

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

Bill Lockhart, Pete Schulz, Beau Schriever, Carol Serr, and Bill Lindsey  
with Contributions by Jay Hawkins

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 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 is where the people were. Gradually, the production of bottles and other glass products spread westward, fueled by two main issues: population and fuel (pun intended). In the 18th 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.

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 producing areas during the 19th 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 \$13,000 worth of glass. By 1850, however, that had risen to an even million dollars worth, 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.[1]

## History

American Glass Works, Pittsburgh  
(ca. 1865-ca. 1886)

American Glass Works, Ltd.,  
Pittsburgh (ca. 1886-ca. 1897)

American Glass Works, Pittsburgh  
(ca. 1897-ca. 1903)

The American Glass Works opened circa 1865 at 21st and Mary Streets. Page, Zellers & Co. (Benjamin Page, Theodore Zellers, and Sardis T. Duff) initially operated the company, but the firm was Page, Zeller & Duff the following year (1866). By 1876, the operating entity was Duff & Campbell (Sardis Duff and Terrence Campbell) and that lasted until circa 1878. Duncan, Campbell & Co. took over by 1879 and remained in control until 1883. T. Campbell & Co., emerged by 1884 and retained operations until circa. 1903. During this entire period, the firm specialized in the production of window glass (Hawkins 2009:24-25). 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.”

A split in the company apparently occurred at some point between 1884 and 1887, probably circa 1886. At that point, T. Campbell & Co. apparently dropped the American Glass Works name and continued making window glass at the 21st & Mary St. factory. We may never know the details, but a separate plant, located at Redmond Mills, Pennsylvania, “adjacent to Pittsburgh City Line on P.V. & C.R.R.” carried the name, the American Glass Works, Limited (Roller n.d.). The earliest known ad for the firm, issued in 1887, advertised bottles. Similar ads ran in at least 1890 and 1893 and illustrated Hutchinson bottles that were also available with “seals or corks” as well as a variety of beer bottle styles (Hawkins 2009:30; Roller n.d.; Toulouse

1971:43). For more information about this transition, see the Discussion and Conclusions section.

In 1887, C.F. Leng was the president of the American Glass Works, Limited, with J.H. Miller as the secretary and treasurer (Roller n.d.). A limited partnership has one or more general partners who share liabilities, responsibility, and management of the company, just as in a regular partnership. The limited partner or partners, however, have specified limits on their control, liabilities, etc. In the U.S. (notably in the field of glass production), a limited partnership was frequently used when one partner financed a business, and the other partner managed the operation. The financier, for example, often wanted to sharply restrict his liability in return for leaving the management to his partner. The non-limited partner was happy to take the risks involved to be able to operate a business. It seems likely that Terrence Campbell was the limited partner (see Discussion and Conclusions section).

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, Limited, and apparently a relative. 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 19th 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. The American Glass Works used three of the finishing machines by 1901 (Roller n.d.).

Leng’s machine was apparently successful. Jones (1968:9) quoted an October 1892 article from the *Bottlers*

<sup>1</sup> For a more thorough historical overview – as well as individual glass house histories – see Hawkins (2009).

Gazette that stated:

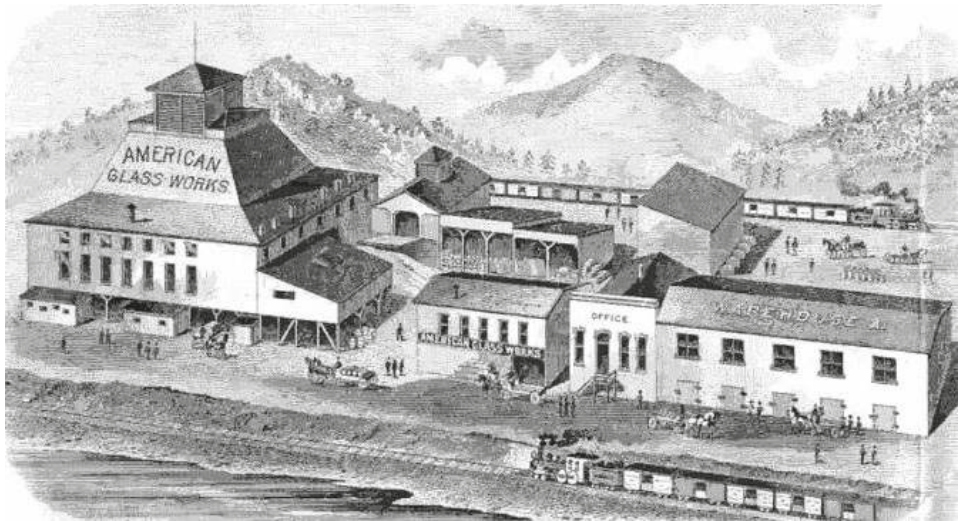
The West Virginia Flint Bottle Co., Huntington, West Virginia, glass manufacturers who began the business last season (1891) . . . a number of bottle blowing machines have been put in. The machines are the same as those that have been successfully operated by the American Glass - Works, of Pittsburgh, Pa. The emphasis probably came from Jones – not the Bottlers Gazette.[2]

By 1897, 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 (National Glass Budget 1897a:7; 1897b:5; 1898:7; Roller n.d.). Also around 1897 (certainly by 1898), the limited partnership was over (forever removing the “Ltd.,” “Lim.,” or “Limited” from the company name). Leng continued to operate the business, 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 plant must have undergone another fairly major change ca. 1901 (Figure 1). Fruit jars were added to the list on the billheads, and the company was listed in the city directories under “Flint Prescription.” Although we will probably never know the full story, the end was near. Even though Toulouse (1971:43) stated that the plant remained listed in a 1905 directory, the factory had closed by April 1904. To complete the circle, Terrance Campbell 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).

### Containers and Marks A.G.W.L. (ca. 1886-ca. 1897)

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



**Figure 1 – Woodcut of the American Glass Works, ca. 1903 (Roller n.d.)**

Whitten (2011) and Von Mechow (2011) – identified the American Glass Works, Limited, 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 (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 history section, Leng applied for a patent for his machine to make tooled finishes in February 1889. Although he did not receive his patent until the next year, he could have begun use of the machine as early as the beginning of the company in 1886/1887, and that

may even have been the reason for the founding of the company.

An ad by the American Glass Works, Limited, 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 2). An identical ad appeared the following year (Hawkins 2009:30).

### Champagne, Porter, and Weiss Beer Bottles (ca. 1886-ca. 1897)

The 1892 and 1893 ads from the American Glass Co., Limited, illustrated a row of 10 bottles at the bottom. These were identified as beer bottles and shown with plate molds. Most of these were Champagne style, but there were also Porter and Weiss Beer bottles in the drawing. These bottles were almost certainly made during the entire period of the “Limited” company.

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

<sup>2</sup> Jones was trying to make a different point, one irrelevant to this discussion.

Rigby (n.d.). The mark was consistently embossed horizontally across the center of beer bottle bases in our eBay sample (Figure 3). 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 (2011) 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).

**Export Beer Bottles  
(ca. 1893-ca. 1897)**

Export beer bottles were noticeably missing from the 1892 and 1893 ads. They also seem to be missing from early contexts. Table 1 lists six excavations that contained primarily export beer bottle fragments from 1880-1890s contexts; only two of them – the ones with the latest occupations – had amber export beer bottle fragments with A.G.W.L. basemarks. While there are only fragments in both contexts, all identifiable amber beer bottles in the assemblages were export types. 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 4).

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 may indicate a late arrival of the brand.

This suggests that the American Glass

Works, Limited, made only amber export bottles during the ca. 1893-1896 period. Although this is speculation, the timing is interesting. The U.S. underwent a

“great” depression beginning in 1892-1893. Since the American Glass Works, Limited, specialized in embossed beer and Hutchinson bottles, that may have been one of the areas where breweries and soda bottlers reduced costs. Paper labels were cheaper and provided more information. Meanwhile, the American West was booming, and the big market was for export beer bottles.[3]

**Hutchinson Bottles  
(ca. 1886-ca. 1897)**

The 1892 and 1893 ads make it clear that the American Glass Works, Limited, made bottles with actual Hutchinson stoppers – instead of the later imitations. Unlike A.G.W.L. beer bottles, these had the fully 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 (Figure 5). All date ranges given by all



**Figure 2 – June 1892 ad for American Glass Works bottles (Putnam 1965)**



**Figure 3 – A.G.W.L. on base of champagne beer bottle (eBay)**



**Figure 4 – A.G.W.L. on base of export beer bottle (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	Bottle Research Group 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 we found no A.G.W.L. marks when we examined the collection.			

<sup>3</sup>Export beer bottles were designed in 1873 especially for “export” to the western territories, Central, and South America. Although other styles were and still are used, the export bottle rapidly became the standard for the brewing industry.

of these researches fell easily within the ca. 1886-1897 span for the use of this mark.

As noted above, Champagne beer bottles were also 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 were also used for both soda and beer.

### Flasks (ca. 1886-ca. 1897)

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 flasks with two-part (double-ring) finishes. The bases in our sample were all cup bottom, and none of the flasks had side embossing (Figure 6).

### Fruit Jars (ca. 1896-ca. 1897)

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 a downward arch above PITTS PA in an upward arch (Figure 7). 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:

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.

Creswick (1987a:4) showed a drawing of a grooved-ring, wax-sealer fruit jar with “A.G.W.L. (arch)



Figure 5 – A.G.W.L. heelmark on Hutchinson bottle (eBay)

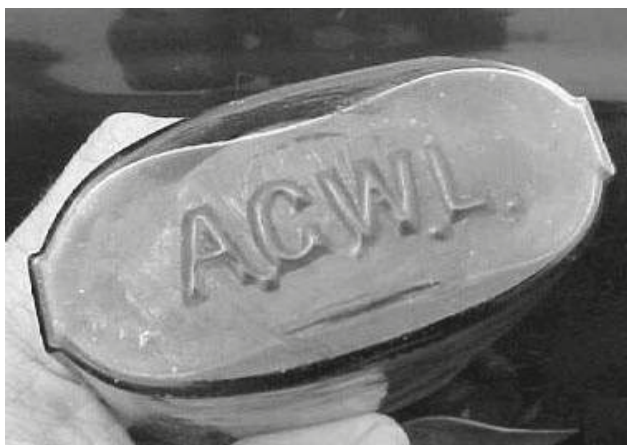


Figure 6 – A.G.W.L. on base of a strap-sided flask (eBay)



Figure 7 – AGWL/ PITTS, PA on wax-sealer fruit jar base (Courtesy of Jay Hawkins)

/PITTS, PA. (inverted arch)” embossed on the base (Figure 8). 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.

### AGW (ca. 1897-ca. 1901)

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. 1897-1901 date range we have proposed. Von Mechow (2011), however, listed six Hutchinson bottles, a single bottle with a Matthews Gravitating Stopper, and 16 beer bottles, all with the AGW mark.

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

<sup>4</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.

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 1896-1898 transition period 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 mold – the only difference is the lack of the "L" on one logo.

All examples we have seen had heelmarks, and at least one had full punctuation (Figure 9). Von Mechow (2010), 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. 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.

Whitten (2011) 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 by the Pittsburgh factory.

Although not everyone agrees,[4] we have found no other bottle types

that we can ascribe to the Pittsburgh plant after the transition away from the limited partnership ca. 1897. The factory seems to have limited its production, then moved away from soda



Figure 8 – Drawing of AGWL jar and base (Creswick 1987:4)



Figure 9 – AGW heelmark (Courtesy of Jay Hawkins)



Figure 10 – AGW on base of a medicinal bottle (eBay)

bottles entirely, shifting to prescription bottles ca. 1901. It is possible that some prescription bottles were embossed with A.G.W. basemarks. The only example we have seen from an eBay auction could have been made at either Pittsburgh or Virginia (Figure 10).

## 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, Limited, 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 1884, probably ca. 1992.

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

Although there is virtually no question that the American Glass Works, Limited, 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, Limited, 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. The shape of the Victor jar

made by Aetna is unknown.

If the 2001 price for the jars marked “A.G.W.L.” (\$30-35) is any indication of scarcity (Leybourne 2001:5), then they must be fairly common. Of course, the lack of side embossing may have made them less popular, even if they were not 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 (Limited) jars, however, would have been much newer, manufactured during the firm’s decade-long tenure (ca. 1886-1897).

As a comparison, Leybourne (2001:366-367) priced the Triumph (with any of the three numbers) at “\$500 & up.” This suggests a greater rarity and supports the idea that the jars were made by the Arsenal 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, sold for “\$500 and Up” in 2001 (Leybourne 2001:366-367). 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, Limited.

**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 – as we will demonstrate in a future article.

**Acknowledgments**

Our thanks to Doug Leybourne for permission to use the Alice Creswick drawings.

**Sources Cited**

- Caniff, Tom  
2007 “Fruit Jar Rambles: A.G.W.L. Jar.” *Antique Bottle & Glass Collector* 24(7):6-7.
- Creswick, Alice  
1987a *The Fruit Jar Works, Vol. I, Listing Jars Made Circa 1820 to 1920’s*. Douglas M. Leybourne, N. Muskegon, Michigan.
- Fowler, Ron  
1986 *Washington Sodas: The Illustrated History of Washington’s Soft Drink Industry*. Dolphin Point Writing Works, Seattle.
- Hawkins, Jay W.  
2009 *Glasshouses & Glass Manufacturers of the Pittsburgh Region, 1795-1910*. iUniverse, Inc., New York.
- Herskovitz, Robert M.  
1978 *Fort Bowie Material Culture*. University of Arizona Press, Tucson.
- Illinois Glass Company  
1903 *Illustrated Catalogue and Price List*
- Illinois Glass Company: *Manufacturers of Bottles and Glass Containers of Every Kind*. Illinois Glass Company, St. Louis. Reprinted by Larry Freeman, 1964. [Cat.]
- Innes, Lowell  
1974 “Pittsburgh Glass, Part II. In *American Glass: From the pages of Antiques, I. Blown and Molded by Marvin D. Schwartz*. Pyne Press, Princeton.
- Jones, May  
1968 *The Bottle Trail, Volume 9*. Nara Vista, New Mexico.
- Kroll, Wayne, L.  
1972 *Wisconsin Breweries and Their Bottles*. Privately Published, Jefferson, Wisconsin.
- Leybourne, Douglas M.  
1993 *Red Book of Fruit Jars, No. 7*. Privately published.
- Lockhart, Bill  
2004 “An Annotated Bibliography of Bottle Manufacturer’s Marks.” *SHA Newsletter* 37(4):10-13. (Society for Historical Archaeology)

2007 "The Origins and Life of the Export Beer Bottle." *Bottles and Extras* 18(3):49-57, 59.

2009 "Ten Wagon Loads of Beer Bottles: A Study of Fort Stanton Trash Deposition." In *Quince: Papers from the 15th Biennial Jornada Mogollon Conference*, pp. 212-143.

2010 "The Dating Game: The Strange Case of the Aetna and Arsenal Glass Works." *Bottles and Extras* 21(3):50-58.

2011 "Ten Wagon Loads of Beer Bottles: A Study of Fort Stanton Trash Deposition." In *Beer Bottles and Breweries at Fort Stanton, New Mexico*, pp. 1-40. Privately Printed.

Lockhart, Bill and Wanda Olszewski

1994 "Excavation and Analysis of a Nineteenth Century Bottle Pit in San Elizario, Texas." *The Artifact* 32(1):29-49.

McKearin, Helen and George McKearin

1941 *American Glass*. Crown Publishers, New York.

Miller, Michael R.

1999 *A Collector's Guide to Arizona Bottles & Stoneware: A History of Merchant Containers in Arizona*. Privately Printed, Peoria, Arizona.

2008 *A Collector's Guide to Arizona Bottles & Stoneware: A History of Merchant Containers in Arizona*. 2nd ed. Privately Printed, Peoria, Arizona.

Mobley, Bruce

2004 *Dictionary of Embossed Beers*. <http://www.one-mans-junk.com/beerbottlelibrary/1.htm>

National Glass Budget

1897a "Glass Directory." *National Glass Budget* 12(42):7.

1 897b "Flint and Green Glass Review." *National Glass Budget* 13(26):4-6.

1898 "Flint, Green and Cathedral Glass Factories of the United States and Canada in Operation." *National Glass Budget* 13(38):7.

Peters, Roger

1996 *Wisconsin Soda Water Bottles, 1845-1910*. Wild Goose Press, Madison, Wisconsin.

Putnam, H. E.

1965 *Bottle Identification*. Privately printed, Jamestown, California.

Rigby, Susan

n.d. "65 Different Bottles Used in Tom Kelly's Bottle House." Unpublished manuscript for BLM.

Roller, Dick

n.d. "American Glass Works History Notes."

1983 *Standard Fruit Jar Reference*. Acorn Press, Paris, Illinois.

1996 "Duncan History Notes." Dick Roller files.

Toulouse, Julian Harrison

1969 *Fruit Jars*. Thomas Nelson & Sons, Camden, New Jersey.

1971 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

Von Mechow, Tod

2011 "Soda & Beer Bottles of North America: Bottle Attributes - Beer & Soda Bottle Manufacturers." <http://www.sodasandbeers.com/SABBottleManufBeerSoda.htm>

Whitten, David

2011 "Glass Factory Marks on Bottles." <http://www.myinsulators.com/glass-factories/bottlemarks.html>

Wilson, John P. and Thomas J. Caperton

1994 "Fort Selden, New Mexico: Archaeological Investigations of the Latrines and Magazine, 1974-1976." *The Artifact* 32(2-4):i-ix, 1-145).

Wilson, Rex

1981 *Bottles on the Western Frontier*. University of Arizona Press, Tucson.

# Heartland Glass Collectors Bottle and Insulator Show

Saturday Feb. 25th from 9 to 3  
Boone County Fairgrounds

Lebanon IN, Exit 138 off of I-65

For info please contact Kim Borgman

Email: [kim.borgman@rndc-usa.com](mailto:kim.borgman@rndc-usa.com)

Phone: (317) 698. 9177

Show will take place in a heated room. Sale tables available for 20 dollars each.  
70 total tables available. Free admission  
and Insulator appraisals as well.