# W.T. Rawleigh Co.

#### Bill Lockhart

The W.T. Rawleigh Co. grew from two earlier firms, and all were successful. Rawleigh made and sold a large variety of medicines and health-related products, mostly bottled in embossed containers. The following study follows the history of the companies, an approximate chronology and descriptions of the bottles, and a discussion about how and why the bottles developed as they did.

### Histories

The Rawleigh companies went through three formats that were mostly just name changes: the Dr. Blair Medical Co., the W.T. Rawleigh Medical Co., and the W.T. Rawleigh Co.

## **Dr. Blair Medical Co., Freeport, Illinois** (1892-1902)

William T. Rawleigh began his career at the age of 18, creating his remedies in his mother's kitchen in 1889 and peddling them himself – using a borrowed horse and a mortgaged buggy. By 1892, Rawleigh had achieved a level of success that allowed him to open a small factory at Freeport, Illinois, and began advertising. He called his new firm the Dr. Blair Medical Co., incorporated on December 29,1895, with a capital of \$25,00. The *Chicago Tribune* misnamed the incorporators as "William T. Ramleigh, Minnie B. Rawly, and William Cronkrite." Both "Ramleigh" and "Rawly" were actually William Rawleigh and his wife (Bay Bottles n.d.; W.T. Rawleigh 2019; Wikipedia 2018). I have been unable to discover a reason why Rawleigh settled on the Dr. Blair name. Possibly, Blair was a silent financial backer.

# W.T. Rawleigh Medical Co. (1902-1914)

Rawleigh renamed the firm as the W.T. Rawleigh Medical Co. in 1902. Rawleigh's initial factory was located at building at 123 East Exchange St. – with only three employees working on the bottom floor. In 1896, he adopted a cursive "Rawleigh" as his trademark, although it was not registered (No. 39768) until February 10, 1903. Rawleigh built a new two-

story factory on West Douglas Ave. and Powell St. in 1898. Rawleigh began construction of his massive factory at the corner of Liberty and Spring Streets in 1904 and opened the new facility on February 24, 1905 (Bay Bottles n.d.; W.T. Rawleigh 2019; Wikipedia 2018).

## W.T. Rawleigh Co., Freeport, Illinois (1914-present)

He again renamed the firm as the W.T. Rawleigh Co. in 1914, expanding to more than 1,000 dealerships (including two in Canada) and three more factories – Memphis, Tennessee, Chester, Pennsylvania, and Oakland, California – by World War I. He increased international distribution in 1928 and continued to expand. William T. Rawleigh continued to serve as president of the corporation until his death in 1951. In March 1973, Rawleigh's descendants sold the firm to W.T.R., Inc., and that group operated the business at Freeport until sometime during the 1980s, when the company moved to West Palm Beach, Florida (Bay Bottles n.d.; Wikipedia 2018). The firm remains in business in 2018, although it closed the Freeport plant in the late 1980s.

## Rawleigh Glass Co., Freeport, Illinois (1926-ca. 1936)

Although I have not discovered the correct name of the glass factory operated by the W.T. Rawleigh Co., it may have borne the Rawleigh name or simply the Freeport Glass Co. What little I know comes from very few sources. Whitten (2018) quoted a September 21, 1932, article from the *Freeport Journal-Standard*:

One of the most fascinating of the industries within the Rawleigh Industries is the bottle factory, where flames leap and writhe in the terrific heat of 2650 to 2675 degrees Fahrenheit, a temperature which must be maintained day and night for many months at a time to manufacture the bottles Rawleigh's use. The annual capacity of the factory, first started in 1926 and since enlarged several times, is close to 100 million bottles.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> W.T. Rawleigh Co. (1931:18) claimed that the factory was built in 1925.

A huge bottle warehouse completed last year will house 12 million bottles at one time. New equipment includes a cooling system superior to any existing system and the first of its kind to be used; new bottle-forming machines which make bottles with almost incredible swiftness and perfection; new reversing valves to add to the efficiency of furnace heat; new batch equipment; a new annealing oven or lehr; improved air compressors, etc.

Old Main Artifacts (2012) noted that "three forming machines supplied automatic feeders with a capacity of 60 bottles per minute." Monk One (2013) added: "In the late 1980s, financial struggles forced W.T. Rawleigh Co to close, leaving 5 massive factories vacant. Citizens of Freeport IL continue to fight to preserve the W.T. Rawleigh Bottle Factory." Although this final entry suggests that the glass plant *may* have continued in production into the 1980s, it was actually closed decades earlier.

In testimony, a Mr. Levis claimed that the Rawleight Glass Co. was "a bottle factory that they had to make their own bottles and it hadn't been operated for 2 or 3 years." Since the testimony was collected in 1938, this suggets that the bottle factory closed in 1935 or 1936 (U.S. Government 1939:252).

### **Containers and Marks**

# Rawleigh's (cursive)

Whitten (2018) noted bottles with the Rawleigh logo "are quite frequently found throughout the United States." He added that the firm carried "a wide variety of household products (cleaning agents, flavorings, medicines, ointments, etc), which were sold by mail-order and by traveling salesmen." Whitten (2018) dated the bottles ca.1889-1989. He added that "some include the city "FREEPORT, ILL", others are marked with the phrase "BOTTLE MADE IN U.S.A."

Rawleigh's bottles have been reported in a large variety of variations. Most variations listed below reflect different time periods, but the shape of the bottle (e.g., square in cross-section) probably indicated a different product. Rawleigh had a large variety of merchandise.

Initially, Rawleigh almost certainly used generic bottles with paper labels. The earliest of these probably reflected bottles that he could obtain cheaply rather than any specific style (Figure 1). As he became more established, he likely became more selective, eventually leading to the adoption of bottles embossed with his name.

Rawleigh's embossed bottles (aside from the small, square ones, discussed at the end of this section) fall into four distinctive styles, all but one of which had several variations. There were a few major differences in each style.

Style 1 – Thin underline below Rawleigh; **no** bar to the left; company name and location on sides

Style 2 – Thin underline below Rawleigh; bar to the left; **no** company name and location on sides

Style 3 – Thick underline below Rawleigh

Style 4 – TRADE MARK in underline below Rawleigh; no bar to the left



Figure 1 – Generic bottle (eBay)

See the Discussion and Conclusions section for an explanation of the dating process and Table 1 at the end of this section for the chronology of the entire bottle line.

**Style 1** – These bottles were originally mouth blown but later machine made.

**Finish:** Two-piece (double-ring) for cork; upper ring rounded and larger; lower ring sharp

Bottle Type: Ball-neck panel – sunken panels on all four faces

Mfg. Style: mouth-blown and machine-made

Colors: colorless, amber

**Embossing** 

Front: "Rawleigh's (thin underline) / TRADE MARK"

(Figure 2)

Sides: "W.T. RAWLEIGH MED CO" on one side panel

"FREEPORT, ILL." on the other



Figure 2 – Style 1 (eBay)

Heel: Unembossed

Base: 8, 16, or other numbers (some with no number); "44 Square-O"

**Comments:** These spanned the period between mouth production and machine manufacture

from ca. 1915 to ca. 1924.

### **Variation A** (ca. 1915-ca. 1920)

Variation A was the defining bottle for Style 1. These were mouth blown and had either numbers on the bases or no embossing (Figure 3). These were likely made between ca. 1915 and ca. 1920.



Figure 3 – Mouth-blown base (eBay)

### Variation B (ca. 1920-ca. 1924)

Bottles from Variation A were the same as Variation B except for the basal embossing

and being machine made. These had the Square-O logo, some with date and plant codes, and the distinctive scars made by the Owens Automatic Bottle Machines. Owens Bottle adopted the Square-O logo in 1919 and used the mark until the merger that formed the Owens-Illinois Glass Co. in 1929. Base codes from my small sample extend to 1924 on a base embossed "44 Square-O" (Figure 4). The initial "4" indicates Plant No. 4 at



Figure 4 – 44 Square-O (eBay)

Clarksburg, West Virginia; the second "4" is a date code for 1924. These bottles were in use during the ca. 1920-1924 period.

**Style 2** – Except for the transitional bottle (see Variation A below), these were all machine made and included a bar to the left of "Rawleigh's" on the front. The final variation (also transitional) included a heel mark.

Finish: Two-piece (double-ring) for cork; upper ring rounded and larger; lower ring sharp

**Bottle Type:** Ball-neck panel – without sunken side panels – front and back remained sunken

**Mfg. Style:** Machine-made (except for Variation A)

Colors: Colorless, aqua, amber

### **Embossing**

Front: "Rawleigh's (thin underline)" with an embossed bar to the left

**Sides:** Unembossed

**Heel:** "BOTTLE MADE IN U.S.A" on final variation; otherwise no embossing on heels

Base: Unembossed, Square-O, or numbers

Comments: Variation A was almost certainly a pilot model to check out the new design. Although two words were dropped from all successive molds (all machine made), the bar remained. The final bottle, Variation D, was also transitional. It included the heelmark that became standard on Style 4 bottles. Style 2 bottles were probably made during the decade-long period between ca. 1919 and ca. 1929.

### Variation A (ca. 1919)

Variation A was a transitional bottle, almost certainly a pilot model to check out the added "TRIAL / \_\_\_\_\_ / LINE" to the left of "Rawleigh's" – to be read with the bottle held upright. "Rawleigh's" – still with its thin underline – was read with the bottle on its side, finish facing left (Figure 5). These were produced in aqua and amber glass – probably during 1919 – and had no basemarks.

**Variation B** (ca. 1920-1924)



Figure 6 – Style 2, V. B (eBay)

On Variation

B, the words "TRIAL" and "LINE" had disappeared, but the embossed bar between those words remained on this and the other variations

within Style 2 (Figure 6).

The company and location designations had also disappeared from the side panels (which were no longer sunken). The base was embossed with the Square-O logo and included date codes (40 and 44) for 1920 and 1924 (Figure 7). The base included the



Figure 5 – Trial Line bottle (eBay)

Figure 7 – Owens base (eBay)

distinctive Owens scar. The bottles were made in blue aqua, colorless, and probably amber glass. Date codes show that Owens Bottle made Variation B bottles from 1920 to 1924.

## **Variation C** (ca. 1925-ca. 1935)

The embossing on the faces of the bottles in Variation C were identical to those in Variation B, and the base retained the Owens scar; however, the Square-O logos had been replaced by one- or two-digit numbers (Figure 8). This requires a bit of explanation. The Owens Bottle Machine Co. initially concentrated on selling automatic bottle machines instead of bottles, granting exclusive licenses for specific bottle types to a few glass firms – including the American Bottle Co. (soda and beer bottles) and the Thatcher Mfg. Co. (milk bottles). By 1911, the firm realized that was a mistake – blocking themselves from making those bottles – and only began issuing non-exclusive licenses instead. Although Owens issued a non-exclusive license for medicinal bottles to the Illinois Glass Co. in 1912, Owens



Figure 8 – Style 2, V. C (eBay)

also produced patent medicine and prescription containers for users such as W.T. Rawleigh.

Although I have found nothing in print – and this does not fit the scanty historical information for the Rawleigh Glass Co. – Owens may have issued a license to Rawleigh for machines to make its own bottles. That would explain the bottles with Owens basal scars and only numbers rather than glass house logos. The Rawleigh Glass Co. opened at Freeport, Illinois, in 1925 (or 1926) and produced bottles exclusively for its own use until ca. 1935. Aside from these numbered bases with Owens scars, I have found no embossed bottles without glass house logos. Rawleigh probably produced these bottles from ca. 1925, when he opened the plant, to ca. 1928.

#### **Variation D** (ca. 1935-1936)

Variation D was the final Style 2 bottle, and it was a transitional container into Style 4 (Style 3 was another transitional bottle). Although everything else was identical to Variation D, the front heel of the bottle was embossed "BOTTLE MADE IN U.S.A." (Figures 9 & 10). The



Figure 10 – Made in U.S.A. (eBay)

bases were numbered and had Owens scars. My only example was aqua in color. These transitional bottles were probably only

made for a year or so – between 1935 and 1936.

**Style 3** – There is only a single variation in this style – identical with Style 2 except that the underline is quite thick.

Finish: Two-piece (double-ring) for cork; upper ring rounded and

larger; lower ring sharp; continuous-thread

Bottle Type: Ball-neck panel; sunken front and back panels

Mfg. Style: Machine-made

Colors: Colorless, aqua, amber

**Embossing** 

and 1929.

Front: "Rawleigh's (thick underline)" with an embossed bar to the left

**Sides:** Unembossed **Heel:** Unimbossed **Base:** Unknown

Comments: This was another transitional bottle, almost surely a pilot container to check the new design. Apparently, this was *not* well received by its test group. I have only found two examples on eBay – with no variations – however, even though it was almost certainly made for a limited period, at least two molds were used for the bottles – one with the old-style, double-ring cork finish, the other with a continuous-thread finish (Figure 11). Like one of the other transitional bottles from this period, these were likely only made during 1928



Figure 9 – Style 2, V. D (eBay)



Figure 11 – Thick underline (eBay)

**Style 4** – In this style, the bar beside "Rawleigh's" had vanished, and "TRADE MARK" appeared in the now outlined underlining tail. The first variation added "TRADE MARK REG. U.S. PAT. OFF." to the tail. The early variations retained the ball-neck panel bottle shape, but the ball-neck eventually disappeared, and the final variation was no longer a panel bottle.

Finish: Two-piece (double-ring) for cork; replaced by continuous-thread finish

**Bottle Type:** Ball-neck panel, then panel with no ball-neck, then non-panel

Mfg. Style: Machine-made

Colors: Colorless, aqua, amber

**Embossing** 

Front: "Rawleigh's" with "TRADE MARK" in the outlined tail

Sides: Unembossed

Heel: "BOTTLE MADE IN U.S.A."

Base: Circle-P; numbers plus Owens scars; Diamond I; Diamond OI

**Comments:** Because of the period involved, Style 4 bottles were made by more glass houses: Illinois Glass Co., Pierce Glass Co., and Illinois-Pacific Glass Co. from 1929 to ca. 1949.

### Variation A (ca. 1929)

The bottles in Variation A were probably made as a special order during the late 1920s – possibly to test the idea of the new "hollow" underlining tail with embossed lettering. Although the bottles continued the ball-neck panel style, they were made in colorless or amber, and the underling tail was



Figure 12 – Style4, V. A (eBay)

embossed "TRADE MARK REG. U.S. PAT. OFF." instead of the shorter "TRADE MARK" of



Figure 13 – Diamond-I base (eBay)

the other variations of Style 4 (Figure 12). The base was embossed with the Diamond-I logo of the Illinois Glass Co. plus a "2" (possibly other numbers replacing the "2") and an Owens scar (Figure 13). This was almost certainly the initial variation of Style 4, and the timing of the glass house is important. Illinois Glass merged with the Owens Bottle Co. in 1929 to form

the Owens-Illinois Glass Co., so the bottles could not have been made later than that year – and were probably only produced once – during 1929. The big question – for which I have no good answer – is: Why did Rawleigh buy these bottles from the Illinois Glass Co. while his own glass house remained in



Figure 14 – Style4, V. B (eBay)

business? Possibly, the Rawleigh glass factory was down for retooling with the new design, and Rawleigh needed bottles immediately.

### **Variation B** (ca. 1929-ca. 1931)



Figure 15 – Base (eBay)

Variation B was basically an extension of Style 2, Variation D (see above). The containers remained ball-neck panel bottles, colorless or blue aqua, but the front panel had been replaced with new embossing – "Rawleigh's" with

"TRADE MARK" in the outlined underlining tail (Figure 14).

Basemarks included "4," "10," and "13 (turned sideways) 2 in a circle"

– almost certainly with other numbers (Figure 15). All bases exhibited Owens scars. These were probably made by the Rawleigh Glass Co. between ca. 1929-ca. 1931.



Figure 16 – Style4, V. C (eBay)

## **Variation C** (ca. 1931-ca. 1935)

Variation C move to continuous-thread finishes (Figure 16). The bases carried Owens scars and were embossed with more complex codes – e.g., "9 9" followed by an illegible number or "9 3 9 / 4" (Figure 17). The use of numbers but no manufacturer's marks suggests that these



Figure 17 – Base (eBay)

were the final bottles made by the Rawleigh glass house, probably during its failing years. Rawleigh likely produced these from ca. 1931 to ca. 1935.

## **Variation D** (ca. 1935-ca. 1940)

Variation D was a return to the ball-neck panel bottle with a cork finish, the last of these, and all were aqua or blue aqua in color (Figure



Figure 19 – Base (eBay)

18). The bases were marked with the Circle-P logo (one with an underlined "P") of the Pierce Glass Co. (Figure 19). Each base also had a one- or two-digit number and a machine scar – not Owens. Pierce used the Circle-P logo from 1905 to 1987 and apparently never included a date code

on any bottle. These replaced the Rawleigh-made bottles after the failure of the plant ca. 1935 and continued in use until ca. 1940.



Figure 18 – Style4, V. D (eBay)

### **Variation E** (ca. 1940-1949)

Variation E moved away from the panel style entirely, with no ball-neck and no sunken panels. It once again broke the Rawleigh cork-finish tradition, shifting to a continuous-thread finish. (Figure 20). The bases had the usual Owens scars and were embossed with the more complex



Figure 20 – Style4, V. E (eBay)

Diamond-OI logo (<0>) of the Owens-Illinois Glass Co. All bases in my sample were stippled,

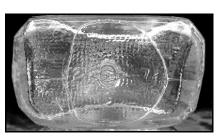


Figure 21 – Base (eBay)

indicating a manufacture beginning in the middle of 1940 and later. Factory indicators show production by several plants, and date codes (all single-digit in my sample) range from 0 to 9-1940-1949 (Figure 21). It is very likely that Rawleigh discontinued the use of embossed bottles ca. 1950 in favor of generic bottles with paper labels.

# **Square Bottle** (ca. Mid-1920s-ca. 1950)

Rawleigh also used a smaller bottle that was square in cross-section and had a continuous-thread finish. These were embossed "W.T. RAWLEIGH / FREEPORT, ILL." on the sides and had no markings aside from a machine scar



Figure 23 – Base (eBay)

(not Owens) on the bases (Figures 22 & 23). Since these were labeled with the W.T. Rawleigh Co. rather than the earlier firm, they could not have been used prior to 1914;



Figure 22 – Square bottle (eBay)]

however, continuous-thread finishes on these bottles could not have been produced prior to the mid-1920s. Like the containers discussed above, they were probably used until ca. 1950.

Table 1 – Rawleigh Bottle Styles, Variations, and Approximate Dates

S*	V*	Characteristics	Dates*
1		Thin underline below Rawleigh; <b>no</b> bar to the left; company name and location on sides	1915-1924
	A	Mouth blown	1915-1920
	В	Machine made; Square-O logo; Owens scar on base	1920-1924
2		Thin underline below Rawleigh; bar to the left; <b>no</b> company name and location on sides	
	A	Mouth blown; "TRIAL / / LINE"; location & co. name	1919
	В	Machine made; Square-O logo; Owens scar on base	1920-1924
	С	Machine made; no Square-O; numbers and Owens scar on base	1925-1935
	D	"BOTTLE MADE IN U.S.A." on heel; base unknown	1935-1936
3		Thick underline below Rawleigh	1928-1929
4		"TRADE MARK" in underline below Rawleigh; no bar to the left	1929-1949
	A	"TRADE MARK REG. U.S. PAT. OFF."; Diamond-I logo	1929

S*	V*	Characteristics	Dates*
	В	Numbers and Owens scar on base	1929-1931
	C	Numbers and Owens scar on base; continuous-thread finish	1931-1935
	D	Ball-neck panel; Circle-P logo on base	1935-1940
	Е	No panels; Diamond-OI logo and Owens scar on base; CT finish	1940-1949
		Square bottle; continuous-thread finish; "W.T. RAWLEIGH Co."	1925-1935

<sup>\*</sup> S = Style; V = Variation; all dates are approximate

### **Discussion and Conclusions**

Bottles with date codes are some of the best resources for a bottle researcher who is trying to sort out the bewildering array of bottles used by complex organizations like the W.T. Rawleigh Co. To paraphrase a comment I heard in a graduate history course, setting up an ordinal scale for bottle styles used by a single company – then assigning approximate dates for each of those styles – is like putting together a jigsaw puzzle with most of the pieces missing. In most cases, the earlier the manufacture of the bottles, the less pieces of the puzzle still remain.

In this case, a few of the clues include the date codes on bottles made by the Owens Bottle Co. and Owens-Illinois Glass Co., the date of the merger between Owens Bottle and the Illinois Glass Co. to form the Owens-Illinois Glass Co., the period when continuous-thread finishes first began use, and the dates when W.T. Rawleigh produced its own containers. Even setting a sequence for the bottle styles and variations was a challenge. Fortunately, among the variations, there were enough features to form a logical progression, then it was just a matter of juggling the variations until everything fit. Adding dates remained tricky, and almost all of them can only be considered as approximate.

#### Style 1

In Style 1, the mouth-blown Variation A logically was produced prior to the machine-made Variation B. Since the Owens Bottle Co. did not begin using the Square-O logo (indicating a "square" deal from the firm) until 1919, I selected 1920 as the probable year when the machine-

made bottles began, and an example had a 1924 date code. I also know that Rawleigh began making its own bottles ca. 1925 (certainly by 1926), so ca. 1924 is a reasonable end date for the bottle style. Because the mouth-blown bottles are scarce in my sources, they were probably not made for a long period, hence the arbitrary ca. 1915 beginning date for Variation A.

### Style 2

With four variations, Style 2 became more of a challenge. The addition of an embossed bar before the "R" in "Rawleigh's" on the front panel defied explanation until my discovery of a single bottle embossed "TRIAL LINE" with the same embossed bar between the two words. Since this was a mouth-blown bottle, it was obviously a trial, itself, to gauge public reaction. This became Variation A. Because Variation B (see below) had date codes for 1920 and 1924, the logical date for Variation A became ca. 1919.

Fortunately, Variation B bottles, made by the Owens Bottle Co., had date codes between 1920 and 1924. Since Rawleigh began making its own bottles ca. 1925, those dates form a logical sequence for Variation B. Just to keep things interesting, these first two variations were made during the same time as the machine-made Style 1 bottles – for what reason, I do not know.

Variation C created an entirely different problem because there were no date codes and no manufacturer's marks. Since the Rawleigh Glass Co. was functional between ca. 1925 and ca. 1935, these bottles were logically made by Rawleigh. However, the bottles all had distinctive basal scars that were *only* made by the Owens Automatic Bottle Machines. Although I have found no record that Owens Bottle granted a licence for these machines to Rawleigh, Rawleigh purchased the vast majority of its bottles from Owens then Owens-Illinois, so the assumption that these Variation C (and D) bottles were made by Rawleigh is not totally improbable – although documentation would be nice. Nothing else fits during this period (with one possible exception – see the Square Bottle discussion below). Because Variation D (and the early Style 4 bottles) also had similar basemarks, I dated Variation C ca. 1925-ca. 1928.

The only change in Variation D was the addition of "BOTTLE MADE IN U.S.A." at the heel. Since this heelmark was found on all the Style 4 bottles, this variation was almost certainly a transitional container, probably just using up the old molds. I therefore dated it ca. 1928-ca. 1929.

### Style 3

Style 3 only consists of a single variation and very few examples. This was almost certainly an experimental bottle with a thick underlining tail – a trial bottle that was not received well by the public. It, too, received a ca. 1928-ca. 1929 date range.

### Style 4

Like Style 2, Style 4 was more complex – with five variations. The style was used between ca. 1929 and 1949 and was made by four different glass houses. The main new changes were the deletion of the embossed bar in front of "Rawleigh's," the addition of "BOTTLE MADE IN U.S.A." on the heel, and "TRADE MARK" in the underlining tail.

Variation A was probably another experimental bottle and was the only type made for Rawleigh by the Illinois Glass Co. – as well as the only variation of Style 4 with "TRADE MARK U.S. PAT. OFF" in the underlining tail. Since the Illinois Glass Co. ceased to exist with the merger that created the Owens-Illinois Glass Co. in 1929, Variation A was probably only made for a single order during that year. Why Rawleigh chose Illinois Glass after being a regular customer of the Owens Bottle Co. is unclear as is the reason for Rawleigh's buying bottles during the period when it made its own.

Variation B had the Owens scar and numbers that I have associated with the Rawleigh Glass Co. The bottles were probably used from ca. 1929-ca. 1931 – although the final date was arbitrary on my part because the bottles of Variation C – only different because of the loss of the ball neck and a change to the continuous-thread finish – also had the same basal characteristics, thereby probably made between ca. 1931 and ca. 1935.

The manufacture of Variation D bottles by the Pierce Glass Co. almost certainly marks a scramble by Rawleigh to find a bottle supplier when the Rawleigh Glass Co. failed ca. 1935. Since the mouth-blown bottle days, this was the only one not produced by the Owens/Owens-Illinois glass houses. So, why did Rawleigh choose Pierce? Due to the lack of documentation, the reason was probably that Owens-Illinois was unable to supply the needed bottles quickly enough. After all, this was the Great Depression. In any event, Rawleigh continued to use Pierce bottles from ca. 1935 to ca. 1940.

The final bottles, Variation E, had no ball neck or panel and had continuous-thread finishes. The bases were embossed with the Diamond-OI logo of the Owens-Illinois Glass Co. All examples in my sample had stippled bases (only used in mid-1940 or later) and single-digit date codes between 0 and 9 – clear dates of 1940 to 1949. There is a remote possibility that the use of these bottles extended into the early 1950s, but it is unlikely. These were replaced ca. 1950 with generic bottles with paper labels.

## **Square Bottles**

These squat bottles, square in cross-section, were the only embossed containers used by Rawleigh that were noticeably different from the medicinal line of bottles described above. They probably held pills or powder, possible each of those. There may be three possible explanations for the manufacture of these bottles.

First, they may have been made by a currently unknown glass house. Second – and more likely – they were made during the ca. 1925-ca. 1935 period when Rawleigh made its own glass – hence the lack of a manufactuer's mark on any bases I could find. These would explain a statement in the December 1938 Government investigation where one witness (a Mr. Levis) stated that his company had purchased some machinery from the Rawleigh glass house that had used Nivison-Weiskopf feeders, claimed to be a patent infringement by the Hartford-Empire Co. Levis told the court that Rawleigh had reached an agreement with the Hartford-Empire and new owners did not deal with the firm themselves (U.S. Government 1939:525). In this scenario, the square bottles would have been made on machines using the Nivison-Weiskopf feeders.

The final possibility I consider unlikely, but it could revise a great deal of what I have written above. What if these small, square bottles were the *only* containers produced by the Rawleigh Glass Co.? That still fits with the Nivison-Weiskopf feeders and alleviates the nagging difficulty of positing the use of Owens machines at the Rawleigh glass house. In this scenario, the Owens Bottle Co. would still have supplied the ball-necked panel bottles, explaining the Owens machine scars on the bases.

As with most solutions, however, this creates a new problem. How, now, do we explain the presence of the Owens scars on these bottles made between 1925 and 1935 that have no basal manufacturer's marks? The Owens Bottle Machine Co. used no embossed logos on its earliest

bottles but began adding in factory markers by at least 1915, possibly earlier. In 1917, the plants adopted a system that included plant codes, year codes, and month codes – allowing pinpoint dating and information. See Briggs (2018) for more information on the Owens bottles.

When the Owens Bottle Co. (successor to the "Machine" firm) adopted the Square-O logo, it continued plant and year codes, dropping the month designations. The market literally became flooded with bottles bearing the Square-O basemark. This apparently consistent use of the Square-O logo begs the question about why the firm would suddently stop their now famous design on only one product line in 1925 – the very year that Rawleigh began making its own bottles. Because of the timing, I consider this last scenario unlikely – but it cannot be ignored.

After examining these three possibilities, I accept the second one – the square bottles being made by Rawleigh from ca. 1925 to ca. 1935 – as the most logical choice. This leaves the Owens machines at Rawleigh during this period. Hopefully, a future researcher can find documentation to support (or completely deny) the use of such machines by Rawleigh.

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