

Chapter 2

Dating Prescription Bottles



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In order to understand where El Paso drug store bottles fit into the developmental sequence of such containers, a short history is in order. Typically, drug stores used a variety of bottles divided into vials, shop furniture, and prescription bottles. The bottles most commonly associated with local drug stores are generally called drug store bottles by collectors, pharmacy bottles by archaeologists, and prescription bottles by most of the glass industry. This history will concentrate on drug store or prescription bottles, and I will use all of these terms to mean the same container type.

Prescription bottles are distinguished from other medicinals because they “were purchased and used by local druggists and drugstores with typically only city-wide or otherwise limited geographical distribution” (Lindsey 2014). In general, these bottles were made of very thin glass and were intended for a single use, rather than multiple trips.

A History of U.S. Prescription Bottles

Although drug containers date as early as 2250 B.C., we are interested here in the industry in the United States. The earliest drug bottles used in America, of course, were made in Europe, especially England. However, by at least 1769, Richard Wistar advertised “medicine phials” at Salem, New Jersey. The free-blown vials were not replaced by bottles until multi-part molds came into use in the early 1800s (Griffenhagen & Bogard 1999:3, 19-22, 27).

On November 16, 1858, Samuel S. Shinn patented a three-piece mold for making druggists’ vials for the Lancaster Glass Works at Lancaster, New York. The first major breakthrough in design, however, was the French Square, invented sometime after 1850. The tall bottles had four sides and beveled edges. William McCully & Co. of Pittsburgh made French Square bottles in flint (colorless) and cobalt blue glass (Griffenhagen & Bogard 1999:27, 35). The design was popular and used continued into the 20th century.

Shapes

Oval-shaped bottles (in cross-section) became popular in the 1860s and remained so as long as glass containers were used for prescriptions. While these began as true ovals, Whitall Tatum & Co. added a flat side in the 1870s, and, by the 1880s, most bottles became more rectangular in cross-section with chamfered or multi-sided corners (e.g., see Griffenhagen & Bogard 1999:38-45).

Lindsey (2014) divided prescription bottles according to shape. Unfortunately for those wanting to date bottles, most of these shapes continued in use during the entire era of glass drug store bottles.

Cylindrical bottles were round in cross-section and were especially used for larger quantities. Bottles with square shapes (in cross-section) generally had chamfered or rounded corners. Rectangular bottles were also made with chamfered corners, using a variety of bevels. Eventually, however, the oval bottle became the most popular with drug stores. Ovals came in a variety of shapes that included simple ovals, strap-sided ovals (patented as Baltimore Ovals by Whitall Tatum), half-oval/half-rectangular, and half-oval/half-multi-sided configurations. The latter formats were particularly popular as they provided a flat surface for either embossed or paper labels. See Lindsey (2014) for a more thorough description of these shapes.

Graduations

Although George W. Stoeckel received Patent No. 52,461 for graduations embossed on the side of a bottle on February 6, 1866 (Figure 2-1), similar bottles were not common until the 20th century. The illustration of the Sun Oval in the 1903 Illinois Glass Co. catalog was the first drawing I have found for a prescription bottle with graduations in ounces on the left (Figure 2-2). The 1908 Illinois Glass catalog introduced a “New Subject” – the Duplex Oval with an ounce scale on the left and cubic centimeters (c.c.) on the right (Figure 2-3).

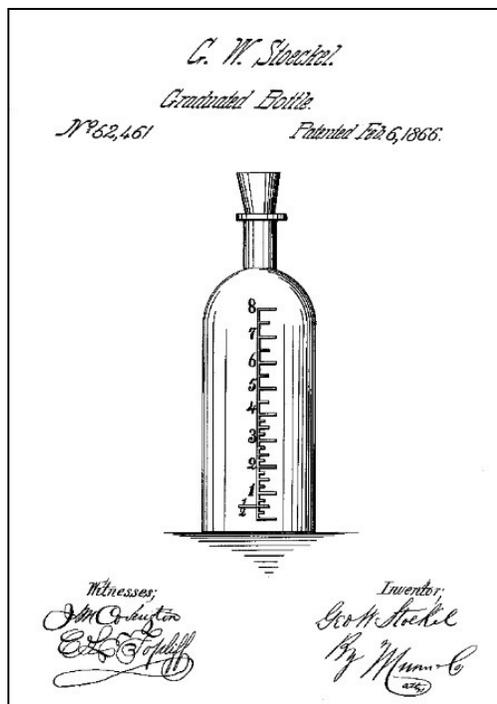


Figure 2-1 – George Stockel’s 1866 patent for graduations on a prescription bottle

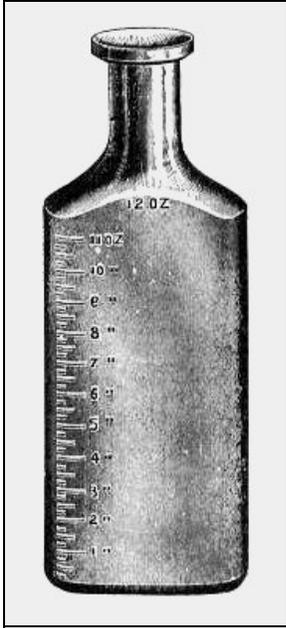


Figure 2-2 – Sun Oval, earliest 20th century graduated bottle (Illinois Glass Co. 1903)

Amazingly, the bottle in the 1908 Illinois Glass catalog is clearly the one designed in 1907 by Thomas S. Obear. Obear applied for a patent on August 28, 1907, and received Design Patent No. 38,835 on September 24 of the same year (Figure 2-4). The term of the patent was 14 years. Since the Obear-Nester Glass Co. had been in business since 1894, it is astounding that a bottle designed by Obear appeared in a rival company’s catalog (see Griffenhagen & Bogard 1999:45). The same bottle was also offered by Obear-Nester as the Nu-est Oval. We may never know the arrangements made between the two firms (Figure 2-5).

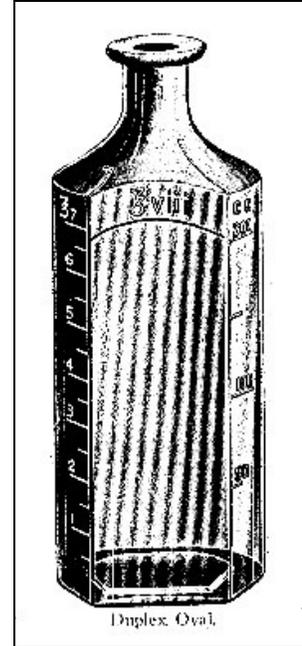


Figure 2-3 – Duplex Oval, first with graduations on sides (Illinois Glass Co. 1908)

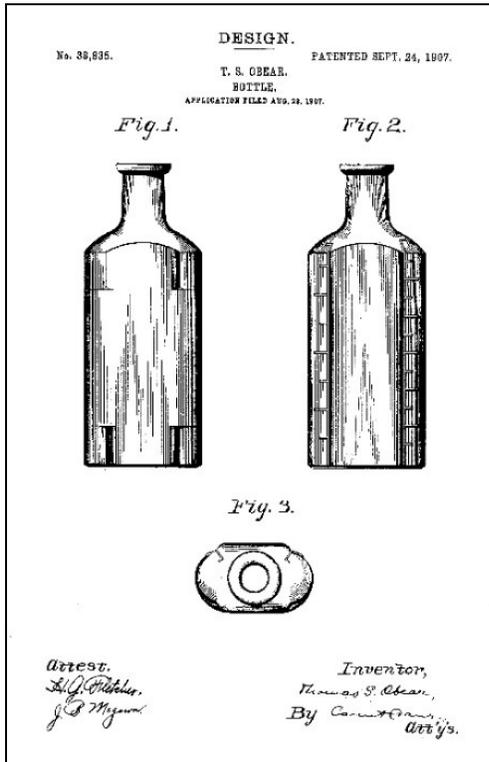


Figure 2-4 – Thomas Obear’s 1907 patent

Although never as popular as bottles with graduations on the sides, Obear-Nester added a graduated style that was very similar to Stoeckel’s 1866 design. On June 18, 1908,

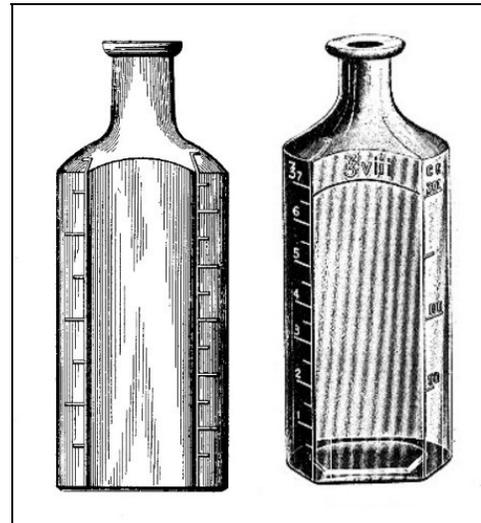


Figure 2-5 – Nu-est Oval and Duplex Oval (Obear-Nester 1922; Illinois Glass Co. 1906)

Daniel W. Bagby applied for a patent for a “Design for a Bottle” with graduations on the front. He received

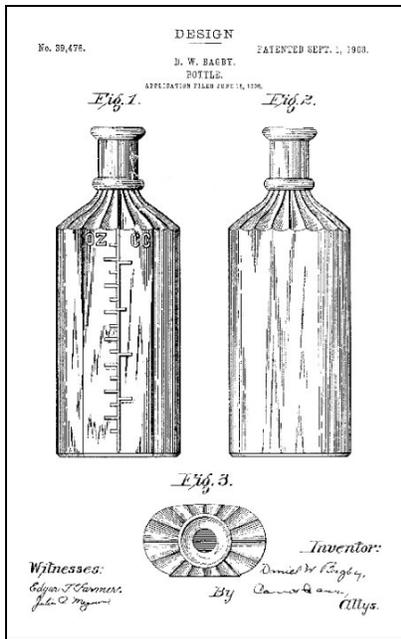


Figure 2-6 – Bagby’s 1908 patent

Design Patent No. 39,476 on September 1, 1908 (Figures 2-6 & 2-7). This design was used as a basis for the Victor Oval, offered exclusively by Obeare-Nester (see Griffenhagen & Bogard 1999:44-45).

Because the patent protection extended for 14 years, Illinois Glass and Obeare-Nester cornered the market for graduated ovals. By the time other glass houses could enter the competition in 1921, the embossed era was almost over.

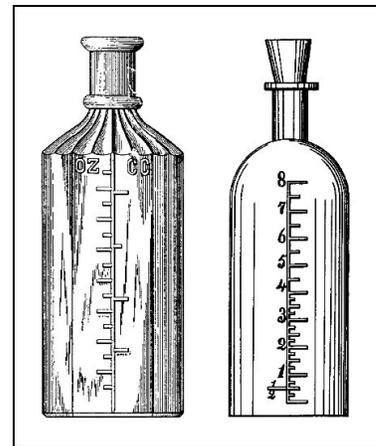


Figure 2-7 – Comparison of the Bagby and Stockel patent drawings

Embossing and Plates

Although embossing on some types of medicinal bottles began with Turlington’s Balsam in 1754, it was not until December 17, 1867, that James J. Christie received Patent No. 72,368 (Figure 2-8 & 2-9), for what would become known as the plate or plate mold (called slug plates by collectors) (Griffenhagen & Bogard 1999:73). Prior to this time, a druggist (or other bottle user) had to buy the entire mold for its proprietary bottles (i.e., those embossed with the user’s name).¹

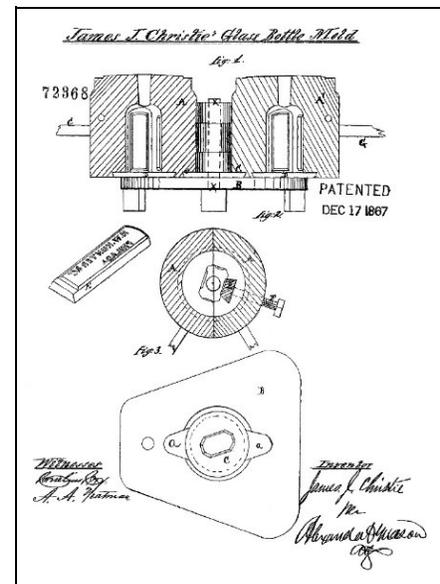


Figure 2-8 – Christie’s 1867 patent for plate molds

¹ Although Christie had the earliest patent, plate molds were used by the 1840s on soda, mineral water, ale, and some other bottle types – including Citrate of Magnesia bottles. Although these plates were usually rectangular, the Christie patent apparently instigated the use of embossing read with the bottle on its side and opened the door to popularity for oval and rectangular drug store ware (Lindsey 2014).

Christie's invention allowed the druggist to only purchase the plate and its accompanying embossing to be used on a generic mold supplied by the glass house. Although some druggists preferred bottles with their embossing directly on the main mold, the vast majority who chose embossing preferred the cheaper plates. These bottles began phasing out during the early 1900s, but prescription bottle specialists, such as Whitall Tatum, continued to offer mouth-blown, plate-mold bottles until 1925 (Lockhart et al. 2006:57).



Figure 2-9 – Example of a plate for a drug store bottle (Lindsey 2010)

Machines

The invention of the Owens Automatic Bottle Machine in 1903 changed everything. However, the 1903 date is misleading. The machines were not used for the actual production of commercial bottles until 1905, and the first licenses to make prescription bottles went to both the Owens Eastern Bottle Co. and the Illinois Glass Co. in 1912. As noted by Miller and Sullivan (1981:86), the major drawback to the Owens machine was the difficulty in replacing molds. The machine was an excellent choice for the mass production of generic bottle styles; it was not useable for small orders – typical of druggists.

Early Owens machine bottles are easy to recognize due to a distinctive basal scar. The machine sucked up glass into the mold, then cut that off with a knife built into the bottom of the mold. The knife caused a ragged scar to appear on the base, often described as “feathered” (Figure 2-10). These scars are typically off center, frequently extending over the edge of the base and onto the heel. Over time, the Owens technicians improved the design, changed the formula of the glass, and replaced the knives more frequently, so the feathering disappeared. Later Owens base scars are indistinguishable from those created by other machine processes.



Figure 2-10 – Example of an Owens “feathered” scar

Because the Owens machine did not work well with small orders, mouth-blown bottles continued to fill that niche until the mid-1920s. Most druggists, however, had never used the more expensive, embossed bottles, preferring to rely on paper labels. With one short exception (see the labels section below), the use of paper labels became the national standard. Even many druggists who had adopted embossed bottles added paper labels as well. Increasingly, during the period between 1912 and 1925, the cheaper, generic bottles made by the Owens and later machines replaced those that used embossing. By 1920, few druggists ordered embossed bottles, and mouth-blown bottles were almost completely eliminated from the field by the late 1920s (also see Lindsey 2014).

Air Venting

Air venting of molds began by at least 1874, although the process was not widespread until the 1880s. Vent holes appear on bottles as tiny embossed dots, usually at shoulders, bases, corners, and mold seams. Eventually, the vent holes were hidden in the embossing (see Figure 2-9). Lindsey (2014) noted:

In general, druggist bottles produced up to the mid to possibly late 1880s do not have air venting marks and those after that time do have them in increasing quantity as the mouth-blown era came to a close. Druggist bottles with the air venting marks incorporated into the plate related embossing almost surely date after 1900 and probably date from the early 20th century.

The last major trend in pharmacy bottles was a gradual shift to plastic as the foundation material. This began in the 1950s, an outgrowth of World War II research. Over time, plastics dominated the market, eventually virtually replacing glass.

Ounce Designations

Two other notable characteristics appeared on drug store bottles in the early 20th century. The first was the identification of bottle sizes. Although volume information was not required by federal law until the Gould Act of 1913, it appeared earlier on prescription bottles. The earliest volume information I have found was a numeral embossed at the shoulder of a bottle.

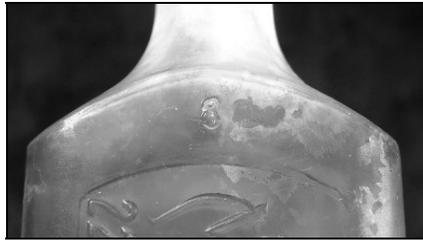


Figure 2-11 – Numeral “8” on a prescription bottle used at El Paso

The numbers “4” or “5” were shown on four bottle styles (Eastlake Ovals, Sheldon Ovals, Klondike Ovals, and Indiana Prescriptions) in the 1901 Dean, Foster & Co. catalog (Freeman 1968:X8-12X; Griffenhagen & Bogard 1999:42). Simple numbers

(e.g., Figure 2-11) continued to be embossed at least as late as 1937 (Whitall Tatum 1937:5).

By at least 1903, the Illinois Glass Co. catalog showed the Graduated Sun Oval with “12 oz.” on the shoulder (a Sun Oval was illustrated in the 1899 catalog [Haynes 1900:17S], but the “graduated”

option was not offered).

This addition of “oz.” was apparently not a popular

item (see Figure 2-2), and I

have seen few bottles with that embossing., although one is illustrated in Griffenhagen and Bogard

(199:41). The system continued until at least 1922, when the Obear-Nester Glass Co. catalog included a

Dixie Oval that was shoulder embossed “3 oz.”

(Figure 2-12).



Figure 2-12 – Dixie Oval embossed “3 oz.” (Obear-Nester 1922)



Figure 2-13 – Shofield’s 1912 patent

A final numerical system was part of a bottle created in 1912. Charles M. Shofield applied for a patent on June 22, 1912, and received Design Patent No. 43,782 on April 1, 1913 (Figure 2-13). He assigned the patent to the Sheldon-Foster Glass Co., Chicago Heights, Illinois. The bottle was embossed with graduations (ounces to the left, cubic centimeters to the right) as well as the word



Figure 2-14 – Shoulder embossing on a 3-ounce Lyric bottle

Only a very few of these bottles were mouth-blown by Sheldon-Foster, because, in 1913, the Thompson Bottle Co. purchased the Chicago Heights operation. Later in the same year, the Illinois Glass Co. acquired Thompson, thereby gaining the rights to the Lyric bottle. Illinois Glass manufactured all of its Lyric bottles on the Owens Automatic Bottle machine. Production of the style continued when the merger of Illinois Glass and the Owens Bottle Co. formed the Owens-Illinois Glass Co. in 1929. The Owens-Illinois bottles were embossed “ILLINOIS” in place of “LYRIC” on the bases. The more popular Owens Oval soon caused the elimination of the Illinois Oval (Figure 2-15).

“LYRIC” on the base. In addition, a numeral representing the capacity of the bottle in ounces was embossed in a circle on the shoulder with embellishments on both sides of the circle (Figure 2-14).

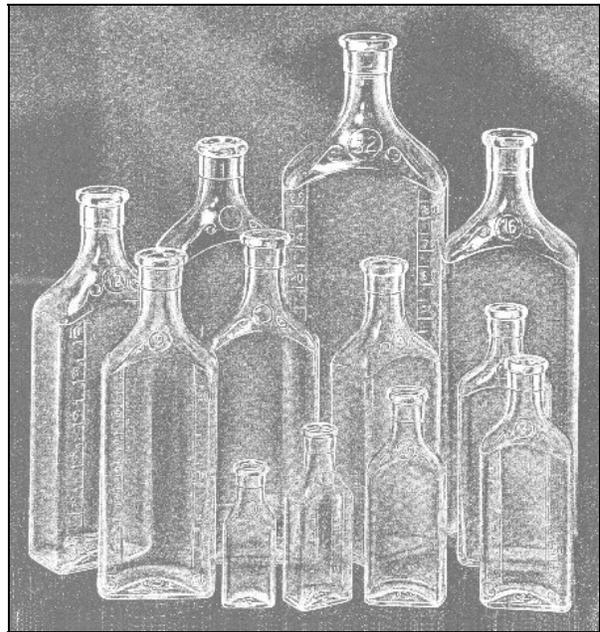


Figure 2-15 – Illinois Oval (Owens-Illinois 1930)

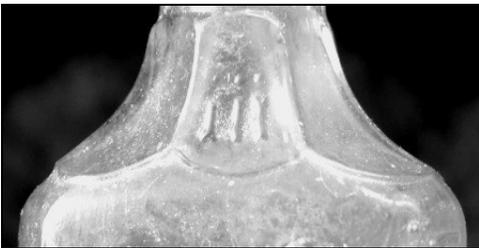


Figure 2-16 – Roman numeral iii on a prescription bottle from El Paso

The most popular ounce designation, however, was the embossing of lower-case Roman numerals at the shoulder of rectangular or oval bottles (Figure 2-16). The first bottle with Roman numerals that I have found was the Phenix Prescription style, illustrated in the 1902 Whitall Tatum Co. catalog (James 1967) (Figure 2-17). The Duplex Oval, illustrated in the Illinois Glass Co. 1908 catalog also used lower-case Roman numerals (see Figure 2-3). Similar drawings appeared in the Whitall

Tatum Co. 1909 catalog and subsequent publications. The system continued in use until at least 1949 on the Owens Ovals, made by Owens-Illinois.



Figure 2-18 – Apothecary ounce symbol

Roman numerals were often accompanied by a second characteristic, the apothecary ounce symbol. These appear to be a numeral “3” with an extra upper extension that is flattened at

the top (Lindsey 2014). The ounce symbols seem to have been first used ca. 1908, the same time when the Roman numerals appeared (Figure 2-18). Less common was the dram symbol (Figure 2-19)

Labels

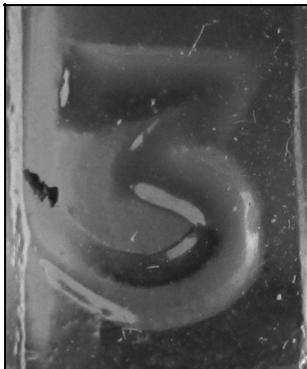


Figure 2-19 – Apothecary dram symbol

Paper labels were used on medicinal bottles in what would become the United States at least as early as the Revolutionary War. Often, local newspapers were the only source of printed labels for most druggists, especially those in remote locations. Although firms like Phair & Co. was trimming labels by machine in New York in 1858, labels in many distant spots (like El Paso) had to be cut individually by the druggists (e.g., Figure 2-20). The early labels only identified the product, but most also named the pharmacist and his location by the 1850s (Griffenhagen & Bogard 1999:28-29, 33).

During the mid-1850s, Edward Parrish introduced a generic label that had blank spaces for names and quantities. Although that would serve



Figure 2-17 – Phenix Prescription (Whittall Tatum Co. 1902)

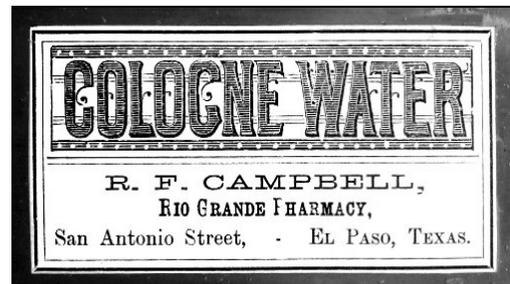


Figure 2-20 – Hand-cut paper label on El Paso drug store bottle

many needs, another type of label provided the pharmacist's information and left a space for the prescription number. Initially, label makers used wood cuts to produce fancy designs. Samuel Tiller, however, used copper-engraved stamps in the 1820s, although the new process did not completely replace wood engravings until the 1860s. By the early 1860s, some firms offered labels that were cut and gummed, eliminating the need to apply glue, a messy process that had previously been the only choice. About the same time, secondary labels (e.g., Shake Well or Keep in a Cool Place) became popular (Griffenhagen & Bogard 1999:30-32).



Figure 2-21 – Rolled-label dispenser used at Carrizozo (courtesy of Hal Sims)

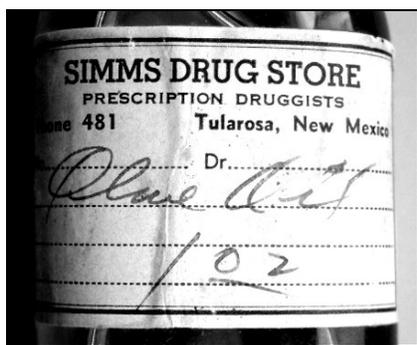


Figure 2-22 – Handwritten label

Nicholas-Louis Roberts invented a unique method for dispensing labels. In 1789, he devised a machine to produce a continuous roll of paper, a great improvement over single sheets (Griffenhagen & Bogard 1999:28). I have been unable to determine when that was adapted to drug bottle labels, but such a machine was used by a Carrizozo, New Mexico, druggist (Figure 2-21) and probably by most pharmacies by the turn of the century.

Typically, the pharmacist wrote the prescription number, name of the medicine, and dosage, using pen and ink – sometimes even pencil (Figure 2-22). Even though Remington produced the first commercial typewriter in 1874, it was not until 1891 that the machine was advertised to druggists (Griffenhagen & Bogard 1999:48). Thus, typed labels were most likely used ca. 1890 and later (Figure 2-23). Eventually, of course, labels were produced by computer.

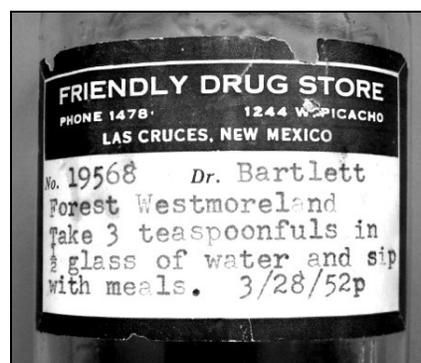


Figure 2-23 – Typed label

Applied Color Lettering

A single challenge to the supremacy of the paper label occurred in 1933, when an article in the February *Glass Packer* (1933:119) announced a new “monogram” service from Brockway Machine Bottle Co. The company offered “special designs, trade marks or plain hand written script” applied to its bottles. The article noted that “the enamel is baked or fused into the glass and, becoming an integral part of the container, will not rub or scratch off; nor is it the least affected by water or chemicals. The enamel may be applied in any color, and it retains its lustre during the entire life of the bottle.” Brockway initially offered the new service in prescription bottles but planned to expand the technique to food and perfume bottles (Figure 2-24).

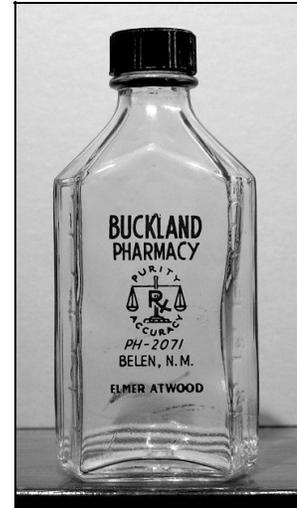


Figure 2-24 – Bottle with ACL label (Lynn Loomis collection)

The following year (1934), the Owens-Illinois Glass Co. had advanced the technique sufficiently to allow the Applied Color Lettering (ACL) process to be applied to round bottles. Different glass companies called the process different names (ACL, for example, was the Owens-Illinois Glass Co. name; the Thatcher Glass Mfg. Co. called it Pyroglazing), and the use of the process became the labeling standard for soda and milk bottles. Ironically, the idea never caught on for drug store bottles.

With the lack of acceptance for the ACL process by druggists, the paper label remained the standard. Essentially, paper labels have changed little, although the peel-and-stick, computer generated labels have become fast and easy to use. Although techniques for manufacture have improved, the basic, gummed label remains in use today.



Figure 2-25 – Double-ring finish

Finishes and Closures

Prior to 1912, the only viable closure for prescription bottles was the cork. Originally, the finishes were simple, usually a single or double ring – especially on round styles (Figure 2-25). On square and oval bottles, however, a different type of finish evolved. Eventually, this



Figure 2-26 – Prescription finish

type was called a prescription finish, and these were developed to aid in pouring (Figure 2-26).

Early examples were made by merely flaring the top and flattening the flare (Figure 2-27). The flare, itself, became a defining characteristic of prescription bottles.

The top of the finish had a distinctive shallow funnel shape, regardless of the manufacturing technique.



Figure 2-27 – Flared finish (Lindsey 2010)

The flared finish quickly evolved into applied finishes, where a blob of glass was “applied” to the top of the molded bottle and tooled into the final shape. These are usually easy to recognize due to excess glass creating a “slop over” appearance at the base of the finish (Figure 2-28). Sometimes, if the finish had been well applied, the seam can only be determined by examining the inside of the throat. Both flared and applied finishes are very uncommon on drug store bottles.

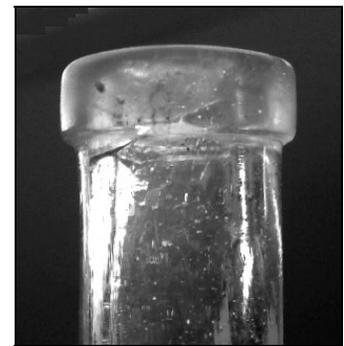


Figure 2-28 – An applied finish



Figure 2-29 – A tooled finish

Prescription bottles were some of the earliest to use a newer method called “tooled” finishes, where a finishing tool was placed on the top of the molded bottle, and the finish was created without the application of any additional glass (Figure 2-29). Tooled finishes are characterized not only by the lack of the “slop” at the base of the finish; the finishing tool usually left fine striations around the outside where the tool had been turned (see Lindsey 2014 for a more detailed description).

Narrow-mouth bottles were not machine made until the invention of the Owens Automatic Bottle Machine in 1903. Owens, however, did not issue its first licenses for the manufacture of prescription bottles by machine until 1912. Within a decade, other machines

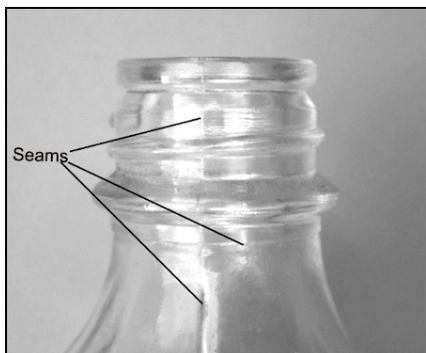


Figure 2-30 – Machine side seam at finish

were also adapted to prescription bottle production, and machine manufacture became the norm by the early 1920s. Machine-made finishes are distinguished by vertical seams that extend to the top of the finish and can extend into the edge of the throat (Figure 2-30). These side seams, however, may be obliterated by



Figure 2-31 – Horizontal machine seam at base of finish

fire polishing. A second, often more important characteristic of machine manufacture is the presence of one or more horizontal seams encircling the finish (Figure 2-31). Even with fire polishing, the seam at the base of the finish is almost always visible.

Reinforced Finishes



Figure 2-32 – Reinforced finish or collared ring

Eventually, manufacturers introduced a reinforced finish, also called a collared ring. This was a typical prescription finish with a flared lip, but it had a ring of thicker glass built up below it (Figure 2-32). Use of these finishes began ca. 1900 and first showed up in the 1902 Whitall Tatum & Co. catalog as the



Figure 2-33 – Double reinforced finish or double collar (Lindsey 2010)

“Reinforced Extract Lip.” These finishes continued in use until at least 1937 (James 1967; Whitall Tatum Co. 1937:4-5, 7-8), probably into the early 1940s.

Sometimes, these finishes were stepped, forming a double collar below the flared lip (Figure 9-33). The stepped style began ca. 1913 and is most common on the BLUE RIBBON bottle style, offered by the Standard Glass Co. (Lindsey 2014). The Illinois Glass Co. used a

variation that was actually a single collar with a bead of glass around the center on the Lyric series from 1913 to the merger that created the Owens-Illinois Glass Co. in 1929 (Figure 9-34). Owens-Illinois returned to a simple collar for the bottles (Owens-Illinois 1930:P4, P8).

Other Finishes



Figure 2-35 – Single ring or packer finish

Druggists “packing” bottles were almost always topped with a “packers” finish. These consisted of a single ring with squared edges, appearing rectangular from a side view (Figure 9-35). Like more typical druggists’ finishes, these were sealed by corks.

Continuous-thread finishes first appeared on prescription bottles during the mid-1920s (Figure 2-36). The manufacture of small-mouth continuous-thread finishes was entirely dependent on the use of machine processes. Precision threads were beyond the capability of mouth-blown technology. Threaded finishes were very unusual on embossed bottles because these were almost all produced by hand.



Figure 2-34 – Unique reinforced finish on Lyric bottle



Figure 2-36 – Continuous-thread finish



Figure 2-37 – Bakelite and rolled steel caps

Although some cork finishes continued in use into the 1940s, screw caps became increasingly more popular as embossed, mouth-blown bottles were replaced by those made by machine (Lindsey 2014). Both rolled steel and Bakelite plastic screw caps began to be used in conjunction with the earliest continuous-thread finishes (Figure 2-37).

Discussion and Conclusions

The above information only forms part of the necessary knowledge needed to accurately date prescription bottles. Good dating requires four components: 1) general historical development data; 2) a good background in the dating of manufacturer's marks, date codes, and other factory markings; 3) a solid basis in the history of the individual city, state, and region; and 4) a history of the individual druggist or drug store. As you will note in the pages to follow, I have used different combinations of the four dating techniques to determine a date range for El Paso drug store bottles – often three of these to place a single bottle.

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