

The Strange Case of the Aetna and Arsenal Glass Works

by Bill Lockhart & Bob Brown

[Some of the study below was originally published in Lockhart 2010]

The histories of these two glass houses have been confused and conflated by earlier researchers – a situation that Lockhart (2010) addressed and revised in 2013 for the *Encyclopedia of Manufacturer's Marks on Glass Containers*. The following study is much more complex and includes more historical data – providing a *much* clearer – look at what occurred in Lawrenceville during the 1854-1869 period.

Histories

Aetna Glass Works, Lawrenceville (Pittsburgh) (1854-1856)

On October 6, 1854, the *Pittsburgh Gazette* carried the earliest ad we have been able to find for the Ætna Glass Works (spelled with the diphthong in the ad). William Davidson & Co. (William. Davidson, H. Edwards, and Samuel Stewart) operated the Ætna Glass Works in 1856. The group advertised themselves as “Manufacturers of & Dealers in Vials, Bottles, and all kinds of Green and Flint Glassware,



Figure 1 – 28 Market St. – 1st Aetna Glass Works (1872 Hopkins Atlas)

Window

Glass &c.” The location on the ad was “No. 28 Market Street” – although that address probably indicated an office rather than a factory (Figure 1). The firm placed an identical ad in the same paper on February 7, 1855, and Hawkins (2009:10-11) discovered a very similar ad in the 1856 Pittsburgh city directory (Figure 2).

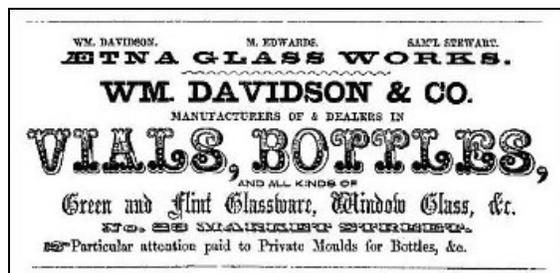


Figure 2 – 1856 Aetna Glass Works ad (Pittsburgh city directory – 1856)

Although we have no direct evidence, the factory was probably located at the intersection of Chestnut St. and the Allegheny Valley Railroad (see below). Despite intensive newspaper and internet searches during the period both before 1854 and after 1856, we have no further evidence for this company, suggesting that the firm only operated during the three-year period, possibly slightly longer.

Arsenal Glass Works, Lawrenceville (Pittsburgh) (1865-1869)

At this point, we have not discovered when Charles Jeremy built or became involved with the Arsenal Glass Works at Lawrenceville. According to the 1865/1866 city directory, C. Jeremy & Co. (Charles Jeremy) “glass manuf,” was located “bt Borough and Chestnut, L.” The listing did *not* name the factory, only the operating firm, but this was the same location where the Arsenal Glass Works was situated by August of 1865, operated by Modes, Ryrie & Co. (see below). Jeremy’s obituary named Daniel Agnew as Jeremy’s partner – the “& Co.” – in the glass business (*Pittsburgh Press* 8/12/1907). Daniel may have been related to John Agnew, a Pittsburgh glass man operating a series of businesses from ca. 1843 to 1893.

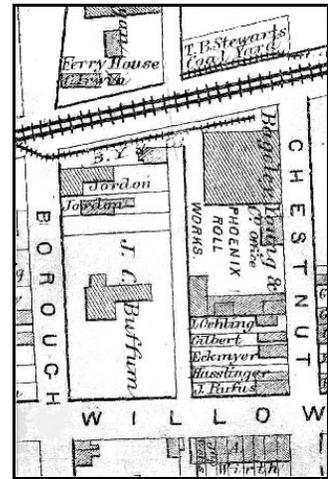


Figure 3 – Chestnut St. – 1st Arsenal & 2nd Aetna Glass Works (1872 Hopkins Atlas)

An 1874 map illustrated the plant – by that time known as the Phoenix Roll Works – at the intersection of Chestnut, Willow, Burrough, and the Allegheny Valley Railroad (Figure 3). On an 1862 map, however, the street to the south was named Washington (called Willow by 1864), and Chestnut ended at Washington – *not* extending to the railroad (Figure 4). The street to the west was labeled Burrows (Burrough in 1874), and the alley between Chestnut and Burrough did *not* extend beyond Washington. The 1862 map also failed to show any buildings where the glass house was situated later. Therefore, Jeremy’s glass house could *not* have been at that location prior to 1862.

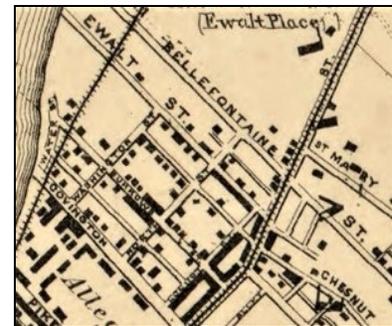


Figure 4 – 1862 Map - Chestnut area

The name was certainly chosen because of the proximity to the Allegheny Arsenal, built on a long strip of land adjacent to the Allegheny River. The Arsenal Glass Works on Chestnut was just two blocks east of the Covington St. side of the Arsenal (Figure 5). Although the Arsenal lab exploded on September 17, 1862, it was rebuilt and continued to supply the Union Army during the Civil War.

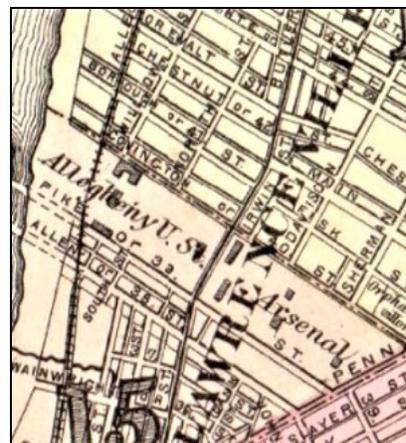


Figure 5 – Position of Allegheny Arsenal (1872 Pittsburgh Map)

According to his obituary, Jeremy had been a butcher for more than 40 years, when he died on August 11, 1907 (*Pittsburgh Press* 8/12/1907). Since we have found no earlier mention of Jeremy as a glass man, he probably did not enter the glass business until 1864 or 1865. William Rehen apparently owned the Chestnut lot, with Jeremy leasing the factory, but something happened by August of 1865.¹ Modes, Ryrie & Co. were in business and advertising in the *Pittsburgh Gazette* by August 4 as the Arsenal Glass Works, “Manufacturers of Black and Green Glassware, Druggists’ Ware, Bottles, Demijohns, Carbouys, &c.” with a warehouse at 144 Water St., Pittsburgh (Figure 6). The firm was composed of W.F. Modes and probably Thomas B. Ryrie, a glassblower listed in the 1865/1866 city directory.

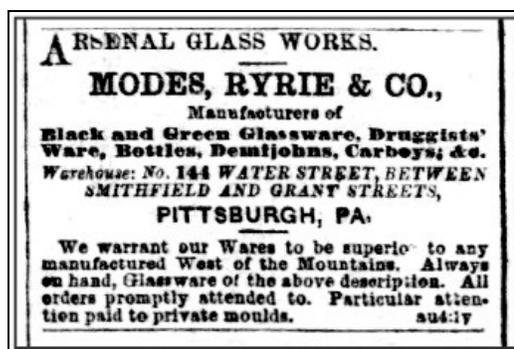


Figure 6 – Modes, Ryrie & Co. 1865 ad (*Pittsburgh Gazette* 8/4/1865)

The *Pittsburgh Daily Post* reported on November 20, 1865, “About twelve o’clock on Saturday night [November 18] a fire broke out in the glassworks of Messrs. Ryrie & Co., at the foot of Ewalt St., Lawrenceville.” The plant was completely destroyed. The paper noted that “about fifty hands were employed in the works,” and that “the loss is not known, but the building was not very much value, and will probably be rebuilt very soon.” See the discussion about this location in the Discussion and Conclusions section.

¹ This may have been William Rehen, a member of a banking family – property owners – although some sources spelled the name Rehem.

The Modes, Ryrie & Co. ad changed the location on June 6, 1866, to the “foot of Chestnut Street.” On July 19, 1866, William F. Modes purchased a lot from William Rehen for \$1,000. This was a “lot on which is erected a Building for the manufacture of Glass.” The property was in Lawrenceville, along the Allegheny Valley Railroad (Hawkins 2009:11; Roller 1996; 1998a:14). An 1867 atlas of Lawrenceville illustrated the Chestnut St. property with the notation “Modes, Ryrie & Co.” – identifying the location as the Arsenal Glass Works, vacated almost a year earlier by Charles Jeremy & Co. (Figure 7). Did Modes begin operating in a different place then move into the Chestnut St. factory in June of 1865? Had Rehen ejected Jeremy prior to that date? Or, did Jeremy’s business fail earlier? We may never know.

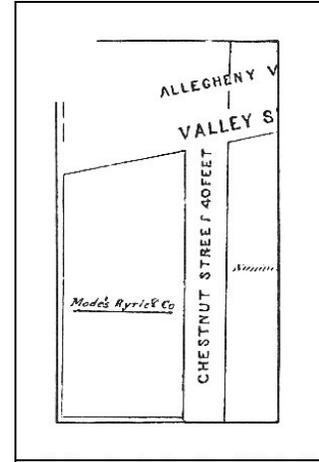


Figure 7 – Modes, Ryrie & Co., 1866/1867 map (McDougald & McDougald 1990:106)

Modes, Ryrie & Co. remained in possession until at least September 14, 1866, when the firm placed an ad in the *Pittsburgh Daily Commercial* (similar to the one of August 1865). The picture became more complex with the purchase of another property in Lawrenceville. On October 27, 1866, William F. Modes and Joshua Nichols bought a lot on Charlotte and Smallman streets from Charles Jeremy for \$5,000.

By October 6, 1866 – just 22 days after the last Modes, Ryrie advertisement – an ad in the *Daily Commercial* – very similar to the final one by Modes, Ryrie & Co. (including the same products) – noted that the Arsenal Glass Works was operated by Townsend & Lewis (Robert R. Townsend, Anthony Lewis, and special partner J. Willis Dalzell), with an office at No. 12 4th St., Pittsburgh (Figure 8). Identical ads ran until January 7, 1867. However, the Townsend and Lewis tenure may have ended in December, with the ads still continuing because they had been paid for on a three month subscription. The January 1867 Pittsburgh Almanac listed *both* Townsend & Lewis *and* Jeremy, Heitzman & Co. Townsend & Lewis used their office address – No. 12 4th St., Pittsburgh, while Jeremy’s group listed the Lafayette Alley location. The Almanac probably retained an old listing from the



Figure 8 – Townsend & Lewis 1866 ad (*Pittsburgh Daily Commercial* 12/20/1866)

previous year for Townsend & Lewis, but they were almost certainly defunct by that time. Again, we have questions? Did Modes and his associates run afoul of financial difficulties and sell out? Or, did they lease the works to Townsend & Lewis. In any event, Ryrie disappeared from the scene once Townsend and Lewis arrived.

Dalzell had produced Lard and Oil under the name of James Dalzell & Son and was almost certainly only involved with Townsend & Lewis in the glass business as a financier. By at least, December 29, 1868, Robert R. Townsend had partnered with John H. Dalzell and J. Willis Dalzell to form Dazells & Townsend, “Pork Packers, and Dealers in Bacon, Lard, Oils, &c.” The firm advertised in the *Pittsburgh Daily Post*.

Even stranger, the city directories and the January 1867 Almanac of Pittsburgh (including Lawrenceville) listed Jeremy, Heitsman & Co. as the operators of the Arsenal Glass Works in 1867 – *but*, the factory was then located on Lafayette Alley in Lawrenceville (Figure 9). It is likely that the partnership with George Heitsman, a local glass blower, was (at least in part) financially motivated (see Hawkins 2009:11; McDougald & McDougald 1990:106; Roller 1996; 1998a:14). Jeremy, Heitsman & Co. continued to be listed until 1869 (Hawkins 2009:11; Innes 1974:178; Roller 1996; 1998a:14).

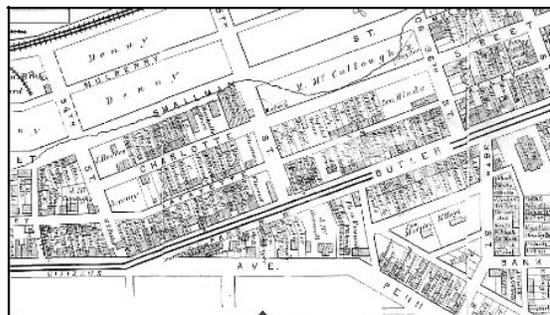


Figure 9 – Lafayette Alley – second Arsenal Glass Works

The Lafayette Alley property seems to have been the one listed as the Smallman and Charlotte lot, purchased by Modes & Nichols from Charles Jeremy in October of 1866 (see above). Modes sold his share (2/3 of the property) to Christian Modes (presumably a relative) for \$4,000 on January 11, 1867, three months later. The 1874 map in the Hopkins Atlas showed a large lot marked “Jeremy” bordered by Charlotte St. to the north, 34th St. to the west, Lafayette Alley to the south, and the rest of the block to the east. Smallman St. was one block farther north. This was almost certainly the plot of land.

The series of events may have run something like this: Wanting to return to the glass business, Charles Jeremy almost certainly teamed up with George Heitzman for extra financial

backing. The pair, possibly with others (the “& Co.”) could have bought back the “Smallman and Charlotte” lot from Christian Modes (see below), building the new glass house there and somehow reclaiming the Arsenal Glass Works name from the Modes family.

The *Pittsburgh Daily Post* reported that a disastrous fire destroyed the Jeremy plant in the early morning hours on September 18, 1869. The *Post* again covered the story on September 20, noting the location as Smallman St. The damage reached \$9,000. On September 21, the *Pittsburgh Daily Commercial* placed the damage at \$7,000, noting that only \$5,500 was covered by insurance. The burning heralded the end of Jeremy’s glass enterprises. See Table 1 at the end of the History Section for a comparison of the Arsenal and Aetna Glass Works.

Aetna Glass Works, Lawrenceville (Pittsburgh) (1867-1869)

As noted above, C. Jeremy & Co. had been operating the Arsenal Glass Works by early 1865, but Modes, Ryrie & Co. had gained control by August of that year. By December of 1866, Townsend & Lewis ran the works, still under the Arsenal name. At some point during 1867, Jeremy, Heitzman & Co. regained control of the Arsenal Glass Works *name* – but built a new factory at Lafayette Alley. Meanwhile, Modes & Nichols operated the Charlotte St. plant as the Aetna Glass Works, apparently resurrecting the name of the 1856 glass house that we know so little about (Roller 1996). The Modes group was certainly in control by July, when Lorenz & Wightman advertised that some of their wares were on sale at the Aetna Glass Works (see discussion below).

While we have information from most of the 1860s, 1867 is a mystery year. Townsend and Lewis remained in business, advertising until January. We do not know when Jeremy reclaimed the Arsenal name nor when (or why) Modes, now with a new partner, Joshua Nichols, resumed occupation of the Chestnut St. factory and selected “Aetna” to identify the new business. Aetna was a Sicilian nymph in Greek and Roman mythology, a name frequently used by businesses in the Pittsburgh area.

Modes & Nichols apparently disbanded when the factory burned on March 4, 1868. The *Pittsburgh Daily Post* erroneously reported that the “building of C. Jeremy’s glass works, on East St., Lawrenceville,” burned completely, including a loss of all tools in the early morning

hours of March 4, 1868. On March 6, the *Post* correctly identified the plant as the “glass house of Messrs. Modes & Nichols” and noted the damage estimate at \$10,000, only \$5,356 of which was covered by insurance. The *Post* added that the “establishment was destroyed, only a few cases of ware, which had been placed outside, being saved.”

Obviously, W.F. Modes rebuilt the factory on his own. The 1869/1870 edition of the city directory listed only Modes as the proprietor of the Aetna Glass Works at Chestnut (Figure 10). The plant made “black & green glassware, druggists’ ware, bottles, demijohns, porter, ale and soda bottles” as well as fruit jars, including the “Victor” (self sealing) and the “Triumph” (grooved-ring wax sealer). The works and office were located at “Forty-Second (late Chestnut) St.” (Hawkins 2009:13; McDougald & McDougald 1990:106; Roller 1996; 1998a:13). The ad must have been submitted shortly before the dissolution of the company.



Figure 10 – Arsenal Glass Works ad 1869/1870 city directory (Roller 1983:362)

The city council proposed the opening (i.e., the extension from Willow to the railroad) on December 18, 1868, and actually opened the street on March 30 of the following year. The city graded and paved the street on April 27, 1869, and installed sewer lines on August 3. Apparently, both Jeremy and the Modes groups created their own road into the glass house prior to that time.

The McDougalds noted that Modes sold the factory in 1869 to Bagley, Young and Co., who operated the plant as the Phoenix Roll Works (see Figure 3). This was probably conjecture on their part, although it is likely correct. The name was obviously chosen because the plant burned in 1868 and was rebuilt and run by Modes for awhile – a reference to the mythical bird “Phoenix” rising from its ashes.

In May of 1869, both Modes and his wife, Mary Kate, were buying (then selling) land in Beaver Falls, Pennsylvania, to build the factory of the Beaver Falls Glass Co., and this was probably financed by the sale of the Aetna Glass Works at Lawrenceville. Modes remained involved in the plant until 1879 (Hawkins 2009:13; Roller 1998b). In addition, the 1872

Hopkins map showed Bageley, Young & Co., the Phoenix Roll Works, at that location. The plant remained there until at least 1927 (McDougald & McDougald 1990:106; Roller 1996; 1998a:13). See Table 1 at the end of the History Section for a comparison of the Arsenal and Aetna Glass Works.

Lorenz & Wightman?

During 1867, Lorenz & Wightman was connected with the Aetna Glass Works. Roller (1998a:13-14) cited an ad from the July 8, 1867, issue of the *Pittsburgh Evening Chronicle* for patented fruit jars at the showroom of Lorenz & Wightman. The ad also noted that the jars were available at the Arsenal Glass Works “foot of Chestnut Street, Lawrenceville.” The ad was explained by a glassworker’s reminiscence in 1909:

In 1865 to 68, inclusive, a company of blowers [sic] operated a factory at the foot of Forty-second street, in Lawrenceville, on the site of the present Phoenix Roll Works, known as Modes, Ryrie & Co. Lorenz and Wightman took possession of this plant in 1868 and operated it for several years. . . (*National Glass Budget* 1909:11).

Several things about the ad (or similar ones from the same month) and the glassworker’s recollection are important. As all investigators know, memory is unreliable. In 1909, the blower’s 41-year-old recall probably was not perfect – although his dates for the Modes involvement with the Arsenal/Aetna Glass Works were pretty accurate – and, the Phoenix Roll Works continued to operate the former Arsenal Glass Works. By 1868, however, Modes, Ryrie & Co. had been replaced by Modes & Nichols.

The products offered in the Lorenz & Wightman ad were typical of those made by Lorenz & Wightman – Kline’s, Willoughby, and Mason jars – rather than the ones more commonly produced by Aetna. The wording of the ad is relevant: After suggesting that customers visit the Lorenz & Wightman office and warehouse in Pittsburgh, the bit added “or at the Arsenal Glass Works” (Figure 11). The ad made *no claim* that the jars were made at or by the Arsenal Glass Works or that Lorenz & Wightman had leased or controlled the factory. Therefore, it is likely that Lorenz & Wightman were only selling jars *through* the Arsenal Glass Works – a fairly

common arrangement in the last half of the 19th century. If Lorenz & Wightman had leased the factory in 1867 and 1868, Modes would only have made jars under the Aetna name for one year or less. As the discussion in the Containers and Marks section shows, he made an awfully large number of jars for just one year.

Lorenz & Wightman may have been experiencing a crunch for warehouse space during 1867. The *Pittsburgh Daily Post* announced on November 27 that Lorenz & Wightman had moved their office and warehouse from “Water Street, below Market,” to “No. 32 Wood street, immediately below the St. Charles Hotel.” Note that this shift was for the warehouse and office – *not* the factory. The need to also sell products from the Arsenal Glass Works in July may have been spurred by the same lack of space (or some other reason – e.g., crumbling infrastructure) that caused the move in November.

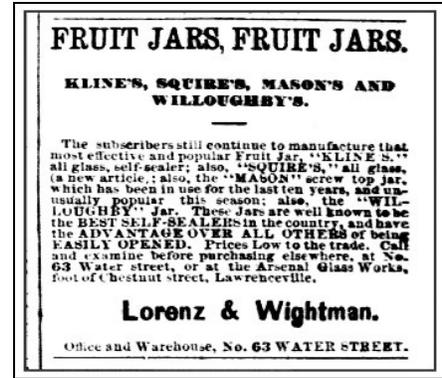


Figure 11 – Lorenz & Wightman 1867 ad (*Pittsburgh Daily Commercial* 7/4/1867)

Table 1 – Comparison of Plant Names, Operators, and Locations

Date	Arsenal Glass Works	Aetna Glass Works
1865	C. Jeremy & Co. (Chestnut) [Aug] Modes, Ryrie & Co.	
1866	[to Sep] Modes, Ryrie & Co. [Oct] Townsend & Lewis	
1867	[Jan] Jeremy, Heitsman & Co. (Lafayette Alley)	Modes & Nichols by July
1868	Jeremy, Heitsman & Co. (Lafayette Alley)	Modes & Nichols (Burned March 6) (Chestnut)*
1869	Jeremy, Heitsman & Co. (Lafayette Alley - burned Sep 18)	W.F. Modes (42 nd St. {Chestnut}) Sold to Bagley, Young & Co.

Containers and Marks

A.G.Co.

Knittle (1927:441) attributed the AGCo mark to the Arsenal Glass Co., Pittsburgh. Toulouse (1971:39) followed Knittle but dated the mark (probably without ever seeing it) ca. 1865 to 1868, likely based on the dates for the Arsenal Glass Works. However, Toulouse noted that “no other reference has been found.” Jones (1966:15) agreed with the Arsenal identification and dated the mark “1755-1865 - - ??” then added, “also Avis Glass co, Avis, PA 1906-1910.”

Since neither the Arsenal Glass Works nor the Aetna Glass Works was ever listed as “Glass Co.,” this attribution is almost certainly incorrect. The A.G.Co. logo was almost certainly used on flasks by the Atlanta Glass Co., although there is a chance that it was also used by the Annapolis Glass Co. The mark was also used on soda, beer, and a few other bottles, but most of those were far too late to have been made by either Arsenal or Aetna. For a complete discussion, see Lockhart and Teal (2011) or the chapter on AGCo.

A.G.W. (1865-1869)

Although the A.G.W. mark may have been used by the Alloa Glass Works in Scotland (Toulouse 1971:41), it was certainly used by the American Glass Works at Pittsburgh (ca. 1897- ca. 1901) and the American Glass Works, Inc., at Richmond, Virginia, and Paden City, West Virginia, from 1908 to ca. 1935 (Lockhart et al. 2012; 2013). However, a single flask offered at an eBay auction did not fit either venue. The shoo-fly flask from the eBay auction was aqua in color and mouth blown. The applied finish consisted of a single, rounded ring offset below the rim. The base showed the seams of a key mold (Figures 12-14). Flasks made by the Arsenal Glass Works (see below) had both key and post bottoms. Bill Lindsey dated the flask between the late 1860s and early 1880s – based on manufacturing attributes alone – and noted that the characteristics were especially known on bottles made in Pittsburgh (see Lindsey 2021 for a discussion about this type of flask and mold).



Figure 12 – Flask with AGW basemark (eBay)

This date range did not fit with our knowledge of the American Glass Works of Pittsburgh, a known user of the “A.G.W.” logo. Prior to ca. 1886, American Glass was almost exclusively devoted to the production of window glass. We have found no data to suggest that American Glass made any bottles prior to the reorganization as the American Glass Works, Ltd, ca. 1886.



Figure 13 – Closeup of finish of AGW flask (eBay)

However, the dates fit quite well with either the Arsenal Glass Works, a known maker of flasks during the 1865-ca. 1869 period, or with the Aetna Glass Works (1854-1856; 1866-1869). In its 1869 ad, Aetna

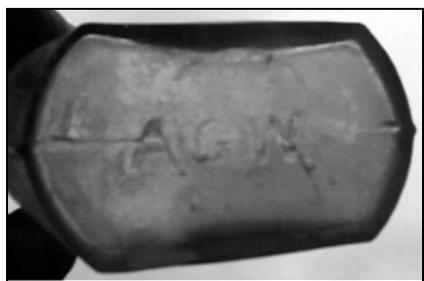


Figure 14 – Base of AGW flask (eBay)

made black & green glassware, druggists’ ware, bottles, demijohns, porter, ale and soda bottles, and fruit jars.

Although neither flasks nor any form of liquor container were specifically noted, their manufacture was possible – and such flasks were frequently used by druggists, so the flask may have been considered druggists’ ware. Because Arsenal was a known manufacturer of flasks, it is more likely that flasks marked with A.G.W. were made by the Arsenal Glass Works

between 1865 and ca. 1869. However, we cannot fully discount the Aetna Glass Works as a possible user of the mark.

A.G.Wks.L.

Innes (1976:216, 229) identified the “A.G.Wks.L.” mark as used by the Arsenal Glass Works on fruit jars. He noted that the company also made flasks but did not directly associate the mark with any flask. Innes very likely confused this mark with the A.G.W.L. mark used on wax-sealer fruit jars, and “Wks.” may have been a typographical error. We have not found any examples of this mark.

A.G.W.L. / PITTS, PA

There is no question that the A.G.W.L. mark was used by the American Glass Works, Ltd., Pittsburgh, on a variety of bottles and flasks between ca. 1886 and ca. 1897. However,

none of these other containers included any embossed reference to Pittsburgh (e.g., PITTS, PA). The Pittsburgh designation only appeared on grooved-ring, wax-sealer fruit jars.

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. Innes (1974:178) attributed the A.G.W.L. Pitts. Pa. on a “preserving jar” to “the mysterious Arsenal Glass Works” (correctly identifying the mark in this earlier work – see A.G.Wks.L. above). 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 (1987:4) 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 15). 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 capital “A” in “PA” and either lacked punctuation or had very weak punctuation between the initials.

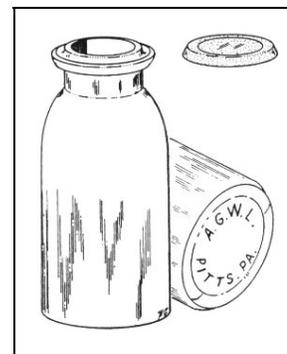


Figure 15 – Wax-sealer fruit jar with AGWL basemark (Creswick 1987:4)

Roller (1998a:13) referenced the “A.G.W.L. PITTS, PA” mark, citing the jar number from his earlier (1983) book and Creswick’s number for the same jar in his discussion of the Arsenal Glass Works – indicating that he still considered Arsenal or Aetna as a possibility as the user of the mark. Aside from Innes’s unsupported ascription of the AGWL mark to the Arsenal Glass Works, we have found no other reference to fruit jar manufacture by that company.

While there is strong reference to wax-sealer fruit jars in the 1869 ad for the Aetna Glass Works, no other direct reference exists (at least that we have found). In comparison, the

American Glass Works, Ltd., advertised fruit jars from 1887 to 1896. In addition, if the “L” equaled “Lawrenceville,” why would “PITTS” be included? See the Discussion and Conclusions section for further discourse.

ARSENAL / GLASSWORKS / PITTS PA (1865-1866)

McKearin and Wilson (1978:175-176, 639) discussed and illustrated three flasks embossed on the front with “ARSENAL / GLASSWORKS / PITTS PA” in an oval frame below an eagle. The reverse of these flasks was embossed with the illustration of a prospector. There is virtually no question that these flasks were made by the Arsenal Glass Works at some point between 1865 and

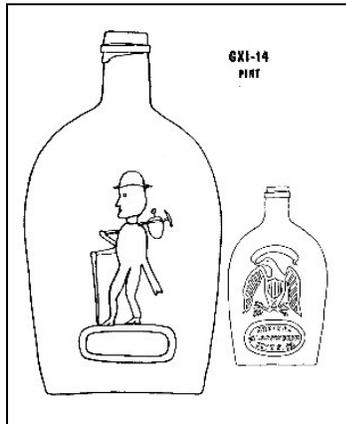


Figure 17 – Arsenal Glass Works pint flask, GXI-14 (Eaton & Clint 2001:149)

1869. Eatwell and Clint (2001:149-151) illustrated all three variations of the flasks, one in quart size, two in pints, noted in the McKearin and Wilson numbering system as GXI-13, GXI-14, and GXI-15 (Figures 16-18).

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Eatwell and Clint (2001:138) also noted basal characteristics. Although each base of the three Arsenal Glass Works flasks had a slightly different style, the bases of the two pints were both what is often termed “key” bottoms. These had a mold line

that extended across the long axis of the oval base with a semicircular bend in the center. The quart base had a post bottom.

Although the figure on the reverse resembled a hobo from a later period of history, Freeman (1964:100) and McKearin & Wilson (1978:496-499) used the word “prospector” to describe him – and the pictures *do* illustrate a tiny shovel and pick in the bag on the stick over the man’s shoulder. Eatwell and Clint (2001:133, 138) discussed this figure and identified it as a prospector, miner, gold-

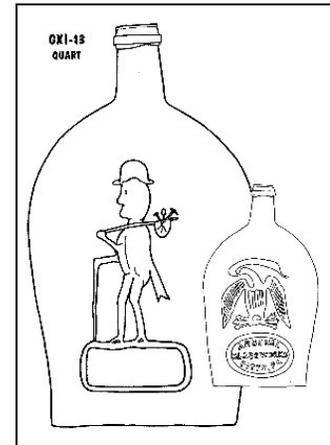


Figure 16 – Arsenal Glass Works quart flask, GXI-13 (Eaton & Clint 2001:148)

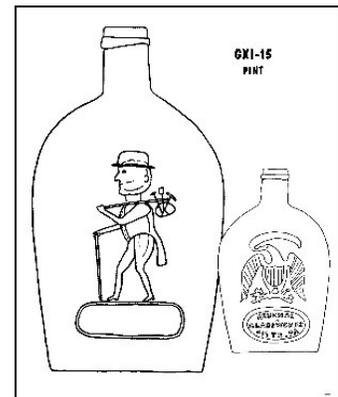


Figure 18 – Arsenal Glass Works pint flask, GXI-15 (Eaton & Clint 2001:150)

seeker, or traveler. During the mid-1800s, this depiction of a man with a stick over his shoulder and tools or belongings in a bag tied to the stick was the symbol of the “traveler” walking his way to the gold fields.

Eatwell and Clint (2001:148-149, 151-152) also noted that Wm. McCully & Co. used the same molds to make its version of both pint flasks (Figure 19). It seems likely that McCully purchased the molds when Arsenal ceased operations. The name “ARSENAL” was peened out, and “W.McC&Co” was engraved in its place.

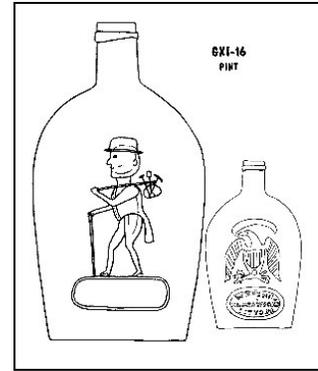


Figure 19 – Wm. McCully quart flask, GXI-16 – corresponds to GXI-15 (Eaton & Clint 2001:148)

Eatwell and Clint (2001:138) also included a rarity scale. According to their system, all three Arsenal flasks were rated “scarce 36-75 known.” The McCully flasks, however, were “rare 25-31 known.” Unfortunately, this could be interpreted in two ways: 1) McCully made the flasks first (older, less likely to survive); and 2) McCully just made less flasks or for a much shorter period of time.

TRIUMPH N^o. 1 (or 2 or 3) (1867-1869)

Roller (1983:362) reproduced the 1869 ad by the Aetna Glass Works that included “TRIUMPH” jars. Although



Figure 21 – Triumph jar (Antique Bottles.net)

“TRIUMPH” was offset from “GROOVED

RING” in the ad by separate quotation marks, the jars were noted as having a

grooved wax seal. Each of these jars was

made in a three-piece mold and had a distinct shoulder that tapered up to the grooved-ring finish. “TRIUMPH / N^o 1” (or N^o 2) was embossed on the shoulder. Roller dated the jar ca. 1869 by the Aetna Glass Works.

Creswick (1987:209) added a “N^o 3” and illustrated the jars, also citing the Aetna Glass Works as the maker (Figures 20 & 21). She noted that the

“shoulder was pressed down while hot to form the groove.” Roller

(2011:521) illustrated the jar with a high-quality photo but added little information.

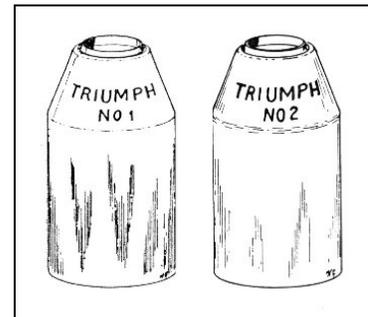


Figure 20 – Triumph jars (Creswick 1987:209)

Modes only operated the Aetna Glass Works alone for a very short period – no more than a year, possibly a much shorter period, although the jar could have been made a year or so earlier. The embossed numbers almost certainly represented different molds – rather than model numbers. The style of the jar and the finish did not change. So, Modes apparently produced the jars from only three molds. The name was likely a product of the time period. The Civil War had only ended three or four years earlier, so the Triumph likely celebrated the Union victory.

Three other jar types – Union, OK, and C.K. HALLE & CO. – were very similar, although none of these were mentioned in our very limited sample of Aetna or Arsenal ads. Each of these jar types was produced in a three-piece mold, had an upwardly tapered shoulder with no (or very little) neck, and was topped with a hand tooled, grooved-ring, wax-sealer finish.

Union No. 1 (or 2 or 3 or 4) (ca. 1869)

At least superficially, these closely resembled the Triumph series of jars. The combination of a three-piece mold, upwardly tapered shoulder, grooved ring, and the use of “No. x” immediately below the name seems to be more than just coincidence. Creswick (1987:211) described the finish of these jars as “wax seal groove, with lugs or ears on each side of neck.” This addition of lugs to hold on some kind of lid (almost certainly metal) was a likely improvement on the Triumph (Figure 22).

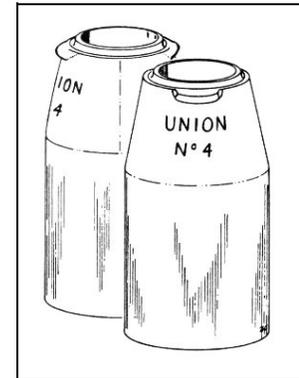


Figure 22 – Tapered Union jars (Creswick 1987:211)

Roller (2011:525) described the same three-piece mold process as grooved-ring, metal cap, and tooled groove finish. He noted that the “jars were very similar to the ‘PEORIA’ stoneware ‘tomato jars’ used for many years.” He agreed that the lugs were in place “to hold down the metal lid.” Roller also identified five variations of these jars:

- 1) UNION / N° 1
- 2) UNION / N° 2
- 3) UNION / N° 3
- 4) UNION / N° 3
- 5) UNION / N° 4

Each embossing of “UNION” and the number was placed on the shoulder. Because the jars were blown into the dip mold, then lifted out, any embossing made on the body would have been erased during the removal (Figure 23 & 24). As with the name for the Triumph jar (see above), the Union moniker almost certainly referred to the Northern victory in the War between the States, ended in 1865.

Creswick (1987:211) suggested that the manufacturer was “Union Flint Glass Works, Pittsburgh, Pa. for J.P. Smith & Co. (or J.P. Smith Son & Co.) Pittsburgh, Pa. circa 1868-1885.” As often was the case, she did not explain why she reached this conclusion, although she almost certainly chose the Union Flint Glass Works because of the “UNION” name on the jar. In discussing the OK jar (see below), Creswick (1987:166) stated that J.P. Smith & Co., advertised OK jars. Although she added the dates when Smith (a glassware jobber) was open (ca. 1868-1885), she did not tell us when the ad was placed. She also failed to state whether Smith also advertised Union jars or if she made the inference based on the similarity between the two jar types. However, J.P. Smith & Co. was established in 1862, so it would have been in business during the full tenure of the Aetna Glass Co. (Thurston 1876:242). For more about J.P. Smith, see the discussion in the Other J section.

John Hay and William McCully established a plant at Pittsburgh in 1829 – called the Union Flint Glass Co. The two parted company ca. 1832, and the factory was then operated by a series of owners. By 1849, Wallace, Lyon & Co. had gained control, with James B. Lyon & Co. taking change in 1852 (Creswick 1987:285; Hawkins 2009:400-401; Pittsburgh City Directory 1888; Welker and Welker 1985:97). It is uncertain how long the plant operated under the title of the Union Flint Glass Works. Virtually all advertising, however, was placed in the name of the operating company (e.g., James B. Lyon & Co.) – not in the name of the factory.

The timing is almost certainly irrelevant in this context, however. Lyons and probably most of those who preceded him made tableware. The few containers offered were high quality



Figure 23 – Tapered Union No. 3 jar (North American Glass)



Figure 24 – Finish of Union jar; note mold seams (Courtesy of North American Glass)

table bottles, including toilet bottles of amber glass, bitters bottles, and water bottles for use on a table (Creswick 1987:280; Innes 1976:67, 433, 486). It is highly unlikely that the plant *ever* made common fruit jars or other “green” (i.e., aqua) common bottles.

The editors who revised the Roller book (Roller 2011:525) suggested that William F. Modes may have “made these jars since he sold similarly shaped ‘TRIUMPH’ jars . . . in 1869 as well as other shapes of UNION jars.” This suggestion of “other shapes” almost certainly indicated the UNION jar series made by Modes at the Beaver Falls Glass Co., started by Modes in late 1869, as soon as he left Pittsburgh.

This later series of jars was made in the more typical two-piece mold configuration, although they were embossed “UNION / No 1” on the upper part of the body. Roller listed No 1, N° 2, N° 3, No 4 as well as two variations embossed “N1” below UNION, one with “5” below UNION, and one with three dots below UNION. A variation marked “N1” was also embossed “BEAVER FALLS GLASS Co. BEAVER FALLS, PA.” on the base.

OK

Roller (1983:268; 2011:397) noted a jar embossed “OK” on the tapered shoulder and described it in almost the same terms that he used for the Triumph and Union jars, referencing all three jars as similar. Creswick (1987:166) illustrated the same jar but had little information (Figure 25).



Figure 26 – Finish of OK jar
(North American Glass)

A major feature – distinct from the other tapered jars – was “a rib below the groove ring finish.” We describe the “rib” as more of a ring around the base of a very short neck that rose slightly above the tapered shoulder of the jar (Figure 26).

Creswick noted that the OK jars were “advertised and sold by J.P. Smith & Company, glass jobbers in Pittsburgh, Pa., c. 1868-1885” (actually established in 1862 – see above). Creswick (1987:167) also described and illustrated an identical jar without the “O.K.” embossing.



Figure 25 – OK jar
(North American Glass)

The Roller editors (2011:19) also called attention to the similarity between the Agnew jar and the “OK” jar. And, they were completely correct. A careful view of both top photos of the finishes (Figure 27 and see Figure 25) shows that both were created in the mold – with mold seams extending from the sides to the ground rim (or lip). See the section of the Agnew factories for more information.



Figure 27 – Agnew jar (North American Glass)

C.K. HALLE & C^o (1867-1869)

Roller (1983:508; 2011:227) described three variations of a jar with essentially the same embossing (with very minor differences). The variation of interest to us was embossed “C.K. HALLE & C^o (arch) / 121 WATER S^t / CLEVELAND O. (both horizontal)” on the shoulder. The configuration of the jar was again very similar to the ones described above. In fact, it was virtually identical with the Victory series. According to Creswick (1987:77) and McCann (2012:170), C.K. Halle & Co. was in business from 1866 to 1870. Creswick illustrated the jar (Figure 28).



Figure 28 – C.K. Halle jar (Creswick 1987:77)

Our research suggests that Creswick and McCann were essentially correct. A C.K. Halle & Co. ad in the January 22, 1866, edition of the *Cleveland Daily Leader* called the firm “Successors to S.S. Barrie & Co.” – in other words a new firm, possibly begun in late 1865. The firm called itself “Jobbers of Table and Saloon Glassware” with an address of 116 Bank St., Cleveland. The 1867 Cleveland directory listed C.K. Halle & Co. as “glassware, lamps, oil, etc.” at 121 Water St. The listing continued in 1868, but the directory missed the firm in 1869. In 1870, the address was 142 Water St. By 1872, the firm was Hall, Skall & Co., listed as the “Headquarters for Mason Jars” at the 142 Water St. address. Clearly, C.K. Halle & Co. was open at the address on the jars during 1867 and 1868, the period when the Aetna Glass Works was in business.

VICTOR

The Aetna Glass Works 1869 ad also included the “VICTOR Self Sealing” jar. 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; the jar likely had no embossing. Like the other jar names (see above), this one obviously referred to the winning of the Civil War by the Union forces. With the term “self sealing,” this could not have referred to the Union series of wax sealers. However, with his penchant for Union victory names, it could have meant the Mason jar discussed in the next section.

W.F.M. (poss. ca. 1869)

Roller (1983:240) discussed and illustrated “W.F.M.” on the base of a jar embossed “MASON.S (slight arch) / 2 / PATENT NOV 30TH / 1858 (all horizontal)” on the front. He observed that the maker was “uncertain, but the initials may have been those of William F. Modes, who was associated with many glasshouses over a long period of time.” Creswick (1987:148) illustrated the jar (but not the base) and noted that a variation had an unmarked base. Leybourne (2001:266) noted two minor variations, one with “W.F.M. (plated out) with mold #214” (Figure 29).

Whitten (2010) identified the mark as belonging to the “Aetna Glass Works (William F. Modes, Proprietor), Pittsburgh, PA (circa 1869).” In a personal communication (3/12/2010), David said that he based the identification on the 1869 Aetna Glass Works ad. Although Modes was involved in many other glass houses, Whitten was likely correct. There would be no reason for his initials alone after he sold the Arsenal Glass Works in 1869.

Modes was a partner in the Beaver Falls Glass Co. from 1869 to 1872, then was involved with others in glass houses from 1873 to 1893. During the latter year, Modes opened the Modes Glass Co. at Cicero, Indiana, and operated it until 1902, but we have found no evidence that he made jars at that plant. Assuming that the initials belonged to Modes (the only “fit” we have found), the “W.F.M.” jars were probably made during the 1866-1869 period. Modes may have had the molds made prior to taking on Ryrrie as a partner and continue to use them until he sold the Arsenal plant in 1869. See the

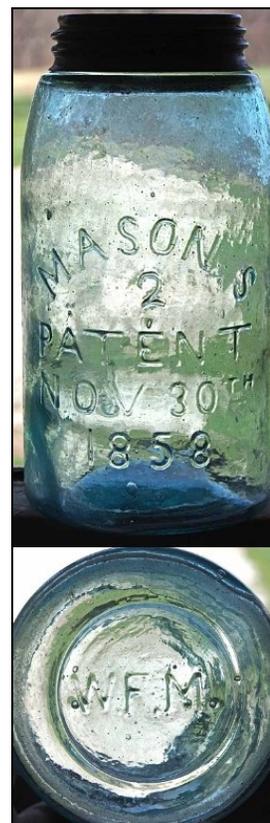


Figure 29 – W.F.M. (North American Glass)

section on the Streator Bottle & Glass Co. for a more detailed chronology of the life of William F. Modes. As noted in the section above, the *could* have been the jar Modes advertised in 1869 as the “VICTOR Self Sealing” jar. Modes certainly had a predilection for names concerned with the termination of the Civil War.

Discussion and Conclusions

This study has rendered all previous investigations of the Aetna and Arsenal Glassworks obsolete – including our earlier works. Dates and information have become much clearer, along with the relationships of the plants with the containers they produced. For those interested, see Lockhart (2010) for a summary of the older publications.

Ewalt and Chestnut Locations

Both the *Pittsburgh Daily Post* and the *Pittsburgh Gazette* reported on November 20, 1865, about the fire that destroyed the “Ryrie & Co.” glassworks. Both papers called the location “Ewalt St.” However, the land that William F. Modes purchased from William Rehen on July 19, 1866 – with “a Building for the manufacture of Glass” – was along the Allegheny Railroad. An 1866/1867 atlas of Lawrenceville showed the location of Modes, Ryrie & Co. at the intersection of Chestnut St. and the Allegheny Railroad – obviously the former Rehen property. Ewalt St., however, was only one block northeast of Chestnut. But, on the 1862 map of the area, Chestnut did not extend north far enough to reach the Rehen property. Chestnut ended at Washington St., renamed Willow by 1872 (see Figure 4). Could the Ewalt St. location, reported by both newspapers for “Ryrie & Co.” in 1865 *really* have been Chestnut?

Remember that news reporting was vastly different in the 1860s from today. There were no cell phones, no automobiles – none of the rapid communication devices that we consider normal in the 21st century. Both newspapers used the exact same wording, so they received their information from the same source – two days after the fire. Also recognize that these were Pittsburgh newspapers, a bit removed from Lawrenceville. Someone traveling on a horse or in a horse-drawn wagon stopped by the newspaper office to deliver the report. He (probably a male at that time period) did not even know the correct name for the operating company.

In 1865, the extension of Chestnut St. had yet to occur, so the informant gave the name of the closest street: Ewalt. The snippet was only minor news, and neither paper followed it up with or questioned the source. Therefore, it is fairly certain that the burned factory was, in fact, the one at Chestnut St.

And the Containers

The important issues here, of course, are the jars and bottles, most of which were discussed sufficiently in the text above. A few, however,

The Perplexing A.G.W.L. / PITTS, PA Fruit Jar

Although there is virtually no question that the American Glass Works, Limited, made the beer/soda bottles, Hutchinson bottles, and strap-sided flasks with the AGWL mark, the identification of the same mark (with PITTS, PA) on grooved-ring, wax-sealer fruit jars is not so easy to place. As noted above, 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). In this interpretation, Lawrenceville provided the “L” at the end of the logo.

Ads cited in Roller (n.d.) listed fruit jars for the American Glass Works, Limited, from 1887 to 1901. The Arsenal/Aetna situation was much more complex. The original Aetna Glass Works (1854-1856), the Arsenal Glass Works under Modes, Ryrie & Co. (as well as under Townsend & Lewis and Jeremy, Heitzman & Co.), and the Aetna Glass Works all advertised a variety of bottles and vials but did not specifically mention fruit jars. Only the 1869 ad from the Aetna Glass Works under William F. Modes specified the Victor, Triumph, and “Grooved Ring” fruit jars.

Although this may be irrelevant, another point concerns the shape of mark. Except for the wax-sealer fruit jar base, all other examples of the A.G.W.L. logo that the Bottle Research Group has found were embossed in a straight line either at the heel or across the base. Although a change in a single jar type is possible, the fruit jars do not fit the pattern observed in all other uses of the mark. See Figures 30 and 31 for a comparison.

If the 2001 value for the jars marked “A.G.W.L. / PITTS, PA” (\$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. Tom Caniff (personal communication 3/9/2010) stated that the A.G.W.L. jars were not common, but there was also almost no demand for them. Jay Hawkins (personal communication 2/15/2010) noted that he had seen these jars “with some regularity” – suggesting that they cannot be too scarce in the Pittsburgh area.



Figure 30 – Base of an AGWL fruit jar (Jay Hawkins collection)

The Triumph jars (from the Aetna period), on the other hand, were valued at “\$500 and Up” during the same year (Leybourne 2001:366-367). Like Leybourne, McCann (2010:184) did not specifically discuss rarity, but he *did* state that Triumph jars were “not available.” Tom Caniff added that these “are indeed as scarce as the price guide suggests. You don’t see them often.”



Figure 31 – Base of an AGWL flask made by the American Glass Works, Ltd. (Jay Hawkins collection)

Admittedly, trying to compare these jars by level of scarcity is tricky at best. As Bill Lindsey (personal correspondence 3/11/2010) warned, “The Triumph jars are unusual and uniquely shaped and body (shoulder) embossed raising their desirability multi-fold over the base embossed AGWLs – even with the same rarity level (or even if the AGWLs were much rarer than the Triumphs).” Even with these cautions, we could expect jars made by Arsenal (or Aetna), produced during an earlier period (1856-1869) to be more scarce than ones made by the American Glass Works, Limited (ca. 1886-1897). This look at scarcity supports the hypothesis that the A.G.W.L. jars were made by American Glass.

If we limit our search to the Arsenal Glass Works, the length of time in business becomes equally important. We would expect more jars to have been made (thus, a probable greater survival number) during the decade-long tenure of the American Glass Works rather than the possible four-year period when the Arsenal/Aetna Glass Works were in business. The scarcity factor favors a manufacture of these jars by the American Glass Works, Limited.

After this lengthy and speculative discussion, however, the maker of the wax-sealer jars embossed “A.G.W.L.” remains in some contention, although the bulk of the evidence leans toward the American Glass Works, Limited, as the maker of them. At this point, there is no reason to believe that the Aetna Glass Works used any marks on any of its products. The Arsenal Glass Works certainly used its full name on the faces of flasks and probably used AGW on some flask bases. Neither firm used an AGCo mark.

Triumph, Union, and Related Fruit Jars

Out of the literally hundreds of fruit jars recorded by Toulouse (1969), Roller (1983; 2011), and Creswick (1987), only four types had grooved-ring finishes, tapered shoulders, and a manufacture in three-piece molds (Figure 32). Although this is hardly scientific, all of the jars *look* related. In addition, two of them use the “No. *x*” system directly beneath the name.

These jars were manufactured using a technique that was already outdated by the late 1860s. Roller (2010:525) described all these jars as “wax seal, grooved ring and metalcap.” They were “hand blown” with “tooled groove, ground lip.” The “double tapered jars were made in specially constructed three-piece molds.” Each “had a seam around the circumference of the jar .

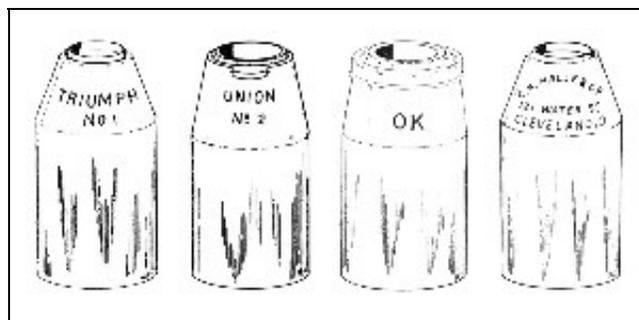


Figure 32 – Composite of tapered wax-sealer jars (Creswick 1987)

. . and have two opposite side seams running upward from the central seam to the lip.”

This describes a traditional three-piece mold, where the bottom section was a dip mold. A dip mold was the earliest type of mold, consisting of a hollowed out section of wood or metal into which the blower blew the basic cylindrical shape of the bottle or jar. These must be slightly flared from the base to the shoulder so that the bottle or jar may be pulled upward out of the mold. The two side pieces were hinged to the dip mold, so that they opened out to the sides rather than the doorway type of opening found in later two-piece molds (Figure 33). The finish was then tooled as the final operation before the container was sent to the annealing oven.

Three-piece molds were used in the U.S. by ca. 1830 but were mostly phased out by ca. 1870. Some use continued into the very early 20th century, but bottles and jars made with this technique became increasingly less common after the 1860s (Lindsey 2021). This suggests that these jars were made by a technique that was somewhat outdated by the latter part of the 1860s. Their use after the Aetna Glass Works period should therefore have been quite limited.

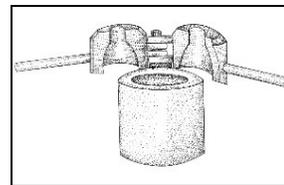


Figure 33 – Three-piece mold (Lindsey 2021)

If price indicates scarcity (which is debatable but likely in this case), then we can rank the scarcity of these four jar types. Both the Halle and OK jars are rare – although the assignment of the OK jar to the Agnew firms is pretty certain. There is no question that the Halle jars were a special order, almost certainly placed only once. Halle used other jar types (including the more typical wax-sealer configuration) very likely replacing the tapered jars.

The Triumph series of jars (No. 1-No. 3), while still uncommon, is much more available today. We have somewhat solid evidence that the Aetna Glass Works made the Triumph series of jars by at least 1869 (Roller 1983:362). Since there was no design change, No. 1, No. 2, and No. 3 was almost certainly an early method of mold numbering. Modes likely discontinued production of these jars when he sold Aetna and moved to Beaver Falls.

The most plentiful (but still uncommon) jars of this type were the ones in the Union series (No. 1-No. 4). If the numbers are mold codes, then Union jars should be the most common of the group – as, indeed, is the case. These appear to have been an improved version of the Triumph – with glass “ears” at the finish, presumably to secure some kind of wire device that held the metal lid in place. Logically, these would have followed the Triumph in production.

This type of logic suggests that the Union jars were made by someone after the demise of the Aetna Glass Works. Creswick (1987:211) suggested the Union Flint Glass Works, which – like Aetna – was situated at Pittsburgh. As explained above, it is highly unlikely that the Union Flint Glass Works made fruit jars, despite the similarity in the name and the location.

However, there is a competing set of information that supports a different hypothesis. Another series of jars was made in the more typical grooved-ring wax-sealer configuration and was embossed with “UNION” above various numbers, including No. 1, No. 2, No. 3, N 1, 2, and 5, as well as one with no number (Creswick 1987:211). At least three of these were also embossed “BEAVER FALLS GLASS Co. (arch) / BEAVER FALLS, PA. (inverted arch)” on their bases (Figures 34-36).



Figure 34 – Union No. 3, Beaver Falls (North American Glass)

Since William Modes was the former owner of the Aetna Glass



Figure 35 – Base of Union No. 3, showing Beaver Falls embossing (North American Glass)

Works, then moved immediately to Beaver Falls to open the Beaver Falls Glass Works, he would likely have continued his tradition in wax-sealer fruit jar production, albeit with the latest in technology. However, changing the name of the jar from Triumph to Union makes little sense – *unless* he had already used the name at Pittsburgh. If the tapered “UNION No. 1” and other numbered jars of the same type were the other “GROOVED RING” jars advertised by Aetna in 1869, the progression fits nicely into place.

One final possibility is that Modes took the molds with him to Beaver Falls and continued to make the jars there during the earliest period of production. He could have made the Triumph series at the Aetna Glass Works during the final two years, adding the Union series of improved jars just before the move to Beaver Falls, continuing their production after the relocation. Soon, Modes replaced the older Union molds with second Union series, using the more common grooved-ring configuration. This hypothesis explains why the 1869 Modes ad from Aetna included the Triumph jars but left out the Union ones.

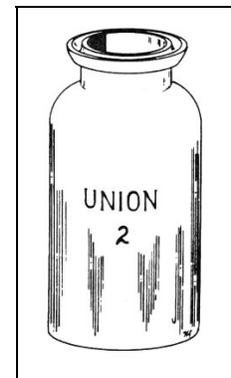


Figure 36 – Union 2 jar (Creswick 1987:211)

Supporting this idea, the 1870 Industrial Census noted that the Beaver Falls Glass Co. made 7,000 gross of fruit jars (1,008,000 jars) that year – in addition to 8,000 gross of bottles and flasks. If Modes & Nichols only made half that number of jars in 1867 and/or 1868 – 3,500 gross per year – that would be 504,000 jars in one year, 1,800,000 in two years. Even a reduced

production in 1869 would add about 2,000 gross more (288,000) for a total of 2,088,000 jars in those three years. Of course, we have no evidence that Modes & Nichols produced any of the jars – but that still leaves close to 300,000 jars made in 1869 at a conservative estimate.

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