of the chronologies associated with certain production methods can be interpreted from the bottle data. Table 7-1 shows the frequency of mold types represented within each functional category. Although not pertinent to the discussion of mold types found below, Table 7-2 is included to present the types and frequencies of different pontil styles represented in the assemblage.

Of the 874 bottles represented, mold types are identified on 697 specimens (79.7%). Production methods could not be positively identified on 177 specimens (20.3%), although the latter are primarily black glass containers surely blown in either dip or three part molds. Of the mold types identified, the hinged bottom mold predominates, with 215 specimens (30.8%) exhibiting this production method. Chronologically, sources have stated that this mold type was in use from ca.1750-1880 (McKearin and Wilson 1978:188; Jones et al. 1985:27). Unfortunately, the deposition of the Hoff glass assemblage occurs within this time frame and cannot help define either the nascent or terminal dates relating to the use of hinged bottom molds.

Post bottom molds were used to form 208 specimens, or 29.8% of the assemblage. All post bottom specimens are found exclusively in the culinary class. Jones et al. (1985:28) cite a beginning

TABLE 7-1
MOLD TYPE

Bottle Category	Free	Dip	3-Piece	Hinge	Cup	Post	Indeterminate	Total
Liquor (Black Glass)	2	4	80				173*	259
Ale					2			2
Wine/Champagne	5	135						140
Culinary	21		2	14	13	208	4	262
Medicinal		3		177	2			182
Toiletry				21	1			22
Mineral Water				3				3
Unknown	3				1			4
TOTAL	31	142	82	215	19	208	177	874

*The 173 unclassified liquor bottles are from dip or three-piece molds.

TABLE 7-2
PONTIL TYPE

Bottle Category	Glass Tip	Blow pipe	Sand	Bare Iron	Un-Pontilled	Un-known	Total
Liquor (Black Glass)			198		61		259
Ale			1		1		2
Wine/Champagne		12	45		83		140
Culinary	1	216		21	20	4	262
Medicinal		155	21		6		182
Toiletry	1	20			1		22
Mineral Water				1		2	3
Unknown		3			1		4
TOTAL	2	406	265	22	173	6	874

employment date of ca.1850 for this mold type. However, the fact that 29.9% of the entire bottle assemblage is made from this mold type, and these specimens represent at least three companies from at least two cities, indicates that this mold type was well established in the bottle making industry by the late 1840s. This would support Toulouse's statement that post bottom "construction was much favored during the hand blowing days, and was already old when Mason showed it in the fruit jar mold he patented on November 23, 1858, one week before his famous jar" (Toulouse 1969b: 582).

Dip molds were used primarily in the formation of alcoholic beverage bottles and total 142 specimens or 20.4% of the collection. Use of this mold type was popular in Europe since the 1700s and was still in use in France as late as 1870 (Jones et

al. 1985:26; Peligot 1877:8). As a result, dip molded bottles are not extremely useful as sensitive time markers.

Three part molds are identified on 82 specimens (11.8%), primarily black glass alcoholic bottles. Henry Ricketts received a British patent in 1821 for the three part mold incorporating a basal mold insert that facilitated embossment of the base (McKearin and Wilson 1978:216; Jones et al. 1985:30). It has been suggested that this mold type was being phased out by about 1850 or, alternatively, was most popular between 1870 and 1910 (Toulouse 1969b:578; Rock 1980:5; Switzer 1974: 6). The present specimens discount both of these contentions. Jones et al. (1985:30) relate a general production range of ca.1820-1920 for this mold type. In light of current archaeological data this production range seems reasonable (e.g., Arm-

strong 1980:10-17; Sternad and Prichett 1981: 612; Felton and Schulz 1983:47).

Free blown bottles account for 31 specimens or 4.4% of the assemblage. The chronology of free blown containers can be summarized in one sentence: "free blown bottles were being made almost a score of centuries ago . . . they are being made today" (Toulouse 1969a:530). In other words, free blown bottles are poor temporal markers.

Cup bottom molds were used to form 19 specimens (2.7%). The most interesting of these is the bottle base exhibiting the British Registry Mark (Figure 7-13). Jones et al. (1985:45) cite an introductory date of ca.1850 for the use of this mold type but do not substantiate this date nor specify whether this employment date relates to European or American glass production. Since the Registry Mark displayed by the present specimen relates a specific manufacturing date of April 2, 1849, it can be stated that cup bottom mold technology was used in England as early as 1849.

In closing, two last observations seem to war-

rant brief discussion. First is the black glass bottle bases displaying the "A. HART & SON BALTIMORE" basal embossing (Figure 7-3b). These bases do not exhibit pontil scars. It seems unlikely that a Baltimore merchant would import glass containers from Europe when locally produced bottles could be purchased from the Baltimore Glass Works, thereby eliminating cost of trans-Atlantic shipping and passage time. This being the case, it would appear that at least one American glass house was utilizing pontil substitutes by 1851, if not earlier.

Finally, of the 89 champagne finishes present in the collection 69 exhibit sheared lips while the 20 remaining exhibit beveled lips. It has been suggested that the stylistic change from sheared to beveled champagne lips occurred around 1860 (Felton and Schulz 1983:50). The presence of beveled champagne lips in the Hoff Store site assemblage clearly indicates this stylistic transition was occurring by around 1850.