

American Glass Works – Richmond and Paden City

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Occasionally, we discover that the same mark was used by two (or more) glass houses – usually at different time periods. In this case, not only the initials – but the actual *name* – was identical: the American Glass Works. Two firms were located in Pennsylvania, a third in Virginia and West Virginia. The AGW mark appears to have been used by both firms, although the slightly longer logo (AGWL) was used exclusively by one of the Pittsburgh plants.

Histories

Southern Glass Co., Richmond, Virginia (1899-1907)

The American Glass Works, Inc., grew out of the Southern Glass Co. at Richmond. Southern Glass was listed at least as early as 1899, making bottles at a single, 12-ton tank. The plant made liquor, proprietary, and packers’ ware by at least 1904, with John S. Bordner as president and Peter Astryke as secretary and treasurer (Grant 1989:88-89; Roller 1998a; von Mechow 2021).

On June 18, 1907, the *Baltimore Sun* reported that the owners of the factory, “residents of Alexandria and northern cities,” had sold the Southern Glass Works to Fritz Sitterding of the Home Brewery Co. along with C.F. Sauer and S.B. Dubstan of the C.F. Sauer Co. on June 17. The paper added that “the new owners will increase the force and output as soon as possible. Most of the product of the plant will be taken by the Home brewery and the Sauer Company for bottling their products.”

American Glass Works, Inc., Richmond, Virginia (1907-1925)

Incorporated on July 31, 1907, the American Glass Works, Inc., made “bottles by the thousands,” including extract bottles for another company owned by C.F. Sauer, the president of

the corporation.¹ Initially, the plant produced mouth-blown bottles at the continuous tank (with nine rings) that the firm had acquired from Southern Glass. The plant was listed in 1913 as using one continuous tank with ten rings to make a general line of bottles and was making bottles by both hand and machine processes at one tank with ten rings by 1916 (Bottom 1907:150; Grant 1989:88-89; *Journal of Industrial and Engineering Chemistry* 1913:954; Roller 1998a).

Bratcher (2011) noted that the Richmond plant received O’Neill machines at some point between 1921 and 1924, and the *Glass Industry* (1921:178) confirmed that the Richmond plant received a semiautomatic machine in 1921. That year, the plant produced beer, soda, wine, and brandy bottles. By 1923, however, the factory made prescription, panel, patent, and proprietary medicine bottles, milk bottles, and soda bottles – all at the same 10-ring tank (Grant 1989:88-89; Roller 1998a; Thomas Publishing Co. 1921:782). The 1925 Sanborn Fire Insurance map showed the plant at the intersection of Hospital St. and Valley Rd. with a sidetrack leading to the nearby rail yard. The map noted that the plant “runs day and night” (Figure 1).

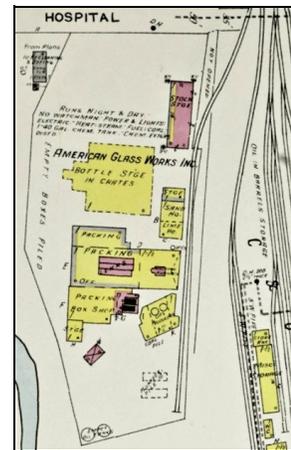


Figure 1 – American Glass Works (Sanborn map 1925)

On March 30, 1929, the *Danville Bee* reported that the Richmond plant of the American Glass Works burned early in the morning of the previous day. Although several employees were working at the time, all escaped without injury. Virtually everything was destroyed. Grant noted that Sauer never rebuilt the factory, although the *Richmond Times-Dispatch* made it clear on January 21, 1926, that Sauer had requested a permit for rebuilding. It is almost certain, however, that Sauer continued to operate an office for the glass business at Richmond; ads continued to mention Richmond until at least August of 1930. But, we have discovered no evidence that the plant was ever rebuilt.

¹ The C.F. Sauer Co. was founded in Richmond, Virginia, on October 13, 1887, and remains in business today. The American Glass Works, Inc. made Sauer’s Extract bottles and possibly other containers for the firm.

American Glass Works, Inc., Paden City, West Virginia (1917-ca. 1935)

According to the *Richmond Times Dispatch* (8/30/1917), C.F. Sauer announced on August 29, 1917, that he had purchased the Duquesne Glass Co., at Paden City, West Virginia. The plant had two tanks, both in operation. Meanwhile, Duquesne Glass moved to Hawthorne, Pennsylvania. Despite the sale, listings for Duquesne continued at Paden City into the 1920s (von Mechow 2021). The operation made pharmaceutical bottles as well as liquor bottles, flasks, and soda bottles (Six 1993:6). After the Richmond plant burned in 1925, the Paden City factory was the only production unit. The factory made “flint prescriptions, sodas, vials, patent, proprietary, liquors and flasks,” all by machine, at two continuous tanks with six rings (*American Glass Review* 1927:125).

Sauer (2006) claimed that the destruction of the Richmond plant caused the owner, C.F. Sauer, to sell the Paden factory. However, there is a much more likely explanation. Cuno F. Sauer died on November 23, 1927, followed just five months later by Frederick Sittering (April 4, 1928). Although each of these founders had a son (Conrad F. Sauer and Frederick Sittering, Jr.), neither of these offspring were involved in the the reorganization of 1929.

On March 15, 1929 – four years after the fire – the company was reorganized as a West Virginia corporation. Although the new firm continued to operate under the American Glass Works name, the lineup of incorporators was quite different: David I. Fisher, Charles Ray, E.F. Schaffer, C.M. Garnett, and Walter Smittle – all local West Virginians. Fisher – formerly involved with the New Martinsville Glass Mfg. Co. and the Paden City Glass Co. – was the new president with William J. Ready as vice president (Roller 1998b).² This almost certainly represented a withdrawal of the Sauer and Sittering families from glass business.

The new firm changed the production output to prescription, druggists’, and proprietary ware, made at two continuous tanks with four machines. The plant added a fifth machine in 1931 and included “flint specialties” in the listing, although that changed to “flint beverages and specialties” in 1933. In 1936, the company was “in hands of court”; it was listed as “idle” in

² According to Roller (1998a) and Six (1993:6), the name changed to the American Glass Co. in 1929, but that is not supported by other sources.

1938 and had disappeared from the 1939 listing (*American Glass Review* 1929:93; 1930:85; 1931:79; 1933:61; 1936:87; 1938:73).

However, there is a sequel to the story. When David Fisher died on May 21, 1933, his son, Samuel W. Fisher, gained control of the corporation. Not only did the younger Fisher shift the corporate control – with himself as president, W.J. McCoy as vice president, John J. McCay as secretary and treasurer, and George Danner as plant manager – he also shifted production away from containers to tableware. The new firm apparently opened a new plant and became the Paden City Glass Mfg. Co. Robie (n.d.) provided photos (Figure 2). A 1934 glass factory directory listed the products as “plain and decorated tableware, tumblers, pressed stemware, soda fountain goods, cut glass, colored glass, novelties and specialties, illuminating ware, opal ware, hotle, bar and restaurant glassware, and etched ware.” The company purchased the old American Glass Works plant in 1949, but that over stripped its financial ability, and the firm ceased operation in 1951 (Retro Art Glass 2015; Roller 1998b). David Fisher was also involved as an officer with the Paden City Glass Co. (*not* related to the the Paden City Glass Mfg. Co.) from 1916 to his death in 1933.



Figure 2 – Paden City Glass Mfg. Co. (Robie n.d.)

Containers and Marks

According to Roller (1998a), the American Glass Works, Inc., registered a trademark for “Big Boy” on glass bottles on March 17, 1925, but we have never found any bottles with that embossing. The firm claimed first use of the logo on January 1, 1924.

Circle-A (1907-ca. 1913)

Toulouse (1971:42) noted that the American Glass Works was “reported to have used an ‘A’ in a circle as a trade-mark . . . undocumented as yet.” We have observed several small, colorless, pumpkinseed flasks embossed with a Circle-A on their bases (Figure 3). None of these had any embossing on the sides of the flasks, but all were mouth blown.

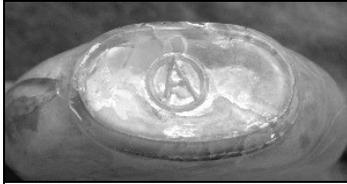


Figure 3 – Circle-A on the base of a pumpkinseed flask

We also observed and photographed a colorless medicinal bottle at the University of Wyoming (Laramie), embossed on the base with a Circle-A logo (Figure 4).

Note especially the apparent rough place at the joint of the heel and the base, just below the Circle-A logo in



Figure 4 – Circle-A on a medicinal base (University of Wyoming collection)



Figure 5 – Medicine bottle (Circle-A) (University of Wyoming collection)

The bottle was mouth blown with a crude, one-part finish. Finish, neck, and overall appearance are *very* similar to the Sauer’s Extract bottle discussed in the Medicine Bottle section below (Figure 5). Although we do not know what types of bottles were initially made by American Glass, the preceding company, the Southern Glass Co., made liquor ware, and American Glass made “brandy” bottles. Thus, the Circle-A may have been the initial mark used by American Glass and should be dated 1907-ca. 1913.

Wilson and Caperton (1994:58) listed a ½ pint “ShooFly” flask excavated at Fort Selden. They reported the flask embossed on the base (Figure 6) with “C 6A above an A in a circle. The fort was occupied from December 1880 to May 1888 (with a small detachment remaining until 1890), indicating that the flask was probably made during that period.

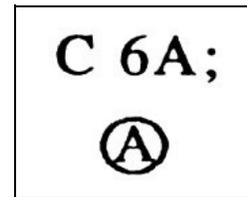


Figure 6 – Notation from Wilson & Caperton (1994:58)

Wilson and Caperton did not mention any post-military occupation of the fort until the 1940s. This somewhat cryptic notation suggests that at least one much earlier bottle used the Circle-A logo (see Discussion and Conclusions).

AGW (1907-1935)

Toulouse (1971:42) stated that “this mark has been claimed for the Richmond Company but without documentation. [Bottles] would be machine-made for the most part.” Although the mark was also used by the American Glass Works at Pittsburgh (see that section), there is no question that it was also used by the American Glass Works, Inc., of Richmond and Paden City.

Soda Bottles (1907-ca. 1916 by hand; ca. 1916-1929 by machine)

Porter (1995:5) noted that this mark appeared on straight-sided Coca-Cola bottles (made before the world-famous hobble-skirt design became popular in 1917). He attributed the mark to the American Glass Works, Ltd. of Pittsburgh. However, he also observed the mark on a hobble-skirt bottle. The A.G.W. logo has been reported on straight-sided Coca-Cola and Pepsi-Cola bottles auctioned at eBay as well as hobble-skirt Coke bottles (Figures 7-10).



Figure 7 – Ice-blue Coca-Cola bottle (eBay)

Numerous examples of crown-finished soda bottles with A.G.W. basemarks have been offered for sale on eBay. By far, the majority of these were used by soda bottlers in the American South. There is little question that these bottles were made by the American Glass Works, Inc., Richmond and Padon City. The mark almost always contained punctuation.

American Glass apparently used a numerical code system similar to the one used by D.O. Cunningham (see Cunningham family glass companies section) and some other soda bottle makers. In all cases we have discovered, each mouth-blown container had two- or three-digit numbers embossed below the A.G.W. logo (e.g., A.G.W. / 133). Some of these had double-stamped bases (Figure 11). See the section on the American Bottle Co. for a discussion about double-stamped bases. A single example (a Pepsi-Cola bottle used at Newport News, Virginia) had no accompanying number. Another mouth-blown example (amber, used by a bottler in Pittsburgh) had an A.G.W. heelmark. Machine-made bottles were embossed with a one- or two-digit number, a dash, then a single-digit number, beneath the mark (e.g., AGW / 67- – Figure 12).



Figure 8 – Ice-blue base (eBay)



Figure 9 – Pepsi-Cola bottle (eBay)



Figure 10 – Pepsi-Cola base (eBay)



Figure 11 – Example of a Richmond-made, mouth-blown soda bottle base (eBay)

Mouth-blown bottles were made from the inception of the company in 1907 to at least 1916, although probably not long after that. The general transition from mouth to machine, at glass houses that specialized in soda bottles, took place between ca. 1913 and ca. 1920, with most using machines by ca. 1916 or earlier. The first listing we have for machine



Figure 12 – Example of a Richmond machine-made soda bottle base (eBay)

manufacture at the American Glass Works was 1916, although it could have occurred slightly earlier. Soda bottle production almost certainly ceased in 1929, and listings as early as 1927 were only for “flint” bottles. Although some soda bottles were made again from 1933 to ca. 1935, these, too, were colorless.

Dr. Hostetter’s Stomach Bitters

Ring (1980:255) noted an AGW / B mark on the bases of some bottles of Dr. J. Hostetter’s Stomach Bitters (Figure 13). S. McKee made the first embossed Hostetter’s bottle in 1858, and the embossed containers continued in production by various glass houses until at least 1912. The Hostetter family reduced the potency of the product to 25% alcohol after the Pure Food & Drug Act of 1906, although the alcoholic content increased again at the end of Prohibition. They renamed it Hostetter Tonic until it was discontinued in 1958 (Fike 1989:36; Lindsey 2013; Wilson & Wilson 1969:34-38).



Figure 13 – Hostetter’s bottle (eBay)



Figure 14 – Hostetter’s base with AGW logo (eBay)

Several AGW-marked bottles have been offered at eBay auctions. Each was embossed with the logo horizontally across the center of the base, usually without visible punctuation (although one had distinct periods after each letter). Although a single example had the logo alone (Figure 14), most were accompanied by a letter below the mark. Along with Ring’s example of

“B,” we have seen “D,” “J,” “K,” and “X” – and some of these were double-stamped (Figure 15). It is likely that many if not all letters were represented.

According to Richard Siri (personal communication 2/13/2010) all Hostetters with AGW logos had tooled finishes, and many had double-stamped bases. Although used by a couple of glass houses as early as 1890, this phenomenon is associated with the period between ca. 1895 and ca. 1915. Our eBay searches have confirmed both phenomena.



Figure 15 – Hostetter’s base embossed “AGW / J” in a double stamp (eBay)

Jay Hawkins (personal communication, 2/6/2010) stated that Hostetter’s bottles with the AGW mark were dug by collectors at Pittsburgh in contexts “(ca. 1865-1875) with earlier pontiled bottles and other Pittsburgh marked Hostetters.” Unless these are very disturbed contexts, this does not fit with the manufacturing techniques (e.g., tooled finishes and double-stamped bases) observed on the bottles. While noting Hawkins’ concern, we maintain that the Richmond company made the bottles between 1907 and ca. 1915.

Medicine Bottles

Griffenhagen and Bogard (1999:45) agreed that the mark was used by the Richmond factory on pharmacy bottles:

A design for a graduated oval prescription bottle was patented by William J. Ready of Richmond, Virginia, on 27 September 1927, and assigned to the American Glass Works in Richmond. The machine-made bottles were marked *Patd 73540* in the base. After the expiration of the seven-year design patent, the bottles were marked *A.G.W.*

The authors were correct about the patent (filed March 30, 1926). Note that the firm was still incorporated in Virginia, even though that factory had burned and not been rebuilt. The actual bottle may not have been made by the company until after the 1929 reorganization, when Ready became vice president (Figure 16). This patent number may be the only way to determine any of the later bottles made by the Paden City factory.

Griffenhagen and Bogard were probably incorrect, however, about the use of the A.G.W. mark after the patent expiration. All examples of the logo that we have seen on medicinal bottles were on mouth-blown – not machine made – containers. Any bottles made after 1927 (probably earlier) were certainly machine made. It is, of course, possible that we have not discovered any that were machine manufactured.

Sauer's Extracts

As noted in the Histories section, the American Glass Works was originally formed to manufacture Sauer's Extract bottles.

Embossed bottles went through at least four manufacturing stages at the American Glass Works, at least two styles produced by the Owens-Illinois Glass Co., and finally evolved into a generic bottle, only identified by the paper label. I have identified these below as Types I-VII.

Type I

Type I is actually the bottle described in the Circle-A section (see Figures 4 & 5). We have included it here because it may have been the original Sauer's bottle. See the Discussion and Conclusions section for our reasoning. The main characteristics are a tooled, one-part "packer" finish (squared top & bottom); a distinct lean to the neck; panels with no indentations; and the Circle-A logo on the base.

All but one of the Sauer's bottles (that were likely made by the American Glass Works) we have examined – regardless of type – have two characteristics on the base that are very diagnostic. One characteristic is a fin – a small protrusion of glass at the joint of the base and heel – always on the same side of the bottle (Figure 17). The second is a very faint oval on the base that is pulled out of shape toward the fin (Figure 18). See Discussion and Conclusions for a more thorough explanation.

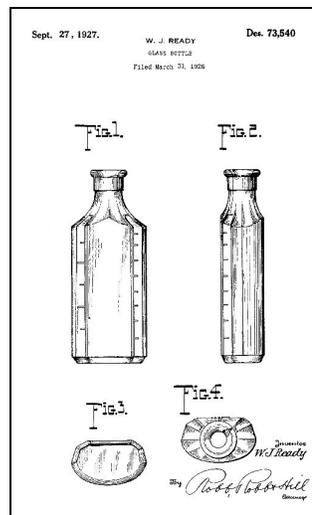


Figure 16 – William J. Ready's 1927 patent



Figure 17 – Fin at the intersection of the base and heel



Figure 18 – Faint oval on base

Type II

We have two examples of this bottle type. The bottles were



Figure 21 – A.G.W. / Y-13 on Sauer's Extract base

somewhat crudely mouth blown into a two-leaf mold and were rectangular in cross-section, with sunken panels on three sides. The side panels were indented at a slant (Figure 19),



Figure 19 – Slanted side panels

and both were embossed “SAUER’S EXTRACTS” with somewhat crude letters (Figure

20). One base in our sample was embossed

“A.G.W. / Y-3”



Figure 20 – SAUER’S EXTRACT – side panel (sunken)

and had vent marks on all four

corners of the base and the shoulders; the other had no manufacturer’s mark or codes.

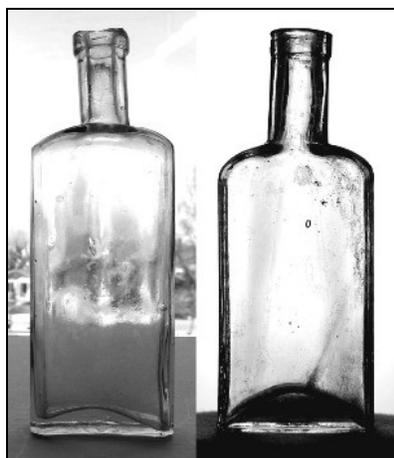


Figure 22 – Comparison of Type I Circle-A bottle (left) and Type II A.G.W. bottle (right)

Note in Figure 21 the fin just below the “Y-3” – where the heel joins the base. Each of these bottles had both the diagnostic fin and faint oval. Each bottle was topped with a squared, one-part “packer” finish and was so poorly made that the neck listed to one side (Figure 22). The bottles ranged in color from a solarized light amethyst to a smoky hue.

Type III

This was actually a major change in style – to ball-neck panel bottles (Figure 23). The “ball” was an embossed ring around the neck set about a quarter of the way up between the shoulder and finish. All four faces had sunken panels,³ and the two side panels were still slanted although the “SAUER’S EXTRACTS” embossing was much higher in quality. The bottles were still topped with the tooled “packer” finish, although the lower edge was now rounded. Two

³ These panel bottles were a real rip off to the customers. The internal silhouette of Figure 11 shows panels so close together that there was hardly any room for liquid inside. The outside shape of the bottles was incredibly deceiving; the bottles only held a half ounce of liquid.

bottles in our sample had slightly slanted necks – a product of continued hand manufacture in two-leaf molds. Paper labels on these were only glued to one face (Figure 24).

The bottles were colorless, although some had solarized to a light amethyst hue. Although most of these bottles exhibited the same basal characteristics (fin and faint oval), a single example did *not* have the fin (Figure 25). In this example, the oval was *not* drawn to the fin side of the base (see explanation in the Discussion and Conclusions section). A major change was in the basal embossing, which consisted of a letter and a number, sometimes with a hyphen in between. Examples include “A - 4,” “F 7,” “M 7,” “O-6,” and “O 1.”



Figure 25 – Sauer’s ball-neck panel base *without* the fin



Figure 24 – Sauer’s paper label (eBay)



Figure 23 – Sauer’s ball-neck panel bottle (Type III)



Figure 26 – Type IV A.G.W. bottle

Type IV

This variation was also a ball-neck panel bottle, mouth blown into a two-leaf mold – but this bottle had a two-part (double-ring) finish (Figure 26). The side panels, both embossed

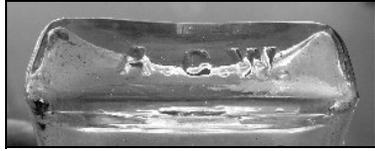


Figure 28 – Base of later Sauer’s bottle – A.G.W.

“SAUER’S EXTRACTS,” were *not* sunken – thus the lettering stands out to form a hand grip (Figure 27). The manufacture was less crude, although the fin and faint oval were still present. The base was only embossed “A.G.W.” – no letter or number (Figure 28).



Figure 27 – SAUER’S EXTRACT – side panel (not sunken)

Type V



Figure 29 – Body of 1936 bottle, showing finish

By at least 1936, Sauer bought bottles from the Owens-Illinois Glass Co. – possibly because the Paden City plant was now closed. This example was a ball-neck bottle with four sunken panels and a packer finish (Figure 29). Each side panel was sunken on the lower edge only (forming a slope instead of a complete indentation) and was embossed “SAUER’S EXTRACTS.” The base was embossed “4 <0> 6”⁴ – although the “6” appears to have been drilled and re-engraved, suggesting that the mold was also used earlier – probably in 1935 (Figure 30).

One of these bottles – offered on eBay – had a base embossed “2 <0> 9,” a code for 1929 or 1939. The edges of the finish were more rounded on this example. This was likely one of the



Figure 30 – Base of 1936 Owens-Illinois bottle for Sauer’s

very early bottles made by the Owens-Illinois Glass Co. – shortly after the merger that created the firm in August-September 1929. Since this was the same style bottle used by Sauer in 1936, we can deduce that these containers were used during the 1929-1936 period.

⁴ The <0> symbol represents the I-in-an-oval-superimposed-over-an-elongated-diamond logo used by the Owens-Illinois Glass Co. between 1929 and ca. 1960.

An eBay auction offered another bottle of this type – with a paper label. The front label announced “SAUER’S / IMITATION /



Figure 32 – Sauer’s paper label – back

PINEAPPLE / FLAVOR.” The back label bragged about the ingredients and how the flavoring could best be used (Figures 31 & 32).



Figure 33 – Unembossed base (eBay)

Unfortunately, the photo of the base was too indistinct to tell the markings. At least some of these bottles had unembossed bases (Figure 33).

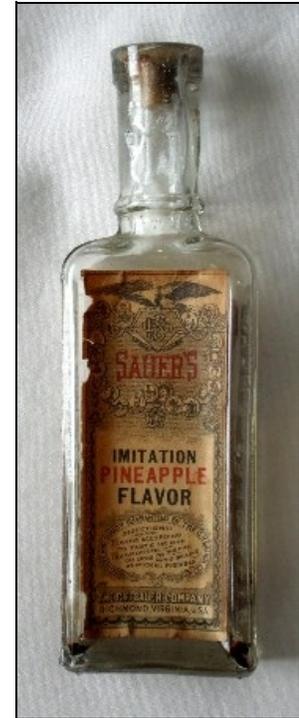


Figure 31 – Sauer’s paper label – front

Type VI

The final bottle in our sample was also made by Owens-Illinois. It was another ball-neck bottle with only the front panel slightly sunken (Figure 34). The Sauer’s embossing on the side panels stood out and formed a good gripping surface because the panels were not recessed. The finish was a double ring, but the lower ring was larger, looking more like a shrunken reinforcing ring on a crown finish. The base was embossed “2 <0> 7 5 (with the “5” sideways)” – and the “7” (1937) again appeared to have been drilled and redone.

Type VII

At some point, Sauer began using generic bottles with paper labels. We have not discovered when the change occurred, although it must have been after 1937. A second change may have occurred simultaneously – the replacement of the cork with a screw cap. Although used as much as 70 years earlier on wide-mouth bottles and jars, the



Figure 34 – Body of 1927 bottle, showing finish

continuous-thread finish began to appear on small-mouth bottles ca. 1923 and became fairly common by the end of the 1920s. Because of this industry change, Sauer may have switched to both generic bottles and screw-top caps at the same time.

Sauer's Spinoffs

As with many other successful products, Sauer had at least one imitator. The bottle was colorless, oval in cross-section, and mouth blown into a two-leaf mold. It had a ball neck with a flattened panel on the back side and a sunken panel on the front. The front panel was embossed "SOUDERS / FLAVORING / EXTRACTS / DAYTON / OHIO" (Figure 35) At least one eBay seller did not read the label well and sold imitation bottles as being from Sauer.

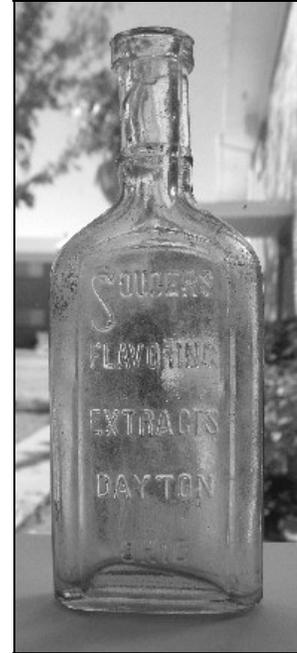


Figure 35 – Souder's Flavoring Extracts – a Sauer's spinoff

Other Bottles

Although other listings were more specific as to product, a 1913 study stated that the American Glass Works made a general line of bottles. Although there is little question that soda and medicinal bottles were the main products from the factory, we have found two other container types (aside from Hostetter's bottles) that were virtually certainly manufactured by the American Glass Works factories at Richmond or Paden City.



Figure 36 – Edison Ink bottle (eBay)

One eBay auction featured a colorless ink bottle embossed "ACW / 230" on the base and "EDISON / FOUNTAIN PEN INK / PETERSBURG, VA." on the side (Figure 36). Although the base logo used a "C" instead of a "G," the Virginia location of the company, coupled with the typical mark/code configuration, suggests that the basemark was an engraver's error (Figure 37). The second bottle was a colorless Warranted Flask embossed "AGW / 158" in a double-stamped

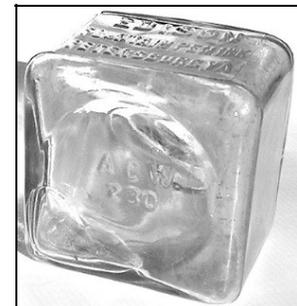


Figure 37 – Base of Edison Ink bottle (eBay)

basemark. Neither set of photos showed any sign of machine scars on the bases or horizontal seams on the finishes. Thus, the bottles were probably mouth blown.

Discussion and Conclusions

Although we still have not located any documentation for the beginning of Richmond's Southern Glass Works, we have established much more clear dates for the remaining important shifts in the operation of the plants and firms involved:

ca. 1899 – Southern Glass opened at Richmond, Virginia

1907 – C.F. Saur and his associates gained control of the factory, renaming it as the American Glass Works

1917 – Sauer bought the Duquesne Glass Co. plant at Paden City, West Virginia

1925 – The Richmond factory burned

1929 – Sauer sold the firm to a new corporation, operating under the same name

ca. 1935 – the American Glass Works closed

Virtually every aspect about identifying logos and applying dates related to this company requires explanations. Both logos identified with this company were also used by at least one other glass house. However, in both cases, there are distinguishing features that make the identification of bottles made by *this* American Glass Works virtually certain. Each mark needs to be discussed separately.

Circle A

The Circle-A mark is best known for its use by the Armstrong Cork Co. after Armstrong purchased the Whitall Tatum Co. in 1938. *All* of those bottles were machine made. The Toulouse reference that American Glass was “reported to have used” the Circle-A mark at least suggests that someone, probably in the Virginia area, made the connection during the period when Toulouse gathered his information.

The only actual evidence that the American Glass Works used the Circle-A mark is the strong similarity between the medicinal bottle we photographed at the University of Wyoming

(UW) and the Sauer's Extracts Type II bottle (embossed A.G.W. / Y-3) that was certainly made by the American Glass Works. Both the UW medicinal panel bottle and the pumpkinseed flasks were crudely made and mouth blown.

Probably the best evidence for the use of the Circle-A logo by American Glass is the fin of glass protruding from the center of the joint where the heel met the base just below the logo. This fin was present on all but one of our current sample of these bottles and varied in size. The fin can be easily felt with a finger and is visible on the photos of the medicine bottle with the Circle-A mark and others in our sample – including two with the A.G.W. logo. In all but one case, the fin was in *exactly* the same place (Figure 38).



Figure 38 – Comparison of fins on bases

These fins are fairly common, especially when molds were used too long and began to wear out. They are especially common at shoulders and side seams of bottles, although only bottles that are rectangular in cross-section appear to have the fins on cup-bottom seams (such as the Sauer examples). On his “Bottle Body Characteristics & Mold Seams” sub-page, Lindsey (2013) described the process:

Bottles blown in loose fitting molds can result in glass being forced or extruded into the mold seams. This is evidenced on a bottle by distinctly thickened mold seams or mold seams that project distinctly outward from the body of the bottle. Extreme examples of these glass extrusions usually broke off with handling leaving a rough edge to the mold seam. This feature is observed typically near the base on the lower sides of a bottle or at the junction area between the shoulder and neck. Bottles with this feature are virtually always mouth-blown.

According to Russ Hoenig, the fins on rectangular bottles at the base-heel junction stem from the hinge pins or mold arms. A loose or worn pin, for example, can cause one mold half to ride up over the edge of the baseplate. This friction, of course, wears away the metal over time, creating the conditions described above. Repairs for this type of issue were difficult, so American Glass probably ignored the problem as long as it could. Other technical issues that could cause the creating of the fins, but those are beyond the scope of this article.

In each of these bottles, there was also an unusual mark in the center of the base – a faint oval (see Figure 25). This was not a machine scar; each of these bottles was mouth blown into a two-leaf mold. In all but one case, this oval was stretched in the direction of the fin.

To understand these markings requires a review of the process whereby a bottle is blown into a two-leaf mold. This process consisted of two parts. First, the blower (or his assistant) went to the pot inside the furnace and gathered a small gob of glass on the end of his blowpipe. He blew a puff of air to expand the gob, then rolled it on a marver (a steel table) to form a cylinder. This was called the parison or blank.

The blower then placed the parison inside the open mold and either closed it with a foot pedal, or a mold boy closed the mold for him. He then blew the bottle into its final shape, allowed the gaffer to attach a snap-case, and broke off the blowpipe. The gaffer reheated the neck and formed the finish (also called “lip” or “top”) of the bottle with a special tool.

Since the blowpipe was long, and the mold was small, placing the parison in the center of the mold could be a problem. One solution, apparently used by these blowers, was to lower the parison until it rested on the baseplate of the mold prior to closing the two leaves (sides) around it. Placing the parison on the baseplate flattened the bottom of the parison. Since the mold was slightly colder than the glass, it also “set” the circular flat bottom a bit – creating a circular scar or mark.

When the blower added the final puff of air, the parison inflated into the rectangular mold forcing the glass to expand toward the sides farthest away from the center – elongating the circular “scar” into an oval. Since the opening that created the fin acted as a vent, it drew the side of the oval toward the protrusion that would become the fin in the completed bottle.

In addition, the oldest bottles (including the one with the Circle-A logo on the base) had necks that tilted to one side. This was probably caused by excessive heat or pulling the finishing tool to one side. In any event, the relative consistency became another diagnostic characteristic.

These bottles were *not* made in the same mold. As noted above, these bottles were made in at least four distinct types, and at least four different sizes were represented. The only logical

explanation is that the technique for making these molds, coupled with the process used by the blower, created both the fins and the oval marks on the bases. It makes sense that the same machine shop would make all of the molds for the American Glass Works at Richmond (and possibly Paden City) – and the blowers would use the same (or at least a similar) manufacturing processes. In addition, it is reasonable to assume that the gaffers would use similar finishing techniques – creating the leaning neck.

The designation is somewhat questioned by the “ShooFly” flask with a Circle-A mark, excavated at Fort Selden. The fort was occupied from December 1880 to May 1888 (with a small group continuing until 1891), indicating that the flask was probably made during that period. However, the designation on the listing (“C 6A;” over a Circle-A) is cryptic at best. Although we cannot explain the entry, we do not consider this sufficient to seriously question the idea that the Circle-A logo was used by the American Glass Works or Richmond – as its earliest mark. The early presence of the logo probably means it was also used by a different glass house, possibly as a code requested by the filler of the bottle.

A final interesting point is that all the Sauer’s Extract bottles we have examined, prior to the ones made by the Owens Bottle Co., were mouth blown into a two-leaf mold. Either we are missing a large sample of the bottles; or, the American Glass Works made generic bottles for Sauer after the plants achieved machine capacity; or, all the Sauer’s bottles were only produced by hand methods.

The Richmond factory had machine capacity by at least 1916, although it continued to make bottles by both hand and machine methods until the plant burned in 1925. The early listings for the Paden City, factory, however, included prescription and patent medicines as products but only noted machine production. This suggests that all the mouth-blown bottles we have currently examined were made in Richmond between 1907 and 1925.

These observations bring up more questions than they answer and should guide the direction of future research into these fascinating bottles. What we need is a larger sample of Sauer’s Extract bottles. One anonymous collector noted that Sauer’s bottles were so common at Richmond that diggers threw them back in the holes. If Richmond production of the bottles ceased at 1925, and the next bottles we find (in our current sample) began in 1929, what

happened during the intervening period? Did Sauer, indeed, use generic bottles with paper labels for the next four years? Only future research at Richmond (or enough auctions at eBay) will tell.

AGW

The AGW logo is even more contentious than the Circle-A mark. AGW was used by at least three glass houses in the U.S. and one in British Isles. Toulouse (1971:41) noted that the Alloa Glass Works of Scotland used the A.G.W. mark on glass containers from 1900 to at least 1971. However, we have not seen any bottles, either in person or on eBay, that could be matched to such a venue.

We have observed a single example of a flask from the ca. 1870s era, with an applied finish and “AGW” embossed on the base. This was most likely made by the Arsenal Glass Works (1865-1868) or Aetna Glass Works (1869-1870). These bottles should be easy to distinguish from those used by other factories by the applied finish and post-bottom base. See the section on Arsenal/Aetna for more information.

At this point, the only bottles with the A.G.W. mark that can be attributed to the American Glass Works at Pittsburgh are on the heels (occasionally bases) of Hutchinson bottles – but these were used all over the U.S. See the section on the American Glass Works, Pittsburgh or Lockhart et al. (2012). Numbers or letters embossed below the logo almost certainly indicate a manufacture at Richmond or Paden City; these numbers/letters are not found on the Pittsburgh bottles. Other recognizable traits are crown finishes, machine-made bottles, and generally the logo on any non-Hutchinson bottles.

All AGW marks on bottles used for Sauer’s Extracts, of course, were made by the Richmond glass house but probably not at Paden City. All listings we have found for the Paden City plant only mentioned machine production – but all Sauer bottles, prior to the ones made at Owen-Illinois, were hand manufactured. However, Paden City may have produced generic bottles (used with paper lables) for Sauer – with no manufacturer’s marks – during the four years between the fire and the sale of the Paden City plant to a different group in 1929 (the year Owens-Illinois began production of Sauer’s bottles).

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