

## **American Glass Work, Ltd. and American Glass Works, Pittsburgh**

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with Contributions by Jay Hawkins

[Most of this section was originally published in *Bottles and Extras* as “American Glass Works, Ltd. and American Glass Works, Pittsburgh” (Lockhart et al. 2012).]

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. One firm was located in Pennsylvania; the other had branches 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 the Pittsburgh plant.

### **Pittsburgh**

Glass making began on the East Coast because that was the original population center. Gradually, the production of bottles and other glass products spread westward, fueled by two main issues: population and fuel (pun intended). In the 18<sup>th</sup> century, the bulk of the population lived near the coast, so there was no need for glass factories at any other location. As western migration increased, so did the need for glass products and nearby factories to make them.

Initially, the primary fuel source was wood. As the eastern woods became increasingly denuded around glass plants, the firms sought other sources. One of these, coal, was abundant in the areas not far from Pittsburgh, and natural gas was discovered in the vicinity. Pittsburgh became one of the major glass production areas during the 19<sup>th</sup> century

Initially, the glass plants and companies were small, but, as population grew, and additional modes of transportation became available, both the numbers and size of the glass factories grew, especially after the Civil War. In 1803, for example, Pittsburgh factories produced only \$13,000 worth of glass. By 1850, however, production had risen to an even million dollars, and output climbed to \$14,276,228 by 1902 (Hawkins 2009:xii). One of the larger producers of glass bottles was the American Glass Works. Also see Hawkins (2009).

## History

### American Glass Works, Pittsburgh (ca. 1865-1888)

Page, Zellers & Duff (Benjamin Page, Theodore Zellers, and Sardis T. Duff, William S. McKee [special partner]) built or purchased a glass factory at Railroad & Jane Streets, Birmingham, ca. 1865 (Figure 1). By 1868, they advertised their plant as the American Glass Works (Figure 2). Although we have found no other references for the American Glass Works name connected with Page, Zellers & Duff or their successors, the name may have continued as the factory identification, although the operating companies used the names of the partners involved.

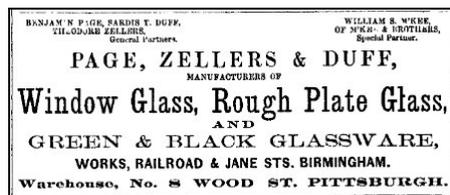


Figure 1 – Page, Zeller & Duff ad (1866 City Directory)

By 1872, the operating entity was Duff & Campbell (Sardis Duff and Terrance Campbell), and that lasted until ca. 1881, when Duncan, Campbell & Co. (B.S. Duncan, Terrance Campbell, and James O’Conner Campbell) took over. The *Pittsburgh Post-Gazette* (8/22/1883) reported that the partnership of Duncan, Campbell & Co. dissolved on August 1, 1883, because of the death of B.S. Duncan. The two Campbells continued to operate as T. Campbell & Co., retaining that name after the death of Terrance Campbell on August 31, 1883. Under the leadership of James Campbell, son of Terrance, the firm remained in business in Pittsburgh until Campbell reorganized the firm in 1888 and built a new plant at Blair Station in 1892 (*Pittsburgh Weekly Gazette* 5/22/1904). During this entire period, the firm specialized in the production of window glass (Hawkins 2009:24-25).

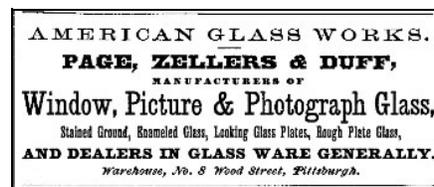


Figure 2 – Page, Zeller & Duff ad (1868 City Directory)

McKearin & McKearin (1941:611) identified the products of the plant as “window, picture, and photographic glass, looking glass, plates, rough plate glass, stained and enameled glass.” About July 1, 1892, the T. Campbell Co. sold the factory at 21<sup>st</sup> and Mary to D.O. Cunningham for \$40,000 (*Pittsburgh Dispatch* 7/3/1892). For more information about the firm, see the section on the Cunningham glass houses (Figure 3).

Von Mechow (2021) suggested that the firm was apparently unrelated to the American Glass Works that operated from nearby Redman Mills, and he was probably correct. However, circumstances indicate some connection between the two. The original American Glass Works plant was located at 21<sup>st</sup> and Mary Streets, Pittsburgh. Charles Leng’s glass house supply business was at 1919 Mary St., just a few doors east of the factory. Campbell almost certainly purchased supplies from Leng.

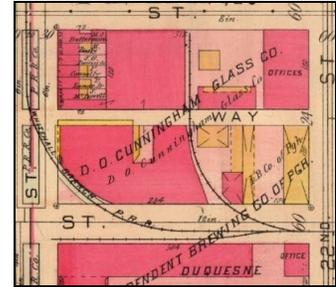


Figure 3 – D.O. Cunningham (1896 Sanborn map)

The big question is: How long did any of the operating firms use the name American Glass Works. The only reference we have found was an 1868 ad that use the name. So, it may have been discarded by the time Duff & Campbell took control of the operation in 1872. Since C.F. Leng organized the American Glass Works at Redman Mills on February 17, 1887, there probably was no close relationship between the firms.

### **T. Campbell Co., Blair Station (Clairton), Pennsylvania (1888-1904)**

On July 19, 1888, the *Pittsburgh Press* announced that J.O.C. [James O’Connor] Campbell, Matthew Campbell, John Campbell (all three brothers), J.W. Patterson, and John Good would petition the governor on July 28 to incorporate the T. Campbell Co. for “the manufacture and sale of window glass.” James O’C. Campbell, John Good, and Andrew Tuite officially disbanded the older T. Campbell & Co. a few days later, on August 1, 1888 (*Pittsburgh Daily Post* 8/14/1888). On October 7, 1891, the *Pittsburgh Daily Post* noted that “the T. Campbell Glass Company is erecting a window glass factory” at the “new manufacturing town” of Blair Station Clairton, southeast of Pittsburgh (now within the boundaries of the city) along the Monongahela River. The *Pittsburgh Dispatch* (1/10/1892) followed up that both Campbell and the O’Leary Glass Co. “have begun operations and expect to have plants in blast by next fall [i.e., fall of 1892].”

The *Pittsburgh Weekly Gazette* for April 22, 1904, cited the reason for leaving as “gas giving out and congested condition of the district in which the plant was located.” Terrance Campbell’s son, James O’C. Campbell, was “one of the principal stockholders. There are about 30 owners, some of whom are related to Mr. Campbell.”

On July 9, 1903, the corporation amended its charter to allow the factory to make “glass bottles, vials, and similar articles.” At that time, the firm purchased the bottle-blowing equipment from the American Glass Works at Redman Mills (see below). By that time, the property consisted of “one glass bottle factory, two warehouses, one pot-mixing room, and flat house, one double-frame dwelling, a railroad siding, and a blacksmith shop” (*Pittsburgh Weekly Gazette* 5/22/1904). On January 11, 1903, the *Pittsburgh Daily Post* reported a rumor that T. Campbell & Co. had sold the property at Blair Station to the Clairton Steel Co. for \$75,000, retaining the right to leave its tools at the factory for an unspecified time. By April of the following year, the firm was in receivership, heralding the end of its tenure.

### **American Glass Works, Ltd., Redman Mills, Pennsylvania (1887-1892)**

On February 17, 1887, the American Glass Works, Ltd., organized with a capitalization of \$75,000. The new plant was located at Redman Mills, Pennsylvania, “adjacent to Pittsburgh City Line on P.V. & C.R.R” (Roller n.d.; von Mechow 2021). The earliest known ad for the firm, issued in 1887, featured bottles. Similar ads ran in at least 1889, 1890 and 1892 and illustrated Hutchinson bottles that were also available with “seals or corks” as well as a variety of beer bottle styles. The 1889 ad noted a major expansion of the factory – by 60% (Hawkins 2009:30; Roller n.d.; Toulouse 1971:43; von Mechow 2021).

From the beginning, Christian Frederick “Fred” Leng was the president of the American Glass Works, Ltd., with John H. Miller as the secretary and treasurer (Roller n.d.). Miller actually owned the land where the factory was situated (von Mechow 2021). Charles Leng (the brother of Christian) was involved in patents with Christian from 1889 to 1900 and operated his own bottle-makers’ supply store (see below). As noted above, the company still advertised as the American Glass Works, Ltd., as late as 1892. However, Hawkins (2009:28-29) illustrated and described a billhead dated February 12, 1893, that lacked the “Limited” designation. Because the stationery for the new firm was in use by the middle of February, the change probably occurred sometime during 1892. As a confirmation, Von Mechow (2021) cited an 1894 document from the U.S. Senate Committee on Finance that lacked the word “Limited.”

## American Glass Works, Redman Mills, Pennsylvania (1892-ca. 1903)

Around 1892, the limited corporation was over (forever removing the “Ltd.,” “Lim.,” or “Limited” from the company name). Leng continued to operate the business in 1895, and the plant made green and amber beer, soda, and mineral water bottles, as well as packers’ and preservers’ ware (Caniff 2007:6; Hawkins 2009:27; Roller n.d.; Toulouse 1971:43). The *National Glass Budget* (1897a:7; 1897b:5; 1898:7; Roller n.d.) noted that the plant made “green and amber bottles and ‘Pittsburg flint’ [i.e., colorless glass] in one furnace of 6-pot capacity,” and that same capacity continued in the listings until at least 1901. An 1896 map showed the works and the small town

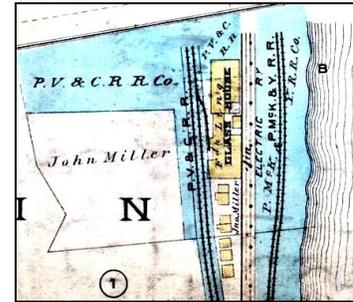


Figure 4 – Location of Leng’s factory in 1896 (Historic Map Works)

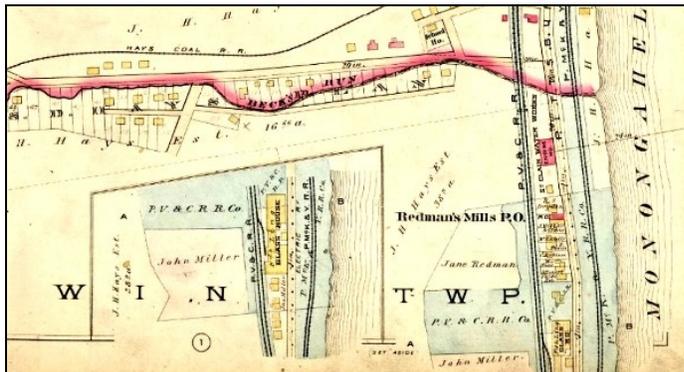


Figure 5 – Larger map of Redman Mills in 1896 (Historic Map Works)

of Redman Mills and an inset of the glass factory area. A building on the west side of the map was labeled “Fdk (with a dot under ‘d’ and ‘k’) Ling [sic] / GLASS HOUSE” with two dwellings south of the glass works marked “Jno. Miller” (Figures 4 & 5). The plant also appeared in smaller effect on the map of the town.

The plant must have undergone another fairly major change ca. 1901 (Figure 6). Fruit jars were added to the list on the billheads, and the company was listed in the city directories under “Flint Prescription.” On November 9, 1902, the *Pittsburgh Daily Post* reported that “C.F. Leng has sold the American glass works to the Pittsburgh, Charleston & Virginia Railway Company the American glass works property near Redman station . . . approximating \$300,000.” To complete the circle, Terrance Campbell & Co. purchased all the equipment from Leng. Ironically, there were no listings for T. Campbell & Co. in the glass business after 1903 (Hawkins 2009:31; Roller n.d.; 1996). Leng remained in business – after the closure of the factory – still retaining the American Glass Works name, probably selling off the remaining inventory. In 1905, he moved to New York City as a broker (von Mechow 2021).

## Charles Leng, Pittsburgh (1876-ca. 1909)

Charles Leng was listed in Pittsburgh directories under the heading of Glass Blowers Supplies at 1919 Mary St. (Figure 7). His ads (e.g., 1890) claimed that he had been in business since 1876 – 11 years before his brother, Fred, opened

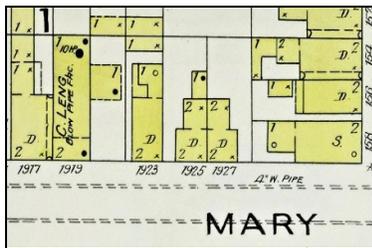


Figure 7 – Charles Leng’s shop (1893 Sanborn map)

the American Glass Works. As noted below (Patents section), the Leng brothers invented a “Method of Forming the Necks of Fruit-Jars.” in 1889, receiving their first patent that year. Prior to that time, Charles Leng – an accomplished blacksmith and machinist – probably sold blow pipes and other traditional equipment. The addition of other machinery to form finishes during the next two years added to their inventory. By 1906, Leng had expanded his business to encompass both 1919 and 1921 Mary St. (Figure 8). Leng remained in business until ca. 1909, his last listing in the directories. Charles Leng died on March 24, 1923 (*Pittsburgh Post-Gazette* 3/25/1923).

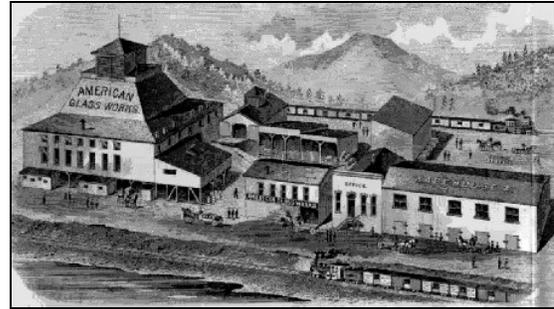


Figure 6 – American Glass Works, ca. 1903 (Roller5n.d.)

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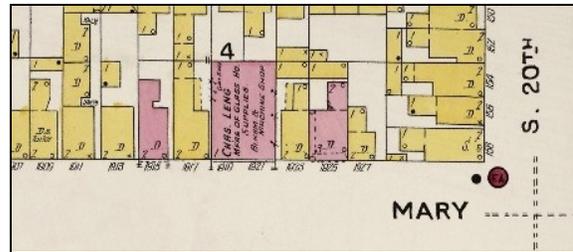


Figure 8 – Charles Leng’s shop (1906 Sanborn map)

## Patents

Brothers Christian F. Leng and Charles Leng received a number of patents, all for creating finishes on jars and bottles. They received the first of these in 1889 and continued to improve devices until 1900. In addition, Christian invented a series of bottle valves in 1914 and 1916.

## September 18, 1889

On June 6, 1889, Christian F. Leng and Charles Leng applied for a patent for a “Method of Forming the Necks of Fruit-Jars.” They received Patent No. 411,048 on September 17 of that

year (Figure 9). Although the drawing resembled typical hand-held finishing tools of the period, the two-part process was apparently somewhat different from ones used earlier.

### May 20, 1890

On February 14, 1889, Charles Leng applied for a patent for a “Bottle-Neck-Finishing Machine” and received Patent No. 428,214 on May 20, 1890. Leng assigned half the patent to Christian F. Leng, the president of the American Glass Works, Ltd. The invention appears to be a mechanized version of the hand-held finish tool that was in use during much of the second half of the 19<sup>th</sup> century. It consisted of a plug that maintained the inside diameter of the neck, while two dies fit around the outside to create the finish. The machine-driven plug and dies turned in opposite directions so that the bottle could not be accidentally revolved in such a way as to spoil the finish.

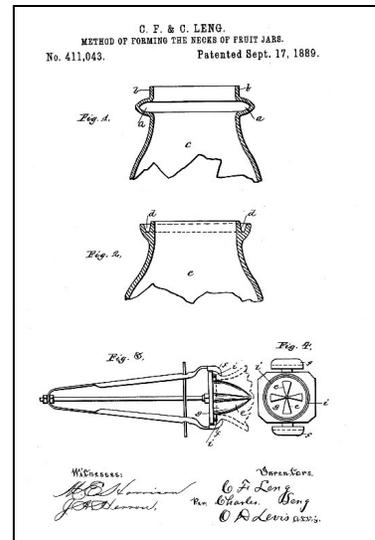


Figure 9 – Leng brothers 1889 patent

### March 18, 1890

In one of the strange sleight-of-hand maneuvers by the patent office, Christian and Charles had applied for a patent for a “Bottle-Finishing Machine” on June 11, 1888. Even though Charles had received a patent earlier in 1890 (see above) for a similar machine, this patent (No. 423,482) was not approved until March 18, 1890 (Figure 10). Although the May 20 patent is clearly a more sophisticated design, the two are obviously the same machine (or at least very similar).

### April 24, 1900

Charles applied for another “Machine for Finishing Glassware” on August 26, 1899, and received Patent No. 648,272 on April 24, 1900. He assigned half of the patent to Christian. This machine was much more

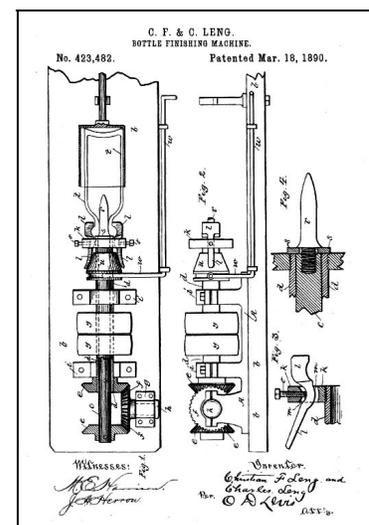


Figure 10 – Charles Leng’s 1890 patent

complex that the earlier two, and these were almost certainly the three finishing machines used by the American Glass Works in 1901 (Roller n.d.).

This version of Leng’s machine was apparently successful. Jones (1968:9) quoted an October 1892 article from the *Bottlers Gazette* that stated:

The West Virginia Flint Bottle Co., Huntington, West Virginia, glass manufacturers who began the business last season (1891) . . . a number of bottle blowing machines have been put in. The machines are the same as those that have been successfully operated by the American Glass - Works, of Pittsburgh, Pa.

The emphasis probably came from Jones – who was trying to make a different point – not from the *Bottlers Gazette*.

## Containers and Marks

### A.G.W.Co. (ca. 1871-ca. 1874 or later)

Farnsworth & Walthall (2011:58, 629-630) noted an “A.G.W.Co.” mark embossed in a circle around a small post bottom of an amber quart beer bottle (not an export beer) embossed “GIPPS, CODY & C<sup>o</sup> / PEORIA, ILL’<sup>s</sup>” on the front body. The bottle is unusual in that it had a single bead, applied finish (Figures 11 & 12). The firm was only listed under this name



Figure 12 – AGWCo on Peoria base (Farnsworth & Walthall 2011:629)

between 1871 and 1874. The researchers ascribed the logo to the earliest American Glass Works, in operation between ca. 1865-ca. 1886. Van Wieren’s (1995:89) dates of ca. 1870-1875 for Gipps, Cody & Co. support those of Farnsworth & Walthall. Although the American Glass Works was a window-glass firm during those years, the plant apparently produced a few bottles. Along with various forms of flat glass, the company’s



Figure 11 – Bottle from Peoria (Farnsworth & Walthall 2011:629)

1866 city directory ad included “Green and Black Glassware” – almost certainly indicating bottles (see Figure 1).

### **A.G.W.L. (1887-1892)**

The A.G.W.L. mark has been found on beer bottles, Hutchinson soda bottles, grooved-ring wax-sealer fruit jars, and flasks. Although Toulouse (1971:43) – as well as later researchers, such as Whitten (2013) and Von Mechow (2021) – identified the American Glass Works, Ltd., as the user of the A.G.W.L. mark, these are better discussed by individual bottle types to determine variations or placement of the marks. In the case of beer bottles, we will even discuss the export beer style separately from other beer formats.

All these bottles seem to have some attributes in common (aside from the initials). All in our sample (except fruit jars – see below) have the A.G.W.L. logo embossed horizontally across the center of the bases (or horizontally as heelmarks), although they may be in either a cup or post mold. The vast majority of these basemarks have clear punctuation – frequently slightly offset below the letters. There are two photos from eBay that appear to be lacking punctuation, but that is not otherwise confirmed (except on fruit jars).

Previously, we had only discovered tooled finishes on beer bottles beginning ca. 1890, although applied finishes were the norm on export beer bottles until ca. 1896 or later (Lockhart 2007:56). However, all photos we have seen of beer bottles with A.G.W.L. marks show no indication of any applied finishes on bottles with the A.G.W.L. mark. Admittedly, this is based on a limited sample. As noted in the patent section, however, the Lengs applied for a patent for a machine to make tooled finishes on June 11, 1888. Although they did not receive any machine patent until 1890, the plant could have begun to use one of the machines as early as the beginning of the firm in 1887, and the machines may even have been the reason for the founding of the company.

An ad by the American Glass Works, Ltd., in the June 1892 *Gazette* noted the factory as “Manufacturers of All Kinds of High Pressure Ware. . . such as Beers, Sodas, Minerals and Apollinaris Bottles, which we make in Green [i.e., aqua], Ruby [i.e., amber], Imported Green and Flint Colors.” They added, “We have a large selection of Stock Moulds, which are provided

with plain plates, upon which we can insert your name and address at a very slight cost, thus saving you the cost of a mould.” The company offered “one size stopper holes only unless otherwise ordered. No Leakers” (Putnam 1965 – Figure 13). An identical ad appeared the following year (Hawkins 2009:30).

### Champagne, Porter, and Weiss Beer Bottles (1887-1892)

The 1892 and 1893 ads from the American Glass Co., Ltd., illustrated a row of ten bottles at the bottom. These were identified as beer bottles and shown with plates on the bodies. Most of these were Champagne style, but there were also Porter and Weiss Beer bottles in the drawing.



Figure 13 – June 1892 ad (Putnam 1965)



Figure 14 – A.G.W.L. champagne beer base (eBay)

certainly made during the entire period of the “Limited” company. Ads from several glass houses during this period appear to have used generic drawings – especially of beer bottles. While the written descriptions were likely accurate, the photo may not actually reflect the products made by the American Glass Works.

Numerous archaeological studies and collectors’ books have cited the A.G.W.L. mark on the bases of beer bottles, including Herskovitz (1978:8), Kroll (1972:97), Mobley (2010), and Rigby (n.d.). The mark was consistently embossed horizontally across the center of beer bottle bases in our eBay sample (Figures 14 & 15). Some of these bottles were used by soda bottlers as well (e.g., Peters 1996:112, 125). In contrast to the basemarks from eBay, Von Mechow (2021) recorded 38 beer bottles, mostly used in the Midwest and Baltimore, although a few were from far western locations. All but one of these had AGWL heelmarks (the other, of course, was a basemark).



Figure 15 – Champagne beer (eBay)

## Export Beer Bottles (1887-1892)

Export beer bottles, designed for export to the U.S. West and foreign countries, were noticeably missing from the 1892 and 1893 ads – although the plant certainly made them. They also seem to be missing from early contexts. This *may* indicate that American Glass only made export beer bottles during its last few years of existence (Figure 16). The firm clearly solicited orders from bottlers wanting proprietary bottles (those embossed with their company names). In fact, the 1894 report to the U.S. Census Committee on Finance, specifically stated that “much of our goods is [*sic*] sold to small buyers, who order only when they are in actual need, and who have their name and registered trademark blown in their bottles” (quoted in von Mechow 2021).



Figure 16 – Export beer bottles

To place these frequencies in perspective, there were only five A.G.W.L. basemarks found at Fort Stanton, compared with 49 marked C&CoLIM (Cunninghams & Co., Lim.); 44 with DOC (D.O. Cunningham) basemarks; and 28 with FHGW (Frederick Hampson Glass Works). At Fort Bowie, there were nine with the A.G.W.L. logo; 40 with C&CoLIM; 49 with DOC; and 129 with FHGW. These small numbers in the distribution patterns suggest a limited production of export beer bottles. Herskovitz (1978:8) also noted a “1” or “2” accompanying the basemark, and Lockhart (2009; 2011) only found the number “1” at Fort Stanton (Figure 17). This lack of larger numbers in mold codes further suggests a limited production. Numerous mold codes suggest a larger number of molds, therefore a larger production (Lockhart et al. 2010).



Figure 17 – A.G.W.L. export beer base (Fort Stanton)

**Table 1 – Archaeological Contexts for Amber A.G.W.L. Basemarks**

Location	Date Range	# Bases	Citations
San Elizario, Texas	ca. 1880-ca. 1886	0	Lockhart & Olszewski 1994:39
Fort Selden, New Mexico	1865-1877; 1880-1888	0	Wilson & Caperton 1994:56-57
Fort Laramie, Wyoming	1849-1890	0	BRG 2009*
Fort Union, New Mexico	1863-1891	0	Wilson 1981:113-114
Fort Bowie, Arizona	1862-1894	9	Herskovitz 1978:8
Fort Stanton, New Mexico	1855-1896	5	Lockhart 2009:128

\* No written report, but the Bottle Research Group found no A.G.W.L. marks when we examined the collection.

### Hutchinson Bottles (1887-1892)

The 1892 and 1893 ads make it clear that the American Glass Works, Ltd., made bottles with actual Hutchinson stoppers – instead of the later imitations. Unlike A.G.W.L. beer bottles, these had the fully



Figure 18 – A.G.W.L. heelmark Hutchinson bottle (eBay)

punctuated mark embossed on heels as reported by Fowler (1986:27, 237), Miller (1999:15; 2008:40), and Peters (1996:47-48, 55, 63, 82) as well as the ones we have seen on eBay. These heelmarks appeared on either the front or reverse of the bottles (Figures 18 &

19). All date ranges given by all of these researchers fell easily within the 1887-ca. 1892 span for the use of this mark.

Fowler (2013) listed 164 Hutchinson soda bottle embossed with the A.G.W.L. logo. Most of these were embossed on the back heels, although front heel embossing was common. Not a single bottle was

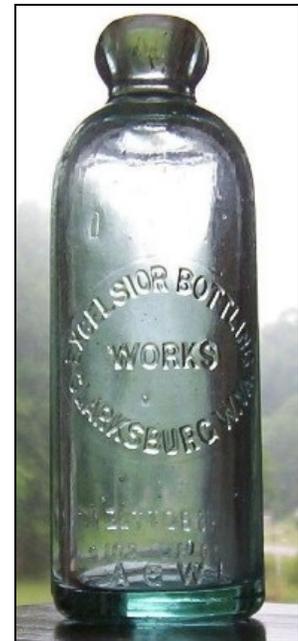


Figure 19 – Hutchinson A.G.W.L. heelmark (eBay)

embossed with the logo on the base. Many of the bases, however, were embossed with the initials of the soda bottling firm or the owner of the bottling company. Since Fowler's study was an attempt to catalog all "known" Hutchinson bottles, it is safe to say that all Hutchinson containers made by the American Glass Works, Ltd., were marked on the heels.



Figure 20 – A.G.W.L. union oval flask base (eBay)

As noted above, Champagne beer bottles also were used by soda bottlers (e.g., Peters 1996:112, 124-125). The shapes of the "beer bottles" in the 1893 ads are virtually identical with some of the soda bottle styles offered by the Illinois Glass Co. in the 1903 catalog. Hutchinson bottles also were used for both soda and beer.

### **Flasks (1887-1892)**

The A.G.W.L. mark was also embossed horizontally across the long axis of the bases of amber and aqua flasks. All we have seen (mostly eBay photos) were strap-sided (union oval) flasks with two-part (double-ring) finishes. The bases in our sample were all cup bottom, and none of the flasks had side embossing (Figures 20 & 21).



Figure 21 – Union oval flask (eBay)

### **Fruit Jars (1887-1892)**

Toulouse (1969:16; 1971:43) attributed this mark (with "PITTS PA") to the American Glass Works, Ltd. (Pittsburgh) and showed it in the form of AGWL in an arch above PITTS PA in an inverted arch (Figures 22 & 23). Innes (1974:178) attributed the A.G.W.L. Pitts. Pa. on a "preserving jar" to "the mysterious Arsenal Glass Works." Roller (1983:7) described the same jar and added:



Figure 22 – AGWL / PITTS, PA wax-sealer base (Jay Hawkins)

It seems likely that these jars were made by the American Glass Works, Ltd., of Pittsburgh, who advertised fruit jars among their wares in the 1880s and 1890s. But, the initials could stand for either Arsenal Glass Works, Lawrenceville (part of Pittsburgh) or Aetna Glass Works, Lawrenceville. Both of these works

advertised fruit jars during the 1860s, with the latter works listing “Grooved Ring Wax Sealing” jars.



Figure 23 – Wax-Sealer (eBay)

Creswick (1987a:4) showed a drawing of a grooved-ring, wax-sealer fruit jar with “A.G.W.L. (arch) / PITTS, PA. (inverted arch)” embossed on the base (Figure 24). She dated the jar ca. 1866-1880 and attributed it to the American Glass Works. All of the jars in our sample (eBay and Jay Hawkins collection) had a smaller “A” in “PA” and either lacked punctuation or had very weak punctuation in the mark.

See the Discussion and Conclusions section

for our position on these jars.

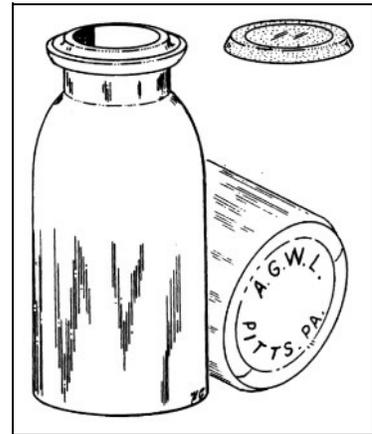


Figure 24 – AGWL jar and base (Creswick 1987:4)

### Other Bottles

Although most bottles with AGWL logos are found in the above categories, the plant also made at least some other types. An eBay auction featured a green olive bottle with AGWL embossed horizontally across its base. The bottle was probably made just prior to the shift that removed “Limited” from the name, ca. 1892.



Figure 26 – AGWL basemark (Farnsworth & Walthall 2011:651)

Farnsworth & Walthall (2011:58, 461-462) illustrated and described what may be the earliest use of the AGWL logo. The mark was embossed horizontally across the post-bottom of the base of a Saratoga-style mineral water bottle with a

double-taper finish (Figures 25 & 26). The body was embossed “YPSILANTI (slight arch) / SPRING / COMPANY / CHICAGO / ILLS. (all horizontal).” The firm was only advertised between May 1885 and April 1886. This suggests that either the bottling plant was in business slightly later (the most likely explanation), or American Glass began using its mark a bit early.



Figure 25 – Saratoga-style bottle (Farnsworth & Walthall 2011:651)

## AGW (1892-1902)

Peters (1996:9) dated the AGW mark from ca. 1893 to 1905 and attributed it to the American Glass Works (Pittsburgh). He illustrated 10 examples of bottles (e.g., 1996:22, 40, 112, 124-125, 128, 132, 192, 200) with the AGW mark, all Hutchinsons except for two Weiss Beer bottles (p. 112, 124-125). Date ranges he presented for the bottles and associated companies fit within the ca. 1892-1901 period we have proposed. Von Mechow (2021),



Figure 27 – AGW Hutchinson heelmark bottle (eBay)



Figure 28 – Hutchinson bottle (eBay)

however, listed a total of 28 bottles with the AGW mark – including Hutchinson bottles, a single bottle with a Matthews Gravitating Stopper, and beer bottles. Auctions from eBay have also included the AGW logo on Hutchinson bottles (Figures 27 & 28)

Although there is little question that crown-finished soda bottles (and several other container types) were made by the American Glass Works at Richmond, Virginia, and Paden City, West Virginia (see Discussion and Conclusions and the section on the “other” American Glass Works), Peters presents strong evidence that the AGW mark continued to be used by the Pittsburgh American Glass Works after the “Limited” period. Since all of these bottles were used by Wisconsin soda bottlers, the likelihood of a manufacture at Pittsburgh is much greater than in much more distant Virginia and West Virginia plants.

Of greater import, Peters (1996:20, 92, 94, 113, 124-125) listed two examples of soda bottlers who used Hutchinson bottles with both AGWL and AGW logos and one where the bottler had both marks on identical Weiss Beer bottles. These companies were in business, respectively, during the periods of 1896-1910, 1877-1900, and 1888-1898, all spanning the important 1892 transition between the “Limited” company and the later firm. Of even greater interest are three other Wisconsin soda bottlers (Peters 1996: 200-201, 112, 124-125) that used identical bottles with both AGWL and AGW marks. These bottles have the identical shape and same plate – the only difference is the lack of the “L” on one logo.

Martin Van Zant also sent photos of a Weiss Beer bottle embossed with “A.G.W.” on the front heel below a round plate that identified the Crown Brewing Co. of Crown, Point, Indiana. According to VanWieren (1995:95), the Crown Brewing Co. was in business between 1894 and 1909 – an almost perfect fit for the probable use of the mark.

All examples we have seen had heelmarks, and at least one lacked punctuation (Figure 29). Von Mechow (2021), however, listed three Hutchinson bottles with the AGW mark from such diverse locations as Philadelphia; Lead City, South Dakota; and Yazoo City, Mississippi. He recorded the AGW mark on the base of the South Dakota Hutchinson bottle.



Figure 29 – AGW heelmark (Courtesy of Jay Hawkins)

Since Hutchinson bottles with the AGWL logo in our sample were used at least as far away as Tampa, Florida, the diverse distribution is not surprising.

A bottle in the champagne beer style was used by James M. McMorris, Importer & Bottler, Pittsburgh. Although the eBay seller did not photograph the AGW logo, it was applied to the heel of the bottle. Thus, bottles of this type were also used by both the “Limited” and the following firms.

Whitten (2012) noted that “various bottles that date after 1880 (such as certain hutchinson sodas, and aqua coffin or ‘shoofly’ flasks) do carry ‘A.G.W.’ (no L).” Although we have recorded a “Warranted” flask with the “A.G.W.” mark and a three-digit number (indicative of the Richmond plant) and have discussed picnic flasks that may have been associated with the southern company, we have not observed the flasks described by Whitten. If they lack the accompanying numbers, they very well may have been made at the Pittsburgh factory.

Although not everyone agrees,<sup>1</sup> we have found no other bottle types that we can ascribe to the Pittsburgh plant after the transition away from the limited partnership ca. 1892. The factory seems to have reduced its production ca. 1897, then moved away from soda bottles entirely, shifting to prescription bottles ca. 1901. It is possible that some prescription bottles

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<sup>1</sup> Jay Hawkins contends that the Dr. Hostetter’s Bitters bottles with AGW basemarks were made in Pittsburgh. See the section on the American Glass Works, Virginia and West Virginia, for a complete discussion.

were embossed with A.G.W. basemarks, although most (probably all) with the mark were made by the Virginia plant (Figure 30).



Figure 30 – AGW basemark (eBay)

## Discussion and Conclusions

### The Companies and Plants

Other researchers have fallen into what we call the “first hypothesis” trap when dealing with the American Glass Works. This is familiar to archaeologists. When the first researcher makes a definitive statement, whether or not it stands up in the face of evidence, almost everyone begins at that point and steadfastly refuses to look at alternatives. The best original research on manufacturer’s marks – the books and articles written by Julian Harrison Toulouse – is often the biggest stumbling block to full understanding

While the epic works of Toulouse (1969; 1971) were without parallel in their time, he simply lacked the resources available today. He relied on a great deal of hearsay, and he made inferences that he reported as fact. The main problem with Toulouse was his typographical errors, especially in the realm of numbers. In at least two places, his dates are incorrect by a century; decade differences are common; and he frequently gave two or even three dates for the same occurrence – often on the same page – almost certainly caused by typos (Lockhart 2004). In this case, Toulouse (1971:43) connected T. Campbell & Co. to the American Glass Works (correctly), then made the assumption (incorrectly) that the American Glass Works, Ltd., was a continuation of the same factory. As noted in the history section, the two plants were at different locations, and the American Glass Works name was apparently disassociated with Campbell from some point after 1872.

### A.G.W.Co.

This is the only mark we have discovered that is connected with the earliest American Glass Works. It is probable that Campbell used this logo rarely; we have discovered only one example. The brewery that ordered the bottle may have requested the identifying initials. Unlike the later bottles, this is the only one that appears to have an applied finish. Campbell generally made window glass but apparently produced a few bottles.

## **A.G.W.L.**

Although there is virtually no question that the American Glass Works, Ltd., made the beer/soda bottles, Hutchinson bottles, and strap-sided flasks, the identification of the AGWL mark on grooved-ring, wax-sealer fruit jars is not so easy to place. As noted in the Containers and Marks section, both Innes (1974:178) and Roller (1983:7) suggested that the fruit jar mark could have been used by the Arsenal Glass Works (or Aetna Glass Works), both at the same factory, located at Lawrenceville, a section of Pittsburgh, annexed to the larger city in 1868. Lawrenceville was selected as the home of the Allegheny Arsenal (or Pittsburgh Arsenal) due to its proximity to the river – hence the “Arsenal” name for the glass house. Lawrenceville, in this interpretation, provided the “L” at the end of the logo (see Lockhart 2010).

Ads cited in Roller (n.d.) list fruit jars for the American Glass Works, Ltd., from 1887 to 1901. The Arsenal/Aetna situation was much more complex. The original operating firm advertised a variety of bottle and vials but did not specifically mention fruit jars. However, there is a vast empty space in our knowledge until the William F. Modes ad of 1869 (Hawkins 2009:12; Roller 1996). Only the 1869 ad (Aetna Glass Works) specified the Victor, Triumph, and “Grooved Ring” fruit jars.

Roller (1983:362) noted that “TRIUMPH” was offset from “GROOVED RING” by separate quotation marks in Modes’ 1869 ad (which Roller reproduced). These jars were made in a three-piece mold and had a distinct shoulder that tapered up to a grooved-ring finish. “TRIUMPH / No. 1 (or No. 2)” was embossed on the shoulder. Creswick (1987:209) added a “No. 3” and illustrated the jars, also citing the Aetna Glass Works as the maker. The only Victor jar, shown in both Roller (1983:371-372) and Creswick (1987:214) was patented in 1899 and 1900 – far too late to be the jar in the Aetna ad.

If the 2001 price for the jars marked “A.G.W.L.” (\$30-35) is any indication of scarcity (Leybourne 2008:7), then they must be fairly common. Of course, the lack of side embossing may have made them less popular, even if they were scarce. If the jars had been made by Arsenal (or Aetna), they would have been produced early (at some point during the 1856-1870 period). American Glass Works (Ltd.) jars, however, would have been much newer, manufactured during the firm’s decade-long tenure (ca. 1886-1897).

One final consideration is the shape of the jar. Triumph jars had a unique pattern, with their tapered shoulder/neck, very unlike the A.G.W.L. jars and their more typical rounded shoulders and short neck below a much larger finish for the grooved ring. When Modes moved the Aetna Glass Works to Beaver Falls, Pennsylvania – becoming the Beaver Falls Glass Co. – he soon adopted the typical style, ceasing production of the Triumph jars. The standard format with the A.G.W.L. logo, therefore, fits better with the American Glass Works.

After this lengthy discussion, the maker of the wax-sealer jars embossed “A.G.W.L.” remains in some contention. However, we would expect jars made earlier and for a shorter period of time to be high priced. The Triumph jars (from the Aetna period), for example, were worth “\$400-500” in 2008 (Leybourne 2008:415). In 2011, one quart jar sold for \$605 and another for \$353 on the North American Glass Auction (McCann 2013:300). It is thus most likely that the A.G.W.L. jars, despite the difference in configuration (i.e., arched rather than horizontal) and the inclusion of “PITTS, PA,” were most likely made by the American Glass Works, Ltd. Also see a very similar discussion in the Arsenal/Aetna section.

## **A.G.W.**

The identical bottles with both AGWL and AGW marks clearly establishes that the American Glass Works at Pittsburgh continued to produce some of the same kinds of bottles that it had made during its “Limited” period but with the AGW mark.

There are, however, numerous crown-topped soda bottles, many machine made, also embossed with the AGW logo. These were certainly made by the American Glass Works at Richmond, Virginia, and Paden City, West Virginia. These Southern plants, unrelated to the Pittsburgh operation, also made Warranted Flasks, Dr. J. Hostetter’s Stomach Bitters bottles (although some Pittsburgh collectors question this identification), and possibly prescription bottles – all embossed A.G.W. on the bases (also see the section on American Glass Works, Richmond).

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