Appendix A
C&Co Logos on Export Beer Bottles

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In our earlier study, we devised the hypothesis that Cunningham & Co. ceased production of export beer bottles after Dominick Ihmsen left the firm of Cunningham & Ihmsen in 1878 based on the paucity of "C&Co" logos on export beer bottles. Subsequently, information provided by Mathew Heikkila and Jason Oyadomari have demonstrated that Cunningham & Co. indeed made beer bottles during at least the first two years of production (see the section on "C&Co" logos in the main Cunningham study). Important for this section, however, the beer bottles brought to our attention by Heikkila and Oyadomari were champagne beers rather than *export* beer bottles. Although this caused us to revise the use of the mark during the 1878-1882 period, the hypothesis about the "C&Co" logo's appearance on *export beer bottles* remains valid.

To test the export beer bottle hypothesis, we looked at the few available reports that featured the C&Co mark, then created a chronology of relevant events in the development and use of export beer bottles. We intentionally developed this chronology independent of the one created by Lockhart (2007) because of possible new information discovered during the revisions.

Reports on Export Beer Bottles

Fort Stanton, New Mexico

Lockhart (2011) only discovered seven export beer bottles with C&Co marks at the ten loci of the Fort Stanton dumps (Figure A-1). In contrast, he recorded 49 bases with the "C&CoLIM" logo and 44 with the "DOC" marks (See Table A-1 for distribution). Not surprisingly, the vast majority of "C&CoLIM" and "DOC" logos appeared on later loci, with median dates of 1890 or later. Since the post closed in 1896, no depositions were made beyond that year.

Figure A-1 – C&Co beer base (Fort Stanton)

The notable feature of the distribution is the lack of any bases with "C&Co" logos on the earliest locus and only one on the next two (1883.6-1886.9). Although the number of examples is small, the distribution is strongly in the period for Cunninghams & Co. – 1882-1886. The latter distributions (see Loci South 3 and East 1 & 2) also blend into the distributions for the later two marks (C&CoLIM and DOC). This suggests that the "C&Co" logos were used immediately prior to the later two marks.

Table A-1 – Date Ranges of Loci and Number of Cunningham Basal Markings

C&Co	C&CoLIM	DOC	Locus	Mid-Range Date
			#7 (Beer Bottle Dump – South)	1882.9
	3	1	#3 (Beer Bottle Dump – East)	1885.9
1			#1 (Beer Bottle Dump – South)	1886.5
1	1		#2 (Beer Bottle Dump – East)	1886.5
1			#2 (B Beer Bottle Dump – South)	1887.7
1		1	#1 (Beer Bottle Dump – East)	1888.0
	22	19	#4 (Beer Bottle Dump – South)	1889.2
	2	7	#6 (Beer Bottle Dump – South)	1889.4
	2	6	#5 (Beer Bottle Dump – South)	1889.9
3	15	10	#3 (Beer Bottle Dump – South)	1890.5

McMillenville, Arizona

At the PIT (Passport in Time – a Forest Service/BLM where volunteers assist with cultural resource management projects across the country) project at the McMillenville, Arizona, town site in 2013, Bill Lindsey discovered numerous export beer bases with the "C&I" logo but only found a single base with the "C&Co" mark. The site was pretty firmly dated between 1876 and 1887. Even though bottles with the "C&I" logo could only have been made between 1876 and 1878 and probably deposited on the site within five years of manufacture or less (ca. 1883), Cunningham & Co. was in business for the much greater period, but the surveyors only found a

single “C&Co” example. There were, of course, numerous other manufacturers represented on the site. This supports the discussion above.

Garcia House, San Elizario, Texas

In addition, Lockhart & Olszewski (1994:39) found 27 beer bottle bases with the C&Co mark at San Elizario, Texas, on a site now dated 1880-ca. 1886.

Development of Export Beer Bottles

Export beer bottles went through several stages of development as noted by Lockhart (2007) and Lindsey (2014). When Anheuser-Busch adapted pasteurization to the beer bottling process, there were no bottles yet developed for effervescent beer. Only soda, champagne, and sparkling mineral water bottles were sturdy enough to withstand the internal pressure. Adolphus Busch chose Apollinaris bottles, possibly for the look, and Anheuser-Busch purchased large quantities of the bottles to begin the export of beer to the western territories and overseas. Although Busch soon adopted the export beer, possibly as early as 1874, the brewery continued to use Apollinaris bottles until the supply was exhausted, possibly into the 1890s.

In 1873, Captain Pabst invented the export beer bottle and commissioned Wm. McCully & Co. to blow the first ones. The shape and thickness of the bottles caught the eye of the brewing industry, and the design remains in use well into the 21st century. The Mississippi Glass Co. formed in 1873 specifically to make export beer bottles along with other glass products. The next year, the Lindell Glass Co. opened, specializing in export beer bottles (Lockhart et all. 2009). Cunningham & Ihmsen added export beer bottles to its inventory ca. 1876. All of these firms made bottles for Anheuser-Busch as well as other brewers. Meanwhile, Carl Conrad & Co. began to distribute Budweiser to western venues in 1876.

The fourth source of bottles for Anheuser-Busch was the De Steiger Glass Co., opening in 1878, and this was the prelude to a major period of expansion that began in 1880. This expansion – primarily to the U.S. west – triggered a shortage of export beer bottles by 1880. The shortage was so extreme that Busch imported bottles from Germany. The need also increased in late 1881, when President Rutherford B. Hayes decreed a ban on liquor for use by enlisted

personnel at military installations (Hoagland 2004:116; Wilson 1981:3). The decree did *not* exclude beer, creating a major market for beer at frontier Army posts. The boom was on. D.O. Cunningham began making beer bottles in 1880, and Cunninghams & Co. joined in two years later. See Table A-2 for a chronology of relevant events in the development of the export beer bottle.

Wilson & Caperton (1994:70) recorded all the ads for beer bottle manufacturers from 1883 to the end of 1890 with samples from 1878 to the end of 1882. Fittingly, Cunninghams & Ihmsen (note plural) was only listed during early 1878. D.O. Cunningham advertised beer bottles by at least April 1881 and continued until late 1887. The Pittsburgh City Glass Works, Cunninghams & Co., props. (note plural) advertised from January 1883 to the end of 1885, followed by Cunninghams & Co., Ltd., in 1886. D.O. Cunningham controlled both firms by ca. November 1886. Conspicuously absent was any mention of a sample of ads from Cunningham & Co. from the last ad from Cunninghams & Ihmsen in early 1878 to January of 1883.

Table A-2 – Relevant Events in the Development of the Export Beer Bottle

Date	Event
1872	Anheuser-Busch adopted Appolinaris bottles for exporting beer
1873	Pabst invented the export beer bottle – first made by Wm. McCully & Co.
1873-1874	Lindell Glass Co. & Mississippi Glass Co. made beer bottles in St. Louis
1876	Carl Conrad & Co. began production of Budweiser
ca. 1876	Cunninghams & Ihmsen began export beer bottle production
1878	De Steiger Glass Co. began making export beer bottles
1880	Major export expansion of Anheuser-Busch and other brewers – major beer bottle shortage; Busch imported bottles from Germany
1880	Other glass houses – including D.O. Cunningham begin beer bottle production
1881	Presidential decree that enlisted men may only drink beer on military posts
1882	Cunninghams & Co. began beer bottle manufacture

Discussion and Conclusions

Although the evidence is sparse, it seems likely that there was a gap in export beer bottle production during the Cunningham & Co. period – 1878-1882. As noted in the history, Cunningham & Ihmsen began when George Duncan withdrew from the firm in 1866, selling his share to Dominick O. Cunningham. Dominick Ihmsen had entered the partnership by 1856, possibly because the company needed some financial infusion.

Although this is only speculation, there may have been some animosity between Dominick Cunningham and his relatives. Cunningham & Ihmsen made export beer bottles from ca. 1876 to the end of the firm in 1878. The two Dominicks may have been in accord about beer bottles. When Ihmsen, left Dominick Cunningham's uncles may have disagreed and eliminated beer bottle manufacture. This may have been the impetus that spurred Dominick O. Cunningham to form his own glass factory in 1880. He specialized in beer bottles from the beginning.

If our hypothesis – discussed in the main Cunningham section – is correct, Cunningham & Co. must have adopted a major shift in production during the 1878-1882 period. If the serif-C was, in fact, used by the Cunninghams during this time, the firm had converted to colorless (flint) glass and packer or medicinal bottles. This shift would have been responsible for the lack of export beer bottle manufacture.

We have not discovered any historical changes to account for the use of the plural – Cunninghams – in the name in 1882, but it could reflect a partial or complete withdrawal of Wilson (who died three years later) from the firm. Although the *addition* of the plural does not make intuitive sense, the connection with the elder Cunningham fits into the above speculation. If Wilson withdrew, Dominick's position became enhanced and led to the production of export beer bottles again in 1882.

A bit of a caveat is necessary here. As noted above, Heikkila and Oyadomari presented evidence that the production of beer bottles continued during the first years of Cunningham & Co., using the "C&Co" basemark. But, these earliest "C&Co" marks were on champagne beer bottles (also called select or lager styles) not on *export* beer bottles. So, it now appears that Cunningham & Co. continued to supply beer bottles to customers carried forward from

Cunninghams & Ihmsen but ceased the production of the generalized export beer bottles, allowing D.O. Cunningham to fill that gap beginning in 1880. However, the market demand apparently was great enough to spur Cunninghams & Co. to return to export beer manufacture in 1882.

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Appendix B – Did Cunningham & Ihmsen Make the First Bottles for C. Conrad & Co.?

Carl Conrad brought the formula for Budweiser beer to the United States and formed C. Conrad & Co. His friend, Adulphus Busch, actually brewed the drink at the Anheuser-Busch Brewery. The beer was popular, and Conrad shipped bottles all over the west. He overreached his financial abilities and declared bankruptcy in January 1883.

Each of Conrad's bottles was distinguished by a CC&Co monogram embossed on the base. With a single exception, the bottles had no manufacturer's mark. The "D.O.C." logo adorned the heel of one variation that was also embossed on the side with the Budweiser name and Conrad's identity.


Figure B-1 – CC&Co monogram – serifs

Conrad's basal embossing – CC&Co monogram – appears in two formats: one with distinct serifs on each letter "C" and one in a sans serif style (Figures B-1 & B-2). We have recorded three variations of the Conrad bottles: 1) serif base logo on bottles with no side embossing; 2) serif base logo on bottles with side embossing; and 3) sans serif base logos on bottles with side embossing. Bottles with the side embossing include the "Patent No." – actually the trademark registration number (Figure B-3). These could not have been made prior to 1878, the year that Conrad registered the trademark.


Figure B-2 – CC&Co monogram – sans serifs (eBay)

When Conrad declared bankruptcy, one of his main creditors was the Lindell Glass Co. Therefore, Lindell certainly made a large number of Conrad's bottles. These were almost

certainly made between 1878 and 1880 and constituted the most common forms – with no serifs on the monogram. The bottles with the "D.O.C." heelmark could only have been made in 1880 and must have been the final ones made for Conrad.

Figure B-3 – Side embossing (eBay)

This only leaves bottles with the serif logos to be explained. The time period is perfect. Although we do not know the exact year, Cunningham & Ihmsen probably began making export beer bottles ca. 1876. The bottle style was invented in 1873, made by Mississippi Glass Co. that year and Lindell Glass Co. the next. Logically, it would have been a year or so later before there would have been need for another manufacturer. That would be 1876 – just in time for Cunningham & Ihmsen to make bottles for Carl Conrad. For more information on Conrad and his bottles, see Lockhart et al. (2006).

While this is not a positive identification, it does fit with the "empty" spot in the Conrad sequence and the issues involved with the Cunningham family. As noted above, this provides an explanation for why Dominick O. Cunningham began his own business. If Dominick's father, Wilson Cunningham, ordered the end of production of beer bottles when Dominick Imsen left the firm in 1878, Dominick Cunningham was only left with one pathway into the beer bottle business – his own glass house.

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Appendix C – A. Stone & Co. Fruit Jars

Amasa Stone of Philadelphia patented two tools for manufacturing fruit jar finishes. He became a jobber of fruit jars – apparently only ones embossed with his name – ca. 1855 and remained in business until his death in 1864. Although his widow, Sarah Stone, attempted to receive an extension for the patent when it expired in 1869, it was refused. At least two early

variations of the jars carried the Cunninghams & Co. name, and three of the Cunningham factories advertised the Stone jars.

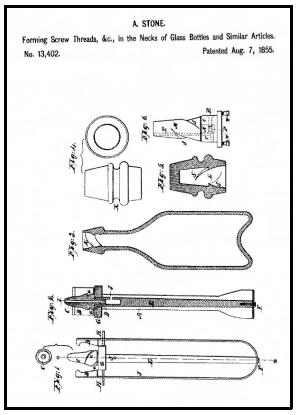
A. STONE.
Forming Screw Threads, &c., in the Necks of Glass Bottles and Similar Articles.
No. 13,402. Patented Aug. 7, 1855.

Figure C-1 – Stone's 1855 patent

Amasa Stone – 1855 Patent

On May 7, 1857, the *Pittsburgh Morning Post* advertised "Stone & Co.'s Patent Glass Preserving Jars, mfd. & sold by Cunninghams & Co., glass mfrs., No. 119 Wood St., Pittsburgh, PA." Amasa Stone received Patent No. 13,402 on August 7, 1855 (Figure C-1). Roller (1983:345; 2011:494) noted that the patent was for "a Process of Forming Screw Threads in the Neck of Glass Bottles. A disclaimer for part of this patent was filed on August 6, 1869, by Sarah T. Stone, administratrix of Amasa Stone, deceased." Sarah Stone petitioned for an extension of the patent, but the patent office claimed that the patent was too broad. She added a disclaimer that limited the products using the patent to glass containers. The *National Republican* reported on August 7, 1869 – the date the patent expired – that the patent office refused the extension. Since Amasa Stone died on March 26, 1864, it seems odd that his widow waited three years to seek an extension.

According to the illustrations in Creswick (1987:204), jars made by the patented device were embossed on the front with "A. STONE & Co. / PHILADA" – although there were variations of almost every word. The finish of each jar was a wide, flattened single ring that tapered from base to top, with continuous threads inside. The stoppers were made of glass with continuous threads on the outside. The stopper tops each had two "glass bosses" or projections to engage a wrench or any flat object like a ruler or screwdriver. The top was embossed "A. STONE & Co (arch) / PHILADA (inverted arch)" with a single-digit number in the center. Some variations had an indented center (Figure C-2).

Figure C-2 – Stopper for Stone's 1855 patent (North American Glass)

Amasa Stone – 1859 Patent

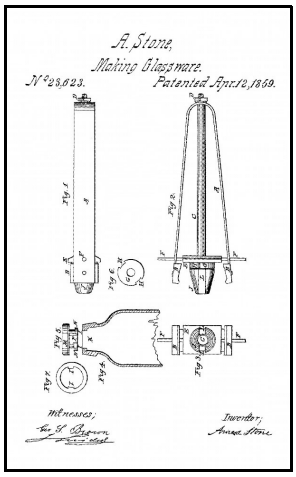

Figure C-3 – Stone's 1859 patent

Stone then received Patent No. 23,623 on April 12, 1859, for a "Tool for Forming the Noses and Orifices of Jugs, Bottles &c." (Figure C-3). The finishes for these jars had the same wide, tapered single ring as described for the 1855-patent jars, but the throat had two lugs to engage the lid. The glass lid had a flat top with two glass bosses or projections and the same embossing as described above. Just below the top was a groove around the entire stopper with two notches to engage the lugs in the throat of the jar (Figure C-4). The front of the jar was embossed as the one described above, and none of these had pontil scars (Creswick 1987:204).


Figure C-4 – Stopper for Stone's 1859 patent (North American Glass)

Stone's Wax Sealers

Roller (1983:155; 2011:495) and Creswick (1987:204) also illustrated and described grooved-ring, wax-sealer fruit jars that were not covered by either patent, although the "Stone Patented Tin Top Jars" – advertised in 1869 – had to have been for the wax sealers. Wax sealers were the only A. Stone jars that bore the Cunninghams & Co. or Cunningham & Ihmsen name. Creswick (1987:203-205) illustrated and discussed several variations of the wax sealers that were not embossed with a Cunningham name. Some of these had pontil scars; some did not. Cunningham & Co., followed by Cunningham & Ihmsen, almost certainly made the wax sealer jars from 1857 to 1868, possibly later (see Discussion and Conclusions below).

A. Stone & Co. (1856-1864)

The earliest ad we could find for A. Stone & Co., 140 Race St., Philadelphia, was in the August 13, 1856, edition of the *Philadelphia Public Ledger*., and the New York State Agricultural Society (1856) also listed A. Stone & Co., Philadelphia with Lorenzo Rouse as Chairman. The ad touted Stone's "Glass Preserving Jars" – one of the very early attempts at canning in glass. The following day, an article in the ledger discussed Stone and his jars, implying that these were brand new and unusual – almost certainly marking Stone's entry into the jar business. From at least 1845 to 1859, Stone was listed in the Philadelphia directories as "hemp hose manuf. Quarry near Bread." Fire departments used the hemp hoses.

According to Freedly (1859:483), A. Stone & Co. was a jobber, selling preserving jars at 412 Race St. and 207 Quarry St. by at least 1859 (the first listing in the city directory). By then, the firm consisted of Amasa Stone and George S. Brown. We have been unable to determine whether 140 Race St. was a typo in the early ads or if 412 Race St. indicated a move. The Philadelphia city directories listed the pair from 1859 to 1864 (Roller 1983:345). However, our earliest Cunninghams & Co. ad was from May 7, 1857, although Stone continued his ads until at least 1862 (Figure C-5). Sarah Stone my have sold the business shortly after her husband's death on March 26, 1864.


A. STONE & CO.

MANUFACTURERS and Wholesale & Retail dealers in

Screw Top Glass Preserving Jars,

For preserving Fresh Fruits, Vegetables Meats, Oysters, &c.,

No. 412 Race Street above Fourth,

PHILADELPHIA.

PRICES OF SCREW TOP JARS.

Pints,	$1.75 per doz.
Quarts,	2.50 " "
Three Pints,	3.00 " "
Half Gallons,	3.50 " "
Gallons,	5.00 " "
Small Quarts with small necks,	1.75 " "
Half Pints,	1.00 " "

July 23d, 1861. 3m.

Figure C-5 – A. Stone ad (*York Democratic Press* 1/24/1862)

E.T. Whitehead

A single, continuous-thread jar was embossed "A. STONE & Co. (arch) / PHILADA (horizontal) / E.T. WHITEHEAD (inverted arch)" on the front and "PATENTED" on the neck (Figure C-6). The lid was embossed "A. STONE & Co. (arch) / PHILADA (inverted arch)" between the two bosses and "E.T. WHITEHEAD." in a circle around the central number in a sunken center (Figure C-7). Roller (1983:346) and Creswick (1987:204) noted that Whitehead was listed in the Philadelphia city directories from 1864 to 1875 as a lamp and lamp parts dealer, and oil

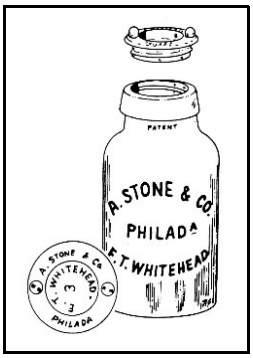

Figure C-6 – Whitehead jar (Creswick 1987:204)

merchant. Creswick noted that he must have also sold fruit jars, and Roller speculated that he may have taken over the business after Stone's death.


Figure C-7 – Whitehead stopper (North American Glass)

E.T. Whitehead & Co., 131 Arch St., advertised "Patent Fruit Jars. Air-Tight and Self-Sealing" in the July 28, 1864, edition of the *Philadelphia Inquirer* and a similar ad exactly a year later on July 28, 1865 (Figure C-8). These ads, coupled with the jar embossed with Whitehead's name in conjunction with A. Stone & Co., strongly suggests that Whitehead purchased A. Stone & Co. (or, at least gained permission to use Stone's patent) soon after the death of Amasa Stone on March 26. Whitehead apparently closed the Stone operation immediately or soon after the purchase but continued to vend the jars from his own operation until 1865 of later, certainly dropping the product by 1859, when Sarah Stone made her failed attempt to extend the patent.


PRESERVING JARS.

PATENT FRUIT JARS, SELF-SEALING, BEST out, at reduced prices. E. T. WHITEHEAD & CO., No. 131 ARCH Street.

Figure C-8 – Whitehead ad (*Philadelphia Inquirer* 7/28/1865)

It is possible (probable?) that Whitehead obtained a set of molds previously used by Stone and added his own name in an arch below. The arched Stone name and "PHILAD$^{\underline{A}}$" were in the same relative positions in the Creswick drawings, so the Whitehead name easily could have been added in an arch below to complete the circle. The "PATENTED" embossing on the neck could also have easily been added. The only flaw in this hypothesis is that none of the arched variations of the A. Stone jars in Creswick nor the 11 examples photographed by North American Glass have an underlined final "A" in the "PHILAD$^{\underline{A}}$" embossing. It is possible, of course, that the underline was also added.

Advertisements

As noted above, the first ad currently known for the A. Stone & Co. jars was placed by A. Stone & Co. – almost exactly one year after Stone received his first patent on August 13, 1856 – and the first from Cunningham & Co. on May 7, 1857. The ad called the containers "Stone & Co.'s Patent Glass Preserving Jars." Ads continued until at least July 28, 1859, although it is likely that the Cunninghams continued production until the reorganization of 1866 (Roller 1997).

Although Cunningham & Ihmsen probably continued the manufacture of A. Stone jars with no break, the next ad that discovered was in the *Pittsburgh Post* on June 29, 1868, for the "A. Stone & Co.'s Patent Tin Top Jar" (Figure C-9). The only jars listed in the sources with "tin tops" were the grooved-ring, wax-sealer fruit jars. Creswick (1987:205) only noted a single variation of Stone jars – on a grooved-ring wax sealer – that carried the Cunningham & Ihmsen name. From 1873 to 1875, the ads only mentioned "Stone's Patent" jars with no details (Roller 1987). Although D.O. Cunningham certainly made fruit jars earlier, the first ad for Stone's Patent that Roller (1997) could find for that firm was on April 6, 1892. The ads continued to at least May 13, 1896.


FRUIT JARS! FRUIT JARS!
CUNNINGHAMS & IHMSEN,
109 WATER STREET,
Are the SOLE MANUFACTURERS of the Celebrated
"HERO FRUIT JAR."
A liberal discount made to dealers.
Also, manufacturers of
A. Stone & Co.'s patent Tin Top Jar.
Cunningham & Ihmsen's Improved Cork Jar.
jes

Figure C-9 – Cunningham & Ihmsen ad (*Pittsburgh Post* 6/29/1868)

Discussion and Conclusions

A summary and detailed discussion is necessary to resolve the above data into a cohesive whole. Amasa Stone operated A. Stone & Co., a jobber selling fruit jars, from 1856 to his death in 1864. Stone sold three types of jars – grooved-ring wax sealers; jars with threaded finishes and lids; and jars with lug-and-notch finishes and lids. The earliest of these were almost certainly the wax sealers, made by Cunningham & Co. A bit later, Cunningham & Ihmsen also made wax sealers with the Stone name. These were probably the "Patent Tin Top" that the glass house advertised in 1869.

Pontiled A. Stone & Co. Jars

It is virtually certain that jars with pontil scars were made prior to jars with unscarred bases. These jars had two frontal embossing variations – one with both "A STONE & C^{O}" and "PHILAD^{A}" horizontally. A sub-variation had "MANUFACTURED BY / CUNNINGHAMS & C^{O} / PHILAD^{A}" also in horizontal embossing. The other variation had the first line in a slight arch, and one of these had the three additional Cunninghams lines (Figure C-10).

Figure C-10 – Pontiled A. Stone jars (North American Glass)

We have two hypotheses connected with these early jars, and the following discussion is based on the assumption that these will prove correct.

1. All the A. Stone & Co. jars were manufactured by the Cunningham plants.
2. Jars with the horizontal top line were *originally* made earlier than those with an arched top line.

The only sources of advertisement for the A. Stone & Co. jars from Roller (1997; 1998) and from our online searches were the Cunningham glass houses (or Stone or Whitehead). Although the Cunningham name only appeared on wax-sealer jars, the ads used the term "Stone's Patent" – almost certainly indicating the production of the other (continuous-thread and lug) jar types. Since no one has reported any examples of these other two styles with the Cunningham name, it is clear that the Cunningham plants did not embossed the firm name on all the jars they produced. We therefore make two assumptions: 1) Cunningham & Co. made the early style jars without the embossed Cunningham name in addition to the jar with the appellation; and 2) the Cunningham firms manufactured the jars from 1856 to the late 1860s.

Our rationale for the jars with the horizontal top line being produced first is less complex. The majority of later jars was embossed with the slightly arched first line, and the bulk of the pontiled jars had the horizontal top line. Admittedly, our sample (24 A. Stone jars plus references from Creswick and Roller) is small.

With the above background assumptions, we can speculate on an order for the pontiled A. Stone & Co. jars (Table C-1). Although Creswick claimed that the Cunningham & Ihmsen jar had a pontil scar, she did not note it as a "bare iron pontil" as she did the others. It is likely that she was using information furnished by another collector, possibly even third hand. The Roller editors (Roller 2011:495) made no such claim, and these jars appear to be rare. We have been unable to locate an example. Our conclusion is that all of the pontiled jars were made by the original Cunningham & Co. between 1856 (the earliest ad) and ca. 1860.

Table C-1 – A. Stone Grooved-Ring Wax-Sealer Fruit Jars with Pontil Scars

Shape*	Firm	"O" & "A"	PC	PS	Source
horiz / horiz + 2 lines	C&Co	O-2 dots; A-2 dots (both superscript)	R/B	W	Creswick 1987:205; NAG**
horiz / horiz + 2 lines	C&I†	O-2 dots; A-2 dots (both superscript)	unk	unk	Creswick 1987:205**
horiz / horiz	none	O; A (both superscript)	B	N	NAG; Roller 2011:494
arch / horiz + 2 lines	C&Co	o (normal position) A (superscript)	R/B	W	Creswick 1987:205; NAG; Roller 2011:495
arch / horiz	none	O; A (A only superscript)	unk	unk	Creswick 1987:203; Roller 2011:493
arch / design / horiz	none	O; A (A only superscript)	unk	unk	Creswick 1987:204; Roller 2011:493

* Key
Shape = shape of front embossing
"O" & "A" = "o" in "Co"; final "A" in "PHILADA"
PC = pontil scar color: R/B = red and black; B = black; unk = unknown
PS = pontil scar relative size: W = wide; N = narrow
** NAG = photos from North American Glass
† It may be significant that only Creswick mentions pontil scars in connection with C&I.

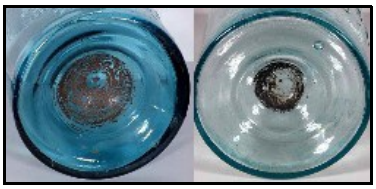
Figure C-11 – Large pontil scar – left; small pontil scar – right (North American Glass)

There are also distinct sets of characteristics within the pontiled jar category. As noted above, the initial dichotomy is defined by the first line – either horizontal or arched. Jars with the horizontal first line may be divided into a finer dichotomy, each of which shares other characteristics. The jars with horizontal first lines *and* the Cunningham name have larger pontil scars, with black-and-red colors, as well as both an underline *and* two dots below the superscript "o" in "Co" plus two dots below the "A" in "PHILADA" (Figure C-11). It should also be noted that all photos of other Cunningham & Co. jars with pontil scars, showed the same large variation – although the pontil scar colors could be just black as well as black and red.

Jars without the Cunningham name had smaller pontil scars, with black only (light grey in one example – Figure C-12), and both superscript letters underlined. Two of the three non-Cunningham pontiled jars in North American Glass photos, as well as a single example from eBay, appear to have been made at the same mold (Figure C-13).


Figure C-12 – Grey pontil scar (eBay)

The original firm had two furnaces with a total of 15 pots. The sources are unclear about how the work was distributed, but it is likely that one furnace worked flat glass, while the other served containers. Assuming a fairly even distribution of pots, each furnace worked ca. seven of them. The North American Glass photos show a blue example and a green one. If each crew worked its own pot, these must have been made at different time periods, although the two jars in North American Glass photos appear to have been made from the same mold. It makes sense that standardization of the batch would have improved over time, creating more uniform colors. Thus, the jars with the Cunningham name were likely the earliest, although the production of these probably continued until the end of the first firm. The same mold may have been altered and used briefly (possibly until it wore out) by Cunningham & Ihmsen (Figure C-14).


Figure C-13 – Jars from same mold (North American Glass)

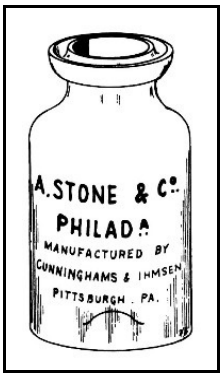

Figure C-14 – Cunninghams & Ihmsen jar (Creswick 1987:205)

At some point, still during the pontil period, the Cunninghams adopted the slightly arched variation. Again, we have the Cunningham/no Cunningham dichotomy, along with a sub-variation. The Cunningham jar was made from a distinctly different mold from the horizontal variation (see Figure C-10). Aside from the arch, the "o" in "Co" was in the typical, lower position, and the "A" in "PHILADA" – while superscript – had no dots or underline. We have not found a photo of the non-Cunningham arched type, but both Creswick and Roller showed a lower-case "o" and an underlined, superscript "A." The sub-variation had embellishments on the "A. STONE & Co" letters and a sunburst (called a fan design by

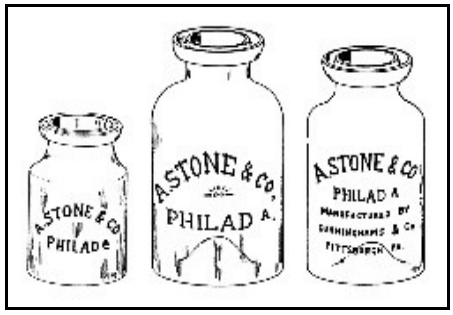

Figure C-15 – Arched variations (Creswick 1987:203-205)

Figure C-16 – Applied finishes – Cunningham, left; regular, right (North American Glass)

the Roller editors). Both sources illustrated a lower-case "o" – but Roller showed the "A" as underlined, while Creswick did not (Figure C-15).

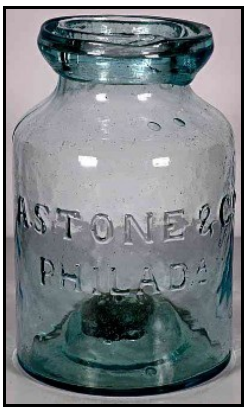

Figure C-17 – Crude manufacture (North American Glass)

All of these pontiled jars had applied finishes, and most of them were crude – although the Cunningham variation tended to be neater (Figure C-16). Two of the three non-Cunningham, horizontal-first-line jars exhibited "whittle marks" – rough, uneven surfaces (Figure C-17). Again, the bodies of the Cunningham jars tended to be smoother (see Figure C-10).

Wax-Sealer Jars with No Pontil Scars

Figure C-18 – Non-pontiled wax sealer 1 (North American Glass)

We only have four photos of these jars, from North American Glass. Three are of jars with the horizontal top line, made from two different molds (Figure C-18). Although these had no pontil scars, they continued to exhibit the high kick-up and whittled appearance. The "o" in "Co" was embossed in underlined superscript with two dots below the underline. The "A" in "PHILADA" also had two dots under it but no underline. The fourth photo was one with the arched first line (Figure C-19).

Jerry McCann (in Roller 2011:493) noted that the earliest of the A. Stone jars were the wax sealers with "bare iron pontil" which made red and black markings on the bases. However, quite a few of the molds:

> were then altered to create a jar with an internal glass thread finish to be fitted with a glass stopper. Finally molds were then altered to create a jar with a finish that had two internal lugs to accept a glass stopper. Not all molds went through this evolution and some had embossing removed or added.

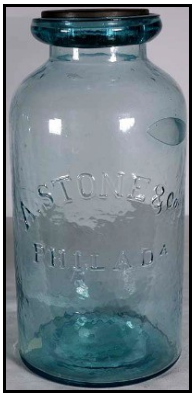

Figure C-19 – Non-pontiled wax sealer 2 (North American Glass)

According to Roller (2011:493), the variation with the embossed fan (or sunburst) between the arched top line and the next one was made in four slight sub-variations: pontiled wax-sealer, wax-sealer without pontil scar, continuous-thread finish, and lugged finish – although we have only found a photo of one example (Figure C-20). McCann (in Roller 2011:493-494) made an excellent argument that these and at least two other molds – one with the horizontal first line and another with the arched first line – were used to make jars with all three finishes. Our limited sample supports McCann.

Figure C-20 – Fan or sunburst variation (North American Glass; Creswick 1987:204)

An important distinction revolves around whether the three jar types – wax sealer, continuous thread, and lug variation – were made sequentially or simultaneously. It is virtually certain that jars with the pontil marks were made first. Since pontil scars only appeared on wax sealers, the grooved-ring jars were the originals. After this, the waters become murky. It is likely that pontils were used for the first few years, possibly 1857 to 1860. By that time, both the continuous-thread jars (patented in 1855) and the lug jars (patented in 1859) could have been – and probably were – made simultaneously.

Continuous-Thread Finishes

Both Creswick (1987:204) and Roller (2011:494) showed three variations of the continuous-thread finished jars: horizontal top line, arched top line, and arched line with fan or sunburst between the two lines (see Figure C-20). Creswick, however, illustrated the arched variation with a finish that tapered to a rounded edge at the top but showed both other variations as having squared, wide, single-ring finishes. Although Roller did not address the issue, the only photos in the 2011 edition were of the tapered finishes. Creswick was almost certainly in error. The tool shown in Stone's 1855 patent drawing (see Figure C-1) would certainly have made the tapered finish. Photos from North American Glass only showed applied, tapered finishes with ground rims (Figure C-21).


Figure C-21 – Tapered finish (North American Glass)

The jars were accompanied by two types of lids with continuous threads to fit corresponding threads formed inside the jar's throat, and both had two projecting lugs above the lid to take a wrench or flat object to tighten the lid or open the jar. The more common variation had a flat top, while the center of the other type was countersunk (see Figure C-2). Both types were made in four sizes, identified by a 1, 2, 3, or 4 embossed in the center. As noted above, these jars were probably made simultaneously with some wax-sealers and lug finished jars described below.

Lug Finishes

As noted above, Roller (2011:493-494) stated that lug finishes were present on all three major variations of the jars. Creswick (1987:204-205), however, only illustrated and described the lug finish on jars with arched first lines and no fan or sunburst. Our only photo of a jar with both lines horizontal and a lug finish was made in the same mold as one of the non-pontil, wax-sealer jars (Figure C-22).

Figure C-22 – Lug finish – left; wax-sealer finish – right (North American Glass)

Figure C-23 – Distinctive "&" and basal characters (North American Glass)

The second, arched variation, had a lower-case "o" in "Co" and a superscript "A" in "PHILADA" with no underline or dots. These jars were made in at least three molds, including one with a distinctive ampersand (Figure C-23). One of the jars had three characters embossed on the base, but they were unclear in the photo (see Figure C-23). An unusual variation in the arched version was embossed "PHILA" (Figure C-24) – with two dots under the superscript "A" – as illustrated by Creswick (1987:205).

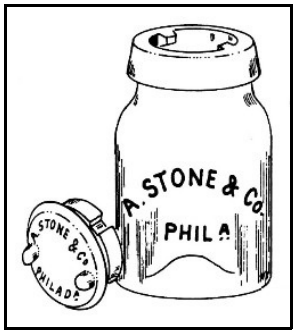

Figure C-24 – PHILA variation (Creswick 1987:204)

The finishes on each of these jars were applied and were tapered to the top. Unlike the continuous-thread finishes, however, these had

the rims tooled smooth. The mouth of each finish had two squared lugs, each opposed to the other that fit into corresponding slots in the lid (see Figure C-4). Again, there were two variations in the lids. One was embossed with a lower-case "o" in "Co" and an underlined "A" in "PHILADA." These also had a number in the center of the top to indicate the lid size (Figure C-25). The second, more common style of lid had the same embossing but no size number (see Figure C-4).

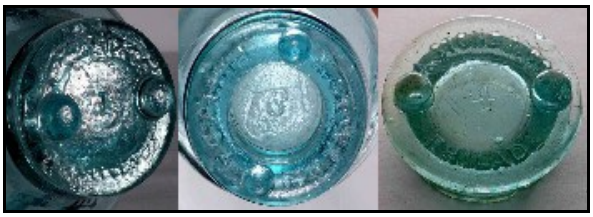

Figure C-25 – Size numbers (North American Glass)

E.T. Whitehead Variation

A single variation was embossed "A. STONE & CO. (arch) / PHILAD$\underline{\text{A}}$ (horizontal) / E. T. WHITEHEAD (inverted arch)" on the front (Figure C-26). The jar was fitted with a continuous-thread finish and had "PATENTED" embossed horizontally on the neck. The lid was embossed "A. STONE & C$\underline{\text{O}}$ (arch) / PHILAD$\underline{\text{A}}$ (inverted arch)" on the top and "E.T. WHITEHEAD ✢" in a circle around a central number in the countersunk center (Creswick 1987:204). Roller (2011:495) basically agreed although he included an underlined, superscript "o" instead of the capital "O" noted by Creswick. Both sources missed the underlined, superscript "o" and "A" that showed in the North American Glass photos of the lid (see Figure C-6). This jar, of course, could not have been made prior to 1864, when Stone died, and Whitehead acquired the business or patent rights.

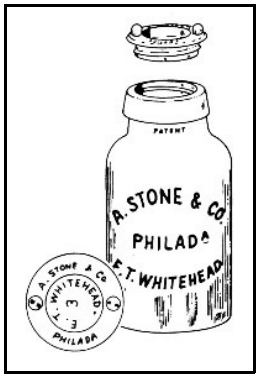

Figure C-26 – Whitehead jar (Creswick 1987:204)

Later Jars

As noted above, Cunningham & Ihmsen advertised Stone jar from 1868 to 1878, and D.O. Cunningham advertised "Stone Patent" jars until at least 1896. However, the only jars bearing the Cunningham & Ihmsen name or the "DOC" logo were grooved-ring wax sealers. Although Cunningham was still using applied finishes on export beer bottles as late as 1896, that seems to be a bit late to use the same technique on fruit jars. This leads us to one of two conclusions. Either, Cunningham made unmarked jars – which is certainly a possibility, considering that the firm had a huge production of Mason jars, none of which were marked – or

the ads for the jars were potential, but no one was interested. The former explanation seems more likely.

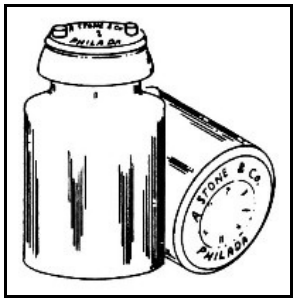

Figure C-27 – Product jar (Creswick 1987:205)

Creswick (1987:205) included one other jar that may be relevant to this period. The jar had no embossing on the side and was marked "A. STONE & Co. (arch) / PHILADA (inverted arch)" on the base. The jar had the lug finish and closure (Figure C-27). This was almost certainly a product jar. Although the jar was made during the A. Stone & Co. period, after the 1859 patent (1859-ca. 1867), it does open up the possibility that the lug-style jars were used as packers during either the Cunningham & Ihmsen period or the D.O. Cunningham tenure – or both. Assuming these jars had no side or basal embossing, they would become in effect invisible in both the collectors' and archaeological literature.

Summing Up the Advertising

Although Amasa Stone received his first patent on August 7, 1855, the first ads we have appeared in 1856, almost certainly the year Stone began selling the product. Interestingly, the final Cunningham ad we found for that period was 1859, the year Stone received his second patent. By at least 1862, A. Stone & Co. assumed the advertising, supplemented by E.T. Whitehead in 1864 and 1865. By 1868, Cunninham & Ihmsen acquired the advertising and continued until 1873 (possibly with a few years break). This suggests a continuous production of the A. Stone jars from at least 1857 to 1873, possibly to the 1878 end of Cunningham & Ihmsen.

After a break of at least 14 years, D.O. Cunninham began advertising the Stone wax-sealers in 1892, continuing until at least 1896. With our current information, this makes no sense. Did Cunningham find some old molds left from the Cunningham & Ihmsen days? If so, he may have decided to wear them out. Sarah Stone had died in 1870, followed by Whitehead in 1875, so neither of them could have complained, and the patent had expired in 1864, so there could not have been any legal restraints.

Wrapping It Up

Although the above discussion is relevant and interesting from a classification vantage point, it is less illuminating about dating. The jars with pontil scars were almost certainly made

during the early period – 1856-ca. 1860 or slightly later (no earlier than 1866 by Cunningham & Ihmsen). All other jars with the A. Stone name were made between ca. 1860 and Stone's death in 1864 – with an almost certain extension for a couple of years – 1864-1865 – during the brief period when E.T. Whitehead acquired the business. However, Cunningham & Ihmsen clearly continued production of the A. Stone jars with wax-sealer finishes to at least 1875.

During the early period of manufacture, it is almost certain that the Cunninghams made non-pontil-scarred bottles with all three finishes simultaneously, often from the same molds – wax-sealer, continuous-thread, and lug. The variation embossed with the E.T. Whitehead name only could have been made during the 1864-1865 period. Unmarked jars with the continuous-thread or lug finishes could have been made between 1865 and 1875 by Cunningham & Ihmsen with some wax sealers by D.O. Cunningham during the 1890s.

Although the Cunningham name only appears on three variations, the company advertising logically leads to the conclusion that the Cunningham plants made all of the A. Stone & Co. jars. This cannot be taken as absolute, however. None of the ads by Cunningham, Stone, or Whitehead mention the advertiser as the *exclusive* manufacturer – although the use of that term was common during the period. In addition, there are slight differences in the manufacturing processes between the jars marked with the Cunningham name and those without it. These could be interpreted as indicating a different glass house or just a different shop (crew).

The following dating guide is based on the best information we have to date. Be aware, however, that the Cunningham & Ihmsen dates and and the D.O. Cunninham period are based on advertising. In both cases, the jars may have been made for a longer period of time.

Stone Jar Dating Guide

1856-ca. 1860 – Pontiled jars*
1856-1865 – internal screw threads
1859-1865 – internal lugs
1856-ca. 1860 – "Manufactured by Cunninghams & Co"
ca. 1860-1864 – Non-pontil jars embossed with Stone name and lug or screw finishes
1864-1865 – Whitehead jars
1868-1878 – Cunninghams & Ihmsen (wax sealers)*

possibly 1868-1878 – Unembossed jars with internal threads or lugs (or during the D.O. Cunningham period)
1892-1896 – D.O. Cunningham (wax sealers)

* At least one wax sealer with the Cunningham & Ihmsen name had a pontiled base – thus made no earlier than 1866.

Was sealers were the only A. Stone jars that bore the Cunninghams & Co. or Cunningham & Ihmsen name or the DOC logo.

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