

Part IV

Dating

Hobble-Skirt

Coca-Cola

Bottles

by Bill Lockhart

One distinctive US symbol is recognized throughout the world – the unique shape of the Coca-Cola bottle. These bottles have been known by such names as the May West (for a very busty actress of the early 20th century), the hour glass, and the hobble-skirt (based on a skirt style popular around the turn of the century). The design was so spectacular that it led to a the development of the specialty (also called proprietary or deco) soda bottles about a decade after the bottle’s initial use in 1916.

The Coca-Cola company held a contest among bottle makers to design the perfect bottle for its product. The bottle had to be so distinctive that a customer could easily pick it out by feel alone – to identify it in the dark. Even if broken, a person must be able to recognize it at a glance. Kathy Hopson (2002:4) told the story:

Plant manager Alex Samuelson [of the Root Glass Co.] was puzzling over the bottle design problem when he was struck by an inspiration. What if the bottle were made to resemble the shape of either a kola nut or a coca leaf, the two main ingredients for which the product had been named?

He dispatched Clyde Edwards off to the city library to search information about those two items. A misunderstanding occurred, leading Edwards to the wrong page of the Encyclopedia Britannica, not to either the coca leaf or the kola nut. Instead, the sketches that he brought back were images of the cacao tree seedpod.

[Earl] Dean was the man who actually designed the bottle, using as his inspiration the illustrations from the 1910 Encyclopedia Britannica that Edwards had found. The design, patented November 16, 1915, was selected over 11 contenders as the new Coca-Cola bottle in January of 1916.

Alex Samuelson was officially listed as the designer, probably because he registered the patent. The hobble-skirt Coca-Cola bottle was about to become history (Figure 4-1).

Subsequently, the bottle evolved through several modifications, always retaining its distinctive shape (Figure 4-2). The various, often minute changes have produced a series



Figure 4-1 –
The Original
Root Coca-
Cola Design

Figure 4-2 –
Hobble-Skirt
Coca-Cola
Bottle

of datable events that may be quite useful to both historical archaeologists and collectors. Four dating guides (Gilborn 1968; Munsey 1972; Kendall 1978; Pollard 1993) and a fifth source (Porter 1995) have been published for dating the evolutionary changes of the hobble-skirt bottle. Lockhart (2000; 2003:34-36) consolidated some of the sources into a synthesis, although this volume supercedes those studies.

Patent and Design-Related Changes

The bottle was initially patented on November 16, 1915 (BOTTLE PAT'D NOV. 19, 1915 on the central labeling area), although no bottles were actually in the hands of the franchises for almost two years (Figure 4-3). Porter (n.d.:7) noted that “a letter dated in the fall of 1916 on display at the Elizabethwown, KY museum says: ‘The new bottles should be available by early spring’” [i.e., 1917]. Some franchises were slow to accept the new bottle, and the adoption was not relatively universal until 1920. A few were very resistant to change. Porter (n.d.:5) cited 1915-patented bottles with date codes as late as 1928 from Maine even and some even dated into the 1930s, although these latter are generally challenged by collectors as errors in the engraving.

Porter (n.d.:6) stated that the transition to the second style (see below) was mostly complete by 1927, although a few franchises (using bottles made by the Root Glass Co.) held out for another few years. Each major style change can be observed on the labeling area in the center of the bottle just below the script Coca-Cola.

The second style is labeled BOTTLE PAT'D DEC. 25, 1923, the so-called Christmas Coke (Figure 4-4). To compound dating problems, the Coca-Cola Co. introduced a reprint of the Christmas bottle in 1989 (Porter 1996:8). These reproductions are very common and may have made their way into some archaeological assemblages. The only way to clearly identify the difference is by examining the base of the bottle. The 1989 bases are embossed with smaller letters with line spacers between the city a state names.



Figure 4-3 – 1915 Patent



Figure 4-4 – 1923 Patent



Figure 4-5 – Patent D-105529



Figure 4-6 – IN U. S. PATENT OFFICE

In 1937, Coca-Cola offered their franchisees new bottles marked BOTTLE PAT. D-

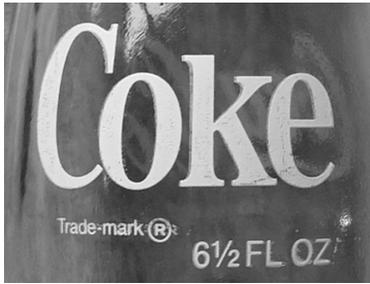


Figure 4-7 – ACL

105529 (Figure 4-5). These were followed in 1951 by IN U. S.

PATENT OFFICE (Figure 4-6), and the Applied Color Label

(ACL) center markings (Figure 4-7) first appeared in 1957 (Porter

n.d.:7).¹ All of these retained the familiar, hobble-skirt

morphology. Interestingly, throughout the years, the weight of the

smaller (6½ oz.) Coke bottles has decreased, although it is easier to

date the bottles by way of visible changes rather than weight

(Gilborn 1968:15; Munsey 1972:61). Munsey (1972:61) addressed

the changes in empty weights for 6½ oz Coke bottles (see Table 4-1).

Table 4-1 – Empty Weights for 6½ oz. Coca-Cola Bottles

Date Range	Weight (oz.)
1916-1936	14.24
1937-1956	14.01
1957-1958	13.8
1958-1962	13.65
1963-1972*	13.26

* Since Munsey’s book was published in 1972, weights are only valid until that year.

Volume changes, city/state designations on bases, ACL additions to the neck, and the inclusion of TRADE MARK ® are described in Table 4-2. Although used as early as 1917 (on some of the earliest bottles), city/state designations were mandated by the main company on May 13, 1918, “so that we can keep a record of the plants that are bottling Coca-Cola and make certain that bottles were (*sic*) being sold only to authorized bottlers” (quoted in Porter n.d.:8).

Table 4-2 combines the four major dating schemes for Coca-Cola bottles. Each varies slightly and was devised in different ways. The oldest was compiled by Craig Gilborn (1968:15), although it is not currently known how he derived his data. Cecil Munsey (1972:62-63) followed with information provided by the Coca-Cola Co. This contains the dates when the company

¹ Gilborn (1968:15) and Munsey (1972:63) placed the date for ACL bottles at 1963. These are official company dates, however, and Porter’s information came from date codes on the bottles.

Table 4-2 - Dating Schemes for “Hobble-Skirt” Coca-Cola Bottles

Type of Change	Begin	End	Citation
BOTTLE PAT'D NOV 16, 1915	1916		Munsey 1972:62
	1917	1930	Kendall 1978:7
	1916	1923	Gilborn 1968:15; Pollard 1993:45
BOTTLE PAT'D DEC. 25, 1923	1924		Munsey 1972:62
	1926	1938	Kendall 1978:7
	1924	1937	Gilborn 1968:15;* Pollard 1993:45
BOTTLE PAT. D105529	1937		Munsey 1972:63
	1938	1951	Kendall 1978:7
	1937	1951	Gilborn 1968:15; Pollard 1993:45
6 FL. OZS. changed to 6½ FL. OZ.	1948		Munsey 1972:63
TRADE MARK REG. 6 OZ.	1951	1959	Gilborn 1968:15; Kendall 1978:7
TRADE MARK REG. 6½ OZ.	1957	1965	Gilborn 1968:15; Kendall 1978:7
IN U. S. PATENT OFFICE	1951	1959	Gilborn 1968:15
	1951		Munsey 1972:63
	1951	1963	Pollard 1993:45
City and State embossment on base	1916	1955	Munsey 1972:63
	1916	1958	Gilborn 1968:15; Pollard 1993:45
COKE in ACL on neck	1958	1962	Gilborn 1968:15
	1958		Munsey 1972:63; Pollard 1993:45
TRADE MARK ®	1958		Gilborn 1968:15
	1960		Munsey 1972:63
City and State embossment returns	1963		Munsey 1972:63; Pollard 1993:45
ACL COKE & COCA-COLA in body center labeling area	1963		Gilborn 1968:15; Munsey 1972:63
6½ oz on one both sides of panel	1965		Gilborn 1968:15; Munsey 1972:63

* Gilborn (1968:15) actually used the 1923 date, but that is impractical.

officially made the variations available to the franchises. Along with reliability problems in general, several of Munsey's dates are rendered incorrect by empirical observation.² It was nonetheless a seminal study and the first of its kind to reach the general public.

Munsey was followed by Kendall (1978:7) who, unfortunately, only looked at hobble-skirt Coke bottles from the 1915 container to the BOTTLE PAT. D105529 variation, with a few notations about later styles. Kendall differed from Munsey in combining empirical observation of dated bottles with interviews from former bottlers. This produced a dating system more in tune with actual use. Pollard (1993:45), in his study of bottles from Plattsburgh, New York, also relied on empirical data from that city. Although he added a great deal of other information, Porter (1996:6) essentially relied on Kendall's dates.

Munsey (1972:63) also provided some worthwhile additional information about bottle styles. Around 1964, Coca-Cola offered a nonreturnable bottle for domestic use. This straight-sided container, embossed with the script Coca-Cola trademark, was the first no-deposit bottle made for use within the United States. Coke further introduced a nonreturnable bottle in the hobble-skirt design with ACL markings about 1966. The company initially used one-way plastic bottles in 1970.

Manufacturer's Marks, Trademarks, and Colors

On July 23, 1919, the Coca-Cola Co. mandated that each manufacturer must mark its bottles with a discrete logo and the date of manufacture (Porter n.d.:8). Porter (1996:3-6) discussed manufacturer's marks specific to Coca-Cola hobble-skirt bottles. These often differed from the typical marks found on other bottles. For example, the Laurens Glass Works used LGW on Coke bottles until 1933. From 1934 to 1951, the company only marked them with an L (although Laurens continued to use the LGW mark on its other soft drink bottles until its closure in 1968). Chattanooga Glass Co., famous for the "Circle C" symbol, used CHATT on the heels of hobble-skirt bottles until 1938 (while only using the circle C on some other soda bottles beginning in 1927, although the company continued to use the CHATT on some soda bottles mark until 1948).

Porter (1995:4) also stated that Owens-Illinois "used letter codes to distinguish different

² Notably, Munsey places the change from MIN. CONTENTS 6 FL. OZ. to 6½ FL. OZ. almost a decade too early and is three years too early on the removal of the city/state designation on the base.

plants” on “later” bottles. These are embossed above the I-in-an-oval mark and were not used in conjunction with the earlier I-in-an-oval-superimposed-on-an-elongated-diamond logo.

According to Porter, A=Alton, Illinois; B=Bridgeton, New Jersey; C=Charlotte, Michigan; F=Fairmont, West Virginia; and S=Streator, Illinois. In addition, a W appears above the Owens-Illinois mark on some El Paso, Texas, Coke bottles, probably indicating the Waco, Texas, plant.

Owens-Illinois differed from other makers in another way. Initially, Coke bottles were marked with the typical Owens code. Porter (1996:4) noted:

The huge Owens Illinois Glass Co. of Toledo, Ohio, became the dominant force after 1930. Their mark looks like the planet of Saturn with number beside it. To the left, the mold number and to the right a one digit date until 1934 (2 = 1932 etc). During 1934, the same symbol and a 2 digit date move up to the skirt. Some Owens Illinois California-made bottles have the symbol & numbers on the base, as 24(mark)4. The date on this is 1934.

The left code is actually the factory code (see Lockhart 2004 or Toulouse 1971:406). Bill Lindsey has a Coke bottle embossed 24 (mark) 5, showing that the switch occurred *during* 1935, so bottles from that year may use either system.

Gilborn (1968:15-16) noted that only six companies manufactured Coca-Cola bottles in 1968. However, he only listed five of them: Chattanooga Glass Co. (Circle C mark); Owens-Illinois Glass Co. (I in an Oval); Liberty Glass Co. (LG); Laurens Glass Co. (L); and Anchor Hocking Glass Co. (H superimposed on an anchor).

Gilborn (1968:16) also discussed trademarks:

Presently [1968] there are three registered trademarks – “Coca-Cola” (since 1893), “Coke” (since 1945), and the design of the bottle (since 1960), the last being previously protected by a succession of design patents . . . and common law rights. The bottle was the second container to be trademarked (the first was the Haig & Haig “pinch bottle” in 1958).

In 1955, Coca-Cola broke with its long-standing tradition of only using a 6 ½-ounce bottle and added 10-, 12-, 16-, and 26-ounce sizes to its inventory (Gilborn 1968:15; Munsey 1972:60). However, the use of these was at the discretion of each individual franchise. The Magnolia Coca-Cola Bottling Co. of El Paso, Texas, for example, did not offer the 16-ounce size

until about 1963 (Lockhart 2000).

The Coca-Cola company preferred its franchises to use the “Georgia Green” color for their hobble-skirt bottles, and most glass makers complied. However, there were several interesting exceptions. Porter (n.d.:8-9; 1996:6) notes that the Chattanooga Glass Co. and Laurens Glass Works both produced blue bottles in the 1915 style and that World War II bottles (1942-1945), especially those produced by Laurens and Chattanooga, are often blue-green instead of the typical Georgia Green because of a shortage of copper during the war years. Bottles made by the Reed Glass Co. were also a blue or bluish color. Our studies (see Section II) also show that the Graham Glass Co. made very light blue bottles (sometimes almost colorless – also called ice blue) until at least 1920 (see Part II of this book).

Porter (n.d.:8-9) further discusses hobble-skirt Coke bottle color, including additional information about the Laurens bottles. He states that the blue bottles from Laurens, made between 1917 and 1919, were hand finished, and “are almost always a pretty bluish color, but I have one in green and one, believe it or not, that’s half green and half blue.” Porter also discussed another shade made by Laurens in 1925 and 1928 that he describes as “Clear/Pink” – probably indicating the presence of manganese dioxide in the glass mixture as a decolorant. Manganese-bearing glass, when exposed to prolonged sunlight or artificially irradiated with ultra-violet exposure, turns to a purple or amethyst shade that is sometimes described as pink. Manganese use was generally discontinued ca. 1920, although references to its use in industry literature continue to occur until 1933 (see Lockhart 2006 for a thorough discussion of the phenomenon). Porter (n.d.:9) warned that such bottles in a “deep purple” color are “artificially enhanced.”

A very unusual glass color was made by the Lynchburg Glass Co., Lynchburg, Virginia. In 1919 and 1920 (noted by two-digit date codes on the bottles), the plant made grey-colored hobble-skirt bottles (Porter n.d.:8; 1995:5). This color is unique among Coke containers. Munsey (1972:60) noted that colorless glass was used in foreign markets prior to World War II, with Georgia Green the preferred color after the war.

Chronological Dates and City/State Designations

Another way to date Coke bottles (after the initial 1915 variation) is by date codes embossed on the skirt (about halfway between the heel and the main labeling area – the constriction point). The code contains the two-digit date code plus another two-digit mold code. In bottles made prior to 1951 (Figure 4-8), the date code is the last two digits; however, during

1951, the date code migrated to the first two digits (Figure 4-9). Both styles may occur in 1951, and some exceptions have been noted. Usually, however, it is very clear which of the two digits is the date code (e.g. 44-73 on a BOTTLE PAT. D105529 container can only mean 1944 – 1973 would be much too late for that variation). Munsey (1972:59) claimed that the more recent four-digit system was more complex. He noted that the first digit indicates the year; second, the mold; third, a manufacturer's symbol; and finally the glass plant number. This, however, is not supported by other sources or empirical research.



Figure 4-8 – Date Code Up to 1951 (Date is Last Two Digits)

In the earliest bottles, manufacturer's marks are often on the heel, frequently with a date code. With a few exceptions, after the 1915 style, the marks are found on the skirt between the two sets of codes. In 1951, the date codes and other numerals remained on the skirt (divided by a hyphen), but the manufacturer's marks migrated to the base (Gilborn 1968:15; Porter 1996:7). At some point in time, the codes also moved to the base. The date is still undetermined, but at least one basal date code of 1960 has been reported by Carol Serr. However, at least one date remained on the skirt as late as 1968.



Figure 4-9 – Date Code from 1951 (Date is First Two Digits)

Although Gilborn (1968:15) and Pollard (1993:45) noted that city/state embossing had been removed from the base by 1958 but was returned in 1963 on some bottles, the process was much more complex. Some bottlers continued to use embossed 6 ½-ounce bottle with city/state embossing on the base as late as 1965. A few of the earliest ACL bottles (1957-1963) continued to use city/state designations (that were *not* random – see below). Virtually all, however, had been dropped by ca. 1962 (Porter, personal communication, 5/16/2008).

In 1965, the Coca-Cola Co. began the Random Baseplate Bottles program, where the



Figure 4-10 – Example of Large Letter Baseplate



Figure 4-11 – Example of Small Letter Baseplate

name embossed on the base bears no relation to the actual bottling plant. In other words, the city/state designation no longer actually identifies the location where the bottle was filled (Porter 1996:8).

Embossed city/state dates on bases changed from a large-letter format (Figure 4-10) to small letters with line spacers (Figure 4-11) in 1951 (Porter 1996:8), so bases, alone, can provide

some dating information. However, my empirical research with local hobble-skirt bottles suggests that the older, large-letter embossing on bottle bases stopped in 1952, and the newer, small-letter with line spacers embossing began the next year (1953). It is entirely possible that the change was mandated in 1951, and some of the bottle makers were slow to respond.

Pollard (1993:45) discovered a number of variations in the format of the city/state designation as they appeared on Coke bases in Plattsburgh, New York. I have discovered some datable variations of the city/state markings on Coke bases from El Paso, Texas (Figures 4-12 & 4-13). More local research should be conducted to provide similar tables for other major US cities.³

³ Many (possibly all) of these variations can probably be dated to a finer span by comparing a sufficient sample of bases to the skirt, two-digit date code. At this point, I have not found a sufficient sample to conduct such a study, although I will in the future, if I can find a large enough source.



BOTTLE PAT'D NOV 16, 1915



BOTTLE PAT'D NOV 16, 1915
Or
BOTTLE PAT'D DEC. 25, 1923
Or
BOTTLE PAT. D-105529



BOTTLE PAT. D-105529



BOTTLE PAT. D-105529



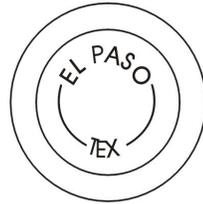
BOTTLE PAT. D-105529
Or
IN U.S. PATENT OFFICE



IN U.S. PATENT OFFICE



IN U.S. PATENT OFFICE



IN U.S. PATENT OFFICE
Or
Dec. 25, 1923 Re-issue
Or
Applied Color Label

Figure 4-12 – El Paso, Texas, Baseplate Variations

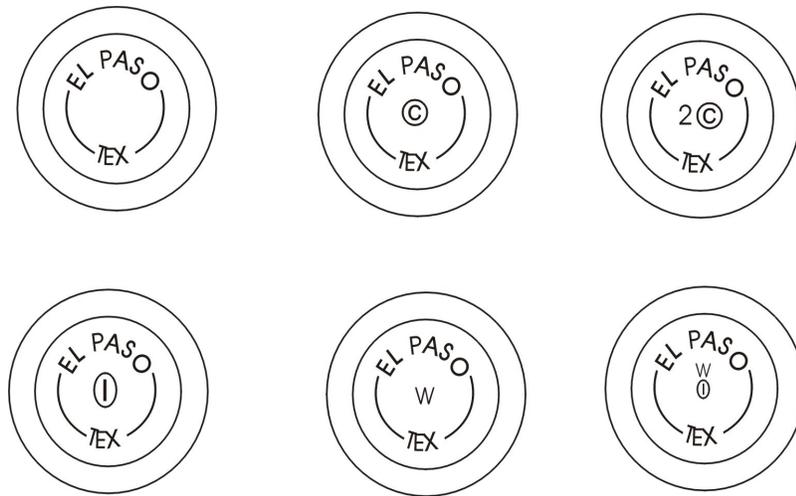


Figure 4-13 – Variations in Small-Letter Baseplates (El Paso)

Recent Changes

Although of little use to current archaeologists (but quite important to collectors), three recent issues of Coca-Cola bottles may be helpful in the future. In 1971, Owens-Illinois reproduced 5,000 replicas of the original hobble-skirt bottle designed by the Root Glass Co. These are identical to the prototype bottle except for an embossment of 1915-1965 on the base (Hopson 2002:5; 2004:7). The replicas were made as collectors' items and were never filled with soda. Coca-Cola also produced an eight-ounce, nonreturnable version of the hobble-skirt bottle beginning in January 2000. The names of 24 different U. S. cities and places are embossed on the bases of these bottles. Coke selected each location because it had some historical or symbolic significance to the Coca-Cola Company or the product, itself. Places include:

Alliance, Nebraska
 Atlanta, Georgia
 Boston, Massachusetts
 Charlotte, North Carolina
 Chattanooga, Tennessee
 Chicago, Illinois
 Cokeville, Wyoming
 Corpus Christi, Texas
 Dallas, Texas

Death Valley, California
Grand Canyon, Arizona
Denver, Colorado
Hollywood, California
Mattoon, Illinois
New Orleans, Louisiana
New York, New York
Niagra Falls, New York
Philadelphia, Pennsylvania
Quincy, Florida
Rome, Georgia
Roswell, New Mexico
St. Louis, Missouri
Terra Haute, Indiana
Vicksburg, Mississippi

(for more details and a list of Canadian cities embossed on the bottle bases, cf. Matthews 2004a)

The final interesting phenomenon is the intentional issue of “collectable” bottles by Coca-Cola and other major soft drink bottlers. These are generally polychrome ACL bottles commemorating virtually anything including Christmas, anniversaries of Coca-Cola bottlers, airlines, businesses, and especially sporting events. The list is virtually endless. Coca-Cola apparently began the trend in 1983 with the release of 20 commemorative bottles, followed by 34 in 1984. The numbers have since multiplied (cf. Mix 2004:10 or Matthews 2004b:11).

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