Debunking the Myth of the Side Seam Thermometer

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One of the longest running myths in the world of bottle dating is that the side mold seam can be read like a thermometer to determine the age of a bottle. The concept is that the higher the side mold seam on the bottle the later it was made – at least in the era from the mid-19th century until the first few decades of the 20th century. This dating tool was apparently devised by Grace Kendrick in her 1963 book *The Antique Bottle Collector*. This book was a pioneering effort and was reprinted many times into the 1970s. It is probably the most common and widely quoted bottle book ever written – by collectors and archaeologists alike. Kendrick's exploratory efforts were well done – for the time period. She was at the forefront of bottle researchers. However, we *have* learned a few things in the past 22 years.

The concept of the side-seam thermometer was articulated by Kendrick in her chapter entitled "The Applied Lip" that contains a chart, "Age Gauge: Mold Seams of Bottles" (Kendrick1963:46). Kendrick explains in the text: "It is true that the mold seams can be used like a thermometer to determine the approximate age of a bottle. The closer to the top of the bottle the seams extend, the more recent was the production of the bottle" (1936:45-47).

The chart accompanying this statement notes that bottles made before 1860 have a side mold seam ending on the shoulder or low on the neck; between 1860 and 1880, the seam ends just below the finish; between 1880 and 1900, the seam ends within the finish just below the top lip surface; and those made after 1900 have mold seams ending right at the top surface of the finish, i.e., lip (Kendrick 1963).

Although there are examples of bottles having mold seams that fit these date ranges properly, the issue of dating bottles is vastly more complex than the simple reading of side mold seams. If it were that simple, much of the succeeding literature and research would have been unnecessary. For example, the process that produces a tooled finish frequently erases any trace of the side mold seam an inch or more below the base of the finish; whereas, the typical applied finish has the seam ending higher – right at the base of the finish. Often the issue is the skill of the individual craftsman. A highly-skilled bottle maker obliterated less of the mold seam than one who was more sloppy in his work.

In addition, there are three other points pertinent to side seam height. First, on many 19th century bottles, the side seams are a different height on each side. According to the thermometer, the bottle halves would have been made during different years. Again, this is a result of the individual skill of the craftsman. Second, all glass techniques changed over a period of time. Not all mold makers produced molds with higher seams during the same period. Even if the chart were a good indicator, it would have to have a period of overlap for each line height during which the industry standards changed. Finally, most bottles made by hand throughout the mouth-blown bottle era (antiquity through the first quarter of the 20th century) received varying amounts of re-firing of the upper neck and/or finish. This reheating often erased traces of the side mold seams – further confounding the "thermometer" dating guide throughout the entire mouth-blown bottle era.

The final sequence in the chart, the side seam extending to the top of the finish after 1900 is extremely faulty. Many figured flasks (like scroll flasks) were simply cracked off from the blowpipe at the point where the top of the mold ended, with no re-firing of the lip. This leaves a relatively sharp, round lip surface to the bottle but also often results in a bottle where the side mold seams ends right at the top edge of the lip (but of course, does not go over the top of the finish like a machine-made bottle). Although these flasks date to the "before 1860" period, the "thermometer" would date them into the 20th century!

In 1881, Phillip Arbogast invented a semi-automatic bottle machine, a device that reversed the process of bottle making by creating the "finish" first (Meigh 1960:3). Forming the finish first created side seams that extended to the top of the bottle. These early machines only worked on wide-mouth bottles and jars, but the technique was improved to make small-mouth bottles by late 1887 (Meigh 1972:28). Even when Michael J. Owens invented the Owens Automatic Bottle Machine in 1903, that did not mean that *all* or even most bottles began to have the seams extend to the top of the finish during that period. Many bottles continued to be mouth blown, meaning that the finish was created last, and side seams terminated *below* the finish, until the mid-1920s (see Miller & Sullivan for a good discussion about the transition period).

The seam that extends into the finish, a process Kendrick dated 1880-1900, is somewhat unusual and is found in relatively few bottles. Lindsey (2005) describes this as an "improved tooled" finish that is most commonly (but not exclusively) seen on bottles produced towards the end of the mouth-blown bottle era, i.e., 1890s to 1910s. While this can be dated reasonably well to that time period, it was clearly not a defining technique for that or any other period of time.

It is unfortunate that this fiction keeps popping up in the literature of bottle dating and identification ranging from Sellari's books (Sellari and Sellari 1970:5 and others) published shortly after Kendricks book to as recent as Fike (1998:4) and Heetderks (2002:15). It is also frequently noted by sellers on eBay® when describing their offerings. The most recent repetition (with the 1880-1890 form slightly altered from the original Kendrick chart) was published in the Summer 2005 issue of *Bottles and Extras* (Munsey 2005:31). The rest of Munsey's article, by the way, is excellent.

There is, of course, some truth in the thermometer concept. Over time, two improvements in bottle manufacture continued to advance. First, molds actually did improve, gradually creeping up the side seams ever higher. While this *idea*, the basis of the side-seam thermometer concept, is correct, it is not clearly articulated enough in the actual practice of 19th century bottle makers to be a usable, dating concept, especially not with clear-cut starting and stopping dates. Second, finishing techniques improved. As both tools and the techniques of the bottle

makers became more refined, less of the bottle necks were affected by the finishing process. Once again, however, this was highly dependent on individual gaffers (glass blowers) and the tools provided by specific factories. It was not clear cut, and there are literally dozens of examples in the collection of only one member of this research group that refute the side-seam thermometer fiction. Between the four of us, we could probably provide literally hundreds of examples that are exceptions to the "thermometer" dating guide.

Examples of these are a bottle from M. H. Webb, Druggist, of El Paso, Texas. Webb was only at the address on the bottle (220 San Antonio St.) from 1900 to 1903. According to the thermometer, this bottle should have a side seam that extends to the top of the finish. In reality **[Figures 1 - 2]**, the side seam terminates less than halfway up the neck. If the thermometer were to be believed, this bottle would date 1860-1880, at least 20 years too early.

A bottle from the Rio Grande Pharmacy **[Figures 3 - 4]**, one of El Paso's oldest drug stores, is embossed with the signature of Stafford Campbell, Ph.G., Prop. Campbell was first listed as the proprietor in the El Paso city directories in 1896, and he took on a partner in 1901. Thus, the bottle was made during the 1896-1901 period and should have a side seam extending to the top of the finish (according to the thermometer). The actual side seam terminates slightly above the shoulder. According to the thermometer, that would date the bottle before 1860.

A third example comes from the Economical Drug Co., open in El Paso from 1915 to 1930 **[Figures 5 - 6]**. The style of this bottle, with graduations in ounces on the left and cubic centimeters on the right, was first offered in the 1902 Whitall Tatum catalog and was used until at least the 1930s. The seam on this bottle extends to the bottom of the finish on one side and less than halfway up on the other – clearly not to the top of the finish. These examples, alone, clearly refute the accuracy of the side-seam thermometer concept.

Two final examples are found on soft drink bottles from the Magnolia Coca-Cola Bottling Co., El Paso. The company was founded in late 1907 or early 1908 and obtained the Coca-Cola franchise in 1911 (Lockhart 2001:83-98). Magnolia's second bottle style **[Figures 7 - 8]** was used from about 1909 to 1911. On all examples of the bottle, the side seams extend more than halfway up the neck but end well below the finish – a format that fits the 1860-1880 identification on the "thermometer" – at least 29 years off. A straight-sided Coke bottle **[Figures 9 - 10]** has a side seam that extends into the finish, an idea that on Kendrick's original thermometer would have dated the bottle between 1880 and 1890. Because Magnolia did not acquire the Coke franchise until 1911, this date range, too, is incorrect by at least 21 years. The evidence speaks for itself.

We hope this helps clarify bottle dating a bit and will help persuade more people to stop repeating this outdated dating technique. Kendrick's ideas were well thought out – for the 1960s. However, researchers of the 21st century need to update our body of dating tools to reflect more recent discoveries. For more discussion on this aspect of bottle dating and identification, see Bill Lindsey's "Bottle Body Characteristics & Mold Seams and Bottle Bases" webpages.

Figure 1: M. H. Webb Drug Store Bottle (1900-1903)

Figure 2: Side Seam – Webb Bottle

Figure 3: Rio Grande Pharmacy Bottle (1896-1901)

Figure 4: Side Seam – Rio Grande Pharmacy Bottle

Figure 5: Economical Drug Co. Bottle (1915-1930)

Figure 6: Side Seam – Economical Drug Co. Bottle

Figure 7: Magnolia Bottling Co. Bottle (1909-1911)

Figure 8: Side Seam Magnolia Bottling Co. Bottle

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Figure 9: El Paso – Straight-Sided Coke Bottle (1911-1918)

Figure 10: Side Seam – Straight-Sided Coke Bottle

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