Part III

# Manufacturer's Marks

# found on

# Southwestern Coca-Cola Bottling Co.

# Bottles

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Several areas work together to help researchers understand when a bottle was made. A clever researcher finds clues in the heel (the lowest part of the sides of the bottle), the side seams, the finish (the uppermost part of the bottle – the last part to be completed in mouth-blown operations), the base (the very bottom of the bottle – where it sits on the table), and any markings that identify the maker and/or the filler. Sections I and II discussed the Southwest Coca-Cola Co. (bottler) and the bottles the company used. This section will discuss the manufacturer and the way the bottles were made. These dating tools may be divided into two sections: manufacturing techniques and manufacturer's marks.

## Manufacturing Techniques

As in every industry, bottle makers gradually evolved a series of more and more complex techniques to improve the manufacturing process. Initially, all bottles were mouth blown and shaped by using paddles and other tools to form the container. At some point, a simple, wooden dip mold was used, and the gaffer (glass blower) blew the glass directly into the mold – a great time-saving device. Molds became more complex, first hinged into two or three parts, later with a separate base section, and eventually even more complex parts. By 1881, the first semiautomatic machine was patented for making wide-mouth bottles, and a fully automatic bottle machine was introduced in 1903.

During the time period involved in our study of Southwestern and its predecessors (ca. 1906-1948), only one type of finish was present on six-panel and related bottles along with two types of manufacturing techniques. The crown finish, invented by William Painter in 1892, was used exclusively on all bottles relevant to the Southwestern Coca-Cola Bottling Co. Houck & Dieter had used the older, Hutchinson finished bottles from 1881 to ca. 1906, but that had been phased out prior to the use of the six-panel bottles.

The six-panel bottle used by Houck & Dieter as well as the initial six-panel bottle from Empire Bottling Works was made by being mouth blown into a multi-part mold. Blowing into a complex mold had been practiced since about 1850 (Jones & Sullivan 1989:28). It began to be phased out with the introduction of machine-made bottles in 1905, but mouth-blown soft drink bottles continued in use by small factories until about the mid-1920s.

Early Owens Automatic Bottle Machine containers are easy to identify by the "feathery" scars, but later ones are problematic (see discussion on Owens scar below). Initially, the American Bottle Co. had an exclusive license to use the Owens machine for making soda bottles, but that point became moot with the invention of the gob feeders. Various glass houses that

specialized in soda bottles developed their own semiautomatic bottle machines beginning about 1904, and became more popular as techniques improved.

By about 1913 or 1914, most soda bottles were made by some form of machine. Although not as cost efficient as the Owens machine, semiautomatics were a major improvement over hand blowing. For smaller orders, however, they were a distinct improvement over the Owens machine. The main drawback to the Owens system is a difficulty in changing molds. It was economically infeasible on the Owens machines to change molds often, so the machines were only practical for large orders (Miller & Sullivan 1984:86). Smaller orders, such as those to Southwestern and other local bottlers, were better produced on semiautomatic or other automatic processes.

The Owens machine (and all semiautomatic and automatic machines) began by making the "finish," so called because it was the last part of the operation in hand blowing. By about 1917, "gob feeders" (devices to drop a gob of glass into a semiautomatic machine) were becoming common and were changing bottle making by turning semiautomatic bottle machines into fully automatic ones in competition with the Owens machine (Holscher 1953:305).

## The Owens Scar

As noted above, the Owens scar is a distinctive mark produced by the Owens Automatic Bottle machine. It is quite useful in dating and identifying *early* bottles made by the process. Although the machine was patented in 1903, it was not until two years later that mass production with the machines began (Lockhart 2006a; Miller & McNichol 2002:2). The early marks were "feathered" or very rough (Figure 3-1). The word "scar" is an apt descriptor; the mark looks like a wound. Such marks were common at least until the early teens.

By that time, the glass technicians had learned more about the sharpness of the knife, the quality of the molds, and the glass temperature to minimize the look of the scar (Miller & Morin 2004:13; Lockhart 2004). Unless such scars are obviously feathered, however, they are not a reliable indicator (Figure 3-2).

Figure 3-1 – Owens Scar (Early – Feathered)

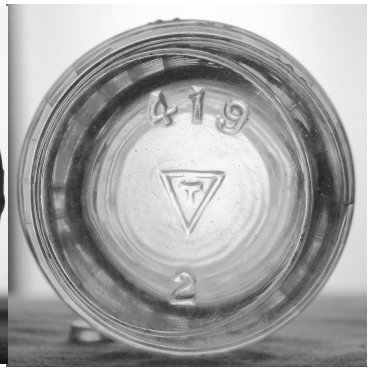

Figure 3-2 – Owens Scar (Later – Less Distinct)

The problem is that other semi- and fully automatic bottle machines left

scars from the parison mold that appear very similar to a "clean" Owens machine scar. The two types of scars are virtually identical on later bottles. Virtually all narrow-mouth bottles were made in blow-and-blow machines (rather than press-and-blow machines used for wide-mouth bottles). In both cases, a bottle is made in two stages. In the first, a parison is created by (in the case of blow-and-blow machine) blowing air into a gob of glass within an initial mold that makes the finish of the bottle and creates a cavity in what will become the body to receive a larger burst of air in second stage. The parison (or blank) mold is in at least five pieces, two for the finish, two for the body, and one for the base. When the parison stage is completed, the lower (body) molds are opened, and the bottle, still held by the finish, is transferred to the final (or blow) mold. A stronger puff of air is then introduced, and the bottle is blown into its final shape.

During the parison stage, the three lower pieces create both a circular mark on the bottle base and two side seams that are connected to the base ring. During the final stage, the base ring is distorted and usually becomes off center. The side seams may remain and show up as "ghost" seams extending from the basal ring part way up the body. In some cases, these become partially or almost totally obliterated by the reheating of the glass during the second (final) stage. These parison scars can look remarkably similar to the later Owens scars (Miller & Morin 2004:13, 16).

The situation is further confused because the Owens Bottle Co., in its expansion, not only bought other already-existing factories, it also acquired their machines and contracts. The converted semiautomatic machines (made fully automatic by the new "gob feeder" technology by ca. 1917) were more effective than the Owens machine for producing "short run" or small orders, so the Owens companies continued to use them. Thus, it is not always easy (or even possible) to ascertain whether a bottle marked with the Owens or Owens-Illinois logos was made by an Owens machine (George L. Miller, personal communication 2005).

## Manufacturer's Marks and Codes

Used in combination, manufacturer's marks and codes can be a rich source of information about bottles. Manufacturer's marks are logos that specifically identify the makers of a specific bottle. Although some makers chose not to identify themselves, many elected to mark their bottles with distinctive logos. These include symbols, such as an anchor used by Anchor Hocking Glass Co.; combinations of symbols and letters, such as the "Box O" used by the Owens Glass Co. or the "Diamond I" used by the Illinois Glass Co.; initials, such as IPGCo used by the Illinois Pacific Glass Co.; and names, such as ROOT used by the Root Glass Co. Manufacturer's marks were generally embossed on either the bases or heels of the bottles.

Plant identification marks were generally either letters (e.g. S or N for the Streator, Illinois, or Newark, Ohio, plants of the American Bottle Co.) or numbers (e.g. one- or two-digit numbers on the left side of the Owens-Illinois Glass Co. marks that identified their numerous plants). Date codes were generally either one- or two-digit numerals, letters embossed on the side of the crown finish and/or on the base as used by the Glenshaw Glass Co. (Sweeney 1995:75), or single numerals with dots as used on soda bottles by the Owens-Illinois Glass Co. between 1940 and 1946 (Lockhart 2004). Both plant identifications and date codes could appear on either the bottle's heel or base, although earlier marks (ca. 1906 to ca. 1930) were more likely to be placed on the heel with later marks (late 1920s to the present) on the base. There are exceptions, of course.

Catalog or model numbers were also often embossed on bases or heels of bottles. These are generally two- to four-digit numerals or numeral/letter combinations that tally with numbers found in catalogs. Often, catalog numbers followed manufacturer's marks, such as the early (ca. 1895-ca. 1911) Illinois Glass Co. codes that followed the I G Co mark. Occasionally, as also used by Illinois Glass, the code would be enclosed as in the two- to four-digit numbers surrounded by a diamond embossed on bottle bases by Illinois Glass from 1911 to 1929 (Lockhart et al. 2005a:55-58). Occasionally, catalogs can be found to verify these codes (as in the Illinois Glass case), although more frequently, these must be inferred from empirical context. For example, the numeral "46" was the Graham Glass Co. code for Chero-Cola as seen in numerous examples provided by Mike Elling. In some cases, catalog codes have been used to track bottle styles (e.g., Miller & Jorgensen 1986).

Mold marks used numerals, letters, or combinations of both to identify the molds. Most mold marks from the 1920s and 1930s (along with date codes and/or plant identification marks that accompanied them) were embossed in a much thinner font than the typical embossing used for the bottlers' names, addresses, phone numbers, and/or messages. Mold marks were also more likely to appear on the bottle's heel until about the late 1920s or early 1930s.

While useful to both archaeologists and collectors, these various types of marks were generally used by the bottlers and glass houses as a form of quality control and tracking devices. Tracking was especially useful in returnable bottles to determine how many round trips the bottles could make and generally how long a bottle would last in circulation. Early date codes were specifically designed for use by the bottlers.

Very often, these marks appeared in various combinations. The Owens-Illinois Glass Co., for example, used a complex system that developed over time (Figure 3-3). Initially, the mark centered around the manufacturer's logo on an I surrounded by an oval inside an elongated

diamond. To the left of the logo was a one- or two-digit numeral that identified the producing plant. A single numeral to the right was a date code, with a mold number (usually) below the logo (Toulouse 1971:403).

Figure 3-3 – Owens-Illinois Logo (Factory #9, 1939)

In 1940, the date code system for soda bottles was modified to a single numeral plus a dot that identified the years between 1940 and 1946 on returnable beer and soft drink bottles (the system may not have been used on all Owens-Illinois containers, and there are exceptions on non-returnable bottles). Beginning in 1944, the company gradually phased in a two-digit date system that was pretty much complete by 1946. (Giarde 1980:, Lockhart 2004:24-25).

Owens-Illinois never used the dot system on Milk bottles, and switched to a two-digit format on beer and liquor bottles in 1940. Some medicine and other bottle types retained the single-digit system into the early 1960s. Food bottles, especially, seemed to follow an erratic pattern.

Mold marks frequently included date codes, although they are not always in a form that is easily recognizable. Often these are single-digit codes such as those accompanying the Illinois Pacific Glass Corp. and Southern Glass Co. logos on soda bottles. With both companies, the logo was only used for a short period of time, so the decade of manufacture is easily identifiable, and the single digit identifies the year.

## Manufacturer's Marks

A complete discussion of manufacturer's marks is beyond the scope of this study. However, we present an identification and analysis of the marks found on bottles used by Southwestern and its immediate predecessors (see Table 3-1). All information herein reflects the most recent knowledge about each mark from the Bottle Research Group. The study of manufacturer's marks (and, indeed, all glass study) is an ongoing process, and new data may surface at any time.

Table 3-1 – Manufacturer's Marks on Southwestern Coca-Cola Co. Bottles

| Mfg. Mark | Location | Manufacturer | Date Range (mark) | Date Codes (SW)* |
|---|---|---|---|---|
| 16 S 1, etc. | Heel | American Bottle Co. (Streator, Illinois plant) | 1916-1929 | 16S, 17S, 18S, 20S, 21S |
| OP, OS | Heel | Graham Glass Co. (Okmulgee, Oklahoma plant) | 1920-1926 | 20, 23 |
| CHATT | Heel | Chattanooga Bottle & Glass Mfg. Co. | ca. 1905-1948 | 28, 29, 30, 31 |
| Circle C | Base or Skirt | Chattanooga Glass Co. | 1927-1980s | None |
| Southern Star (S in a Star) | Base | Southern Glass Co. | 1925-1931 | 6-1 (1926) |
| IPG in a Triangle | Heel | Illinois-Pacific Glass Corp. | 1926-1930 | 7-5, 7-2, 11-8 (1927, 1928) |
| Diamond I | Base | Illinois Glass Co. | 1915-1929 | 29 |

* These the date codes found on bottles used by the Southwestern Coca-Cola Bottling Co.

16 S, 17 S, 18 S, 20 S, and 21 S

When we were gathering information about the bottles used by the Southwestern Coca-Cola Bottling Co., the user of these marks (17 S *x*, 18 S *x*, etc.) had not been established with any certainty. We initially hypothesized that the manufacturer was the American Bottle Co., but the mark did not fit with the ones shown by Toulouse (1971:30, 454), who placed the "S" first, followed by a two-digit number in subscript (e.g., $S_{17}$). Our bottles were marked with exactly the reverse, and the numbers were on the same plane as the letters.

We next tentatively identified the mark as belonging to the Southern Glass Co., but subsequent investigation caused us to reject that identification as well (see below for information on Southern Glass Co.). Eventually, the Bottle Research Group discovered that our first hypothesis had been correct (see Lockhart et al. 2007). As a background, we need a short history of the American Bottle Co.

The American Bottle Co. grew out of the Ohio Bottle Co., a 1904 coalition of the Massillon Glass Co. and Reed & Co, both of Massillon, Ohio; the Wooster Glass Co., Wooster, Ohio; and the Edward H. Everett Glass Co., the flagship factory of the company, at Newark, Ohio. The group formed to acquire the license for the Owens Automatic Bottle Machine. When the Adolphus Busch Glass Mfg. Co., Belleville, Indiana, and the Streator Bottle & Glass Co., Streator, Indiana, joined the group in 1905, it was renamed the American Bottle Co. (Lockhart et al 2007:47-48).

American devoted itself to making beer and soda bottles but specialized in beer containers. Although its main emphasis was machine-made bottles, the only Owens machines were located at the Streator and Newark plants. The other plants continued to make bottles by hand processes, and these mouth-blown containers were the only ones to bear manufacturer's marks from the company. The Wooster plant was closed at the end of 1904, and the other hand factories followed. Belleville closed in 1909, and all the Massillon plants ceased operations in 1913. Busch's St. Louis plant was probably never a part of the group, but it burned in 1905 and was not in operation again until 1908 – by which time, it was independent (Lockhart et al. 2007:48-49).

Meanwhile, the remaining plants at Newark and Streator began phasing out hand manufacture and adding machines until both were completely converted to machine production by 1914. The Owens Bottle Co. purchased the remaining American Bottle Co. plants in 1916, although the factories retained their American Bottle identity until the merger that formed the Owens-Illinois Glass Co. in 1929 (Lockhart et al. 2007:49).

Beginning in 1916, the two American Bottle plants began marking their machine-made bottles for the first time. They adopted a system for marking their bottles that was remarkably similar to that of two other companies that joined the Owens Bottle Co. about the same time: the Graham Glass Co. and the Root Glass Co. Both companies used codes embossed on bottle heels to identify important characteristics (see below for a discussion of both companies) (Lockhart et al. 2007:49).

The heelmark adopted by American Bottle consisted of three parts, read from left to right. The initial part consisted of a two-digit date code. The second part was a single letter indicating either the Streator (S) or Newark (N) plant. The final one- or two-digit number was a mold number (Lockhart et al. 2007:51-52). To dissect the 16 S 2 mark for example, the "16" equals 1916; the "S" indicates the Streator plant; and the "2" is a mold mark (Figure 3-4).

Figure 3-4 – 16 S 1 (Owens Glass Co.)

Toulouse (1971:455) noted that "it is rare to find a year designation by a number higher than 21, 22, or 23." He was correct, although occasional codes run as high as "29" – the year of the Owens-Illinois merger. The reason for the gradual decline in the use of the mark was because of a new trend in the bottling industry. While beer bottles had traditionally used paper labels to identify the owner of the bottle (and brewer of the beer), soft-drink bottlers had used embossed labeling. With the advent of Prohibition in 1920, the use of beer bottles declined (although a few remained in use for cereal beverages or near-beers), and most soft-drink companies switched to generic bottles with paper labels. American Bottle offered a line of these generic bottles, frequently found in forest green or amber colors, that were embossed with a base code similar to the one used on the heels of the embossed bottles (usually a two-digit date code and the letter to identify the factory) on the base (Figure 3-5). While the heel code remained in use on embossed bottles, fewer of those were required by the industry, while generic bottles with paper labels flourished (Lockhart 2000; Lockhart et al. 2007:53).

Figure 3-5 – Underlined S Series (Owens Glass Co.)

By 1920, most of the beer and soft drink bottles were made by the Streator plant, so the "N" factory code became less and less common. Thus, it is not a surprise that all known Southwestern bottles, made by American Bottle, had date codes between 1916 and 1921 and the factory code (S) for the Streator plant.

The OP and OS Heelmarks

We found light blue Coca-Cola bottles from Southwestern that were marked in fine-lined characters on the heels with OP105Q, OP5S, OP5S 76, and OP5S 576, marks not listed in Toulouse (1971). According to Porter (1996:6), light blue hobble-skirt Coca-Cola bottles were only produced by the Chattanooga Bottle Co. and Laurens Glass Works. Both companies were in business during the early 1920s when Southwestern used light blue bottles, and that led us in pursuit of a red herring a red herring. We decided that Chattanooga was the more likely maker because Southwestern bought other bottles from them later but never from Laurens Glass Works.

A further reading of Porter (1996:4) disclosed that the number 576 was the code used by the Graham Glass Co. for Coca-Cola bottles. He also noted that "until 1920 [there was] no mark but usually a large mold number on the [heel]." One of the marks we found on Southwestern Coke bottles contained the number, 576, suggesting that the OP marks were actually used on

early bottles by Graham Glass Co. Porter further stated that Graham's Okmulgee plant used OG as an identifier from 1920 to 1926. The OP mark in conjunction with 576 and other numbers was thus likely used by the Okmulgee plant prior to 1920.

In addition, two six-panel bottles used by Southwestern for different fruit flavors (i.e. not Coca-Cola bottles) were marked OS 149 G 20 and OS 149 G 23. These were used during the same approximate period that the OP bottles were used by Southwestern and almost certainly also indicate bottles from the Okmulgee plant. Similar marks are found on six-panel bottles used by the Empire Bottling Works of El Paso (OS 1012) about 1914, the earliest bottles from the Deming Coca-Cola Bottling Works (predecessor to Southwestern) (OS 1102), Woodlawn Bottling Co. (OS 1202P), Magnolia Bottling Co. (OS 1413R), Houston Ice & Brewing Co. (OS 936 A), Triangle Brand (OS 215 S/21), and one of the early Southwestern flavor bottles (OS 1218P) about 1918.

Graham used a complex code for most of its soda bottles and different marks for the earliest Coca-Cola bottles. Generally, the code was divided into three parts, although the parts could be set up in virtually any order. The most typical order was a two- to four-digit number (a mold or catalog number to identify the individual bottle design and bottler markings), followed by two letters (the plant and bottle type), then a date code. Again, we must stress that this is the most common arrangement, but the three parts often followed a different arrangement. The two letters were often spaced apart (Lockhart 2006a:21-23).

The first letter identified the plant (L = Loogootee; E = Evansville; O = Okmulgee; CH = Checotah) The second letter described three bottle types: P = Private Mold (occasionally PR); S = Specialty; G = General. Note that all these identifications were derived by empirical methods; we have found no records describing the codes. Keller (1998:28) came to similar conclusions, possibly from records:

> Bottles produced in Loogootee carried a "model" or order number on the bottom edge followed by a suffix such as LP, LS, or LG (e.g. 513 LS). Bottles produced at the Evansville plant employed a similar coding system. The model or order number was followed with the letters EG and the date (year), e.g. 2436 EG-29. The last two digits indicate the year of the original order (2436 EG-29 would refer to Evansville, 1929), not necessarily the date of manufacture.

However, Keller's suggestion that the date codes indicated the original order does not fit with empirical observations or other evidence about date codes (see Dating Manufacturer's

Marks section). For example, Southwestern Coca-Cola Bottling Co. used the exact same bottle with codes of OS 249 G 20 and OS 249 G 23. This indicates that the "20" and "23" *are* date codes for the year of manufacture rather than the original order.

Bill Porter (personal communication 1/2/2008) pointed out that the letter "P" was the 16th letter of the alphabet and could, therefore, be a date code for 1916. Thus, "Q" = 1917; "R" = 1918; and "S" =1919. In 1920, Graham began using two-digit numerals as date codes. We tested this hypothesis out on all the letter-coded Graham bottles we could find that had been used in Arizona, Southern New Mexico, and El Paso, Texas. The letters as date codes fit perfectly in all cases and solved several mysteries, including the ordering of a half-dozen bottles in this study.

The codes were always embossed on bottle heels and were always in very thin-lined fonts. A few other plants, such as the Root Glass Co., also used these thin-lined fonts. Originally, the codes only consisted of the mold or catalog code plus the two-letter code. The codes became more complex during the 1920s.

Speaking only of Coca-Cola bottles, Porter (1999:4) stated that EG was used for the Evansville plant, LSQ for Loogootee, Indiana,[1] and OG for Okmulgee between 1920 and 1926. For all bottles, the OP, OG, and OS codes were used by the Okmulgee plant Figures 3-6 & 3-7). Opened in 1910, the factory probably began using the codes shortly after. Like the other plants, Okmulgee switched to the date code system in 1920. All of the known Southwestern bottles were made at the Okmulgee plant. Porter also noted that Coke bottles used a G with a date code in 1927 and the word GRAHAM in 1928 and 1929.

Figure 3-6 – OP Mark from Graham Glass Co.

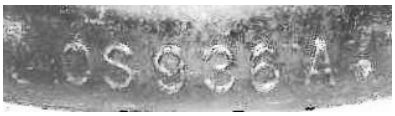

Figure 3-7 – OS Mark from Graham Glass Co.

It is obvious from marks on some Southwestern Coca-Cola bottles that, in addition to the containers listed by Porter, the Graham Glass Co. also made Coke bottles in the ice blue aqua color. Several of the bottles with Graham codes are paired with identical bottles, including the ice blue aqua colors, that do not bear the Graham marks. Thus, this color should also be attributed to Graham during the pre-1920 period.

CHATT and Circle C

The CHATT mark was used by the Chattanooga Glass Co. on the heels of Coca-Cola

[1] Note that this is actually the "Q" date code for 1917.

bottles, other soda bottles, and some other containers. CHATT was used with two-digit date codes at least as early as 1920, but it also appears with no date codes. On Southwestern bottles, it was used from 1928 to 1930 and was accompanied by "28," "29," and "30" date codes (Figur 3-8). According to Porter (1996:4-5), the mark was used until 1934 at which time Chattanooga marked Coke bottles with a "Circle C" (looks like a copyright sign ©). However, we have found "CHATT" bottles on eBay with date codes up to 1948 (Lockhart 2006b)!


Figure 3-8 – CHATT 28 Heelmark (Chattanooga Glass Co.) [eBay]

Toulouse (1971:108) claimed that the Circle C mark was used "from 1917" (Figure 3-9). Creswick (1987b:156), however, noted that the Circle C trademark (#524,921) was registered on May 9, 1950, but was first used on January 1, 1927.[2] She also noted that the Chattanooga Bottle & Glass Co. was formed in 1901, but the name was changed to Chattanooga Glass Co. in 1930. The firm became a unit of the Dorsey Corp. in 1960 (Creswick 1987b:158), but the Circle C mark continued in use (cf. Berge 1980:83). The Circle C mark was still in use in 1982 (Emhart 1982:74) but was no longer listed in 1990 (Powell 1990).

Figure 3-9 – Circle-C from Chattanooga Glass Co.

Toulouse (1971:108-110) originated the 1901 to 1930 dates for Chattanooga Bottle & Glass Co. as well as the 1930 to 1960 date range for Chattanooga Glass Co. He further noted that the plant made beer, soda and proprietary medicine bottles as well as flasks. The company expanded into Georgia in 1917, Florida in 1947, and Texas in 1958.

The Southern Star

Toulouse (1971:457) claimed (incorrectly) that the Star S mark was used by the Southern Glass Co., Vernon, California, from 1917 to 1931. On bottles manufactured for Southwestern, the mark probably only appears on those made in 1926 or 1927. It is currently unknown why

[2] A study of Toulouse (Lockhart 2004:11-12) disclosed an incredible number of typographic errors in dates. These include at least two errors of a century in magnitude; dozens where the error is a decade off, and we can only guess at how often the final digit was mistaken. The 1917 date suggested by Toulouse is likely another of the decade errors.

Southwestern switched companies during this period or why it discontinued the bottles so rapidly.

The study of the Southern Glass Co., conducted by the Bottle Research Group, has yet to published in any other venue. We are therefore giving it more space than we have devoted to any of the companies with recently published histories. At some point in the future, we will publish a more complete history and mark chronology.

History

Southern Glass Co. was incorporated on October 16, 1918 by William J. Latchford, William McLaughlin, and John McK. Marble with a capitalization of $10,000. The stock was gradually increased to $500,000 by 1923 (*Los Angeles Times* January 28, 1925). During the early years, all bottles were made by hand (*Los Angeles Times* December 18, 1927). Southern originally built up its business manufacturing "glass containers for the local makers of beverages and canners of fruits" (*Los Angeles Times* April 6, 1924). The company produced "milks, sodas, minerals, fruit jars, gallon packers, demijohns, and 'a full line of packer's ware'" (Toulouse 1971:457).

Southern began building a second factory in February 1924, housing the latest technology in bottle machines (*Los Angeles Times*, April 6, 1924). W. J. Latchford, one of the founders and president of the corporation, had a falling out with other corporate members including, William H. Dean and Faye G. Bennison, in 1925 and left the company (Toulouse 1971:457-458). To avoid legal battles with the Hartford-Empire corporation, Southern elected to liquidate its assets and leave the glassmaking business. On November 15, 1930, the Illinois-Pacific Glass Corp. took charge of the Southern factory to assist in the liquidation. Illinois-Pacific filled existing orders and sold off the remaining stock of bottles. Southern's market stock was officially removed from the market on March 19, 1931. Southern Glass was at an end.

Manufacturer's Marks

Southern Glass Co. used a variety of marks during its early years. The only one of these marks found on Southwestern Coca-Cola Bottling Co. containers was the Southern Star, although it occurs with a variety of accompanying codes.

*S in Star (no obvious date code)* [1925-1928]

Jones (1965:[16]; 1966:18) first noted this mark as being from the Southern Glass Co. and dated it 1919-1929 [actually 1931] when the firm was purchased by Illinois Pacific, and the plant was closed. This is also the only mark identified by Toulouse (1971:457) as belonging to Southern Glass Co. He attributed the mark to the entire tenure of the company – 1917-1931. Giarde (1980:109) also placed the mark into the same date range. Our research disagrees with both previous studies and greatly abbreviates the time period during which the mark was used to 1925-1931 (with two-digit date codes added during 1928). In a May 1928 ad (*Pacific Bottler*), Southern called its mark the "Southern Star" (Figure 3-10). All known bottles marked with the Southern Star are machine made.

Figure 3-10 – S in a Star – Southern Glass Co.

An apparent date code for 1926 was embossed on six-panel bottles used by the Southwestern Coca-Cola Bottling Co. The bottle had a Star S mark on the base and 6-1 embossed on the heel. A similar 6-1 heelmark was also found on a six-panel bottle, probably from the same bottling firm, with no Star S or any manufacturer's mark. This date code style was probably also used in 1927. The same style of heelmarked date/mold code was used by the Illinois Pacific Glass Corp. around the same time (see below).

*S in Star in conjunction with a two-digit date code* [1928-1930]

There is no consistent pattern for the location of the two-digit date code in relation to the Southern Star mark, although the star was usually located on the base. The date code can be located to the left, right, above, below or at a separate location (heel or base) from the star. We have verified date codes from 1928 to 1930.

During this same time period, a single-digit mold code often accompanied the S-in-star mark in conjunction with the two-digit date code. These generally appear in two patterns: date code - Star mark - mold code *or* mold code - Star mark - date code, but the date/mold code could also be above or below the mark although always adjacent to it (rather than at another location on the bottle.

*S in Star, numbers before and after and a date code embossed on the crown finish* [1931]

This configuration is uncommon and probably reflects bottles actually made after the Illinois-Pacific takeover in 1931 but prior to the closing of the plant the same year. The pattern of numbers before and after the manufacturer's mark and a date code on the crown matches the configuration used by Illinois Pacific from at least 1927 to 1932 (see IPG section below). Since Illinois-Pacific controlled Southern during 1931, the style is consistent with Illinois-Pacific practices.

IPG in a Triangle

Three Southwestern bottles, one Coca-Cola, one a house brand, and one from Orange Crush, are marked with IPG in a triangle on the container's heel. Each is accompanied by a mold mark containing a date code. Each of the date codes has a similar configuration (a single-digit date code; dash; single-digit mold number or a date code to the left of the logo and mold number to the right), although each is located in a slightly different place on the bottle's heel. The Coca-Cola bottle has an "8" (1928) to the left of the logo and an "11" (November) to the right, all on the heel of the bottle. The six-panel house flavor bottle had the year/month mark (7 - 2) on the opposite side of the bottle from the manufacturer's mark, again on the heel. The Orange Crush bottle was also marked on the heel with the manufacturer's mark followed by a 7 - 2 to the left. Both the house brand and Orange Crush bottles were made in 1927 and each also had an embossed "7" on the side of the crown finish.

Illinois-Pacific may be divided into three distinct periods: 1) the Illinois-Pacific Co., a California corporation in business from 1902 to 1926; 2) the Illinois-Pacific Glass Corp., a Delaware corporation, from 1926 to 1930; and 3) the Illinois-Pacific Coast Co., formed by a merger between Illinois-Pacific and the Pacific Coast Glass Co. in 1930 that lasted until Owens-Illinois took over the operation in 1932. The first corporation (called the "company") used several minor variations on two marks: IGGCo and IPGCO in an elongated diamond (although the Triangle-IPG mark was used beginning in 1925, just slightly before the Corporation came into being). The final Illinois-Pacific Coast Co. used a single mark, IPC in a triangle for both years of its existence (Lockhart et al. 2005b:76-77). Of significance to Southwestern, however, is the mark used by the Illinois-Pacific Glass Corp. between 1926 and 1930.

As far as we can discover, the only mark ever used by the corporation was IPG in a

triangle (despite the claim by Toulouse that three variations were used). This mark was mostly embossed on heels of the bottles (as noted on soft drink, food, and milk bottles), although it was occasionally placed on bases of medicine, some beer, and some food bottles. It was often accompanied by numbers that fit into identifiable patterns. The marks uniformly followed the same pattern. The "I" leans in toward the center as does the "P" with the "G" slanted backwards (Figure 3-11). The apex of the triangle has a tiny, solid embossed triangle above the "P" (Lockhart et al. 2005b:77). Each IPG mark we have examined followed this pattern, although Robert Leavitt (personal communication, 5/11/2005) reported a single example that lacked the smaller, solid triangle at the apex. This was probably an engraver's error, quite common during the 1920s and for two decades to follow.

Figure 3-11 – IPG in a Triangle – Illinois-Pacific Glass Corp.

Jones (1965:[16]) was the first researcher to report the Triangle-IPG mark. According to her, T. L. Keusseff claimed that "this was the mark of Illinois Pacific in the 1920's, prior to the merger with Pacific Coast . . . . Trade mark after 1924 'Electroneal.'" Three years later (1966:20), she again mentioned the mark but with a completely incorrect date of 1903. Electroneal was a process of electronic annealing pioneered by Illinois-Pacific in 1926 but was not embossed on bottles (Cole 1926:40). Toulouse (1971:268-269) also included the Triangle IPG mark, again with no specific information. Giarde (1980:55) discussed the mark as used on milk bottles. He claimed that single-digit date codes were found to the left of the triangle "particularly in the late 1920's" and noted that "the triangle mark is the one found on milk bottles."

Most of the bottles we studied were soft drink bottles used in Arizona along with some from New Mexico and El Paso, Texas. However, all bottles (including milks and households) we have found with the Triangle IPG mark could be dated from 1925 to 1931. We attribute the mark almost entirely to the Corporation period (with an initial entrance during the "Company" period, when Illinois-Pacific first adopted automatic machinery). However, it is clear that the firm spent the entire "corporation" period experimenting with date codes – never settling on a single system.

Beginning in 1927, soft drink bottles with the triangle mark displayed two notable patterns: 1) number – number located somewhere away from the mark (e.g., 7 - 1); or 2) number mark number (e.g., 8 manufacturer's mark 5). The manufacturer's marks were always embossed on the heels (on soda bottles); we have found only one number pattern that appeared on a base. All other number patterns were embossed on the heels, although we found the first pattern

inconsistently placed on the front or on the back heel, regardless of the location of the manufacturer's mark (Lockhart et al. 2005b:77).

On bottles that should be from 1926, there are no identifiable date codes. However, the number "7" appeared in one of the formats described above (usually the number to the left) on all bottles that can be dated to ca. 1927. This is the first year for the use of a date code by Illinois Pacific, unless the Southwestern bottle marked 6-2 on the heel (no manufacturer's mark) was made by the firm (Lockhart et al. 2005b:77).

An ad from the June 1927 *Pacific Bottler* left no doubt about the embossed numbers being date codes. The ad noted that "the date of manufacture is placed on every bottle." A considerable body of evidence (not pertinent to this study) indicates that Illinois-Pacific, along with Southern Glass Co. and other Pacific Coast milk bottle makers, embossed both the month and the year of manufacture on their milk bottles. These milk bottles were embossed with the codes on the very rim of the finish, a unique system in the entire history of bottles! Our entire sample of soda bottles with the Triangle-IPG logo have the year codes offset by numbers from 1 to 12, an almost certain indication that this second number (or numbers) is a month code (Lockhart et al. 2005b:77).

In 1928, the numeral "8" is usually a part of the code and generally appeared also on the crown finish. The numeral was embossed on the reinforcing ring (the second or lower, more bulbous area of the crown). Occasionally, however, the numeral "7" was in the codes associated with the mark, but "8" was on the crown. In all likelihood, this represented a transition to date codes embossed on the crown. Bottles with "7" near the manufacturer's mark were probably made from molds cut in 1927. When the engraver added the "8" at the crown, he likely forgot to change the heel number. Examples of this kind of error during a transformation period are common on Owens-Illinois Glass Co. bottles as well, and careful examination often reveals where an old code was obliterated and a new digit added to update the year. The date code on the crown probably began sometime during the year, so bottles exist in both configurations in 1928 (Lockhart et al. 2005b:77).

The move to the crown seems to have been completed by 1929, although occasional examples still retained an "8" near the manufacturer's mark. As above, this was a common error during transitions. In 1930, the only consistently identifiable date code was embossed on the crown, although two examples attributed to that year did not have marks on the finish. One of these exceptions, however, had a "0" next to the manufacturer's mark (probably indicating 1930) (Lockhart et al. 2005b:77).

Even though Toulouse (1971:268, 270) and Ayres et al. (1980:21) both claimed that the

switch to the Illinois Pacific Coast Co. came during 1930, bottles with date codes for 1931 still retain an identifiable IPG mark (instead of the expected IPC mark). However, the "31" date codes may be found either on the crown (Figure 3-12) or in conjunction with the manufacturer's marks. In 1931, the month code was dropped and was replaced by what are probably mold codes or model numbers (e.g., 201 or 187-D) (Lockhart et al. 2005b:77).

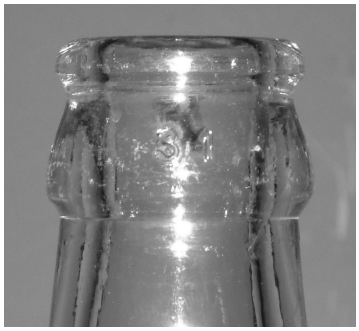

Figure 3-12 – Crown Embossed with 31 – Illinois-Pacific Date Code

The discrepancy in the date codes may show up because the company waited until all its old molds wore out. After all, the change in mark was *very* minor. The company may also have filled all of the existing contracts with the older mark because that was the name under which they were ordered. That apparently took from August 1930 to January 1931 or later. This practice is documented by Smith (1989:25-27) in describing the Ball Brothers takeover of the Three Rivers Glass Co. For more information about Illinois-Pacific and its earlier marks, see Lockhart et al. (2005b).

Diamond I

The I-in-an-elongated-diamond mark of the Illinois Glass Co. was embossed on the base of the last bottle style used by the Empire Products Co. before it abandoned the six-panel bottles for a new style. A mold mark and date code (3303 29) were embossed on the heel. The 1929 date code suggests that this was one of the last bottles made by Illinois before it merged with the Owens Glass Co. to form Owens-Illinois Glass Co. that same year (Toulouse 1971:264-268). None of the Southwestern bottles were manufactured by the Illinois Glass Co. By the time Gardner ordered the final bottles for Empire, the New Mexico segment of Southwestern had been sold, and the surviving Arizona plants were ordering from different companies.

Over the course of its long life, the Illinois Glass Co. used many manufacturer's marks to identify its products. The I G Co mark, usually embossed on the heels of returnable bottles was used from ca. 1880 to ca. 1915. The I G Co mark inside an elongated diamond was used less frequently but was found on bottles from ca. 1897 to ca. 1916. The most popular later mark (discussed below) was the Diamond I used from 1915 to 1929 (Figure 3-13). The Lyric mark appeared on one of Illinois Glass's most popular pharmaceutical bottles from ca.

Figure 3-13 – Diamond-I Mark – Illinois Glass Co.

1913 to 1929. Catalog numbers inside elongated diamonds were used by Illinois Glass from ca. 1900 to 1929 and can be matched to most bottle styles. Finally, a series of intertwined IGCo monograms appeared on fruit jars from ca. 1906 to ca. 1914 (Lockhart et al. 2005a; Teal 2005:20). For more details about Illinois Glass Co. marks, see Lockhart et al. 2005a).

Creswick (1987b:154) noted that the Illinois Glass Co. registered the "I within diamond" trademark (#224,561) on March 1, 1927, and claimed the mark was first used on June 1, 1915. All examples of this mark appear on machine-made bottles. The mark continued in use until the merger with Owens Bottle Co. in 1929. The 1920 company catalog repeatedly called the mark the "Diamond I."

Numerals, such as 3, 5, 9, 11, 12, and 17 often (but not always) accompany the Diamond I mark. These cannot be date codes because most are too early. They cannot be catalog numbers because the number 9 appears on two different bottle styles (one a medicine bottle, one an ink bottle). Numbers were checked against the 1920 catalog and simply did not match. The numbers are sometimes accompanied by letters, and letters occasionally appear without numbers. Currently these codes remain a mystery, although they could simply be related to identifying individual molds for quality control.

The "I" inside the diamond was used in both sans-serif and serif forms and even appears as a dot on some small bottles. It is likely that this was done at the whim of the individual engraver and has no relevance to the individual factory in which the bottle was made or to any datable period.

## Scarcity

Scarcity and price are two categories that are generally of interest to collectors but not archaeologists. However, scarcity can be used as a tool for dating bottles. It is generally assumed among collectors (although not recorded anywhere we have found) that the rarer the bottle, the older it is. Porter (1996:11-58) rates hobble-skirt Coca-Cola bottles from each state by variation and scarcity. In most cases, the rarer examples are older. In the absence of extenuating circumstances, this is probably a good generalization, but exceptions must be taken into consideration and can be instructive.

Exceptions from the Southwest are relatively common. In this study, we have noted that six-panel bottles used by Houck & Dieter in El Paso are more common than those used by Empire Bottling Works despite the fact that Houck & Dieter is the older company. In this case, the availability of the older bottles is because of the abrupt termination of the soda bottling

section of Houck & Dieter when Empire was formed. Since the company no longer existed, the remaining bottles were dumped to be excavated by collectors in the 1950s in large quantities. Large quantities of Henry Pfaff bottles also exist in El Paso. Again, Pfaff terminated his business abruptly and did not allow time to dispose of his bottle supply. Many newer bottles are much scarcer than the ubiquitous Pfaff containers. Collectors who dug bottles at the Chamizal in the 1950s admitted that both Pfaff and Houck & Dieter six-panel bottles were so ubiquitous, that they usually threw the bottles aside rather than even keeping them.

A minor problem is that scarcity can only be rated among "known bottles," a term frequently used by collectors, as well as both authors of this study (e.g. Porter 1996:8). The term "known" actually refers to bottles known to the individual researcher, although that is generally reinforced by networking with other collectors and researchers. New variations are constantly being found as are new sources for additional bottles. A single garage or attic can contain enough examples of a specific bottle type to change the category from rare (5-20 known) to scarce (20-100 known).[3]

The scarcity of a "known" bottle is probably most useful as a tool for dating variations of the same bottle. For example, the flavor bottles used by the Phoenix plant between 1930 and 1934 were all made by the Chattanooga Bottle Co., a company that generally did not use date codes. The three variations are therefore ranked according to scarcity with the "rare" variation being deemed the earliest and the "very common" variation assumed to be the most recent (as well as following the patterns of stylistic changes).

Specifically related to Southwestern Coca-Cola Bottling Co., scarcity ratings tell us that, in general, the company used its bottles until they completely wore out, broke, or were retained by customers and not returned. With one notable exception, all Southwestern bottles were rated very rare to scarce by collectors. The only one rated very common is the final (1927) house brand bottle made by Illinois Pacific Glass Corp. When the New Mexico and Southern Arizona segments of the business collapsed in 1929, the central Arizona plants (Phoenix and Globe) also discontinued the house brand. Because the remaining bottles could no longer be used, they continue to be found in relative abundance, while virtually all the other Southwestern bottles are difficult to find. On a related note, most of the Southwestern bottles offered for sale at shows, antique stores, or e-bay are badly worn, cracked, or bruised, conditions that also indicate the bottles were used by the company until they completely wore out.

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[3] Numbers are from Porter's (1996:8) categories. Each researcher determines categories, although these are becoming more standardized among collectors.

# Conclusion

These marks, found on bottles used by the Southwestern Coca-Cola Bottling Co., are only a few of the logos embossed on glass containers by American manufacturers. These help tell the story of the bottlers and aid both archaeologists and collectors in further understanding the meanings locked inside glass. Although this research group has gone a long way toward providing an improved understanding about the meanings of the various marks on containers, there is still much research to be accomplished. For each mark we can accurately date, there are many others that we can only approximate or about which we have little understanding. While this study unlocks several date codes, there are multiple numerical codes that are beyond our current understanding. Our future goal is to create an even greater understanding about marks embossed on glass.

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