

Bottles on the Border:

The History and Bottles of the Soft Drink Industry

in El Paso, Texas, 1881-2000



Chapters 1-4

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Chapter 1

General History of El Paso Bottlers

The soft drink industry was already long established in Texas when El Paso's first bottler opened its doors. Dr. Thomas Mitchell, an English physician, opened the first soda fountain in Houston in 1839. It was 27 years later when J. J. C. Smith established a "mineral water manufactory" in 1866, again in Houston. By 1880, Texas contained 11 bottling plants, and that number had grown to 42 in 1890 (Dunagan 2002).

Soft drink bottling in El Paso began on April 1, 1881 with the opening of Houck & Dieter, although Coffin & Co. advertised soda bottling "kits" in 1881 and may have sold them much earlier. The firm was not, however, a bottler, as such. Although Houck & Dieter's primary occupation was the wholesale distribution of liquor and wine, the firm realized the need for chasers and incidentally provided non-alcoholic drinks for the desert population. Although G. Edwin Angerstein briefly challenged their supremacy in 1883, the liquor dealers controlled the soft drink industry in the city until shortly before 1910. At that time, they were met by three noteworthy opponents: Martin R. Sweeney (later to organize Woodlawn Bottling Company) in 1905; Purity Bottling and Manufacturing Company (owned and operated by Lawrence Gardner) in 1906; and Magnolia Bottling Company (founded by Hope Smith) in 1908. Although Gardner claimed singlehanded victory over the liquor establishment, the other two were obviously generating impressive sales as well. When Purity merged with Houck & Dieter to form Empire Bottling Works in 1912, the heyday of the liquor dealer as a power in the El Paso bottling industry was over.

From 1905 until the mid-1930s, the small bottlers took over. Grocers and family-run small units began bottling all over downtown El Paso, often under their personal names. Some of these, like Antonio Patino (1922) lasted a year or less before returning to a concentration on groceries or leaving town. Others adapted with a name change. Francisco Dominguez & Company (1915) became Union Bottling Works (1916-1935), and M. R. Sweeney renamed his business Woodlawn Bottling Company in 1908. A company name, however, did not automatically bring success. Crystal Bottling Works (1911 and 1915) and International Bottling Works (1917), only lasted a year or less. Other bottlers, such as Texas Bottling Works, Lone Star Bottling Works, and Victory Bottling Works lasted a decade or more. Few bottlers who sold strictly local brands remained in business for long. Notable exceptions were Woodlawn Bottling Company (1905-1997), Empire Bottling Works (1912-1969), and Nicholson Bottling Works (1925-1979). During World War I, El Paso, like the rest of the U. S. suffered sugar rationing, but

most of the small bottlers survived.

Prohibition (effective in Texas in 1919) had brought the final end to the liquor establishment in El Paso and ushered in a new era of prosperity for soft drink bottlers. A rash of new bottlers (many of them short lived) arrived to take advantage of a thirsty population with no competition from beer and liquor dealers. It was the era of near-beer, low- or non-alcoholic beverages that tasted and looked like beer. Led by Anheuser Busch, brewers of Bevo, a non-alcoholic cereal beverage formulated to serve US troops that had recently received orders in 1916 prohibiting alcoholic beverages, brewers soon aimed these near-beers at the military trade. The threat of Prohibition (national in 1920) also spurred brewers to alter their formulas as a means of survival. Former beer labels remained basically the same but no longer contained the word “beer.” Most of these near-beers were bottled in amber containers with paper labels that had the same appearance as the earlier beer bottles. To the El Paso Brewing Association, near-beer provided a way to remain in business. The brewers formed a subsidiary, Tri-State Beverage Company (1919-1923), that bottled Bock and Bravo (near-beers), along with Triangle flavors. Woodlawn attempted a near-beer called Barlo but soon changed to the nationally popular Blatz, while Nicholson Bottling Works distributed three brands: Goldcrest, Golden Glow, and NIB (Non-Intoxicating Beverage). The highly successful Empire Bottling Works brought in Schlitz, and a new firm, Border Beverage Company (1920-1922), offered Graino and Bone Dry. Even companies that formerly eschewed beverage sales entered into the competition. Mackin Brokerage Company (1931-1932) distributed Falstaff Pale, Dublin-Style Cereal Beverage, and Pale Dry Ginger Ale, while Crombie and Company became dispensers of Pearl. Unfortunately, for the near-beer manufacturers, the public wanted more than just the beer taste. Alcohol sales in nearby Ciudad Juárez, Mexico, skyrocketed, and near-beer sales steadily declined until the repeal of Prohibition; however, soft drink sales increased so much that the chamber of commerce called the city “the capitol in the Southwest for this special line of products” (El Paso Chamber of Commerce 1920:82).

Although the Great Depression failed to create a major impact on El Paso until late in 1931, it afterward struck so hard that most of the small companies like Union Bottling Works, Texas Bottling Works, Lone Star Bottling & Fuel Company, and Victory Bottling Works failed to survive. Everyone’s sales declined. Magnolia Coca-Cola Company, boasting the best soft drink sales in El Paso, was hit most lightly but still decreased in sales volume by 31.7%. Others were hit harder with Woodlawn Bottling Company’s sales plummeting by 62.7%! Woodlawn only survived by cutting employees to an absolute minimum, cutting hours, and bottling everything it could sell (including table syrup and bleach). The depression sounded the death knell for most of

the smaller, independent bottlers.

At the same time, the 1930s saw the rise of nationally franchised companies in El Paso. The soda industry was one of the pioneers of the franchise idea. Coca-Cola originally used the system in the very early part of the 20th century, but other companies did not connect with the idea until the 1920s. Delaware Punch, a San Antonio company originated in 1913, was one of the first to follow Coca-Cola's lead (Dunagan 2002). The Nehi Bottling Company arrived in 1931, followed by Seven Up Bottling Co. of El Paso in 1937 and Barq's Bottling Company in 1939. Woodlawn Bottling Company acquired the Pepsi-Cola franchise in 1935. This was the era of the bottling boom; El Paso boasted as many as fourteen different bottlers in business at one time during this period. Some of the older, private companies still survived, and newcomers like T. R. Fye Products Company, Wonder Beverage Company, and Lone Star Sparkling Beverages (no relation to the earlier Lone Star Bottling Works) rose and fell.

The United States government again instituted sugar rationing during World War II. By this time, the franchisers were all selling sodas to the military and so were allotted extra sugar. Glass, too, was scarce, but bottlers serving military posts were allowed an extra supply. Bottlers in areas with no nearby military installations received no new bottles until the end of rationing in 1947 (Personal communication from Michael M. Elling, February 20, 1997).

During World War II, conservation of resources for the war effort created many changes in the brewing industry. Convincing people to return bottles was always a problem, but it became even more important during the late 1940s. A public service ad in the *El Paso Times* admonished people to return their bottles:

Idle bottles are a war waste! Made of materials essential to our WAR EFFORT, deposit bottles should not be destroyed nor permitted to remain idle in homes and garages. So, help conserve vital material, machinery, and manpower . . . keep MILK, BEVERAGE, and BEER BOTTLES working for your family by returning them promptly to your supplier. Your original deposit will be refunded and the deposit bottles you return will be resterilized and refilled. Be patriotic, be thrifty, and make sure your family will enjoy more of their favorite beverages by returning those extra deposit bottles you don't need for exchange purposes today. Be a top hand in this Texas Deposit Bottle Round-Up. . . . Conserve vital materials . . . It's a patriotic duty! (EPT 9/7/1943).

Slowly, between the 1950s and 1970s, the family-owned franchise began to disappear. One important factor in the demise of the family-owned bottler was the increase in popularity of cans in the 1970s. Adapting to non-returnable bottles had proved to be a hardship to most local bottlers; the additional requirements necessary for canning proved fatal. Many, like Richard Price of Grapette and Empire, sold out. A few like the Condon family of Pepsi-Cola, ceased bottling altogether, preferring to buy already packaged products from larger bottlers. Others went out of business. The era of the small bottler in El Paso was at an end.

Big business came to town in the 1970s, following the national trend (cf. Dunagan 2002). Just as the nationwide companies began consolidating during the period, so did the local companies. In 1970, the Seven Up Bottling Company of El Paso acquired the local Royal Crown franchise and followed up in 1974 by purchasing the Canada Dry franchise. Local owners of the company were displaced by the Kalil Bottling Company of Tucson, Arizona, in 1986. Kalil had entered El Paso two years earlier, when it bought many of the small franchises that Magnolia Coca-Cola had acquired through the purchase of the Dr Pepper Bottling Company in 1980. By the mid-1980s, only three companies were left. Magnolia Coca-Cola Company was now big business; Hope Smith's heirs had sold it to a Dallas firm in 1977, and it had changed hands three more times by 1995. The newcomer, Kalil, had taken over most of the small businesses and consolidated them into one large enterprise based in Tucson. The final bottler, Pepsi-Cola Bottling Company (the old Woodlawn), was the last remaining family-run soft drink distributor. Continuously in business since 1905, the Condon family, descendants of founder, Martin R. Sweeney, continued to run the business until 1997. Of the three giants, only Coca-Cola still bottles (and cans) its own products in El Paso. Kalil ships in drinks from its main Tucson plant, and Pepsi buys from still larger Pepsi franchises.

Another strange trend centered around the family-owned bottlers. Hope Smith, Allie Randle, and Lawrence Gardner all died of heart attacks or strokes and left their wives to officiate the remaining operations. The pattern lasted for two generations at Woodlawn. Sweeney, the founder, left his wife, Margaret, to run the business, and Marshall Condon (Sweeney's nephew) left the Pepsi-Cola Company in the charge of Julia Condon and five of her daughters. The process almost repeated generationally in the Yowell family of Barq's and Dr Pepper. John Yowell had died of a heart attack, leaving his wife, Marion, and son, Joe ("Dub") to run the business. After a heart attack in 1970, Dub could see he was following in his father's footsteps, so he sold the business to Coca-Cola and retired. Consistently, the remaining wives proved to be able businesswomen and successfully operated their respective companies for varying periods of time. Margaret Sweeney, for example, was responsible for the instigation of the Pepsi-Cola

franchise by Woodlawn in 1935, a move that probably saved the company from dissolving during the Depression.

One final business trend needs to be addressed--that of change in location. The early bottlers (Houck & Dieter, G. Edwin Angerstein, R. F. Johnson, etc.) operated in downtown El Paso, frequently close to the railroad (see maps in Appendix E). Prior to 1900, however, El Paso did not extend far beyond what is currently the downtown area. Still, the downtown area was a primary choice of location until around the 1940s. By the early 1930s, however, bottlers such as Nehi and Lone Star had started a trend toward eastward migration. By the 1940s, fully half the bottlers had moved their plants east, and only Woodlawn remained in the original downtown area close to the Rio Grande. The following decade gave evidence of a move farther east. Even Woodlawn (now renamed Pepsi-Cola Bottling Company of El Paso) had moved east by the early 1960s. Only Barq's and Empire remained in the downtown area of the 1920s, and no one was left in the original city center. The 1970s showed a continuation of the trend, and the only three bottlers still in business in the early 1980s had moved still farther east (with Pepsi still holding out at Reynolds Avenue). By 1996, even Pepsi had moved far into suburbia.

Although El Paso had expanded west as well as east, not a single bottler had chosen to operate in the western side of town. The greatest increase in population continually occurred in east El Paso, and it is no surprise that the bottlers followed the trend. Overcrowding and escalating real estate costs drove many bottlers to seek a more suburban location. Barq's was practically pushed out of its downtown location by increasing traffic and parking problems. The cost of land hampered expansion in the downtown area, and most of the nationally-franchised operators had outgrown their earlier operations by the 1940s – necessitating the eastward movement.

A related set of trends paralleled that of business – types of beverages. During the liquor dealer era (ca. 1881-1912), locally concocted ginger ales, ginger champagnes, champagne cider, and other chasers/mixers were popular, along with such nationally available mineral waters as Manitou Mineral Water, Cylicmic “King of Table Waters,” Apollinaris Company Mineral Waters, Stafford Springs Mineral Waters, Buffalo Lithia Water, and Nassau Selters. The trend changed to primarily local brands with the opening of local bottlers around 1907. Purity, Empire, Lone Star, Union, and most other bottling works of the time offered a variety of soft drink flavors under a brand name that matched their company designation. A few offered more diversity. Woodlawn vended both Woodlawn and Toltec brands; Magnolia bottled Hope's flavors. A few branched into national franchises during the period (Magnolia introduced Coca-Cola in 1911; Nicholson offered Howdy Orange in the 1920s), but most continued to sell local products. Local

brands remained on the forefront until the 1930s, when nationally-franchised brands gained prominence and all but eliminated their local competitors.

Although some national brands were distributed prior to the 1930s, only Coca-Cola had caught on and then with some difficulty. El Pasoans had never heard of Coca-Cola (never called Coke in the early days) when Hope Smith captured the franchise in 1911 and were not interested. The only way Smith could sell the new drink was to insert a few bottles of Coca-Cola into cases of Hope's flavors (called "mixed" cases). Eventually the cola taste caught on. Although a few local brands remained popular (Empire until 1969, Nicholson until 1979), the national products had come to stay. Most of today's giants (Pepsi-Cola, Royal Crown, Dr Pepper, and Seven-Up) got their El Paso start in the 1930s. Many smaller franchises, such as Barq's, Double Cola, Bubble Up, and Grapette arrived, flourished, and lost popularity by the 1970s. The loss of prominence by some brands does not mean that soft drinks, themselves, had lost popularity. By the early 1970s, soft drinks had captured the number two spot for per capita consumption in the U. S. away from milk. Coffee remained the only more popular beverage (Woodruff & Phillips 1974:10). Many "custom" brands, such as Safeway's Cragmont sodas, were bottled locally by firms like Wes-Tex Custom Bottlers, Inc., who bottled special orders from 1973 to 1978.

El Paso Bottlers Association

With as many as fourteen bottlers in contiguous operation, competition was fierce, and conflict was inevitable. Nasty tricks, such as slightly prying the crown caps to let out the carbon dioxide gas or putting dirt in another truck's gas tank were not unheard of. During the late 1950s, however, affable owner/managers, like Richard Price and Joe "Dub" Yowell, began to get friendly with each other and cooperate in settling common problems like dealing with price changes. The wholesale price of soft drinks had remained at 85¢ per case for years, but costs for bottles, crown closures, sugar, and other production necessities had steadily risen. As an anonymous informant put it, "We had to raise prices or go out of business. . . . We had to get to know each other." Federal regulations prohibited price fixing, but for an individual bottler in the tight market of the 1950s to raise his prices while his competitors retained theirs at a lower level would have been financial suicide; cooperation of some sort was necessary for survival.

The solution was the formation of the El Paso Bottlers Association, a loosely-knit organization of franchise owners who met on an irregular basis (although generally once a month) to discuss problems of the trade that were unique to El Paso--including increases in

prices and deposits. The association had to be careful to avoid charges of collusion, so few notes were kept, and all agreements were sealed with a hand-shake. Although the owners could not simultaneously raise their prices, they could agree that a raise was necessary and set a general time-frame for the increase. It was an uncomfortable solution but a pragmatic one.

Since corporate survival was the name of the game, almost everyone was willing to join in the play – with one notable exception. Hope Smith of Magnolia Coca-Cola flatly refused to cooperate. Coke was #1, and Smith knew it. His position was secure regardless of the problems and necessities that faced his competitors. For the duration of his life, he declined all invitations to participate in the association. Throughout the 1960s and 1970s, competition waned. Smaller and older companies went out of business; the survivors frequently bought out competitors. Gradually the need for the bottlers association diminished, and the meetings faded into obscurity.

Chapter 2

Dating Soft Drink Bottles

Dating soft drink bottles is important to both the archaeologist and the bottle collector. The latter, of course, is interested in the date as a part of the overall information on each individual bottle in his or her collection. The former is interested in the date not only for identification of the individual artifact, but also as a determinant of the time period during which a historical site (or historical component of a multi-temporal site) was actually used. Unfortunately, the past has been rife with clashes between archaeologists and bottle collectors--with valid grievances on both sides. A little education and understanding--again on both sides--usually shows that the aims of the two groups are not so far removed from each other that acceptable compromises cannot be worked out. Despite the disagreements, Archaeologists have traditionally sought collectors' literature in dating and identifying glass artifacts (For examples, see Fontana 1968; Herskovitz 1978; Jones 1971; Staski 1984; Switzer 1974) and, occasionally, archaeologists have sought direct help from collectors (e.g. Mills 1997). Olive Jones, one of the foremost contributors to archaeological glass container knowledge, correctly reported conditions in 1975:

Most of the literature on containers has appeared in the last ten years or so and is the direct result of the growing popularity of bottle collecting, particularly in the United States. The literature tends to concentrate on collectors' interests in bottles, such as the identification and price, and to ignore or be uninformed on the historical aspect (Jones 1975).

With unusual exceptions, the dating of glass containers cannot be restricted to a single year (even if the year of manufacture is embossed on the bottle), but rather encompasses a number of years or a date range. These ranges extend from the actual date of manufacture (beginning date) to the date of most recent use before discard (end date). Each bottle, therefore, has two dates which often must be determined separately.

Bottle dating can be relatively simplistic or extremely complex depending on several factors, including the experience of the researcher, the goals of the project, and the availability of background information. The most simplistic design includes the most *probable* date of container use rather than the extremes of *possible* usage. To illustrate the difference between possible and probable dates, we shall examine a neck/finish fragment excavated at San Elizario, Texas (Lockhart & Olszewski 1974:42-44). The finish consists of two applied rings, the upper one much longer in vertical measurement than the lower, commonly known as a brandy finish. The neck, itself, is slightly swollen, a condition generally indicating a container manufactured as

a beer bottle. The color is a dark amber with mold marks extending from the break at the neck/shoulder junction to a point about halfway to the finish.

A *probable* beginning date would be 1881, the year the railroads first arrived in El Paso, and, coincidentally, the time when large quantities of bottled goods (including beer) first become evident in the archaeological record of the area (Lockhart 1995:170-171). The probable end date is about 1900-1908, the approximate time that crown finishes generally replaced other finish types on beer and soft drink bottles. The possible dates extend beyond the probable in both directions. The early date must be altered to include the earliest possible date of the manufacture of export beer bottles in 1873. Similarly, the end date must be extended for an indefinite period, probably not exceeding 1915, because every individual glass house did not immediately switch to crown caps when they became available. Thus the possible date (1873-1915) is 11 years longer than the probable date (1881-ca. 1908). The greater the quantity of datable artifacts that are found on a given site, the greater the confidence in the probable date range rather than the possible. A single artifact (such as our neck/finish fragment) must be given the widest possible date range, while the same artifact found in quantity (225 similar finishes were excavated at San Elizario) may more comfortably be dated within the probable range.

Bottles may be dated by a variety of methods that will each produce a date range that is not necessarily the same as the date range indicated by the other methods. These methods include examining the morphology (shape) of the container, glass color, manufacturing techniques, manufacturer's marks, retail labeling, embossed dates, and patent or copyright dates. Although the use of a single method will suffice in some cases, a combination of methods will generally produce the smallest, most accurate range of probable or possible dates.

Color

Researchers often reject the use of color as a dating technique or completely ignore it. Berge, for example, disregards color in his discussion of bottle attributes (Berge 1980:38-40), while Jones and Sullivan actively oppose its use, saying:

although classification by colour is simple to do, the end result is of little value for the following reasons: color does not have a direct relation with glass type. . . colour is not related to the technology of glass object production. . . colour is only weakly related to the function of the object. . . . Given these factors there is little justification for using colour as a means of classification. . . . There is a very broad

chronology of popularity of various colours over time; however that chronology cannot be applied to individual glass objects with any significant level of meaning (Jones & Sullivan 1989:12).

Jones, however, used color/glass composition in conjunction with other analytical tools on at least one occasion but still warned that “glass color alone cannot be used to determine glass composition” (Jones 1983:71). Others, such as Fike (1987), Newman (1970), and Staski (1984) accept the color of glass for at least limited use. While all these authors have valid points in their critiques of color usage as a diagnostic tool, the concept of color can be an acceptable dating technique if carefully applied.

At least two colors are generally accepted as having validity in dating glass artifacts. The first of these, black glass, is really an intense dark green or purple glass that is almost completely opaque, displaying very little translucency. Its primary use was in liquor or wine bottles in the seventeenth through nineteenth centuries. Although authors have differences of opinion on exactly how to date black glass, it can be generally stated that it occurs prior to 1880 (Fike 1987:13; Jones & Sullivan 1989:14; Newman 1970:74).

Solarized purple or amethyst glass forms the second color classification that is generally accepted as a valid color in artifact dating. The amethyst or purple color is derived from the prolonged solar exposure of colorless glass that was manufactured with manganese as a decolorant. Iron impurities within normal glass composition create an amber to light blue to aquamarine or blue-green color depending on the type and amount of iron in the mixture. Manganese reacts with the iron to produce a colorless effect in the final glass product. Prolonged exposure to the ultraviolet rays of the sun, however, causes a chemical change in manganese that creates varying shades of purple or amethyst depending on the concentration of manganese in the glass mixture. Concentration of manganese also affects the necessary duration of solar exposure required to produce the color change. Because of varied concentration, required duration of exposure to natural sunlight can be as little as two weeks or over a year before a color change is introduced.

Although manganese was used in glass (mostly to create purple color, rather than as a decolorant) as early as the Roman Empire, its use in decoloring glass in the United States is fairly recent, with 1880-1914 as the often-accepted dates of usage set by Kendrick (1963:54-55), although recent historical/archaeological research revises these to ca. 1890-1920 *in bottles* (Lockhart 2006a). These, however, are probable dates, not possible ones. According to one

source, possible beginning dates begin as early as 1810, although colorless glass was unusual at that time (Zimmerman 1964:8). Possible end dates also extend farther toward the present, with manganese used as a decolorant by small glass houses as late as the mid-1930s (Sharp 1933:763). Thus, quantities of solarized purple or amethyst glass may be dated between 1890 and 1920 with a good level of confidence, but the use of probable dates in assessing a single artifact must be approached with caution.

A second problem related to manganese decolored glass arises for the archaeologist. Because solarization requires exposure to the sun, large quantities of excavated manganese-bearing colorless glass may not have absorbed the necessary amount of ultraviolet radiation to produce the color change. As bottle collectors have been aware for many years, solarization may be achieved in a much shorter period by using artificial sources of ultraviolet radiation such as sunlamps or germicidal lights. Glass that is suspected of having a deposition prior to 1920 can be tested relatively cheaply by means of such a light enclosed in a wooden box constructed with aluminum foil lining to reflect and intensify the ultraviolet light.

Colorless glass itself provides a beginning date when applied to aggregates. The manufacture of colorless glass containers came into prominence around 1890, although some colorless glass was used prior to that time. Because colorless glass became so popular, the manufacture of the naturally tinted light blues and aquas began to decline until the use of unaltered iron-impure glass had mostly declined by about 1910, especially in the manufacture of soda and beer bottles. With no other evidence, however, the 1910 date must be used with caution because it is a probable, not possible, time frame. In addition, glass in the early Royal Crown Cola bottles and the Georgia Green Coca-Cola bottles closely resembles the older aqua-colored glass.

A brief statement must be made about the use of the word “colorless.” Popular literature, as well as that of historical archaeology, has traditionally used the word “clear” in describing glass that lacks noticeable color. The word “clear,” however, is ambiguous, meaning among other things, transparent, unmistakable, clean, pure, certain, or unencumbered by debts. In describing glass, it is generally used to mean transparent and colorless. Other colors, however, can be transparent--especially greens and blues. Colorless, on the other hand, clearly means without color (see Jones & Sullivan 1989:13).

Although numerous colors were used prior to 1900, the most common ones were after 1880 were aquamarine (common green), solarized amethyst, and colorless. Other glass colors were rarely used in the later manufacture of soft-drink bottles, although amber containers enjoyed a

brief popularity in the early twentieth century. Like many other colors, amber is best used as a dating tool in conjunction with one or more other physical attributes of a container and/or one or more other dating techniques. Amber soda bottles provide a good example. If a container is the right size and shape to be a soft-drink bottle and, especially, if it is embossed with a clear indicator, such as “BOTTLING WORKS” (a term generally discontinued by the mid-1930s – although exceptions last at least into the 1970s), then the amber color will suggest a date range in the first two decades of the twentieth century. However, not every player in the game used the same rule book. The makers of Orange Crush, for example, continued to produce their product in amber bottles after 1935. Aside from the cereal beverages (near-beers) of the Prohibition era (usually paper labeled), only Whiz and Orange Crush have thus far been discovered as users of amber colored soda bottles in El Paso.

Greens are equally undatable, except for the above-mentioned Georgia Green of Coca-Cola that first appeared in the company’s 1915-patented “hobble-skirt” bottle (not actually in use until 1917 and then, not in all franchises until ca. 1920) and the equally distinguishable Forest Green that was popularized by Seven-Up around 1928. Similar colors have been used by other bottlers, but that use generally occurs after the Coca-Cola and Seven-Up dates. In older bottles (i.e. pre-1930), a frequently used color was the aquamarine tint usually created by the iron impurities inherent in almost all glass mixtures. Because these impurities were most easily dispensed with by ignoring them, the resultant color was called “common green” as early as the seventeenth century (Harrington 1952:33-34).

Although they rarely occur in soft-drink bottles, probable dates are also available for cobalt blue and opaque glass (generally called milk glass). Cobalt blue, although probably the earliest glass color (Dayton 1993:1-2, 27-31), saw general use in the United States between the 1890s and the 1960s. Opaque glass is often called milk glass because the commonly-used white color resembles the hue and consistency of cow’s milk. Opaque glass, however, is occasionally found in other colors, notably pastel blues and greens. Like cobalt blue glass, opaque glass was generally used in containers between the 1890s and 1960s (Fike 1987:13).

Morphology

[For the latest and best research on bottle shapes, see Bill Lindsey’s “Historic Glass Bottle Identification & Information Website” (Lindsey 2010).]

Although glass containers come in an almost bewildering variety of shapes and sizes, soft-

drink bottles are generally cylindrical, tapering to the finish at the top and resting upon an indented or slightly concave base. The oldest form of soda bottle finish, commonly known as the blob top, utilized a cork,

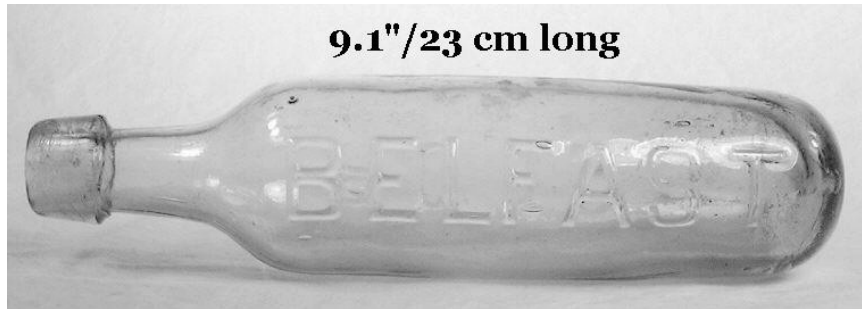


Figure 2-1 – Belfast Ginger Ale, round bottom (Lindsey 2010)

normally wired to the large “blob” of glass at the top of the bottle, to retain the liquid. The major problem with cork closures was leakage when the cork became dry. To keep the cork wet, some of the older containers were made with rounded or pointed bases (often called torpedos), ensuring that the bottle must be stored and shipped in a reclining position, thereby using the drink inside to provide the moisture needed (see Figure 2-1) [Lindsey 2010]. Although such bottles have been excavated in El Paso, there is no indication that any were ever used by local bottling plants. Some wired-in-place cork stopper finishes are remarkably similar to crown finishes (see Jones & Sullivan 1989:149, Figure 123[c]).

Used primarily between 1880 and 1905, the Hutchinson-type stopper was popular because it could be resealed, the stopper remained in the bottle, and it could be stored in the upright (or any other) position. Although most bottlers had long switched to the crown cap, Hutchinson’s Patent Spring Stoppers were not discontinued until 1912. The stopper consisted of a rubber disk that fit tightly against the inside shoulder of the container, forming a leak-proof seal. The disk was secured in place by a spring (frequently in the form of a figure-8) which protruded from the lip at the top of the finish. The protruding spring was pushed into the bottle bore, depressing the disk to create an opening through which the contents of the container could be imbibed. The bottle could be re-closed by exerting an upward pull on the spring, to re-establish the seal. Although they were superior to other stoppers of the late nineteenth century (Paul & Parmalee 1973:12-13). Hutchinson stoppers were only used by the earliest bottlers in El Paso, such as Houck & Dieter, R. F. Johnson (including his El Paso Bottling Works), and G. Edwin Angerstein.

To insure a good seal, bottles with Hutchinson finishes were packed upside down in special wooden cases. Holes the appropriate size for the finishes were drilled in the bottom of the cases and the necks were inserted to maintain the upside down position. Because of this method of packaging, most of the heavy wear (i.e. chipping) appears on the base and heel areas of the bottles (personal communication, Ken Malone, 9/30/2000).

One of the jobs of the route salesmen (or anyone else collecting bottles for the company) was to insure that all bottles in the cases belonged to the bottler (no “foreign” bottles). To assist in the process, many bottlers had their names embossed on the bases of their containers. A route salesman could then easily tell if any foreign bottles had been included. The practice continued on crown finish bottles, even though the need no longer existed. Some El Paso bottlers continued using embossed-base bottles well into the 1930s, although the practice had been generally eliminated by about 1910.

Swing stoppers, such as the Lightning Stopper, manufactured by Henry W. Putnam were rarely used on soft-drink bottles. With stoppers of this variety, the seal was affected by a disk or plunger arrangement that sat atop or just within the bottle lip and was held in place by a set of stiff, spring-loaded wires. When the controlling wire was released, the disk or plunger swung away from the opening to allow the contained liquid to pour forth into a glass or thirsty gullet. Like the Hutchinson stopper, the Lightning stopper could be resealed by reversing the process. Such stoppers were first patented in 1878 and used into the twentieth century (Paul & Parmalee 1973:14). No known El Paso soft-drink bottlers used the Lightning or other similar stoppers.

Numerous other varieties of stoppers were marketed at various times but were never as successful as the ones discussed above. Codd or ball-type stoppers may have occasionally found their way to the El Paso area but were never used by local bottlers. Named for Hiram Codd, these ball-type stoppers used a glass or hard rubber ball located inside the bottle (usually in the neck) to provide the seal. The ball was held in place by the pressure from the carbonation in the liquid (Paul & Parmalee 1973:10-12). William Painter’s Baltimore Loop Seal consisted of a hard rubber disk that sat in a specially molded groove inside the throat of the bottle. Initially, the bottle was opened by pushing the seal into the container or prying it out with a special tool. Eventually Painter added the loop which protruded from the top of the seal and aided in its removal by prying (Lief 1965:16-17). Although the Codd stopper was popular in England, neither of the two achieved much success in the United States. Occasional bottles using ball stoppers may have found their way into the El Paso area, but I have been unable to locate evidence that any bottles utilizing Baltimore Loop Seals were ever used in the city. Other inventions and variations of the late nineteenth century were even less popular.

The final method of closure used on returnable bottles by soft-drink bottlers was the Crown Closure. Invented by William Painter, the device went through a series of modifications prior to the final patent issued on February 2, 1892. The simple device consisted of a rolled steel cap that was crimped over a special finish to create a crown-like effect. A cork disk in the center of the

crown cap (later replaced by plastic) provided the seal. Although the new closure was simple and effective (so much so that it is still in use today), acceptance by bottlers and the public was slow--possibly fueled in part by the depression of 1893. As an experiment, a brewer shipped a cargo of beer closed with crown caps to South America and back with the bottles unopened. Despite time, heat, and the rough treatment in shipping, the beer was unflawed (Woodroof & Phillips 1974:222). Even though Paul and Parmalee (1973:14-20) suggest that less than twenty-five percent of American bottlers were using the crown cap by 1905, El Paso bottlers appear to have accepted the concept early. There is no record of when Houck & Dieter switched from Hutchinson stoppers, but the majority of their containers that survived in local collections used crown caps. All known bottles from Henry Pfaff (late 1898-1907) and the last bottle style used by his predecessor (also bearing the initials of Henry Pfaff), R. F. Johnson & Co. (1895-1898) used crown caps as did the earliest bottles from Purity Bottling and Manufacturing Company (1906-1912), Magnolia Bottling Company (1908-1914), and Woodlawn Bottling Company/Pepsi Cola Bottling Company (1909-present). On the other extreme, the remaining R. F. Johnson (1891-1895) and El Paso Bottling Company (1892-1895) bottles known to exist used Hutchinson stoppers. The obvious inference is that crown caps had become popular in El Paso by later half of the 1890 decade (1895-1900).

The early crown finishes were formed by hand after the bottle was blown into a two-piece mold by the gaffer (master blower). Although the inside and outside diametric measurements of these finishes are remarkably consistent (2.6 cm. outside lip diameter; 1.6 cm. inside), the length of the neck can vary considerably. On Henry Pfaff brand bottles, height from base to neck varied from 20.4-21.3 cm., a range of 0.9 cm. Interestingly, the same bottles were fairly consistent in average diameter (6.2-6.3 cm.), although the bottles were not perfectly circular in cross-section. Individual Pfaff bottles had diameters that varied from 6.1-6.3 cm. depending on the axes along which the measurement was taken. This lack of perfect roundness was relatively consistent well into the 20th century, and many bottles into the 1950s were less than perfectly cylindrical.

Crown caps were locally available from Crown Cork & Seal Company from 1920 to 1970, although they were shipped in from out of state sources prior to that time. Crown Cork & Seal was first located at 413 E. Boulevard (changed to Yandell Blvd. the following year) but moved to 1601 Magoffin Avenue in 1938 and finally to 1701 Bassett Avenue in 1962 (EPCD 1938-1970; EPTD 1920-1970).

Manufacturing Techniques

[As noted above, Lindsey (2010) has the most recent research for manufacturing techniques.]

The oldest glass manufacturing techniques, both freeblown bottles and bottles that were blown into a mold, then held with a pontil rod while they were finished, were rarely used on soft-drink bottles and were never associated with containers used by El Paso bottlers. The oldest El Paso soda water bottles, those used by Houck & Dieter from 1881 to about 1900, were manufactured by the two-piece mold technique. Using this method, the gaffer gathered a glob of molten glass from the furnace on one end of his blowpipe and blew the glass into a two-piece mold. The mold was then opened and the still pliable container was removed. An assistant applied a snap case, first used prior to 1849, to grasp the lower bottle body, allowing the gaffer to break the blowpipe free from the open or finish end of the bottle. The gaffer then produced the bottle's finish by either manipulating the remaining glass to the desired shape or adding glass, usually in the form of one or more rings to produce the final configuration (McKearin & McKearin 1941:17-25; Jones & Sullivan 1989:17-35). Embossed lettering on the panels of two-piece molds came into common usage about 1867 (Lorraine 1968:44; Fike 1987:4). The technique was firmly in place by the time El Paso bottlers came into being in 1881.

A Semi-automatic glass blowing machine was patented for manufacturing wide-mouth containers as early as 1881, but application to small-mouth bottles did not follow until 1886. Actual commercial production, however, did not begin for another three years. The new technology was slow to be applied because of the powerful glass-blowers unions. Michael Owens patented the first fully-automatic bottle machine in 1903 and began the slow task of completely revamping the bottle manufacturing industry. Although the fully automatic machinery vastly improved both the speed and quality of production, it, too, was slow to be accepted. The new machine, like the semi-automatic process before it, was initially manufactured for the production of wide-mouth containers, and it was not until 1907 that the process was perfected for use in the making of soft drink bottles. By 1917, only about half of all bottles in the United States were produced by automatic bottling machines. The most important attribute of machine-produced bottles was the standardization of sizes; a single closure could now fit any bottle that emerged from the manufacturing process (Miller & Sullivan 1984:35-39).

Recognition between two-piece mold and automatic machine techniques is relatively easy. The seams where the two parts of the mold joined together left mold lines on both the base and sides of the finished bottle. Although basal mold lines in the two-piece mold technique could

encircle the circumference of the base or extend across it, two distinct lines always extended from base to a point above the body/shoulder junction. Because the top of the bottle was completed by hand (hence the use of the name “finish” for the upper extremity of the container), the mold lines were erased as the gaffer applied the finish. Although earlier literature suggested that the distance between the end of the mould line and the lip of bottle could be used to indicate a relative date (Kendrick 1963:45-47), the length of the mold line is more indicative of the skill of the individual gaffer than any industrial changes. The suggestion that a mold line ending close to the lip of the bottle indicates a semi-automatic bottle machine is incorrect (Newman 1970:72).

Both semi-automatic and fully-automatic bottle machines reversed the traditional process used by the earlier techniques and began by forming the finish. As a result, the mold lines on the container either extend to the lip or join other mold lines that encircle the finish at various points. Wandering “ghost” seams are another characteristic of machine-made bottles. These seams may run parallel to the more distinct mold lines or may be curved. Finally, small, circular valve marks on the base indicate a machine manufacture, as do “ghost” seams on the base. There is no readily available method to easily distinguish between semi-automatic and fully-automatic bottle machines.

A final basal characteristic is the distinctive ring that identifies an Owens Automatic Bottle Machine. The presence of the Owens scar may also be used as a dating device. Miller and Sullivan describe the Owens scar as “a distinctive circular mark with ‘feathery’ edges, caused by the shears that cut off the bog of glass in the suction machines. An Owens scar is usually off-center and may sometimes even extend onto the heel. It dates from 1904 until at least 1969” (1984:93). However, as a combination of factors changed, the scar became less and less distinct, and the feathering disappeared from most scars by the mid-1920s. Many Owens scars lacked the feathering and were indistinguishable from other machine scars (including those from semiautomatic machines). Thus, the *presence* of the Owens feathering is diagnostic, but its *absence* is not.

The process called the two-piece mold technique actually used a three-piece mold by the time soft drink bottles were being filled in El Paso. An actual two-piece mold leaves a single line across the base of the bottle where the two halves joined. In the later processes, another mold piece on the base was shaped either as a cup or a post. The cup left a mold mark on the heel of the bottle; the post left a circular mark on the base. The use of a plate (see below) required a fourth piece.

Dating the changes becomes more complex than explaining them. Use of the two-piece mold began around 1845 (1750 in England for small bottles), although El Paso soft-drink bottles all date well after that period. The termination of the process is less well defined. Although hand blown containers accounted for only about fifty percent of the total United States bottle production by 1917, the Owens process did not lend itself well to small orders. Small orders, especially those demanding oddly-shaped bottles, continued to be filled by the two-piece mold technique until at least the mid-1930s. Therefore a possible date would have to extend to 1935, although a more probable date, especially for the production of soft-drink bottles, would be about 1915. The possible beginning date for machine-made bottles is 1889, although a more probable date, in most cases, would be around 1913 (Newman 1970:70-71; cf. Miller & Sullivan 1984:88-90, 93-94 for possible dates).

The picture is both complicated and simplified for soda bottles by the licensing agreement that accompanied the Owens machines. The Owens Bottle Machine Company offered what amounted to virtual monopolies for some bottle types to its early licensees. Thus, Owens issued the first soda bottle license to the American Bottle Company in 1905 (Miller & McNichol 2002:6), allowing them sole access to automatic machine-made soda bottles until the next major industry change. No American Bottle Company marks have been found on El Paso soda bottles.

The next important event in the automatic process was the invention of gob feeders around 1914 or 1915. Gob feeders were mechanical devices that fed a “gob” of glass into a semi-automatic bottle machine and thus, made the machine fully automatic, eliminating the last vestige of regular human interaction in the process. Although the literature is unclear about exact dates, such machines were certainly in use by 1915 (Davis 1949:210). This supports the assertion by Paul & Parmalee (1973:25) that “the automatic bottling machine was not operational for the production of pop bottles for some time, and it was not until about 1915 that most bottles were so manufactured.” The manufacture of machine-made glass containers, of course, continues today.

To fill the gap between mouth-blown bottles and the Owens machine, the Graham brothers began to develop semiautomatic bottle machines for soft drink bottles by 1906, and machine-made soft drink bottles became common by at least 1914. Commensurate with the change, the Gould Amendment to the Pure Food and Drug Act of 1906 required the inclusion of volume information. The act was passed in 1913, but bottlers were not required to comply until September 1914. Although not specifically required, most manufacturers of soda bottles embossed the volume information (e.g., CONTENTS 7 FLU. OZS.). Thus, most bottles with volume information were machine made, and most machine-made soda bottles had embossed

volume information (Lockhart 2006b:19-20; also see below). Increasingly, soft drink bottles makers place the volume labels in Applied Color Lettering (see below) after the late 1930s. Other bottle types (e.g., beer bottles) affixed the volume to the paper labels.

Many soft drink bottles during the period from about 1865 (1881 in El Paso) to the early 1920s were manufactured using plate-molds (frequently called slug plates in collectors' literature). An adaptation of the two-piece mold process, the "plate" was a circular, oval, or tombstone-shaped insert set into the front piece of the mold. The debossed name of the local bottler was engraved on the plate which could be inserted in the mold form at much lower cost than retooling an entire mold for each bottler. The plate outlines often left a visible mold line (frequently quite distinct) on the surface of the bottle (Paul & Parmalee 1973:21). Most of the pre-1920 bottles used in El Paso displayed obvious plate-mold markings. New information could also be added to plate molds (Pollard 1993:344). For example, Woodlawn Bottling Co. had THIS BOTTLE / TO BE RETURNED added between WOODLAWN BOTTLING / CO. and EL PASO, TEX. on one of their plate-mold bottles.

Elaborately embossed "proprietary" or "specialty" bottles generally replaced the plate-mold styles in the late 1920s. These bottles often included embossed rings, vertical panels and ridges, oblique lines, stars, "orange-peel" surfaces, or line drawings in addition to the national franchiser's name, logo, and advertising information. Although some of these contained the bottler's location embossed on the base, few of the national brands identified the local bottler by name. Specialty styles persisted until at least the mid-1930s to early 1940s when they were replaced in general use by Applied Color Labeling (ACL). The 1915 hobble-skirt Coca-Cola bottles were an early example of proprietary bottles.

Many companies used paper labels in conjunction with embossing, especially during the pre-1920 period, but the practice extended until the beginning of ACL labeling (and sometimes later). Although paper had the advantage of offering a stage for complex advertising, labels had to be replaced with every washing at an additional expense. In addition, the glue used to apply paper labels was prone to dissolve with prolonged immersion in water. The early method of display for cold soft drinks was generally a bucket, barrel, or metal box filled with ice. As the ice melted, it formed a reservoir of cold water providing an ideal environment for unintentional label removal. Resulting dissatisfaction led to the rapid acceptance of baked enamel labeling, which generally replaced paper labels in the mid-1930s (Paul & Parmalee 1973:25-28).

Paper labels also adorned a unique type of soft drink bottle that was popular during the

prohibition era (1920-1933--1919 in Texas). These were the near-beers that were generally bottled in beer bottles, often by beer companies that were trying to remain solvent through the alcohol-free period. Such bottles usually become archaeologically “invisible” because most paper labels fail to survive the rigors of depositional processes, and the bottles themselves are indistinguishable from normal beer bottles. El Paso bottlers distributed such brands as Barlow, Bock, Bone-Dry, Bravo, Falstaff Dublin-Style Cereal Beverage, Falstaff Pale, Goldcrest, Golden Glow, Graino, and NIB (Non-Intoxicating Beverage). The names of some brands (e.g. Bone-Dry and NIB) obviously played on the theme of Prohibition.

Archaeologists are frequently unconcerned with paper-label containers because of their poor preservation characteristics; however, paper-label bottles do survive under some conditions. Occasionally, the paper labels themselves survive. Wilson (1981:3-6, 24, 54) excavated several paper-label-bearing containers from Fort Union, New Mexico, and Fort Laramie, Wyoming, including beer, bitters, and medicine types, some as old as the 1860s or 1870s. Berberich (1973:16-17) found 60 wine bottles deposited by an 1875 or 1876 flood, many of which retained their labels. In some cases the label disintegrates but the dye remains. The author excavated three beer bottle fragments in San Elizario, Texas, that retained the full impression of the dye, although the paper was long decomposed. The remaining dye was quite delicate and crumbled from the glass at a touch (Lockhart & Olszewski 1994:40-41).

The baked enamel labeling (called Applied Color Lettering or ACL by the Owens-Illinois Glass Co. and varying similar names by other glass houses), was initially used on soda bottles in 1934 but was not common throughout the industry until the late 1930s to mid-1940s. From its inception, the process became extremely popular with the soda bottling industry; enameled labels still appear on bottles today. The process allows for minute lettering that remains legible, an advantage unavailable with the less sophisticated method of embossing. The process was inexpensive and durable.

The enamel, itself, was “a paste-like glass material consisting of finely ground lead, borosilicate glass and mineral pigments, [which] was forced through a screen mesh directly onto the bottles (*sic*) surface” (Sweeney 1995:6). Embossing, however, frequently accompanied ACL labels, usually in the form of designs on the body or manufacturer’s markings on the bottle base. Some of the earliest ACL users in El Paso tried bichromatic or even polychromatic (usually tri-color) designs, although many quickly retreated to monochrome labels because of cost effectiveness. However, many national brands used bichrome labeling. Four-color polychromatic labels generally only appear on commemorative bottles, and most of them are

relatively recent.

Because each color was applied separately, one problem involved with bichromatic or polychromatic enameled labels was the correct placement of the second (or third) color. The simple solution was usually an embossed or debossed “dimple” at the container’s heel that allowed the ACL machinery to align the bottle identically during each color application. Dimples were square, round, and rectangular or, occasionally, even long slots tapering gradually deeper into the heel. Some were very deep protrusions (or intrusions) while others were quite shallow. Although these dimples aligned the separate color applications, they were sometimes not synchronized with embossed messages on the bottle’s heel. Frequently, embossed contents information appeared on the heel, and this embossing was often as much as ninety degrees out of alignment with the enameled labels. Good examples of dimples appear on photographs of the Chocolate Soldier bottle and the Mr. Cola, Jr. bottle.

Local bottler information returned with the inception of the ACL process. Because additional information could be easily added, local bottlers identified themselves on many national brands, including Seven-Up, Royal Crown Cola, Pepsi-Cola, Barq’s, Orange Crush, and Canada Dry. Others did not. Nesbitt’s identified the local bottler on the cap. During the mid- to late 1950s (occasionally early 1960s), local bottler information again disappeared from labels, leaving only the national franchiser’s name and (frequently) address.

Although the vast majority of soft drink bottlers complied with the industry standards, a few retained their older designs. The notably conservative Coca-Cola Company continued to use embossed bottles until the general changeover to plastic containers, although the company finally added the word, Coke, in ACL lettering in 1957 applied a full ACL label in 1961 (McCoy2009:11-12). Dr Pepper also held out against the ACL process but based their design on different reasoning. One of the problems with embossed bottles had to do with the washing and filling process. During these operations, the bottles were frequently rubbed against each other causing an abrasive effect that defaced the embossing and creating an unappealing “ground” effect at the surface of each embossed letter or decoration. Dr Pepper’s answer to the problem was to deboss their clock logo and lettering. Although they changed designs in 1950, Dr Pepper continued to use the debossed bottle from about 1930 to 1954 when an ACL transition bottle appeared briefly to be replaced by a container completely labeled with baked enamel lettering in June of 1955 (personal communication from Mildred G. Walker, Curator of Collections, Dr Pepper Museum, Waco, Texas).

The Cliquot Club Company was the first experimenter in the use of screw-top cans for soft-drinks in 1938, but their ginger ale ate through the containers terminating the venture. Pepsi Cola followed in 1950, but exploding cans caused the abandonment of their project. Cantrell and Cochran (C & C) were more successful in 1953, sparking an industry-wide use of cans as soft-drink containers (Rock 1987:60; for information on the development of cans for the beverage industry, see Woodroof & Phillips, 200-202, 207-211). The use of pull-tabs began in 1962 and lasted until 1974, causing the demise of the venerable “church key” can opener that had traditionally been used to gain access to canned liquids. Ring-tabs were introduced in 1965 and continued to be used along with the slightly older pull-tabs until both were outmoded by non-removable pull tops in 1974. Aluminum cans were first marketed in 1959 and quickly became the industry standard, although some bottlers continued to prefer the rolled steel “tin” variety.

In 1927, Coca-Cola had introduced the first “one-way” bottles for use on ocean liners, but non-returnable glass bottles did not become popular until after 1948 (Munsey 1972:72). Plastic bottles were first used in the late 1950s, but were not popular with bottlers until around 1970. Once under way, non-returnable glass bottles, cans, and plastic containers gradually replaced the traditional returnable bottles until they virtually disappeared. The popularity of nostalgia, however, has caused a recent (although limited) revival of returnable bottles in six pack cartons to the grocers’ shelves, along with cobalt blue specialty containers and hand-blown bottles.

Manufacturer’s Marks

[Note that the Bottle Research Group (BRG) is discovering frequent revisions to almost all previous manufacturer’s mark research. Links to much of this are available on Lindsey 2010].

Manufacturer’s marks are embossed initials, logos, or designs affixed to containers by the makers of the bottles. Although these marks are usually located on the bottle base, they are occasionally found on the heel and even (rarely) on the body. Marks can sometimes indicate the entire duration of a bottle house’s business or might denote a change of ownership or, in some cases, may become a temporal indicator for reasons that were never recorded. Some marks were used for very short periods of time, making them valuable for precise dating; others were in use for several decades. All manufacturer’s logos in this work reflect the most recent research by the BRG. I have cited sources when research on that mark has been published. Marks used on bottles photographed in this volume are depicted in Appendix D.¹

¹ Appendix D reflects the 2000 photos. I have not updated it for this volume.

Although Toulouse (1971) produced an incredible work for his time, it is far outdated and should no longer be considered a “bible” for manufacturer’s marks. The dates in the book are absolutely riddled with inaccuracies, mostly caused by typographical errors. For one example, there are some discrepancies between his dates for the various marks of Liberty Glass Company of Sapulpa, Oklahoma when compared to historical dates and numbers embossed on the bottles. Peterson places the L-G mark at 1936, fully ten years earlier than the Toulouse date (1946-1954) – a more accurate temporal placement when compared to embossed numerals on bottles and local historical information (Peterson 1968:49). See Lockhart (2004a) for a discussion about the dating (in)accuracy of the most popular manufacturer’s marks publications.

Breweries used the earliest date codes on bottles, – beginning in the 1880s. However, the American Bottle Co. was the first *glass house* to use a system. Beginning in 1906, American Bottle used two codes (6-B and 6-S). The codes identified the date of manufacture with a single-digit number and the factory (Belleville, Illinois, and Streator, Illinois, respectively) with a letter code (Lockhart et al. 2007:50-51). The Root Glass Co. began using date codes in 1909, and most other soda bottle manufacturers followed. Eventually, all returnable-bottle makers adopted two-digit date codes, although placement, pattern, and dates of adoption varied according to company.

A good example is a Nehi bottle from Liberty Glass Works, Sapulpa, Oklahoma, with the numerals, 61, embossed on the base. This embossing would seem to indicate 1961, but the bottle has an ACL label that reads, BOTTLED BY ROYAL CROWN BOTTLING CO. / EL PASO, TEXAS. The Nehi-Royal Crown Bottling Company did not change its name to Royal Crown Bottling Company until 1965! Although the possibility exists that the name was enameled incorrectly, the reliability of the two-digit dating system on Liberty bottles is thereby questioned.

Two-digit date codes began to be common on El Paso soda bottles in the early 1930s (although they are found occasionally on bottles from the 1920s) and appear on the vast majority after that date. Only a few ACL bottles lack year designation on the base (notably those manufactured by Chattanooga Glass Company and Knox Glass Company). Some bottles that have 1930s copyrights on their labels (e.g. Royal Crown, cpr. 1936; Botl-o, cpr. 1939; and Grapette, cpr. 1939) do not bear embossed year designations. This, along with an extreme scarcity of two-digit dates that begin with “3,” suggests that the use of baked enamel labels did not become common until the early 1940s. It is likely that national brands pioneered the use of ACL labels prior to the early 1940s; smaller local bottlers were probably slower to adopt the newer style of bottles (although El Paso’s Empire Products Corporation used polychrome and

bichrome bottles as early as 1936!). Where possible, rather than probable, dates are required, the initial date of 1934 must remain.

Volume Labeling

A specific date (although fuzzy in actual application) clearly separates bottles with volume information (e.g. CONTENTS 7 FLU. OZS.) from those that lack the designation. On March 3, 1913, congress passed H. R. 22526, generally known as the Gould Amendment to the Pure Food and Drug Act of 1906. Although the Pure Food and Drug Act demanded a great deal of labeling information, it did not require the inclusion of volume information. The Gould Amendment corrects that oversight when it states that the “quantity of the contents be . . . plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count” but continues to explain that “reasonable variations shall be permitted.” Although the law went into effect immediately, “no penalty of fine, imprisonment, or confiscation shall be enforced for any violation of its provisions as to domestic products prepared or foreign products imported prior to eighteen months after its passage” (U.S. 1913:732). In other words, the industry actually had a grace period in required compliance until September 3, 1914. In actual practice, I am sure, in remote locations, such as El Paso and the rest of the Southwest, bottlers were sure to use up all their remaining stock of bottles unmarked by volume prior to complying with the new federal regulation.

Retailer’s Markings

Retailer’s labeling falls into both national and local categories. As discussed above, labeling varies as a result of technological innovations, but it is also affected by changes in style and advertising. In reference to bottle dating, labeling changes are datable when a wholesaler or retailer changes logos, patent numbers, lettering styles, label colors, names, or technological transitions (e.g. from embossed labeling to ACL).

On the national or wholesale level, bottles can be dated for franchisers who have standardized their containers nationwide. Coca-Cola, for example, nationalized the famous Georgia green, hobble-skirt bottle beginning in 1917, although it took several years (until ca. 1920) for the transition to become complete. From that date onward, the dating of Coca-Cola bottles requires a combination of national and local information, although Coca-Cola required date codes on all bottles beginning in late 1917 – see Porter 1996). Bottle chronologies for most national franchisers are difficult to obtain, especially in a form usable to an archaeologist. I have tried to

include national chronologies based on empirical or historical data whenever possible.

Although Coca-Cola continued to use their famous logo on their bottles with only minor alterations, other franchisers changed logos frequently. Dr Pepper, for example, went through at least five alterations in their lettering style between 1923 and 1971. In 1950, the period after the abbreviation, Dr., was dropped, changing the name to Dr Pepper. Although less frequent than the identity-altering, Dr Pepper, and often minor, logo changes have been a part of most national bottlers.

Sometimes patent or copyright dates can offer important information. A notable example is the paper label on a Mission Orange bottle with a copyright date of 1929. The label identifies the parent company as the California Crushed Fruit Corporation. The company became a franchiser, Mission Dry Corporation, in 1933. The knowledge of the copyright date on the paper label creates a four year span for the dating of amber (almost black glass) Mission Orange bottles.

The majority of the bottle information in this work is aimed at dating soft drink bottles on a local level. Local companies are especially datable when they change names. Empire Bottling Works, for example, began as a merger between two other companies, Houck & Dieter and Purity Bottling and Manufacturing Company in 1912. Therefore, all bottles produced by Empire cannot predate 1912. In 1924, the company was restructured and renamed Empire Products Corporation. However, because of the national trend in ignoring local bottling information, only the name Empire was used until the change to ACL labeling around 1936. When Nell Gardner sold out to Richard Price of Grapette in 1956, the new owner labeled the bottles Empire Bottling Company (until the dissolution of the company in 1969).

Color change can occasionally determine a temporal difference. When Nicholson Bottling Works originally went to ACL bottles around 1950, the entire container was labeled in blue enamel. Around the 1967, Nicholson changed to blue and white ACL lettering. Many companies used a single color labeling when the ACL process was initiated but changed later to bichromatic or polychromatic labels.

One of the most typical methods of dating on the local level is by company longevity. The majority of the sixty-four El Paso non-alcoholic beverage bottlers were in business less than ten years, with at least eight entrepreneurs only surviving a single year. This lack of endurance makes their bottles eminently datable. Bottles from other short timers, however, can easily be dated to the length of their business longevity. Union Bottling Works, for example, was in

business from 1916 to 1935. Although the company used at least three embossed bottling styles during that time, none are datable beyond that nineteen year span. Only a single style has been found (so far) for Crown Bottling Works, in operation from 1916 to 1921.

Stated Dates

Some bottles contain actual numerical dates embossed or enameled on the body, heel, or base. These fall into a number of categories that vary according to their validity and helpfulness. The date at which a company was established is occasionally included in the labeling, usually on the body of the container. An example is an ACL bottle used by Empire Product Corporation that bears the statement, ESTABLISHED 1906. The 1906 date provides an initial date before which the bottle cannot have been made, but is of little practical use. Empire Product Corp. was formed in 1925, the third in a series of companies that began with Purity Bottling and Manufacturing Company in 1906. Further, the ACL bottle was not used by the company until 1936. Reliance on the date of establishment in this case would have reduced the effectiveness of dating of the bottle. In other cases, however, it may prove to be helpful.

Patent dates are usually informative, as are patent numbers, both of which appear occasionally on bottles, usually as an embossment on the base. Although few researchers make use of the technique, patent numbers can be used to reveal dates. The use of both date and number can establish an initial date, earlier than which the bottle could not have been manufactured. However, patent dates should be used with caution. Although a bottle could not have been made prior to the patent date, such dates often continued to be embossed as much as 20 or more years after the patent was issued.

The case of the famous Georgia green, hobble-skirt bottle produced by Coca-Cola provides an excellent example. The original bottle bears the inscription BOTTLE PAT'D NOV 16, 1915 and establishes a date before which the bottle could not have been made. The date, however, does not tell the complete story. Few products are put into production immediately after they are patented. The hobble-skirt Coke bottle was not put into production until 1917 and was not accepted universally by Coca-Cola bottlers until about 1920 (Munsey 1972:57-58; Kendall 1978:7). Even though the next Coca-Cola patent was issued on December 25, 1923, the 1917-patent bottles continued to be used until 1929 (see Lockhart and Miller 2007 for a thorough discussion on dating embossed Coca-Cola bottles; McCoy 2009 is the best dating source for ACL Coke bottles).

Copyright dates provide another direct dating source. Like patent dates, copyrights establish a firm date before which a bottle style could not have existed. The earliest Royal Crown Cola bottles contain the message COPYRIGHT 1936 in the left corner of the front enameled label. Although the existence of Royal Crown was announced in 1935, the bottled product may not have actually been marketed until the following year. Because this was a new product, the copyright date is likely a very accurate beginning date for the date range of bottle use. The 1929 copyright on the paper label of a Mission Orange bottle establishes a date for the beverage as a product of the California Crushed Fruit Corporation prior to the establishment of the Mission Dry Corporation in the 1930s.

As noted above, date codes are an excellent method for establishing an initial date. Although



Figure 2-2 – Peened and re-stamped date code on Owens-Illinois base (Tucson Urban Renewal Collection)

these vary from single- to double-digits, and sometimes even letter codes, they all reflect the date when the bottle was manufactured. Briefly, during the 1920s, a California company even embossed codes for the *month* the bottle was made! On many bottles, a new date code was stamped atop the older one, and both dates are visible. On others, the mark where the

old date code was peened out or stamped with a punch is clearly visible under the new code (Figure 2-2).

Toulouse (1971:403) provided the first generally recognized guide for date codes found on Owens-Illinois bottles, although Jones (1965) published a letter from Toulouse with the same information. He notes that numbers appear to the left, right, and below the logo. The left number indicates the factory that made the bottle; the right digit or digits signify the year of manufacture; and the numerals below denote mold information. In addition, the term “Duraglas” in script is used to designate a new, stronger glass process that was introduced by the company in 1940.

In discussing the Owens Illinois dating scheme, Giarde (1980:80) states that “the digits were used on returnable bottles so that the company had a means of monitoring the life expectancy of its bottles.” According to Giarde, the company noted that single digits were used during the 1930s, and double digits were adopted during the 1940s. He then suggests that the company information is not entirely correct (as most of us who catalog Owens Illinois bottles are aware).

He asserts that the single digit was maintained through 1945 with double digits “commencing in 1946” (Giarde 1980:81). Since the Duraglas mark began in 1940, it adds a new dimension to the dating game and provides a way to distinguish 1930s single digits from 1940s single digits. Giarde (1980:82) further suggests that few (if any) bottles made in 1929 actually bore the I-in-an-oval-superimposed-on-an-elongated-diamond mark because the merger was so recent. [Toulouse (1971:403) also states that “dating goes back only to 1930.”]

Beginning in 1940, Owens Illinois added a dot behind the single digit date code *on soda bottles*.² Therefore, date codes of 0., 1., 2., 3., 4., and 5. indicate the years of 1940-1945. Single digits without the dot are probably from the 1930s. A few words of caution should be added, however. First, the change occurred *during* 1940. Therefore, some of the 1940 containers are marked with a dot and some are not. There are soda bottles with Applied Color Labeling (ACL) embossed with the single digit, 0 (no dot). The use of the ACL process began on soda bottles in 1934, so these containers must have been made in 1940, not 1930. Secondly, all of the Owens Illinois plants did not convert to each new system simultaneously. Double digit soda bottles occur as early as 1944, but the switch seems to have been completed by late 1946 (I have seen one 6. date code). Several bottles produced in plant #9 obviously have a “4” (to the left and above the “6”) added to the “46” date designation as an afterthought. Third, engravers occasionally made mistakes (Lockhart 2004b). I have found a single “6,” with no dot, on several bottles filled by the Illinois Brewing Co. in Socorro, New Mexico which are highly likely to have been made in 1946. The lack of a double-digit or at least a dot was probably an engraver error.

One other major date discrepancy exists on Pepsi-Cola bottles made by Owens-Illinois in the mid-1940s. An example is a bottle with the base embossed 14A49 over 9 I-in-an-oval-superimposed-on-an-elongated-diamond. The normal area for the date mark is blank. However, the “49” fits the bottle style as the correct date. Other examples of the same style include possible date marks (either above or below the logo) of 43, 44, 47, and 53. In each case, the possible date mark fits into the known bottle style for that time period. As far as I can tell, this marking style is unique to Pepsi bottles. For a complete discussion about dating Pepsi-Cola bottles, see Lockhart (2009, Part III).

According to Toulouse (1971:395), the number to the left of the logo represents the plant at which the bottle was manufactured. From looking at El Paso soda bottles, it appears that plants 9 and 6 were the most active in making soda bottles from 1929-1954 (although soda bottles were

2 This system was not used on *any* other type of bottle in the Owens-Illinois system.

also made at plants 3, 18, 19, and 23), and plants 5, 7, 9, 15, and 20 made soda bottles after 1954 (Table 1). Despite the fact that Toulouse was employed by Owens-Illinois, his table of factories and dates of operation (Toulouse 1971:403) are often inaccurate. Even though I passed on many of those inaccuracies (Lockhart 2004b), the BRG will eventually have most of the dates corrected.

Table 2-1 – Owens Illinois Plants Manufacturing Soda Bottles*

Plant #	Location	Operation Dates**	Frequency***
	Logo #1		1929-1954 †
3	Fairmont, West Virginia	1930-now	2
9	Streator, Illinois	1930-now	11
15	Okmulgee, Oklahoma	1930-1940	6
18	Columbus, Ohio	1931-1948	1
19	?††	?	2
23	Los Angeles, California	1948-now	2
	Total		19
	Logo #2		1954-now
5	?††	?	1
7	Alton, Illinois	1930-now	2
9	Streator, Illinois	1930-now	2
15	Waco, Texas	1948-now	3
20	Oakland, California	1939-now	1
	Total		7

* after Toulouse (1971:395)

** Dates are taken from Toulouse's table (1971:395) and are approximate. "Now" = 1971

*** from bottles in author's collection

† note that Giarde (1980:80) disagrees with Toulouse's dates. He suggests that logos with the diamond were used until at least 1956 and even into 1957.

†† According to Toulouse (1971:395), there was no factory # 5 nor #19, yet the embossing is very clear on at least three bottles!

Even though there were no plants 5 and 19 in the Toulouse table, those numbers appear (with highly-legible embossing) on El Paso soda bottles. Two different bottles bearing the I-in-an-oval-superimposed-on-an-elongated-diamond manufacturer's mark bear a "19" in the space to the left of the logo. Similarly, one container with the later I-in-an-oval mark shows a distinct "5" to the left of the logo. Toulouse apparently completely missed two glass factories, but we have had no better luck at locating them in 2010!

An interesting twist in dating bottles was used by the Glenshaw Glass Company from 1935 to 1958. Glenshaw embossed a distinctive G-in-a-square on the base of each bottle to identify themselves as the manufacturer and applied another embossment, a single letter of the alphabet, on the crown finish below the bottle's lip. Each letter was applied only for a single year beginning with "G" (Glenshaw) in 1935, "H" in 1936, "I" in 1937, etc. In 1953 ("Y") the numeral "5" was also embossed on the base, a practice which continued until 1958 ("D") when the letter system was discontinued. Bottles manufactured after 1958 continued to use the two-digit numbering system on the base (Sweeney 1995:75).

An example that used this dating system points out the danger in assuming that spare embossments of two numerals (e.g. 42) indicate dates of manufacture. A whistle bottle manufactured by Glenshaw Glass Company (author's collection) bears a "Y" on the finish that indicates the year 1953. The opposite side of the finish, however, is embossed with the numerals, 56, which could easily lead a researcher into selecting 1956 as the year of manufacture. To further complicate the dating process, the base is embossed with the numerals, 42! The natural inclination would be to accept the larger embossed basal designation and assume the bottle was made in 1942, an eleven year discrepancy from the actual date of 1953.

Dating Local Bottles

City Directories are one of the most frequently used tools to discover the establishment and dissolution dates of business establishments. Although city directories are frequently the only means of dating or even verifying the existence of some companies, they cannot be regarded as disclosing consistently accurate dating information. Although directory advertising salesmen routinely attempted to discover new businesses, such establishments were only listed when they chose to inform the directories of their existence. Often there appear gaps of one or more years duration when individual companies either forgot to renew their listing or chose to disregard it for undisclosed reasons. New firms frequently failed to list their existence for the first few years, possibly through ignorance. Although I am unable to document discrepancies in closing dates in

El Paso, Pollard (1993:48) described at least a four-year inconsistency between the last listing of a bottler in Plattsburgh, New York, and the actual closing of the business.

Two examples should demonstrate the problems with accuracy in starting dates. Hawkins Dairy (listed as Mrs. L. W. Hawkins prior to 1912) claimed an establishment date of 1902 in their advertisements (in the directories), but were not listed in the El Paso City Directory until 1904. Nor is the problem restricted to early editions. The *El Paso Herald Post* reports the Seven Up Bottling Co. of El Paso as initiating business in the city in 1936, the telephone directory lists the company in the Winter 1937-38 edition, but the city directory fails to mention their existence until 1938. As illustrated by these examples, however, the city directories are generally reliable to within about two years.

A second problem centers around name change. In some cases, either a name change was not reported to the directory publisher, or a bottler used a different name on his bottles prior to an actual name change. A case in point is the 1951 and 1952 bottles filled by the Royal Crown Bottling Co. of El Paso and Phoenix. According to the city directories, the company was named Nehi Royal Crown Bottling Co. from 1941-1965 when the name changed to Royal Crown Bottling Co. Yet at least two bottles from 1951-52 are marked Royal Crown Bottling Co. more than a dozen years prior to the name change in the directories! This may be due to an earlier name change of the Phoenix plant, but it seems strange that bottles marked only with the El Paso designation have Phoenix plant's name.

Advertisements are only a fair indicator of when a new brand first enters the market and can be inadequate for determining when one passes out of favor. Coca-Cola ads illustrate the point. The Coca-Cola parent company introduced Sprite and Fanta in 1960 but advertisements for the two did not appear in the city directories until 1963, two years later. Mr. Pibb, a Dr Pepper taste-alike, was first marketed in 1972 but did not see directory advertisement until 1977--a five year discrepancy. Of course, it is possible that the local company did not begin bottling the new drinks when they were first offered by the parent company. The only ads Nicholson Bottling Works placed in the El Paso Telephone Directories, in 1956 and 1957, did not even remotely reflect either the introduction or the termination of the various Nicholson flavors or King Kola.

Until the mid-twentieth century, similar discrepancies applied to listings in telephone directories. Telephone listings were restricted to those businesses (and individuals) who owned telephones (and chose to list their numbers). After mid-century, of course, almost any business, regardless of size, was required to have telephone communication to remain solvent. For

twentieth century listings, a combination of both telephone and city directories can improve accuracy. Prior to the availability of telephone directories (1925 in El Paso), however, the city directory is frequently the only means of demographic information on many firms.

Frequently, local dates for manufacturing processes will differ from national ones as two examples from El Paso will demonstrate. The first example is the crown closure. Invented by William Painter in 1892, the crown cap was slow to be accepted by bottlers and the public, in part because of the panic of 1893 which prevented many investors from financing a new endeavor. It has also been speculated that the simplicity of the crown closure “seemed too good to be true” (Lief 1965:92). Riley (1958:102), however, suggests that the slow acceptance was caused by the large number of already established competitors. Soda bottlers were hesitant to replace machinery that was doing a satisfactory job of sealing their products with something new that would require a revision of their methods along with the purchase of new machinery. Even when bottlers were willing, containers were not always available. Glass houses faced the problems of retooling and using up their supply of bottles containing other types of closures before they were willing to begin marketing containers with crown closures. It was not until 1897 that significant numbers of glass houses were offering crown closures to the trade.

In El Paso the magic date appears to be no later than 1900 and possibly as early as 1895. Early Houck & Dieter bottles featured Hutchinson stoppers as did most R. F. Johnson containers. When Johnson moved to California in 1895, Henry Pfaff managed his business and changed to crown capped containers. Pfaff succeeded Johnson in 1898, and the industry changed. While earlier bottles are scarce, Pfaff bottles are relatively common and, without exception, they are topped with crown finishes. I have yet to find a single El Paso soft drink bottle that dates later than 1900 which contains other than a crown finish, and it is certain that Pfaff changed the R. F. Johnson bottles prior to 1998.

A second example concerns the change in manufacturing technique. Although soda bottles were manufactured by automatic bottling machines as early as 1907 (Riley 1958:106), containers using that technique were not in general use in El Paso until much later. Soda bottles were manufactured using the two-piece mold process (blowing by hand into a mold and then creating the finish using hand tools) from the earliest imported soda bottles until about 1915 (Paul & Parmalee 1973:25). Bottles from Purity Bottling & Manufacturing Co. (1906-1912) were all made by the two-piece mold process. The bottle style used by Empire Bottling Works from 1912 to 1922 is found with marks indicating both the two-piece mold process and machine made bottles. One of the Magnolia Bottling Co. container styles also bridges this gap between glass

blowing and machine manufacture with a bottle that was used after 1911 and as late as 1916-1920. The only known Crown Bottling Works bottle (1916-1921) was made by machine. Bottles filled by the Mexican Bottling Works (La Mexicana) (1915-1916) used the two-piece mold process, but their second bottle style (1916-1917) was machine made. Texas Bottling Works (1918-1934) used machine-made bottles. Lone Star Bottling Works bottles (1918-1929) were also machine-made as were all known Union Bottling Works (1916-1935) containers.

Because of the changeover dates provided by the Mexican Bottling Works, we have a date of no later than 1916 for the change. However, the bottles used by the first management may have only been made in 1915. Small bottlers did not necessarily buy bottles each year, and this company was obviously not one of the major players in El Paso. Therefore, the switch to bottles made by bottling machines was probably in place no later than 1915. This empirical study supports Paul and Parmalee's contention that most of the industry had not switched until about 1915 (1973:25).

However, this does not tell the complete story about the switch to machines. According to Riley (1958:106), automatic machine manufacture of soda bottles began in 1907. Miller & McNichol (2002:6) note that the American Bottle Company obtained a contract from the Owens Bottle Company for the use of an Owens Automatic Bottling Machine to manufacture soda bottles in 1905. The discrepancy is easy to resolve. Thus far, I have not located a single American Bottle Company container used by any El Paso bottler.

This is also related to another interesting phenomenon. With the exception of some containers used by the Magnolia Coca-Cola Bottling Co. (probably used no earlier than 1918 and possibly later), I have found no soda bottles with Owens scars during the early period of automatic machine bottle use (ca. 1915-ca. 1920s). Scoville (1948:185-186) states that gob feeding devices, used to convert semi-automatic bottle machines into fully automatic devices, were not in use until 1915. This means that the early El Paso machine-made soda bottles were probably produced by such a machine – thus, no Owens scars (see above for a discussion of Owens scars).

This phenomenon is not as strange as it seems, however. The Ohio Bottle Co., predecessor to the American Bottle Co. received an exclusive license to produce beer and soda bottles with the Owens Automatic Bottle Machine. With very few exceptions (two out of hundreds, possibly thousands, of bottles we have examined that had American Bottle Co. marks), American only embossed its logos on mouth-blown bottles (between 1905 and 1914). All

machine-made bottles (the ones with the Owens scars) were therefore unmarked (Lockhart et al. 2007)

Particular Concerns with Soft Drink Bottles

Non-alcoholic carbonated beverages are a unique entity in the field of bottled items. The need for strength to withstand the internal pressure caused by carbonation initially created the requirement for a strong container and an effectively sealed stopper. The search for the perfect stopper has been dealt with earlier in this chapter, but the need for a sturdy bottle created interesting problems and solutions. In the early days of carbonated soda and mineral water and even up to mid-twentieth century, this necessitated the manufacture of thick, heavy containers. Because containers required to fit these specifications were expensive, the returnable bottle was born.

Early bottlers relied on the honesty and understanding of their customers and competitors to ensure the return of these multiple-use bottles. It soon became apparent that this course was neither wise nor prudent. In places like pre-railroad El Paso, bottles were scarce and were usually reused until they became broken (Lockhart & Olszewski 1994:47-48). Such customer reuse meant that containers were often not returned to the bottler. In an attempt to induce retailers to return containers in the early years of the twentieth century, Houck & Dieter (El Paso's earliest bottler) sent its customers printed postcards that pled:

Your account on our ledger shows that you still have in your possession.....of our Mineral Water cases and bottles, shipped [to] you on various dates. The express company that carried the goods to you, is obligated to carry the empties BACK free of charge to you. If our mineral water business is to yield us a profit, it is necessary that we re-fill all our bottles and cases as often as possible. Will you not assist us by causing these cases and bottles to be returned to us without delay? (Postcard in the collection of David Cole, Bangs, Texas) (see Figure 2-3)

The solution to the problem of the need for enforced return was the paid deposit. The idea of a standard deposit on bottles was discussed at the annual meeting of the American Bottlers' Protective Association in 1901, and was endorsed by the Association in 1902. Paid deposits, however, were not universally brought into effect until the late 1920s (Paul & Parmalee 1973:25). In 1934, the National Recovery Administration required mandatory deposit of 2¢ per small bottle and 5¢ for larger (usually quart size) containers (Woodroof & Phillips 1974:199).

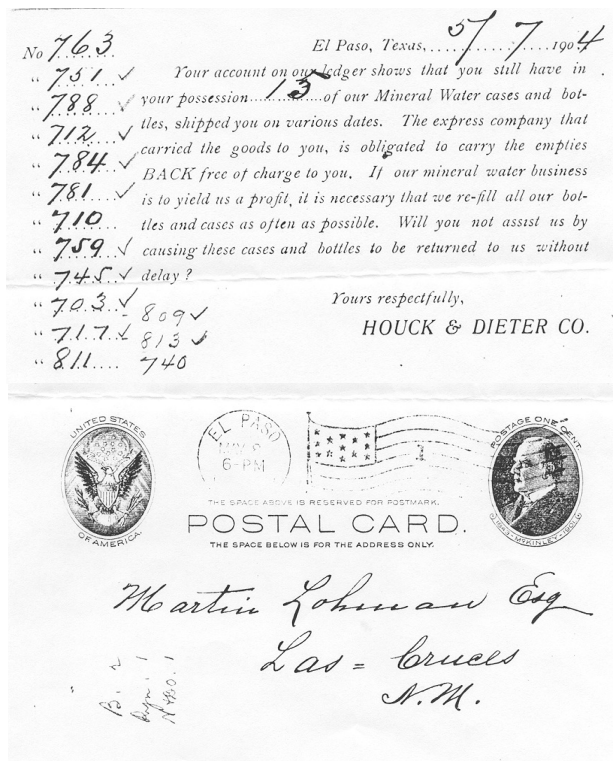


Figure 2-3 – Postcard from Houck & Dieter wanting empties returned (David Cole Collection)

Although the amount of deposit varied at different times and locations, the outlay of money was sufficient to ensure that most people would return the containers. Because proof of purchase was not required in order to redeem returnable bottles, there was great incentive for children and unemployed adults to collect discarded bottles and insure a fairly steady continuing cycle. In an attempt to educate the public, early bottlers often embossed their bottles with messages, such as THIS BOTTLE IS NEVER SOLD or RETURN FOR DEPOSIT. This method was deemed so effective by many bottlers that it continued in use until the 1980s.

The problem with container reuse by other bottlers was not as easy to solve. Because bottle stealing was so common among dealers, the Elliott Bottling Works of Paris, Texas, called a

convention in 1891 to discuss the problem. In October, 29 bottlers met in Dallas to form the Texas State Bottlers Protective Association. Although there was no way to enforce their policies, the Association aimed at “the unlawful use of registered bottles, boxes, siphons, etc” (Dunagan 2002). Because most of the companies involved operated in eastern Texas, it is doubtful that Houck & Dieter, the only bottler in El Paso at the time, attended.

Local use of deposits appears to have begun in El Paso in 1913. Magnolia Bottling Co., often a leader in El Paso bottling trends, established a returnable bottle policy on June 1, 1913. From that point on, Magnolia charged its customers “25 cents on each two dozen case of soda bottles, and 30 cents deposit on each case of seltzer of six bottles. Bottles short will be charged at the rate of 1 cent each for soda water, and 5 cents each for seltzer bottles, which is by no means anything near the value.” The grocers and other customers were expected to charge the retail customer five cents deposit for every bottle. The company explained that “the loose system of the way our bottles are being thrown away and broken, and the heavy loss upon us, causes us to adopt a more businesslike method for our protection” and noted that “our bottles are at no time ever sold” (EPT 6/3/1913). The tone of their message indicates that Magnolia was the first to implement the new policy, but, it is highly likely that the other bottlers at the time (Empire

Bottling Works, Woodlawn Bottling Co., and possibly the Southwestern Liquor Co.) soon followed suit.

From the initial use of the two-piece mold process, begun about 1845, mineral and soda water bottlers often embossed their bottles with their company name and city of origin. The use of the plate-mold process (explained earlier in the chapter) improved the cost, allowing more of the smaller bottlers to emboss (and thereby insure the return of) their bottles. The drawback to embossing, especially with the limited area offered by the plate-mold, was a greatly reduced message that was difficult to change. During the early twentieth century, paper labels were cheap and easy to use, so many bottlers transferred to the new medium. The initial problem now resurfaced--other bottlers could soak off the labels and reuse anyone's bottle.

Two solutions presented themselves and were used by the two largest cola rivals, Pepsi-Cola and Coca-Cola. The Pepsi solution was to combine both previous processes and place a paper label on a partially embossed bottle. The solution was so simple and effective for Pepsi that the company continued to use the same standardized style after the baked enamel labeling process became available in 1934. Replacing paper labels, however, was more of a problem than most bottlers were willing to engage. Although the washing process removed the old labels without an extra step, applying the new labels required extra labor. As a result, Coca-Cola and many of the other bottlers returned to embossing, but with new distinctive designs. This return to embossing created the era of the proprietary bottle,³ with hobble-skirts, pinched waists, bulging shoulders, stars, bars, orange-peel surfaces, ridges, flutes, diamonds, and all the flourishes that bottle designers could imagine.

Proprietary bottles remained the first choice of most bottlers until well after 1934 when the baked enamel labeling process was perfected. Commonly known in the bottling industry by the Owens-Illinois name of Applied Color Labeling (ACL), the process fused enamel onto the glass until it weathered almost as well as embossing. Within a few years almost every bottler, with the notable exception of Coca-Cola who continued to prefer the proprietary bottle (and Dr. Pepper until 1954), had made the transition to ACL (Paul & Parmalee 1973:28; Riley 1958:145, 267).

Many of the national companies immediately chose bichromatic styles for their bottles, usually red and white, the colors chosen by Dr Pepper, Pepsi-Cola (also red, white, and blue),

³ These were called Specialty bottles by the manufacturers and are now called Proprietary bottles by archaeologists and Deco bottles by collectors.

and Seven-Up. Local bottlers sometimes initially chose the less expensive monochromatic style, then later changed to bichrome bottles. Nicholson Bottling Works, for example, changed from their 1950s blue lettering to white and blue. Very few companies, such as Pepsi, actually adopted polychrome labels.

Applying Dating Techniques

As discussed above, there are numerous dating techniques applicable to bottles. Glass containers can be dated by color, shape, manufacturing techniques (including molding processes, types of finishes, and labeling processes), manufacturer's marks, and retailer's markings. In addition, other hints can sometimes be of help. The final container style from Nicholson Bottling Works contained the plant's zip code in the address. Zip codes were not established by the U. S. Post Office until July 1, 1963.

Occasional wording on labels can also help if the history of the area or the company involved is known. At least two styles of Empire bottles from El Paso contain the enameled inscription, "For over a half century/El Paso's favorite." To be a favorite for over half a century, the bottle must be at least fifty years older than the establishment date of the company. In the case of Empire, that would be 1906, the date of the founding of Purity Bottling and Manufacturing Company, Empire's immediate predecessor and the date claimed by the company's founder, Lawrence Gardner, in an article in the *El Paso Times*. The bottles labeled "For Over Half a Century," therefore, were made no earlier than 1956 and used by the fourth and final company of the dynasty, Empire Bottling Company.

Although bottles are often used to establish a date for locations, the application can occasionally be reversed. A total of 379 complete bottles were removed from the El Paso Coliseum parking lot in the fall of 1990. The building and parking lot had been constructed atop a city trash dump that was used from about 1910 until shortly before the Coliseum was built in 1942. Although bottles in the dump could have been (and many were) manufactured prior to 1910, none could have been made after 1942. The ability to date bottles is therefore often only limited only by the knowledge and ingenuity of the researcher.

Because applicable dating involves a multiplicity of techniques, many can be used in combination to refine a date range or confirm an established date. Validity of dating is best verified by triangulation whenever possible. Triangulation in this case refers to corroboration of more than one dating technique to substantiate the initially established date or date range. Three

examples of combined techniques will illustrate the point.

The first example is one of El Paso's mystery bottles from the El Paso Coliseum collection. The colorless container is small (contents, 4 ounces) and embossed with the word, Royal, on the front shoulder and, Purple, on the back, leaving space for a paper label below. Although I have been unable to discover either a company or soft drink brand named Royal Purple (or Purple Royal), the use of the color purple in the name may indicate a grape drink. The container also provides other indicators helpful for dating. The lack of color in the glass (and frequent amethyst hue from solarization) suggests a probable post 1890 manufacture, and the crown finish indicates that the bottle was made after about 1895. The mold marks extending to the container's lip and the presence of an Owens scar on the base clearly demonstrate that the bottle was manufactured by an Owens Automatic Bottle Machine after 1907, the date when small mouth bottles were first adapted to the process (and probably later than 1915). Finally, the location of the artifact at the El Paso Coliseum provides an end date, because the bottle could not have been deposited there later than the Coliseum's construction date of 1942. The probable date range for this Royal Purple bottle becomes 1915-1942, a span of twenty-seven years.⁴

A second example comes from the firm of Houck & Dieter. The bottles appeared in light blue, aqua, solarized purple, and colorless forms with crown finishes. The containers were vertically embossed in panels around the body with HOUCK & DIETER / COMPANY / EL PASO, / TEXAS and H&D on the base. The containers exhibited no manufacturer's mark. The colors suggest an early date for El Paso between 1890 and 1920, but the presence of a crown finish moves the possible beginning date to 1892 with a more probable date between 1895 and 1900. The bottle was manufactured by the two-piece mold process that began to be phased out about 1907 but was still in use until ca, 1920 (and was likely terminated in El Paso soda bottles by 1915). Excluding historical data, the probable date range becomes about 1897 to about 1920. Houck & Dieter was in business from 1881 until it merged with Purity Bottling and Manufacturing Company in 1912, providing a solid end date. There was, however, an earlier crown finish bottle used by Houck & Dieter that followed the same embossed pattern of the earlier Hutchinson-type finish bottle. This style was probably used for more than a year beginning about 1903, so the beginning date for the panel bottle was probably around 1906. The final probable date range becomes about 1897 to 1912.

⁴ I left this paragraph in the revised edition because it shows how far we have come since 2000. Royal Purple Grape Juice was advertised in El Paso in at least 1915 and 1916 by the Empire Bottling Works. It was available throughout the teens. See Chapter 5 for more discussion.

A later bottle from the Grapette Bottling Company will provide the third example. Grapette began business in El Paso in 1942, and continued until the company's dissolution in 1969. This colorless, crown finished Grapette bottle has a bichrome ACL label. The enameled label, initiated in 1934, negates the need to seek dating information from color (post-1880), finish (post-1892), or manufacturing technique (post-1907). A faint manufacturer's mark appears on the base, but it is so indistinct as to render it illegible. The bottle back, however, bears a copyright date of 1952, providing the best beginning date for this bottle type. A legible numeral, 53, to the left of the manufacturer's mark provides corroboration for the 1952 beginning date. With no other indicator to establish a terminal date for this bottle type, the final year of business for Grapette in El Paso, 1969, must be assigned.⁵

A final situation, also unique to returnable bottles, is frequently encountered. The United States is, and traditionally has been, a mobile society. Because of our constant migration, we leave a trail of introduced trash wherever we go that includes returnable soft drink bottles from other locations. Coca-Cola bottles embossed with EL PASO, TEXAS, are found in Maine. Barq's bottles from Tacoma, Washington, are located in Baton Rouge, Louisiana. Bottles from the American South are common in El Paso.

Whenever these foreign bottles appear in an area, local bottlers refill them. They receive no deferential treatment; in fact, they are not even inspected to determine origin (although they *are* examined for cleanliness prior to refilling). Thus, a Dr. Wells bottle transported by a tourist to El Paso from Blacksburg, Virginia, in 1945 would have been returned for deposit in a local store and finally redeemed by Barq's Bottling Company (the local distributor of Dr. Wells) of El Paso. Rather than attempting to return the bottle to its place of origin, the line workers at Barq's would have refilled the bottle for local distribution even if the bottle style differed from the configuration used locally. Locally marked bottles, however, can be expected to greatly outnumber those of foreign origin.

Deposition by tourists and travelers, along with occasional importation by retailers for local distribution, also accounts for the intrusion of foreign bottle types that were not distributed within the region. Soft drink bottles from as far away as Albany, New York, and Belfast, Ireland, were introduced into El Paso either prior to or concurrent with the establishment of Houck &

⁵ This example, too, is retained as instructional. Although this was the last Grapette bottle type that specifically had the El Paso name in ACL, it was followed by another bottle style that began use ca. 1965 – a better end date than the termination of the local bottler in 1969 (Bates et al. [1996]a2:G-11).

Dieter, the city's first soft drink and mineral water bottler in 1881. Bottle collectors excavated unmarked cork (blob top) and Hutchinson stoppered bottles at one of El Paso's early dump sites (Chamizal). These late nineteenth century bottles were not bottled locally and were therefore imported by one of the above means (see Table 2 for a summary of dating techniques).

Table 2-2 – Precision of Dating Methods

Type of Method	Comments	Precision	
		Beg.	End
Shape	Overall or Finish; Problem: not everyone changed at one time	VI*	VI
Color	Except for solarized amethyst & black, must be used in conjunction with other methods	VI	VI
Manuf. Techniques	Broad categories; Problem: not everyone changed at one time	VI	VI
Manuf. Marks	Sometimes used for the entire life of a company, sometimes changed; good when well dated	SP	SP
Retail Labels	Includes company names; with small companies or unpopular brands, can be very precise	VP/ SP	SP/SI
Embossed Dates	Need to be researched; usually reliable on soda bottles; not on all bottle types	VP	VI/ VP
Pat. & Copr. Dates	May not be the <i>best</i> indicator; often used after several style changes	SP	VI
Change in Bottle Style	Includes changes in labeling and overall designs	VP/ SP	SP

* P = precise; I = imprecise; V = very; S = somewhat

Deposition

Unlike the case of nonreturnable bottles, where discard is the normal process of disposal, returnable containers are generally returned to the bottler for refilling. Because these bottles are the property of the bottler, not the consumer, broken bottles could be redeemed for deposit as well as ones that remained intact, although this possibility was not always generally recognized by the public. The traditional consumer route of discard for complete bottles was through the

retailer who passed them on to the bottler. Consumers probably discarded broken containers with their normal trash deposition; retailers, however, were usually well enough informed to return “breakers” to the bottler to be disposed along with the bottler’s fragmented and worn out containers, although it is unsure about when this practice began.

Despite the required deposit and their inherent strength, returnable bottles were occasionally either accidentally or intentionally broken (e.g. as a target in shooting practice). Fragments appear in the archaeological record as a result of primary deposition (i.e. leaving the fragments where they fell) or secondary deposition (i.e. cleaning up the debris and redepositing them in the normal manner of trash disposal) depending on where the breakage occurred (Schiffer 1987). Unlike breakage caused by consumers which was likely discarded on an individual basis, breakage incurred by retailers (returned to the bottlers) and the bottlers’ own breakage was generally curated and later deposited in quantity. Depending on temporal and physical location, deposition could occur in an established landfill, casual dumpsite, or private site (usually a pit) within the bounds of the bottler’s property.



Figure 2-4 – Socorro Dumpsite

A casual dumpsite in Socorro, Texas, just southeast of El Paso, for example, contained a pile of glass shards at least two meters in diameter (Figure 2-4). The surface of the pile disclosed no complete containers, although all fragments came from bottles used by the Lone Star Bottling Works of El Paso. Onsite dumping was practiced frequently throughout both the city and county of El Paso by homeowners and renters as well as commercial businesses. Usually, trash (including broken bottle glass) was

stored temporarily then deposited in an excavated area generally located behind the dwelling or business. Richard Price told of finding a large pit of broken (and some complete) beer bottles when he supervised the reconstruction of the old El Paso Brewery in the 1970s (Price interview, 1996).

Onsite deposits also contain foreign brands (i.e. brands not belonging to the individual bottler). These usually arrived mixed into a case of legitimate bottles that were not checked

carefully enough by the route salesmen delivering product and collecting empties. The bottler was left with a choice of informing his competitors that he had received their bottles, returning them to their correct owners, or disposing them along with his own broken or worn out containers. Although the only local example I have discovered involved beer (El Paso Brewery) instead of soft drinks, the discard of foreign bottles was common, especially around the turn of the century (Price interview, 1996).

Occasionally, large depositions of complete bottles are discovered. When bottle collectors excavated the Chamizal dump in 1965-1968 just before the area was traded to Mexico, they found large quantities of complete bottles from the Purity Bottling and Manufacturing Company (1906-1912). According to one informant, the bottles were so ubiquitous that many of the collectors began leaving them alongside their excavation pits rather than keeping them (Garrett interview, 1996). Two other early bottles are also common in El Paso. Containers from Henry Pfaff are frequently found (also excavated in the Chamizal digs) despite his equally short duration as a bottler (December 1898-1907) although bottles of his predecessor, R.F. Johnson (1883-1998) are extremely rare. Similarly, the third and final style of bottle used by Houck & Dieter (1881-1912) from about 1900 to 1912 is much more common than the similar style containers used by their descendant, Empire Bottling Works from 1912 to about 1935 despite the latter being used for a much greater temporal period and more recently.

The greater quantity and availability of these three bottle types than all other early ones may be explained in part by the popularity of the brands. But prominence in the community cannot explain why both the final-style Houck & Dieter containers and the Purity Bottling and Manufacturing Company bottles are more common than the later Empire bottles that were used for about twenty-three years or why Houck & Dieter's third bottle, used for about twelve years is common and the first bottle (used for about nineteen years) is rare (the second bottle was a transitional container, used only briefly). Additionally, Houck & Dieter had a virtual monopoly during the nineteenth century but sustained added competition from 1900 to 1912. Why did only these three brands survive well?

The answer appears to lie in the concept of unplanned or unanticipated transitions. Henry Pfaff had been an employee of R. F. Johnson in the mid- to late 1890s and actually managed the business after Johnson returned to California in 1895. He was in an excellent position to allow almost all of the older R.F. Johnson and El Paso Bottling Works bottles (another Johnson label) to gradually run out while introducing his own brand in 1898. Documentation pertaining to the sale of Pfaff's firm to Southwestern Liquor Company (1908-1914) is not as complete, although

Pfaff employed A.L. Longneckard, the initial president of Southwestern, for two years prior the sale. The transition was undoubtedly more abrupt than that between Johnson and Pfaff, and Southwestern immediately terminated the Pfaff brand. The result was a large number of complete, embossed Pfaff bottles that required disposal.

Intra-company transition was also carefully planned. When Houck & Dieter phased out their Hutchinson-stoppered bottles for their transitional container and shortly-thereafter for their final style, they likely gradually reduced the last of the older style bottles rather than disposing of them. When Houck & Dieter joined with Purity to form Empire Bottling Works, however, both parent companies, each of whom had continued to produce soft drinks prior to the merger, had bottles with now-defunct brand names that required disposal. The Empire Bottling Works containers that followed, however, were again phased gradually out of production. The hypothesis, then, can be stated: Unexpected transitions such as the abrupt termination of a particular brand of soft drink or company name can be expected to result in the deposition of greater quantities of *intact* soda bottles than would normally be expected from more gradual transformations.

Deposition Lag

Before assessing the use life of a returnable bottle, it is necessary to understand how a normal one-way bottle finds its way into the archaeological record. Typically, a bottle is manufactured by a glass house then wholesaled to an intermediary who fills the bottle with a specific product that may range from cough medicine to rat poison, beer to shoe polish, soft drinks to dye. The now-filled container is again wholesaled to a retailer who presents the product for sale to the public. The glass artifact may become part of the archaeological record through breakage at any point in the process or may be disposed of by the final purchaser. However, the process may be delayed at any of these points. The glass house may manufacture and store a large supply of popular styles for months or even years. The intermediary dealer may find it cost advantageous to lay in a large surplus of containers and use them over a multi-year period. An unpopular item or stock that is improperly revolved may sit on a retailer's shelf for a prolonged period. Any of these delays will affect how soon a bottle becomes a glass artifact.

Adams and Gaw (1977:218-222) suggest a more complicated operation that includes container manufacture, package, wholesale, retail, and purchase, each with a possible accompanying storage lag. The process continues with use (including possible reuse), discard, and, finally, entry into the archaeological record. They conclude that time lags are of

unpredictable duration. Although Adams and Gaw are concerned primarily with ceramic artifacts, they generalize their findings to artifacts in general. Newman had earlier suggested six causes of deposition lag for bottles:

1. delays in particular bottle manufacturers changing over to the new technique;
2. the use of existing stocks of bottles made by an earlier technique after a new technique was developed;
3. storage time at the manufacturer's factory prior to shipment to the bottler;
4. delays in filling the bottles with the contents to be retailed;
5. transportation time to the site; and
6. the possibility of re-use of the bottle prior to final discard (Newman 1970:70).

Newman concluded that "ten years seems adequate to allow for the time delays in American bottles reaching most archaeological sites in the United States" (Newman 1970:70).

The length of storage is dependent on the contents of the container. Wine and whiskey, for example, are intentionally aged by the intermediary dealer (the winery or distillery) either before or after bottling. Shoe polish, hair dye, and similar products are not time-sensitive and may also be stored for long periods of time by their manufacturer or the retailer--as well as in the home by the purchaser. Items with a short manufacturer-deposition lag, such as soft drinks, beer, or especially dairy products, would have a very brief expected storage life (Hill 1982:294-298).

Occasionally, however, the purchaser (end-user) may reuse the container after the original product has been exhausted. The bottle may be reused for the same purpose: historically whiskey flasks were regularly refilled at the local tavern or bar, and home-brew aficionados still reuse bottles that once contained nationally retailed beer. The objective for reuse may also be entirely different from that of the container's original purpose. More than one generation during the first half of the twentieth century grew up watching their mothers dampen clothes prior to ironing with a sprinkle attachment affixed to the end of a Coca-Cola or Pepsi-Cola bottle. During the Prohibition era, so many soda bottles were reused for bottling beer, that it caused a shortage in the soft drink industry (Busch 1991:117).

Virtually any liquid found in a normal household has been stored temporarily or permanently in the nearest convenient glass container, and wine bottles have been notorious for their use as candle holders. Finally, a container may be curated by the end-user. Bottles are often saved for aesthetic or sentimental reasons. Indeed, many containers, notably the Avon collectable selection

of colognes and perfumes, are intentionally packaged with the aim of container retention by the consumer. Bottles may also be curated as a memoir of a special occasion, such as an anniversary, first date, or birthday.

Any of the above delays may prolong the entry of a glass container into the archaeological record after its end date. The installation of an automatic bottle machine in a glasshouse, for example, did not obviate the cessation of bottles from that house that were still produced by the two-piece mold process. Initially, automatic machinery was incapable of producing all types of bottles, so the actual changeover was often gradual (Miller & Pacey 1985:39-40).

Use-Life of Returnable Bottles

Another consideration unique to returnable bottles is the length of their use-life. That life actually begins at the glass house with the bottle's manufacture. Of more importance to the archaeologist is the question: how long is the bottle stored at the glass house prior to shipment to the bottler? The 1933 inventory of the Dominion Glass Company of Montreal, Canada, indicated that storage time was very short:

In over 90% of the listing, age was not given, suggesting the bottles were fairly new. One group of bottles which was 3 1/2 years old was listed as being of no value. Probably less than 1/10 of 1% of the bottles were over five years old (Miller & Pacey 1985:40).

The probability of a short storage period is justified by several factors: 1) bottlers were fickle, changing suppliers according to market fluctuation; 2) nationally franchised brands changed bottle styles relatively frequently, often in less than ten years; 3) small bottlers were noted for the short duration of their businesses--several El Paso bottlers remained in business for only a year; 4) even relatively stable local bottlers with national franchises were prone to change company names, necessitating a new bottle run; 5) bottlers usually bought a sufficient supply at one time to justify a run of bottles, even on the high-volume Owens Automatic Bottle Machines (The Owens machine required a production run that consisted of a large number of containers to be economically feasible. For a more detailed explanation, see Miller & Sullivan 1984:86). Any one of these factors is probably not convincing by itself, but, in combination, they suggest a short, cautious storage time for returnable soda bottles by the manufacturer.

Empirical data examined by the author suggest a storage period by the manufacturer of not more than one year prior to sale to the bottler. After the use of the two-digit dating system (embossed on the bottoms of returnable soda bottles) became common practice, a bottle occasionally contains a date that is one year earlier than a bottler's opening date in business. However, I have never seen a bottle that is dated more than one year prior to the opening year (even one year is very rare). The above data suggest that glass containers manufactured for returnable soft drinks were generally not produced earlier than one year prior to sale to the bottler and then only in the case where the bottles were of a standard design and labeled with the ACL process (post 1934).

The use-life of a one way bottle is quite complex (see above), but that complexity is multiplied by the intentional cyclical reuse of the bottle. Because a returnable bottle makes multiple trips between the bottler and the imbiber of the contents, the average bottle makes a relatively predictable number of returns. Various El Paso bottlers have estimated (or used home office estimates) the number of trips between 12 and 52 with the majority somewhere closer to the middle of that range. In a personal communication, Mildred G. Walker, curator of the Dr Pepper Museum, Waco, Texas, said bottlers informed her that returnable bottles survived about eleven washings because of the caustic solution (NaOH) involved. The bottle design became eroded by that time along with the lip. An abraded lip would not seal properly so the bottle was discarded. Raised lettering on embossed bottles was particularly susceptible to wear. Busch (1991:122), suggests 24 round trips. An average-selling brand could probably expect to revolve its entire stock (in an average grocery store) at least once a month (less often for more popular brands, longer for less preferred labels) with greater rotation in hot weather, poorer in cold. In other words, an average bottle made a single round-trip in about 30 days. The simple use-life of a bottle, therefore, was about a year or less (52 trips multiplied by 30 days = 1,560 days or 51 months or 4 years, 3 months [using the maximum possible number of expected trips]). By the end of that time, a bottle would be stolen (all returnable bottles belonged to the bottler, *not* the purchaser, who only bought the product contained in the bottle), broken (by either the bottler or the user), or became so worn that the bottler was ashamed to reuse it and therefore discarded it. [Note: When I first calculated the use-life of returnable bottles, I erroneously assumed a turn-around time of about a week, producing a *much* shorter expected life. See Lockhart 1999:160]

Although rarely addressed, the use-life or number of round trips varies in direct proportion to container size. Many of the older six- or seven-ounce returnable bottles can usually be dropped on a concrete surface from a height of three feet or more without any visible damage (although the finish often breaks off on the third or fourth bounce). According to Thomas Lucky, lifelong

employee of Magnolia Coca-Cola Bottling Company in El Paso, six-and-one-half-ounce bottles made 20-25 trips per bottle; ten-ounce, maybe 14-15; and fewer for sixteen-ounce containers. Quart bottles, of course, showed an even smaller return. Woodroof & Phillips (1974:202) noticed the change (although not the reason) when they stated that “the glass manufacturers were noting a rapid decline in the trippage of returnable bottles--from an average of 21 trips per bottle in 1959 to 14 trips in 1969.” Container size further compounds the problem of precise assessment of use-life.

The next question is: how often does a bottler buy bottles? The answer in a word--frequently (at least for medium to high-volume bottlers). According to Joe W. Yowell, former owner of Barq's Dr Pepper Bottling Company in El Paso, his business bought six to ten loads of Dr Pepper bottles per year. Even his worst selling products demanded new bottles at least annually. Other bottlers concurred. Richard C. Price of Empire Bottling Company bought bottles at least annually, usually several times per year. Smaller bottlers or less popular brands may have replaced bottles less often. In examining bottle types used by Crystal Beverage Company of Alamogordo, New Mexico, for example, I have only found two dates on the bases: 1943 and 1947 (cf. Lockhart 1998:34). This suggests that bottles were bought no more often than every four years. The Crystal plant was noted for large stacks of shells (wooden cases) loaded with empty bottles (Callaway interview, January 23, 1998). Even larger bottlers sometimes stocked up to take benefit from advantageous situations. Robert Winstead of the Meridian, Mississippi, Royal Crown Cola Company took advantage of free use of railroad boxcars to store a special order of bottles in 1947. That meant that some of the 1947 run of bottles was not used until 1949 (Elling 1998:[4]).

Under normal use then, a bottle from a popular brand could be expected to become part of the archaeological record in about five years (no more than one year warehoused in the bottling plant plus about four plus years of use-life). Although not as positive, three to four years could be added to a less popular brand. However, the statement of a bottle detective in New York, hired to investigate bottle theft, suggests an even shorter, two-year or less timespan. He noted in 1906 that very few bottles still remained in use that were dated 1903 or 1904 (Busch 1991:118).

The scant available empirical data support the longer period. Although the survival of entire *cases* of returnable bottles is rare, a few are located in private collections. I bought a case of Bubble Up, a less popular drink, at a local antique store. This case of twenty-four bottles contains bottles ranging in age from 1939 to 1946 (7 years) with 75% of the dates clustering between 1942 and 1944 (3 years). Michael M. Elling (1998:[3-4]) provided two cases, one from

Coca-Cola, the other, Mellow Yellow. The Coca-Cola case contains bottles that range from 1987 to 1995 (8 years) with 79.2% of the dates clustering between 1991 and 1995 (4 years). Bottles in the Mellow Yellow case range from 1975 to 1986 (11 years) with 83.3% clustering between 1975 and 1979 (4 years). The mean total range is 8.6 years with a mean cluster range of 3.7 years. Although the sample is very small, the data suggest about an eight-and-a-half-year possible deposition lag for these bottles, with a probable deposition lag of about four years.

The general five-year lifespan suggests that an excavated bottle was likely to have been deposited in the archaeological record within about five years after its maximum datable period (expanded to eight or nine years for less popular brands). The well-known Christmas Coca-Cola bottle provides a good example to work with. The Christmas Coke bottle was patented December 25, 1923 but saw no actual use until the following year (1924). Munsey suggests, based on information from the Coca-Cola home office, that such bottles were in use from 1924 to 1937; Kendall asserts that an overlap should be assumed because it takes time for the bottles to get into circulation after the actual patent process is complete, and the dates actually range from 1926 to 1938 (Kendall 1978:7; Munsey 1972:62-63). Combining Kendall's system of overlap with Munsey's home office data (to give a maximum possible range), an effective date range for any given excavated Christmas Coke bottle is 1924-1943, allowing five extra years to compensate for the use-life until most of the final bottles have become part of the archaeological record.

It is certain that an unknown percentage of bottles are curated for reasons varying from reuse to sentimental attachment or decoration. Because of the required deposit, however, returnable bottles are less susceptible to curation than nonreturnables. Nonetheless, the high volume of clean and sparkling returnable bottles gracing collections throughout the United States clearly reveals that people have frequently chosen to retain returnable bottles rather than restore them to their legal owners, the bottling companies. Perhaps the most common form of curation for returnable bottles is accidental storage. Numerous cases of bottles that were discovered in garages or attics as much as thirty years after the purchase of their contents have been reported to Mildred Walker, curator of the Dr Pepper Museum in Waco, Texas (personal communication). Unfortunately, there is no available method to discern or even estimate the number of bottles curated by individuals. It is probably unusual, however, that curated bottles return to the archaeological record. Such bottles are increasingly likely to become instead part of either museum or private collections. The popularity of bottle collecting is evidenced in numerous national and regional collectors clubs and several publications devoted to glass containers (a few of the most popular collector's magazines include *Antique Bottle & Glass Collector*, *Bottles and*

Extras [Federation of Historic Bottle Collectors], and *Soda Net* [Painted Soda Bottle Collectors Association]).

An additional complication arises, particularly in smaller companies or companies bottling less popular beverages. In some cases, bottlers stored their containers for weeks or even months before bottling a product with a slower turn-around rate. Often secondary brands were only bottled once a week or less, and that could frequently be delayed during the off-season to two weeks or more. In these cases, numerical life expectancy (i.e. number of trips) would remain the same, but temporal life expectancy (number of weeks or months) would increase (personal communication, Mildred G. Walker).

A second way of viewing attrition is provided by Woodroof and Phillips (1974:431) who suggested that about 1950 “bottles were returned and refilled, often with a loss rate of only one bottle per case-trip.” Assuming a twenty-four bottle case (the norm in 1950), it would take 24 round trips before the entire case was lost to either theft or breakage. This view supports the more realistic twenty-six round trips suggested above.

According to Richard Price, one-time owner of the Grapette Bottling Company and Empire



Figure 2-5 – Author among the Grapette bottles at the Socorro County Historical Society country of origin.

Bottling Company in El Paso, there was another outlet for bottles in border communities that was not problematical for non-border areas. Price suggested that a large number of bottles were either casually or intentionally exported into Mexico and refilled there. That problem would primarily apply to brands produced by bottlers on both sides of the Rio Grande, such as Coca-Cola, Pepsi-Cola, or Barq’s flavors, but casual deposition in Mexico (e.g. discard by tourists) could also pertain to other beverages bottled only on the United States side of the border. Bottles could be reused or casually discarded rather than putting forth extra effort to return them to their

I originally included a lengthy theoretic section that attempted to determine an average length of time for deposition of a Coca-Cola bottle. Since then (Lockhart 2004c), I presented a paper at

the Society for Historical Archaeology Convention that used a large sample of returnable Grapette bottles abandoned at the Illinois Brewery in Socorro, New Mexico (Figure 2-5). The result of the study of 6- and 10-ounce bottles suggested that an archaeologist could be more than 91% confident that a returnable bottle of those sizes from the 1940-1950s time period would reach deposition in five years and ca. 85% confident in a four-year deposition. A rough estimate produced the following table (Table 3) for other returnable bottle sizes and time periods.

Table 2-3 – Deposition Lag for Returnable, Carbonated Soft Drink Bottles

Date Range	Bottle Size	Deposition Lag
1890s-early 1950s	6-7 ounce	7-8 years
from 1950s	6-7 ounce	5 years
1930s-present	8-12 ounce	4 years
1960s-present	16 ounce	3 years

Chapter 3

National Franchisers Represented in El Paso

Histories of some of the smaller national franchisers (Dad's Old Fashioned Root Beer, Nesbitt's Orange, Orange Crush, Whistle/Vess, and others) have yet to be written; however, most of the major brands (and a few smaller ones) have attracted at least one historian. Coca-Cola, the undisputed historical leader in soft drink sales has received historical coverage in at least four books (one by the Coca-Cola company) and numerous articles (Coca-Cola 1974; Dietz 1973; Hoy 1986; Munsey 1972). Pepsi-Cola, the number two American cola, has only attracted the attention of two book-length historians (Martin 1962; Rawlinson 1976). Dr Pepper, the leading non-cola producer, decided to cash in on the interest in nostalgia and bottle collecting by commissioning three books as well as supporting the Dr Pepper Museum in Waco, Texas (Ellis 1979; Ellis 1986; Rodengen 1995). Shorter histories of Seven-Up and Canada Dry were included in the most recent Dr Pepper history (Rodengen 1995), and one short Seven-Up history has been written on the internet (7-Up). Only one author has so far created a Royal Crown Cola history written in a two-part magazine article, along with another in a Sunday newspaper supplement, and a final unpublished manuscript by the Royal Crown Cola Company (Vaughn 1995a; Vaughn 1995b; Sellers 1960; Royal Crown n.d.). A single article has addressed the history of Canada Dry (Witzel & Witzel 1999). While paper publications have yet to surface, four other bottlers (Barq's Beverages, Clicquot Club, Frostie Root Beer, and Grapette) have their stories told on the internet. Two classic volumes have at least provided cameo glimpses into the backgrounds of several national bottlers (Paul & Parmalee 1973; Riley 1958).

The Colas: Coca-Cola

Pharmacist John S. Pemberton created the syrup formula for what would become Coca-Cola around 1885 and mixed the first batch in a three-legged iron kettle in his back yard in Atlanta, Georgia. According to tradition, he had been trying to discover a headache cure. That year he formed the Pemberton Chemical Company and, in 1886, took his now-perfected formula to Willis E. Venable at Jacob's Pharmacy. The first year the company only sold 25 gallons and spent \$46.00 on advertising. Tradition also suggests that a new clerk at the pharmacy accidentally mixed the syrup with carbonated water, thereby adding the final vital ingredient. Shortly thereafter, the bookkeeper, Frank M. Robinson suggested the name, Coca-Cola.

The company placed the first Coca-Cola ad in *The Daily Journal* (Atlanta) on May 29, 1886. The advertising budget for that year was \$73.96. Although the product's popularity grew slowly

during the first few years, the company's advertising campaign proved one of its most valuable assets. Although the earliest ads were medicinal in nature, the company soon realized that the real potential lay in touting the product as a beverage. Coca-Cola also developed the franchise system in 1899. By 1903, The Coca-Cola Company expended \$762,502.65 for promotion. Advertising became one of the company's most valuable assets, and soon the Coca-Cola name spread over the entire world (Dietz [1973] provides an excellent summary of Coca-Cola advertising with shorter sections on Hires, Dr Pepper, and Pepsi).

After several financial and ownership changes, Woolfolk Walker and Asa G. Candler formed the firm of Walker, Candler & Company in 1888, the year that Pemberton died. Candler purchased Walker's share of the company, became sole owner in 1891, and changed the name to The Coca-Cola Company. The company incorporated the following year. By the time Candler died in 1929, Coca-Cola was a resounding success.

Initially Coca-Cola was sold only at soda fountains where carbonated water and syrup were mixed for each individual drink. Pemberton, a pharmacist, never thought of packaging the product. A persistent legend claims that Candler paid an unnamed man a sum between \$5,000 and \$50,000 for the secret of getting rich. The man "gave him a slip of paper with just two words on it: 'BOTTLE IT'" (Tchudi 1986:29). The legend is false. Joseph August Biedenharn of Vicksburg, Mississippi first bottled Coca-Cola in 1894. Biedenharn's bottling, however, was strictly local in scope.

It was not until 1899 that Benjamin F. Thomas and Joseph B. Whitehead suggested to Candler that Coca-Cola should be bottled on a national scale. Candler discouraged the idea but finally agreed to give the two lawyers rights to bottle Coca-Cola throughout the United States with the exception of Mississippi, New England, and the area around Corsicana, Texas. Thomas and White named their new operation The Coca-Cola Bottling Company. John T. Lupton soon became a partner of Thomas. Thomas and Whitehead disagreed on which color the bottles should be (Thomas chose amber; Whitehead demanded colorless) and divided their territory into the mid-Atlantic states and the West Coast for Thomas with the remaining unclaimed states going to Whitehead. It was not until 1954 that the five bottle franchisers were consolidated into The Coca-Cola Company.

Robert W. Woodruff became president of Coca-Cola in 1923. Woodruff instigated a single-minded policy: the only product associated with the company would be Coca-Cola. Like Candler before him, Woodruff was very conservative. It was not until 1955 that company

executives convinced him to expand from the time-tested six-and-one-half-ounce bottle to other types and sizes of packaging that included ten-, twelve-, sixteen-, and twenty-six-ounce returnable bottles. Non-returnable bottles and flavors such as Fanta, Fresca, Tab, and Sprite eventually followed.

The Colas: Pepsi-Cola

In 1893, Caleb D. Bradham bought the local drugstore in New Bern, North Carolina, and renamed it Bradham's Pharmacy. He began experimenting with new beverage mixes and eventually created a cola drink that he called Brad's Drink. He renamed the drink in 1898, and, although the lettering and style of the trademark would change in the intervening years, the name Pepsi-Cola has remained to the present.

Bradham formed the Pepsi-Cola Company, a North Carolina corporation, on December 30, 1902 and began bottling Pepsi (6-ounce bottles) in 1904, and, in 1909, Pepsi became one of the first companies to switch from the traditional horse-powered vehicles to motorized delivery. He began franchising the product to independent bottlers the following year. Pepsi survived Prohibition and the Great Depression, and all went well until the end of World War I. The US government had placed price controls on sugar during the war that locked the price at 5.5¢ per pound. At the war's end, the government released its controls and the price of sugar increased dramatically. When the price of sugar rose to 22.5¢ per pound in 1920, Bradham was forced to answer a serious question. Would prices continue to rise? With bottles of Pepsi selling at 5¢ each, such high prices were disastrous. Bradham gambled that prices would continue to rise and bought a large quantity of sugar. He guessed wrongly. The price of sugar plummeted to 2¢ per pound. It was a blow the corporation could not withstand.

The stockholders formed a new corporation, Craven Holding Company, in North Carolina in 1922, and the old company was declared bankrupt the following year. Roy Megargel formed yet another corporation, Pepsi-Cola Corporation, in Virginia and acquired the Pepsi-Cola trademark, along with the business and its good will. Megargel reformed the corporation into the newly-formed National Pepsi-Cola Corporation in 1928, but by 1931, that, too, had fallen into bankruptcy along with many other victims of the Great Depression.

Charles G. Guth, president of the Loft Corporation, purchased the trademark and assets and formed yet another corporation (in Delaware) titled, Pepsi-Cola Company. In late 1933, Guth introduced a sales ploy that would spring Pepsi into national prominence. The industry standard

since the turn of the century had been a six- or seven-ounce bottle sold for 5¢. The new Pepsi-Cola Company began vending a twelve-ounce bottle for the same price. By the middle of 1934, sales had vastly improved, and Pepsi began nationwide franchising.

Spearheaded by James A. Carkner, the Loft Corporation began litigation against Guth in 1935, asserting that Loft, not Guth, legally owned Pepsi-Cola. In a decision dated September 17, 1938, the Delaware Court found in Loft's favor, although Guth remained as manager of the company. Hard feelings, however, could not be settled, and the Board of Directors removed Guth from his position as General Manager in 1939. To further complicate matters, in 1938, Coca-Cola brought suit against Pepsi-Cola in Canada for use of the word "Cola" in its trademark. The ultimate decision, rendered in 1942, was in favor of Pepsi. Pepsi could continue being a cola. Despite all the confusion at the end of the decade, Pepsi offered a standardized bottle to their franchisees.

Another reorganization took place in 1941 during which Loft and Pepsi merged creating still another parent company, again called Pepsi-Cola Company. By this time Pepsi was sold internationally and presented Coca-Cola with serious competition. Sugar rationing in World War II again presented a problem but without the resulting disaster suffered after World War I. The company was finally stabilized and became a major influence in the beverage industry.

The Colas: Royal Crown Cola

Claud A. Hatcher, along with his father and two partners, formed the Cole-Hatcher-Hampton Grocery Company in 1901 and bought out their partners in two years. Hatcher developed Royal Crown Ginger Ale and a drink he called, Mello, and, in 1904, reorganized the grocery company into the Union Bottling Works. The company introduced Chero-Cola in 1904, and the drink rapidly became their top selling product, instigating a name change to the Chero-Cola Company in 1912. In 1920, a court battle with Coca-Cola forced the company to drop the word "cola" from its label. Chero sales plummeted.

Hatcher then created a new line of drinks with fruit flavoring that he called Nehi. The new drinks, introduced in 1924 became so popular that Hatcher renamed the company Nehi Corporation in 1928. Like others, Nehi suffered during the Great Depression. When Hatcher died unexpectedly in 1933, his replacement, Hilary R. Mott, revitalized the company. Mott championed the idea of a cola drink to compete with Coca-Cola, and Rufus C. Kamm developed Royal Crown Cola. The new cola was introduced to a limited audience in mid-1934 but was not

fully available to the public until the following year. Royal Crown soon came to dominate the Nehi product line, and the company again renamed itself--Royal Crown Cola Company in 1959.

In 1961, Royal Crown test marketed a new product, Diet Rite Cola. Using cyclamate to replace sugar, the company presented Diet Rite to the public the following year. The sugar-free beverage soon accounted for fully 50% of RC's profits. When the US government banned cyclamates on October 18, 1969, RC chemists quickly reformulated Diet Rite to include a mixture of sugar and saccharin. Because the Coca-Cola Company used saccharin without sugar in Tab, Diet Rite sales plummeted and never recovered.

Victor Posner, a noted corporate raider, instigated a hostile takeover of Royal Crown beginning in 1983. Under Posner's nine-year rule, advertising was significantly reduced, and conditions were so restricted that the situation was referred to as a "marketing nightmare" and a "corporate holocaust" (quoted in Vaughn 1995b:57). Royal Crown survived and is still in the process of recovery.

Although the company never achieved top status (Coca-Cola has always retained the number-one position), it set industry standards in a number of areas. Royal Crown introduced the first successful soft drink cans in 1954 and sixteen-ounce bottles in 1958. The company also produced the first diet drink (1962), the first caffeine-free cola (1980), and the first salt/sodium-free cola (1983). Recently, Royal Crown has attempted another industry first, with the introduction of Royal Crown Draft Premium Cola. Between the new product and the bottling of "private label" beverages for other companies, Royal Crown appears to be making a come back.

The Fruit Punch: Dr Pepper

Charles C. Alderton worked as a pharmacist for W. B. Morrison in Morrison's Old Corner Drug Store in Waco, Texas. In 1885, he invented a new drink formula which became very popular with Morrison's customers. Morrison bought the formula from the young man and named it Dr. Pepper possibly after Dr. Charles Pepper, a former employer of Morrison's in Virginia. Morrison then sold the formula to Robert S. Lazenby.

Lazenby, also a beverage chemist, had founded the Circle "A" Bottling Company in 1884 to bottle his invention, Circle A Ginger Ale. He added Dr. Pepper's Phos-Ferrates to the line as early as 1885 and incorporated the firm as the Artesian Manufacturing & Bottling Works in 1891 with Lazenby and Morrison among the original eight stockholders. Early on, the words, Phos-

Ferrates, were dropped and the product became known simply as Dr. Pepper. The corporation renamed the firm The Dr. Pepper Company in 1902 to reflect the growing sales and popularity of the drink. The Artesian Manufacturing & Bottling Company, however, remained the parent company. The original corporation declared bankruptcy in 1923, and new financial backers reincorporated the Dr. Pepper Company under Colorado law in Dallas, Texas. In 1940, the corporation disbanded Circle A Ginger Ale to concentrate on Dr. Pepper exclusively.

Dr. Pepper has had several distinctive changes in trademarks. Around 1905, the term, “Phos-Ferrates” was dropped in favor of a Dr. Pepper logo with a tail sweeping back from the final “r” enclosing the words, King of Beverages. The company changed the lettering style in 1913 and included the words, Liquid Sunshine. Following the 1923 reorganization, Dr. Pepper bottles were standardized for the first time and replaced the old slogans with “Good for Life” in the tail. Four years later (1926), the company added the venerable 10-2-4 clock. During World War II, Dr. Pepper was advertised as a good between-meal snack, using expressions such as the “liquid bite” or “Drink a bite to eat at 10, 2 and 4 o’clock.” A major change appeared in 1950 with the use of slanted block (italicized) letters which involved dropping the period after the “r” in Dr. The company introduced bounce letters (the third “p” was “bounced” up slightly) in 1958 and later changed to a broader-based italicized typestyle.

In 1981, Dr Pepper branched out with the purchase of the soft drink division of Welch Foods Company including the popular Welch’s Grape Juice. The acquisition of the Canada Dry Corporation followed in 1982. A final, major uniting occurred in 1988 when Dr Pepper and Seven Up merged to form Dr Pepper/Seven-Up Companies, Inc. The final purchase occurred in 1995 when Cadbury Beverages acquired Dr Pepper/Seven-Up.

The Uncola: Seven-Up

Charles L. Grigg, founder of Seven-Up, became involved in the beverage industry as a salesman for Vess Jones at Whistle and Vess Beverages, Incorporated, in St. Louis, Missouri. While under the employment of Jones, Grigg developed the orange drink he called Whistle. After leaving Jones in 1919, Grigg invented another orange drink, Howdy, and joined with Edmund G. Ridgeway in 1920 to form the Howdy Company.

The new company thrived through Prohibition and introduced another new soft drink at the beginning of the Great Depression in 1929. Despite the catchy names used by Grigg in his early inventions, he chose to call his new drink Bib-Label Lithiated Lemon-Lime Soda. Seven-Up’s

historian stated that “Grigg wisely changed the name before significant damage was done. The drink next became 7UP Lithiated Lemon-Lime and then, simply, 7UP” (Rodengen 1995:83). Although the origin of the name is uncertain, Grigg may have been inspired by a cattle brand that consisted of a “7” and a “U.”

With the end of Prohibition in 1933, the company marketed Seven-Up as a hangover cure as well as a drink mixer. By the mid-1930s, Seven-Up was franchised in Canada. Charles Grigg died in 1940, and his son, Hamblett C. Grigg took command of the company. Grigg used patriotic advertisements to carry the product through the wartime sugar rationing. Seven-Up expanded into the Caribbean and South America in 1948 and soon spread world-wide. The Uncola promotion, begun in 1967, was one of the company’s more inspired advertising ideas.

Philip Morris Companies, Inc., instigated a takeover in 1978 and managed the organization until 1986. At that time, PepsiCo, Inc., bought the international rights to Seven-Up, and an investment group purchased the American holdings. Two years later (1988), the company merged with Dr Pepper to form the Dr Pepper/Seven-Up Companies, Inc. Cadbury Beverages acquired the joint companies in 1995.

The Mixers: Canada Dry

Born of the experiments of chemist John James McLaughlin, the mixtures that would eventually become known as Canada Dry were originally sold in a soda fountain in Toronto. McLaughlin worked hard to improve the taste of his favorite: McLaughlin’s Belfast Style Ginger Ale. By 1905, he had achieved his desire, renamed his brand Canada Dry Pale Ginger Ale, and registered the trademark in 1907. His original label contained a map of Canada along with a beaver. Since the beaver was the symbol of the Canadian Pacific Railroad, officials asked McLaughlin to remove it from his label. He replaced the animal with his now well-known crown.

The drink moved into the United States by 1907 or 1908 and was later a favorite of the Duke of Devonshire, earning Canada Dry the title of “the Champagne of Ginger Ales.” Upon McLaughlin’s death in 1914, his brother, Sam, took command of the company and increased U. S. sales. The company set up a subsidiary, Canada Dry Ginger Ale, Inc. in New York in 1922 and sold the U. S. segment to Parry Dorland Saylor in 1922 for one million dollars. In 1923, the company began using local media for advertising and followed with magazine ads in 1927.

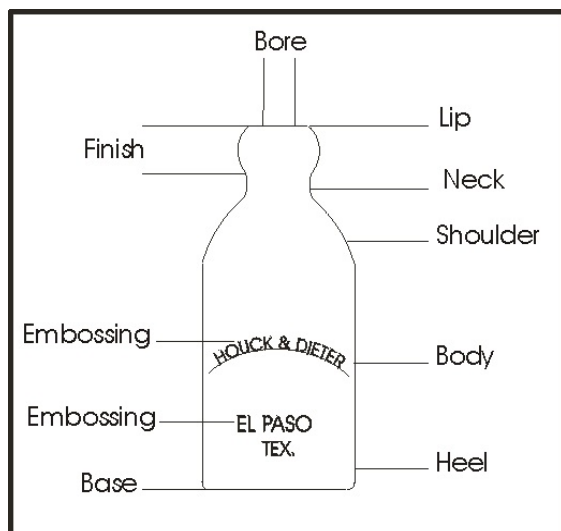
Canada Dry was one of the early bottlers to package its beverages in cans in 1953 and introduced sugar-free drinks the following year. In 1970, the company removed the outline map of Canada from its label, leaving the longitude and latitude lines. The company changed hands repeatedly in the 1980s—first to Del Monte Corporation, then to Dr Pepper, and Norton-Simon, Inc. A final buyer, Cadbury Schweppes, paid \$230 million for the organization.

Chapter 4

Bottle Descriptions and Photographs

Descriptions

Descriptions of bottles generally require some explanations. As with all specialties, bottles have their own set of nomenclature.



Bore - the inside diameter, also known as the throat.

Lip - the extreme upper surface

Neck - the usually narrow area between the shoulder and the finish

Shoulder - the change in slope where the body begins to narrow to form the neck

Body - the central section of the bottle, usually containing advertisements and messages

Heel - the lower section of the body, just above the base

Base - the part of the bottle that actually contacts a surface, also known as the resting point

Embossing - raised glass lettering (or pictures) that

Figure 4-1 - Bottle Nomenclature

are an integral part of the molding process

Finish - the final, upper section of the bottle, sometimes including part or all of the neck

The finish received its name because it was the last part of the bottle to be finished in hand-blown manufacturing process. In El Paso soda bottles, only two types of finishes were generally used. The earliest, Hutchinson-style finish (shown in Figure 1) was used on only four main bottle styles. The crown finish, still in use today, became the most common of all soda bottle finishes in El Paso as in the rest of the world. The continuous thread finish was used on non-returnable bottles from about the 1960s but is not within the scope of this work.

Wherever possible, I have used descriptive terms found in Jones and Sullivan (1989), such as ribs to describe embossed, rounded ridges, although I have continued to use spelling common to the United States (e.g. mold rather than mould).

Although I have attempted to be as comprehensive as possible, it is important to note that the list of bottles in this volume is far from complete. Collectors, archaeologists, and antique dealers

discover new additions to the list periodically. Representative examples are lacking from at least a dozen local companies, and examples of at least seventeen known beverage types advertised by local bottlers are as yet unfound. There are undoubtedly undiscovered bottle styles and variations from bottlers whose more common containers are listed in this work. With many of the paper-label variations, the ravages of time may have destroyed all examples. The descriptions of bottles are as complete as I could make them.

Descriptions Within the Text

Each bottle listed in the text is described using the same format. At the top of each bottle description is an identification number (e.g. H 01 for Houck & Dieter) followed by a brief (2-4 word) description that highlights the container's differences from preceding and/or following bottles. If certain sections (e.g. neck or heel) are excluded in a given description, it is because they contain no labeling or descriptive design. If more than one size bottle is described or if the bottle type contains minor variations, the second (or third) size or variation is described in brackets []. Bracketed description only occurs in sections where change is apparent. If, for example, a body logo is the same on both 7- and 10-ounce sizes but the neck logo is different, a bracketed description will appear in the neck section but not in the body section. Embossing, printing, or ACL labeling is presented in either capitals or mixed letters as it appears on the bottle or printed label. Details (such as italics, arches, upwardly slanted labels, etc.) follow the lettering in parentheses (). A line change is indicated by a slash (/) between words (e.g. BOTTLE STERILIZED/BEFORE FILLING).

Method of Manufacture: Only two methods of manufacture were used for El Paso soda bottles: the two-piece mold process and machine manufacture. In some instances, I have identified semi-automatic or fully automatic bottle machine manufacture, but such distinctions are not always clear.

Color: This refers only to the color of the glass (e.g. Georgia Green, colorless, or amethyst), not to labeling colors. Glass that contains no apparent pigmentation is referred to as colorless, not clear. The word, clear, is a very ambiguous term. The word, colorless, is much more (pardon the expression) clear. Early accounts refer to the color caused by iron impurities as common green, rather than aqua or aquamarine. I like the descriptiveness of the term and use it. Manganese-bearing glass is variously described as purple, solarized amethyst, or SCA (sun-colored amethyst). I chose to use the word, amethyst. Georgia Green is the color popularized by Coca-Cola; Forest Green was chosen by Seven Up. Both colors were used by other companies. Amber

glass (in El Paso) was used mostly by beer companies who bottled cereal beverages or “near-beers” during the Prohibition period. These almost always carried paper labels and are frequently only distinguishable from beer bottles by the absence of the word “beer” on the paper label.

Size (in cm.): Size is given in centimeter and always includes height (h) and diameter (d) at center body. In most cases, body diameter is the approximate mean diameter of a bottle. Although soft drink bottles appear to be circular in cross-section, they are usually slightly oval. Even relatively new bottles can vary in diametric measurement by as much as 0.1 cm., and older containers sometimes vary by more than 0.2 cm. If other diametric measurements are important, they are also listed. Bore diameter is generally standard for the use of crown caps and thus is not listed. Both height and diameter tend to vary among individual containers that were blown into a two-piece mold. Measurements were maintained at a closer tolerance with the advent of machine-made containers.

Primary Labeling Style: Labeling falls into four categories: embossed, debossed, ACL, or paper (although etching was used on Empire Products Corp. seltzer bottles). Embossing is raised lettering created during the molding process; debossing is similar but with the letters sunken into the glass surface. Applied Color Labeling (ACL) is the application of heated enamel to the glass surface (also known as painted labels or baked enamel labeling). I commonly use the ACL designation for brevity and because it is used by the bottling industry. Paper labels are, of course, printed on paper and glued to the glass surface.

Finish: With five exceptions (using Hutchinson-style finishes and one with a Christin finish), all El Paso soda bottles reviewed in this work were manufactured with crown finishes.

Capacity: Capacity is measured in fluid ounces. Where such information was included as a part of the bottle labeling, it is reported as x oz. (e.g. 10 oz.). When circumstances allowed, bottles with no content information on the label were filled with water to approximately 1.5 inches below the lip and then poured into a measuring cup. These were reported as ca. x oz. (e.g. ca. 10 oz.). Bottles I was unable to measure and which contained no content information were reported as ca. x oz. (est.) [e.g. ca. 10 oz. (est)].

Overall Bottle Design: This section describes the overall shape of the bottle (usually cylindrical) along with general embossed designs, such as swirls, vertical ropes, ribs, constricted waists, etc.

Front Description The sections below refer to the obverse or front side of the bottle. This generally contains the main labeling area.

Neck: Neck area labels or designs are described here.

Neck/Shoulder: Sometimes, because of the shape of the shoulder, location of the label, or label size, it is unclear whether a label is actually on the shoulder or the neck. In these cases, the designation, neck/shoulder, is appropriate.

Shoulder: Shoulder area labels or designs are described here.

Body: Labels or designs located on the body (usually the primary labeling area) are described here.

Heel: The heel was a favorite area for content information, although occasional other data such as manufacturer's marks or mold numbers appear here.

Back Description The sections below refer to the reverse or back side of the bottle.

Neck: Same as front description.

Neck/Shoulder: Same as front description.

Shoulder: Same as front description.

Body: Same as front description.

Heel: Same as front description.

Base: Important dating information such as manufacturer's marks, patent dates, year of manufacture, or even initials of the company owner were frequently embossed on the base.

Manufacturer: Where known, the manufacturer is listed, along with the dates (in parentheses) during which the mark appearing on the bottle was used.

Dating: The approximate dating period for the bottle appears in brackets (e.g. [1921-1933]).

Wherever pertinent, an explanation of how the dating was derived follows.

Collection(s): This section contains names of collectors and/or collections where samples were obtained.

Bottle descriptions follow the histories of the companies that filled them. For help in cross-referencing, a list of drinks known to have been bottled in El Paso and the dates during which each company bottled or distributed them is provided in Appendix B. Appendix D contains a list of manufacturer's marks along with dates used, company names, and addresses.

Photographs

Photographs are arranged according to the bottler who filled the bottles. For example, Empire Products Corp. bottled Dr. Pepper (in the debossed bottles), Chocolate Soldier, Empire flavors, NuGrape, and a variety of other products. All of these appear at the end of Chapter 5, "Purity, Houck & Dieter, Empire, and Grapette." These photographs come from a large variety of sources that includes private collections, archaeological collections, my own collection, and some photographs that were sent to me by collectors. Although my wife, Wanda Wakkinen and/or I shot most of the photos, some were taken by other collectors or professional photographers. As a result, these photos are of varying quality.

Color is very true in some cases and radically distorted in others. Photos were selected because they showed details better than other choices, rather than for overall photo quality. Photos of my collection, taken by us, will not carry citations. If a photo came from another collection, it is labeled just below the picture with the collector's name or name of the specific collection (for archaeological collections or museums). Photographers' names (other than ours) will follow the collection name in brackets. Many of the original photographs appear from the first book. In some cases, I have still not found other examples. In other cases, however, I have new photos from additions to my personal collection. In all cases, I present the best photos I have.

