



SAN DIEGO ARCHAEOLOGICAL CENTER

Guide to the SDAC Comparative Bottle Collection:

whole bottles dated 1800's - present

Compiled by Hannah Farrell, Intern

Collections Management

Summer 2018

This guide to the comparative bottle collection includes: a brief history of glass bottle making, bottle morphology terminology, a glass bottle glossary, precautionary warnings when dating glass bottles, an explanation of how the collection is organized, and a box-by-box inventory of the collection including the box locations.

A Brief History of Glass Bottle Making:

The first glass bottles were made in Ancient Mesopotamia, 1500 BC using a naturally occurring material called Natron. The technique of glass blowing was first developed in the 1st century BC in Syria. After the fall of the Romans, glass making techniques were lost until “forest glass” began being produced in North-Western and Central Europe starting in 1000 AD. It was called such because it was produced in factories in the middle of the woods. This glass was produced from wood ash and sand which resulted in a distinctive green color. In the later middle ages, glass producers in Germany, Switzerland, and Italy developed clear glass by adding small amounts of manganese oxide to the purest raw materials. In the 14th century, master glassmakers on the island of Murano in Italy made such highly prized glass, they were given higher social status and they were allowed to marry their daughters into nobility. In the 17th century, an English businessman named George Ravenscroft discovered how to produce lead glass at a large scale. In the 1820’s, Americans developed a mold to shape decorative glass containers in seconds – one person would bring the molten glass to the mold and the second person would cut off the correct amount of glass and press down the mold’s plunger. In the 1850’s, John Landis Mason invented a glass bottle with a threaded finish – to seal it, you only had to screw on a lid instead of the wax sealing process people used prior.

In the 1880’s, American and English inventors created the first glass blowing machines, but they weren’t used until the 1890’s due to the fear glass blowing unions had of being replaced. These semi-automatic machines required skilled workmen and largely displaced hand blowers in the manufacture of wide-mouth glass wares. In 1904, Michael Owens created the Owens automatic machine and by 1917, the Owens machine produced half the glass containers manufactured in the United States. The Owens machine not only displaced more hand blowers, but also only required supervision so displaced the skilled workers of the semi-automatic machines as well. There is evidence from as early as 1910 of gob feeders, “feed and flow” devices designed to automate the glass feeding process, being developed to fit semi-automatic machines. Between 1916- 1917 and into the early 1920’s, gob feeders converted all of the adaptable semi-automatic machines into fully automatic production. This marks the ‘end’ (see the Precautionary Warnings) of the era of semi-automatic bottle production and surprisingly, the Owens machines as well. As Owens machines wore out, they were typically not replaced with new Owens machines for the gob-feeder type were economically superior. Only 30% of U.S. bottle production in 1947 was by means of Owens machines. The last Owens machine in the U.S. was reportedly shut down in 1982, but they could still be in use in other countries.

Bottle Morphology:

Base: the bottom of the bottle, the surface upon which it stands.

Body: the portion of the bottle between the shoulder and the heel.

Bore: the opening from which the bottles contents can be accessed.

Collar: used to denote the lower part of a two part finish.

Finish: everything above the distinctive upper end of the neck; refers to the combination of the lip and the collar.

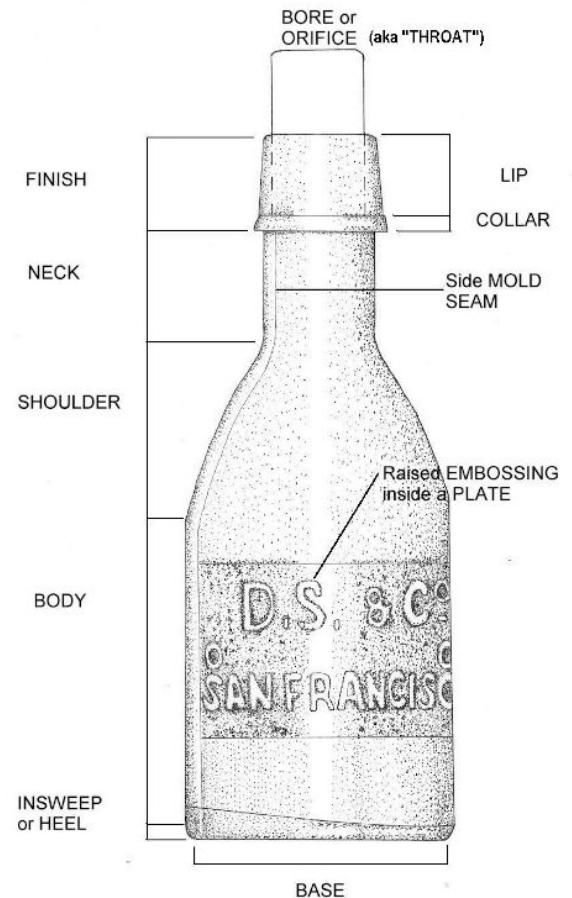
Heel: the lowest portion of the bottle where the body begins to curve into the base.

Lip: the upper part of a multiple part finish.

Neck: the usually constricted part of a bottle between the shoulder and the finish.

Rim: the extreme upper surface of the finish where the bore begins.

Shoulder: portion of the bottle that lies between the point of change in "vertical tangency" of the body and the base of the neck.



Glass Glossary:

Automatic Bottle Machine (ABM): invented by Michael Owens in 1903 and allowed for an entire bottle to be made in one 'automatic' step.

Applied Lip/Top: on pre-1880's bottles when the neck was applied to the bottle after the removal of the blow pipe.

Baffle Mark: the seam left on the parison that marks the junction of the baffle plate and blank mold on a machine made bottle. The line is found on the base of the completed bottle in the form of a circle (either centered or quite off-centered) and can extend onto the bottle heel.

Ball Neck: a relatively horizontal ring on the neck of a bottle which is purely decorative in nature.

Bead: a raised ridge of glass with a convex cross-section that encircles the neck of a bottle.
ex. the upper closure accepting part of a crown cap finish is a bead

Beaded Seal: a bottle that makes its seal on a beaded ridge which encircles the bottle neck.

Blown in Mold, Applied Lip (BIMAL): the process in which the gather of glass is blown into a mold to take its shape. The lips on these bottles were added later and the bases have pontil scars.

Black Glass: term used to describe very dark, typically thick olive amber or olive green glass. It must usually be held up to the light to see the true color.

Blob/Blob-Top: a relatively large class of one-part finishes that are rounded on the outside surface and are “blob-like”

Blow Mold: the mold within which the slightly inflated gob of glass is expanded into the final bottle shape, for mouth blown bottles this is usually the only mold used.

Blowpipe: a hollow iron tube used by the blower to pick up molten glass, which is then free-blown or blown into a mold.

Bottle Glass Green: the natural aquamarine color of glass as a result of the iron oxides in the sand.

Canning Jar: glass jar in which food is preserved at home, typically has a wide mouth and some form of air type closure.

Cup-Bottom/Cup-Base Mold: bottles formed with this type of mold have a horizontal seam mark at or just above and encircling the heel of the bottle, but the seams do not extend onto the bottle base.

Date Line: the mold seam or mold line on a bottle; it can approximately date a bottle.

Dip Mold: a one-piece mold (but sometimes 2 or 3 pieces), open at the top.

Embossed Lettering: raised lettering on the bottle. Can denote what product was in the bottle or who made the contents.

Fire Polishing: the reheating of glass to eliminate unwanted blemishes and irregularities.

Ghost Seams: lightly imprinted mold seams found on the body, neck, and sometimes base of machine-made bottles. The seams are conclusive evidence of machine manufacture.

Glass Pontil: the earliest type, remaining pontil scar is a sharp glass ring.

Ground Pontil: when the rough pontil scar is ground down until the all that's left is a smooth circle.

Hinge Mold: refers to a two-piece mold with no separate base plate section. This style of mold is indicated by the side mold seam continuing around the heel of the bottle, bisecting the base, and continuing up the opposite side of the bottle.

Hobbleskirt: the paneled shape used to describe Coca-Cola bottles.

Imperfections: bubbles of all shapes and sizes, bent shapes and necks, imperfect seams, and errors in spelling and embossing.

Improved Pontil: bottles with these will have reddish or black tinges on the base.

Iron Pontil: the result of a solid iron rod being heated and affixed to the base of a bottle, creates a black circular depression that can sometimes turn red upon oxidation.

Kick-Up: the deep indentation on the base of wine and champagne bottles as an attempt to separate the sediment from the liquid when pouring. Often larger on red wine bottles than white.

Makers Mark: refers to the embossing on the bottle that indicated the glass company who produce it. Often found on the heel, base, or lower body of the bottle.

Milk Glass: primarily used in cosmetics bottles, the result of adding tin in glass production.

Mold, Full-Height Three-Piece: the entire bottle is formed in the mold, the two seams run the height of the bottle to below the lip on both sides.

Mold, Three-Piece Dip: the bottom part of the mold is one piece, and the top from the shoulder up was another two separate pieces. Mold seams appear to circle the bottle at the shoulder and on each side of the neck.

Open Pontil: when the blowpipe itself is affixed to the base, resulting in a depressed or raised circular scar

Painted Label: Applied Color Label (ACL) baked on the outside of the bottle, common on soda and milk bottles.

Paneled: a bottle that isn't circular or ovoid, with 4-12 panels.

Parison: an inflated gather of glass which is not yet the finished bottle.

Paste Mold: a mold made of two or more pieces and coated with a paste to prevent scratches on the glass, eliminates seams as the bottle is turned in the mold.

Pontil: the iron rod attached to the base of a bottle to hold it while the finish is applied.

Proprietary Bottles: bottles with the company and/or product name of the purchaser and filler of the bottle on them.

Semi-Automatic Bottle Machines: transition between mouth-blown production and fully automated machines. Bottles produced in this fashion have all machine-made characteristics except they lack the ABM suction scar on the base.

Smooth Base: a bottle without a pontil scar.

Solarized Glass: glass that turned from essentially clear to varying shades of pink, amethyst, or sometimes light straw due to the action of the sun on the manganese oxide, selenium, and/or arsenic (respectively) used to decolorize the glass.

Squat: a form of bottle used to contain beer, porter, and soda.

Tooled Finish: some or all of the shape of the finish itself is obviously mold formed.

Torpedo: a beer or soda bottle that has a rounded base, designed to lay on its side to keep the cork wet.

Utilitarian Bottles/Jars: bottles intended to be used once without much hope of return to the producer, heavy duty bottles intended to be recycled and reused multiple times by the producer of the contained product, or date from an era when bottles were a rare commodity and were discarded only when broken.

Precautionary Warnings When Dating Bottles:

Using physical and manufactural diagnostic features, most bottles can usually only be accurately dated within a range of 10-20 years. Reasons for this are:

1. Technological advancements in bottle making/manufacturing were not immediately accepted by all glass manufacturers and their workers at the same time. This means that the date ranges provided by Makers Marks are the suggested range in which the marks were in production – but does not provide hard start and stop dates.
2. There is nothing stopping a bottle or glass maker from using out of date technology, so “treat terminal dates with care” (Toulouse 1969). Any technique developed over the course of bottle manufacturing history can still be used today.
3. The same bottle may have been recycled and reused (go green) many times before finally ending up in the context in which we find it. This was a universal fact with many beverage bottles such as soda, beer, and milk – but was common with just about any type of bottle (especially pre-1920).

How the Comparative Collection is Organized:

The collection is first organized A-Z by manufacturing company (of the container, not the product inside). Within each company, the containers are then divided by container type (i.e. beer/ale, chemical, medicinal, etc.) and additional information regarding each bottle’s approximate manufacture range, manufacture style, finish style, and presumed contents can be found in the catalog and brief summary of the collection below. At the end of the collection, there are containers with unidentified manufacturer marks or no marks at all that were still deemed to be of use to the collection. The containers with identifiable product manufacturers are divided by container type and those without are divided by manufacturing style (i.e. automatic, turn/paste mold, cup bottom mold, etc.). More information on these containers can be found in the brief summary of the collection below and within the collection’s catalog.

Summary of the Collection:

Formatted:

Box #

Company

number and style of products (date range encompassing all listed products)

Box #:

Adolphus Busch Glass Mfg. Co.

- one mouth blown, post-bottom mold beer/ale bottle (1886-1890)

Aire & Caulder Bottle Co.

-one mouth blown, post-bottom mold condiment bottle (1860-1890)

American Bottle Co.

- one mouth blown, post-bottom mold beer/ale bottle (1906-1914)

Anchor Hocking Corp

- one beer/ale bottle (1972-1974), one miscellaneous jar (1938-1980)

Armstrong Cork Co.

- one miscellaneous bottle (1939-1961)

Ball Brothers Glass Mfg. Co.

- two food/canning/fruit bottles (1933-1960)

Brockway Glass Co.

- two beer/ale bottles (1960-1980), one household non-food related jar (1925-1934), one miscellaneous jar (1933-1980), one medicinal bottle (1941-1964)

Buck Glass Co.

- one medicinal bottle (1928-1940)

Columbine Glass Co.

- one beer/ale bottle (1970-1976)

Fairmont Glass Works/Co.

- one medicinal bottle (1933-1968), one household non-food related jar (1933-1963)

Frederick Hampson Glass Works

- two mouth blown, post bottom mold beer/ale bottles (1880-1890)

Glass Container Corp.

- one soda/mineral water bottle (1952), three food/canning/fruit bottles (1934-1970)

Glass Containers, Inc.

- one beer/ale bottle (1956-1966)

Hazel-Atlas Glass Co.

- one beer/ale bottle (1964), one chemical jar (1923-1960), one spice jar (1952-1950), one food/canning/fruit bottle (1923-1964), one miscellaneous jar (1923-1964), two

cosmetic/toiletry jars (1923-1964), two household non-food related bottles (1923-1957), four miscellaneous bottles (1923-1982), four food/canning/fruit jars (1923-1964)

H.E. Bucklen & Co.

- one mouth blown, cup bottom mold medicinal bottle (1890-1905)

Hemingray

- one telephone line electrical insulator (1914-1950)

H.J. Heinz Glass Co.

- one food/canning/fruit jar (1920-1930), one mouth blown post bottom mold food/canning/fruit bottle (1896-1903)

additional Heinz resources can be found in the "Bottle Identification Resources" folder in the Comparative Bottle Collection Folder

Illinois Glass Co.

- one miscellaneous jar (1915-1929), one household non-food related bottle (1915-1929), one cosmetic/toiletry bottle (1915-1929), one food/canning/fruit bottle (1915-1929), eight medicinal bottles (1915-1929)

Illinois-Pacific Coast Co.

- one medicinal bottle (1931-1932), one food/canning/fruit bottle (1930-1932), two food/canning/fruit jars (1931-1932), two soda/mineral water bottles (1931)

Illinois Pacific Glass Co.

- one medicinal bottle (1925-1930), one liquor/spirits bottle (1926-1930), one soda/mineral water bottle (1926-1930), one household non-food related jar (1926-1930), two miscellaneous bottles (1925-1930), two food/canning/fruit bottles (1925-1930), two food/canning/fruit jars (1925-1930)

J.C. Wheaton Co.

- two miscellaneous bottles (1904-1971)

Joseph Campbell Company

- one mouth blown, post-bottom mold condiment bottle (1880-1890)

Kerr Glass Mfg. Co.

- one cosmetic/toiletry bottle (1956-1960), one miscellaneous jar (1904-1943)

Knox Glass Bottle Co.

- one food/canning/fruit bottle (1932-1952), one medicinal bottle (1917-1968), one miscellaneous bottle (1932-1952)

Kraft Food Corp.

- one food/canning/fruit jar (1924-1976)

Latchford Glass Co.

- one soda/mineral water bottle (1964), one liquor/spirits bottle (1978)

Lincoln Container Co.

- one beer/ale bottle (1952)

Long Beach Glass Co.

- one cosmetic/toiletry bottle (1920-1933), one food/canning/fruit bottle (1920-1933), one food/canning/fruit jar (1920-1933), one chemical bottle (1920-1933), one chemical jar (1920-1933), one miscellaneous jar (1920-1933), two medicinal bottles (1920-1933), four miscellaneous bottles (1920-1933)

Lummins Glass Co.

- one household non-food related jar (1940-1952)

Maryland Glass Corp.

- three medicinal bottles (1915-1970)

Maywood Glass Co.

- one soda/mineral water bottle (1960), one food/canning/fruit jar (1959)

Middletown Glass Works

- one mouth blown, post bottom mold beer/ale bottle (1887-1891)

Northwestern Glass Co.

- one miscellaneous bottle (1931-1960)

Obear-Nestor Glass Co.

- one wine/champagne bottle (1962)

Owens Bottle Co.

- four medicinal bottles (1919-1929)

Owens-Illinois Glass Co.

- one chemical bottle (1930-1960) one chemical/medicinal bottle (1933-1953), three liquor/spirits bottles (1934-1962), five beer/ale bottles (1947-1984), five food/canning/fruit jars (1932-2000), six medicinal jars (1944-1989), seven cosmetic/toiletry bottles (1929-1954), seven miscellaneous bottles (1931-2000), eight household non-food related bottles (1929-1953), nine food/canning/fruit bottles (1934-1990), twelve soda/mineral water bottles (1930-1985), twenty-two medicinal bottles (1929-1983)

Pacific Coast Glass Co.

- one food/canning/fruit bottle (1924-1930), one food/canning/fruit jar (1924-1930), one medicinal bottle (1924-1930), two miscellaneous bottles (1924-1930)

Pacific Coast Glass Works.

- one mouth blown, cup bottom mold beer/ale bottle (1902-1915)

Pierce Glass Co.

- one medicinal bottle (1905-1930), one food/canning/fruit bottle (1905-1987), one miscellaneous bottle (1920-1987)

San Francisco Glass Works

- one mouth blown, post-bottom mold soda/mineral water bottle (1860-1875)

Southern Glass Co.

- one food/canning/fruit bottle (1926-1931), one food/canning/fruit jar (1926-1931)

Standard Glass Co.

- one mouth blown, cup bottom mold medicinal bottle (1907-1915)

Thatcher Manufacturing Co.

- one wine/champagne bottle (1950-1960), one cosmetic/toiletry jar (1940-1950), four beer/ale bottles (1944-1982)

Vidriera Guadalajara

- one soda/mineral water bottle (1960-1980)

W.A. Ross & Sons LTD.

- one mouth blown, two piece mold torpedo style soda/mineral bottle (1879-1890)

Whitall Tatum (&) Co.

- two cosmetic/toiletry bottles (1925-1940), two science jars (1930), two miscellaneous bottles (1924-1938), five medicinal bottles (1924-1960)

W.J. Latchford Co.

- two household non-food related bottles (1925-1939)

Unknown Manufacturer with Known Branding

- one "Dr. Seigert's" bitters bottle (1880-1905), one "Duffy Malt Whisky" bottle (1886-1900), one possible "Dandy Flask" bottle (1910-1930), one "Qualitee Dairy Products Co, San Diego" milk bottle (1928-1959), one "Vincent Hathaway & Co. Ginger Ale" bottle (1860-1880), one "Hunyadi Janos Bitterquelle" bottle (1870-1900), one "San Diego Soda Works" bottle (1860-1890), one "Pioneer Sodaworks" bottle (1877-1900), one "Suncrest Soda" bottle (1938-1968), one "Burnett" bottle (1870-1890), one "Schilling's Best" bottle (1885-1915), two "Re Umberto Brand Pure Olive Oil" bottles (1905-1915), one "Heinz" vinegar bottle (1927-1943), one "Gebhardt Eagle Chili Powder" bottle (1920-1930), one "Tournades Kitchen Bouquet" bottle (1920-1940), one "Elgin Brand" mayonnaise jar, one "French's" mustard jar (1920-1930), one "Horlick's Malted Milk" large jar (1905-1930), one "Early American Old Spice" bottle (1940-1950), one "Lentheric" bottle (1930-1950), three "Chesebrough Vaseline" jars (1918-1955), one "Pond's Extract" bottle (1880-1915), two "Pond's" jars (1940-1950), one "Elmo" jar (1919-1929), four "Cutex" bottles (1920-1930), one "Listerine" bottle (1914-1955), one "Musterole Rub" jar (1920-1956), one "Mentholatum" jar (1920-1956), one "Noxema" jar (1910-1920), one "Nujol" bottle (1920-1940), one "Squibb" bottle (1920-1930), one "Rawleigh's Trademark"

bottle (1920-1940), two “American Druggist Syndicate” bottles (1905-1927), one “Colden’s Liquid Beef Tonic” bottle (1850-1880), one “Hamlin’s Wizard Oil” bottle (1885-1905), one “F. Brown’s Essence of Jamaica Ginger” bottle (1880-1910), one “Lysol” bottle (1920-1930), one “Pee-Chee White Cleaner” bottle (1920-1930), one “Higgins Ink/Brooklyn NY” bottle (1920-1940), one “Sheaffer’s Skrip” bottle (1930-1940), (1930-1940)

Unknown Manufacturers

- one fire polished mouth blown bottle with a bare iron pontil scar (1830-1870), one free blown bottle (1800-1850), one dip mold bottle (1820-1870), one possible ABM wine/champagne bottle (1910-present), one Owens Automatic condiment/pickling jar that has been solarized (1905-1920), one mouth blown bottle and one mouth blown jar of an unknown molding process (1850-1890), one large ABM jug (1920-1960), two two-piece closed mold bottle (1800-1920), five three-piece mold bottles (1840-1910), six turn/paste mold bottles (1855-1915), eight post-bottom mold bottles (1840-1900), twelve cup bottom mold bottles (1880-1920)

References:

Warman’s Bottles Field Guide

SHA Bottle Dating Website

<https://www.bottlestore.com/blog/the-remarkable-history-of-the-glass-bottle-infographic/>

Additional references can be found in the “Comparative Bottle Collection” folder

will be correctly formatted once the project is complete