

Pass The Bottle!

Where would we be without bottles?!

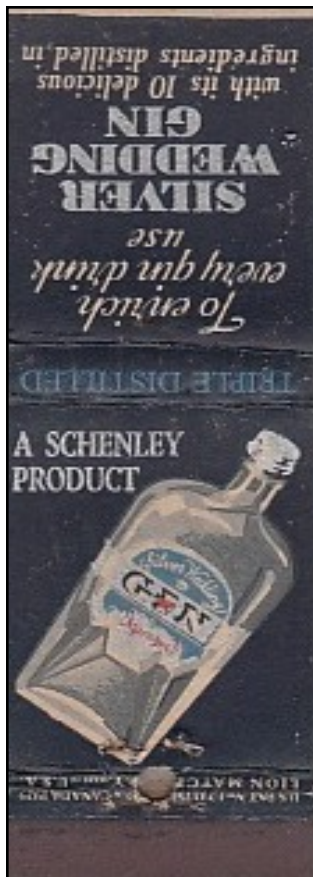
Glass bottles and glass jars are in most households around the world. The first glass bottles were produced in south east Asia around 100 B.C., and in the Roman Empire around 1 AD. America's glass bottle and glass jar industry was born in the early 1600s, when settlers in Jamestown built the first glass-melting furnace. The invention of the automatic glass bottle blowing machine in 1880 industrialized the process of making bottles.

The earliest bottles or vessels were made by ancient man. Ingredients were melted to make glass and then clay forms were dipped into the molten liquid. When the glass cooled off, the clay was chipped out of the inside leaving just the hollow glass vessel. This glass was very thin as the fire was not as hot as modern day furnaces. The blowpipe was invented around 1 B.C. This allowed molten glass to be gathered on the end of the blow pipe and blown into the other end to create a hollow vessel. Eventually, the use of a mold was introduced, followed by the invention of a semi-automatic machine called the Press and Blow. In 1904 Michael Owens invented the automatic bottle machine.

Once made, bottles may suffer from internal stresses as a result of unequal, or too rapid cooling. An annealing oven, or 'lehr', is used to cool glass containers slowly to prevent stress and make the bottle stronger. When a glass bottle filled with liquid is dropped or subjected to shock, the water hammer effect may cause hydrodynamic stress, breaking the bottle.

Although early bottles were made from such materials as gourds and animal skins, glass eventually became the major material employed. Before 1500 BC the Egyptians produced glass bottles by covering silica paste cores with molten glass and digging out the core after the bottle hardened. By 200 BC glassblowing was practiced in China, Persia (modern Iran), and Egypt. Except for making the finest and most costly decorative bottles, hand methods were eventually replaced by processes employing metal molds, and automatic equipment for the continuous manufacture of bottles was introduced commercially in 1903.

Glass bottles afford highly effective protection of their contents and are attractive because of their transparency and high gloss and the variety of shapes attainable. Fragility is a major disadvantage, and only colored glass protects those products sensitive to the action of light. Returnable glass bottles, which can be reused a number of times, are the least expensive to manufacture on a per use basis; although repeated handling costs may dissipate any saving. Lightweight, nonreturnable types achieved popularity in the 1960s, but by the 1970s returnable bottles were being promoted as one means of combating the ecological problem of disposal of solid wastes.



Plastic bottles, made from raw materials derived from petroleum and manufactured much like glass types, offer the advantage of breakage resistance and lightness, and their contents often can be dispensed by squeezing. In some applications they are less effective than glass in product protection and lack the attractive gloss and transparency of glass. Their disposal contributes to pollution, because few plastic containers disintegrate upon exposure to the elements. Beginning in the mid-1990s, plastic recycling, especially for the commonly used high-density polyethylene and polyethylene terephthalate bottles, was instituted to reduce the solid-waste problem.

Some facts about bottles...

1 - Most plastic bottles are made of Polyethylene terephthalate (also called simply PET) and can easily be recycled into a massive variety of products. Each year over 5 billion bounds of PET plastic bottles are used in the United States alone!

2 - Dark glass bottles offer the best protection for beverages, especially beer, to maintain the same fresh flavor they had during bottling. The dark glass prevents interaction from sunlight and the fluid in the bottle from producing "off" flavors.

3 - Twenty 20 ounce plastic PET bottles are enough to turn into the synthetic fibers to make a standard large sized t-shirt.

4 - Ancient Romans used bottles for everything from storing and transporting wine, to storing oil, perfume, and more. They were the first "mass producers" of this now common commodity.

5 - Until recent times, the shape of a bottle usually dictated what its contents would be. Ancient apothecaries (and druggist even up into the 20th Century) would use various types and shapes of bottles for different medicines, tinctures, etc. Thus without having to read a label (often literacy being a skill people lacked) or even without bothering to label a jar, a person could know whether they were reaching for a liquor, a perfume, or even a poison



A post-medieval wine bottle dating from 1690-1700, found in England

