

Chapter 1

Numbers and Heelcodes

Bill Lockhart, Pete Schulz, and Al Morin

Archaeologists and collectors have been puzzled by several codes on milk bottles heels (occasionally on bases), such as “Registered,” “Sealed,” or other words with no intuitive explanations. In addition, some researchers have noticed what appeared to be a “national” numbering system on milk bottle heels and some bases. This study offers insights and explanations for some of these phenomena.

A Nationwide Numbering System

Toulouse (1971:172-173) was the first bottle researcher to discuss a national numbering system for milk bottle manufacturers and jobbers when he noted:

To conform to state licensing of milk bottles as “measures” as well as containers, and to indicate the glassmaker’s responsibility in furnishing correct measure, each glass company was assigned or it adopted a serial number. Through interstate cooperation, the same number was used for the same glass company in other states, thus making the number a recognition of the glass company.

Giarde (1980:145-146) also discussed codes, specific to milk bottles, that were required by either federal or state laws beginning about the “early years of the 1900’s.” During that period, many states required milk bottle manufacturers or jobbers to register with specific state agencies (the title of the agencies varied from state to state) to ensure the accuracy of the volume measurement of their bottles. Giarde noted that states required each company to register a specific mark which led to the development of such logos as E4, 5W, BB48, etc. (Figure 1-1). Such mark/number combinations were generally accepted by most states, rather than forcing a company to use a different identifying mark and/or number for each state.



Figure 1-1 – Number logos

Schadlich and Schadlich (1984) listed many of these numbers in connection with both manufacturer’s marks and Massachusetts seals. These codes were apparently developed by individual states in response to a growing public concern of the quality and capacity of milk bottles – which is especially interesting since the use of bottled milk resulted from a fear of disease caused by the older system of ladling milk from a can on a wagon directly into a housewife’s pitcher. Many states soon agreed to use certain numerical codes for specific manufacturing companies to regulate the quality and/or quantity of the milk bottles they produced. These numerical codes formed such prefixes and suffixes as LGC01 (Lockport Glass Co.), E4 (Essex Glass Co.), 5W (Winslow Glass Co.), BB48 or BBGC048 (Berney-Bond Glass Co.), UGP51 (Universal Glass Products Co.), and L52 (Lamb Glass Co.). It also formed the foundation for the date code configuration used by the Travis Glass Co.: T-19-
{date code} – ranging from T-19-12 to T-19-19 (Figure 1-2). See Table 1 for a list of all known numbers.



Figure 1-2 – Travis basemark

Table 1 – Milk Bottle Manufacturer Numerical Codes

Num	User [Code or Logo]
1	Lockport Glass Co. [LGC01]; Thatcher Mfg. Co. [1 or 1-11-14]
2	Fidelity Glass Co. [FID2]; Atlantic Bottle Co. [ABC2]; Michigan Glass Co. [MG2]
3	Sheldon-Foster Glass Co. [unknown]; Poughkeepsie Glass Co [P3]
4	Essex Glass Co. [E4]
5	Winslow Glass Co. [5W]
6	Bell Bottle Co. [unknown]; Fairmount Bottle Co. [unknown]
7	Illinois Glass Co. [unknown]; Liberty Glass Co. [unknown]
8	Pennsylvania Glass Co. [PGC3]; Williamstown Glass Co. [unknown]; Woodbury Glass Co. [unknown]
9	Knox Glass Co. [K-9]; H.C. Fox & Sons [unknown]
10	Whitall Tatum [unknown]

Num	User [Code or Logo]
11	Thatcher Mfg. Co. [11 or 1-11-14]
12	Olean Glass Co. [unknown]
13	C.L. Flaccus Glass Co. [F-13]
14	J.T. & A. Hamilton [J.T.&A. 14]; Thatcher Mfg. Co. [14 or 1-11-14]
16	J.B. Brooke [unknown]; Kearns-Gorsuch Bottle Co. [unknown]
17	Empire Bottle & Supply Co. [unknown]; Belle Pre Glass Co. [BP17]; Chattanooga Glass Co. [17CHATT]
19	Travis Glass Co. [TR-19- {date code}]
24	Butler Bottle Co. [B24]
29	Standard Milk Bottle Mfg. Co. [unknown]*
30	Du Bois Glass Co. [DBGCo30]
31	Buck Glass Co. [B.G.CO31 or B1]
32	Standard Milk Bottle Mfg. Co. [PE-32 EMPIRE or PE-32 KEYSTONE]
34	F.E. Reed Glass Co. [REED (heel); 34 (usually on base)]
36	Jeanette Glass Co. [J.G.CO. / 36]
38	Single Service Pkg Co [unknown]
39	Crescent Milk Bottle Co. [unknown]
42	Wylie T. Wilson [unknown]
48	Berney-Bond Glass Co. [BBGCo48 or BB48]; Owens-Illinois Glass Co. [same]
51	Universal Glass Products Co. [UGP51 or UGPCO51 or UG-51]
52	Lamb Glass Co. [LGCo52 or LG-52 or L52]; Liberty Glass Co. [SEALED 52 L-G]
60	Florida Glass Mfg. Co. [FG60]

* Although 29 was listed for Standard in the *Stevens Point Journal* (1916), the firm apparently only used 32.

The idea of using an identifying number for each glass house apparently developed in the state of New York. According to the September 5, 1910, *Orange County Times-Press*, the state of New York required “the name or initials and a designating number” to be embossed on the

milk bottles of any glass manufacturer wishing to sell dairy containers within the state beginning on January 1, 1910. By 1912, New York required “the name, initials or trade-mark of the manufacturer and a designating number . . . furnished by the state superintendent of weights and measures upon application by the manufacturer” (Department of Commerce and Labor 1912:195).

Also, by at least 1912, Wisconsin required the word “SEALED” plus the name, initials, or trade mark “in the side or bottom of the bottle,” along with a number provided by the superintendent of weights and measures of *that* state. Maine mandated the use of individual numbers for milk bottle identification in 1913. Other states soon followed. For more information, see Lockhart et al. (2010).

In October 1915, the Michigan state legislature introduced a bill requiring milk bottles to adhere to a set of standards for volume. The law stated:

Bottles used for the sale of milk shall have clearly blown or otherwise permanently marked in the side of the bottle the capacity and the word “sealed” and in the side or bottom of the bottle the name, initials or trademark of the manufacturer and designating number, which number shall be different for each manufacturer (*Milk Dealer* 1915:32).

By 1916, ten states required a milk bottle code in one form or another. New York, New Jersey, and Illinois were satisfied with the code alone (e.g., E4) at either the heel or base of the bottle. West Virginia, Michigan, and Wisconsin each demanded the code with the word “SEALED” either preceding or following the code, presumably at the heel of the bottle. Massachusetts and Maine developed the “seal” system, whereby some portion of the bottle had the code and the word “SEAL” along with the state name or abbreviation. Eventually, both states adopted a circular format for the seal and a location at the shoulder (as did Rhode Island at a later date). Pennsylvania required “E4 LIQUID,” probably at the heel, although eventually the state devised a seal system in a circular format with “SEALED (arch) / {logo} / PA (inverted arch)” embossed at the shoulder. The Minnesota system was unique, requiring a triangle divided by a horizontal line with the code above the line and “MINN” below it. Originally, the triangle was embossed at the shoulder, but it eventually migrated to the heel (*Milk Dealer* 1916:58-59). See Chapter 5 “Rhode Island and Other Seals” for more information.

1-11-14

Giarde (1980:146) noted that the symbol “1-11-14” was used by the Thatcher Mfg. Co. (Figure 1-3). Albert Morin (personal communication, 2/16/2007), however, concluded that “1-11-14” was a combination code used by Thatcher after the purchase of Lockport and the milk bottle production segment of J.T. & A. Hamilton. The combination now indicated the former Lockport plant (1), Thatcher, itself (11), and the J.T. & A.



Figure 1-3 – 1-11-14 (eBay)

Hamilton Glass Company. Morin based his selection of the number “11” for Thatcher on bottles with both the Massachusetts “T” seal and the Thatcher “MTC” heelmark along with an embossed “11,” also on the heel. The L.G.Co. mark used by the Lockport Glass Co. consistently had a “1” embossed below it. Similarly, the JT&AH mark was generally accompanied by a “14” code.

The actual solution, however, has to do with different states assigning codes. Although all other companies seem to have received the same numerical code from different states, Thatcher received the number “1” from the state of Wisconsin in 1913 (*Stevens Point Journal* 1913:1), number “11” in Maine (derived from empirical evidence), and “14” in Michigan (State of Michigan 1916:19). Thatcher simplified its bookkeeping by embossing 1-11-14 on all its milk bottles. Thatcher also used a more complicated “1-7-11-14” mark, but these are very uncommon, possibly rare.

REGISTERED and SEALED

Giarde (1980:145-146) noted that the words “REGISTERED” and “SEALED” “were intended to show compliance with various state laws and simply were not required in every state. . . . many states required the manufacturers . . . who sold their milk bottles to dairies within the state to register with designated governmental agencies.” These registrations usually included using the

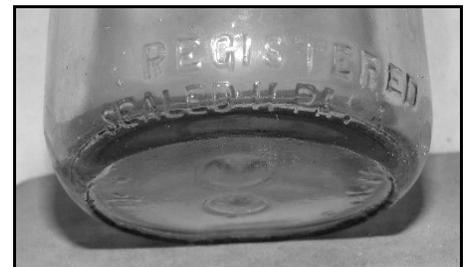


Figure 1-4 – Registered & Sealed (eBay)

various logos, numbers, and/or seals as described above. Often, both terms appeared on the same bottle. Giarde (1980:147) added, “In the broadest sense the word ‘sealed’ represented that the bottle was a true measure of what it purported to be.” Although Massachusetts, Maine, Rhode

Island, and a few others required more detailed information, it is clear that “SEALED” embossed on the bottles was sufficient in most states (Figure 1-4).

Although Giarde may have been correct that some states also included a registration for glass houses, many states or areas within states registered the local dairies. As a result, many milk bottles have the word “REGISTERED” in a front plate or otherwise attached to the dairy name (Figure 1-5). These should not be confused with registration of the glass houses. In Massachusetts, for example, a dairy owner could register his business, allowing him to claim and replivine (reclaim) any bottles and crates marked with his name.



Figure 1-5 – Registered – front plate (eBay)

The earliest date code we have found for a milk bottle that also had a “REGISTERED” heelmark was 1940. The “REGISTERED” mark was often accompanied by SEALED, REG. CAL., the Minnesota triangle, or other “registration” codes. The word “SEALED” on the heel seems to have appeared at the same time as “REGISTERED” (ca. 1940).

Early California milk bottles may be an exception. At least one example was embossed “REGISTERED” on the heel with no specific dairy information. This may have been an early California requirement. See California section in Chapter 5 for more information.

California Registration



Figure 1-6 – Reg Cal (Dairy Antiques 2016)

Many, probably most, California milk bottles were embossed “REG. CAL.” either on the base, heel, or even in the front round plate (Figure 1-6). Some had “REG. CAL.” as part of the pyroglazed label (Figure 1-7). The abbreviation was also used on some milk bottles outside the state, probably indicating a reuse of a mold with a

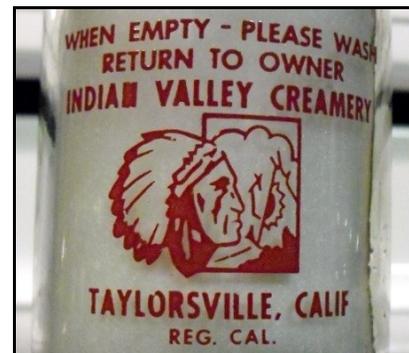


Figure 1-7 – Reg Cal - pyro (eBay)

different plate – rather than any intent from the out-of-state dairy. It is also possible that some dairies from other states sold milk in California and were therefore required to register.



Figure 1-8 – Reg Cal – soda (eBay)

According to Dairy Antiques (2016), “REG. CAL.” or Registered in California had a completely different meaning from the seal systems. By at least 1911, every dairy, creamery, or other location “where more than four cows are milked” or where milk was processed had to register with the state. The law made it illegal for anyone other than the registered owner of the bottle to use it for milk or for any other purpose (e.g., gas stations using milk bottles for oil or pharmacists using milk bottles for medicines). California

also registered other businesses – as shown on a Canada Dry bottle base (Figure 1-8). Many other states also had registration programs, but most (probably all) used bottles embossed “REGISTERED.”



Figure 1-9 – Climax – horiz. (eBay)

CLIMAX (1890-ca. 1902)



Figure 1-10 – Climax – arch (eBay)

Giarde (1980:23) mentioned that “CLIMAX” was found on some “earlier” milk bottles, although he had no idea of the user of the mark. The logo was embossed on both round and square milk bottle bases in at least two formats – horizontally across the center of the base (Figure 1-9) or in an arch at the top of the base (Figure 1-10). In both cases, the word was generally above a three- to four-digit number.

Charles T. Nightingale was responsible for three patents, two of which culminated in the use of the “CLIMAX” logo. On March 9, 1889, Nightingale filed for a patent for a “Stopper and Fastener for Bottles and Jars.” He received Patent No. 403,954 on May 28 of the same year (Figure 1-11). His invention used a wire device to hold down a “tin” cap.

Nightingale next invented the first milk bottle that was square in cross-section. He applied for a patent on August 3, 1896, and received Design Patent No. 29,673 on November 15, 1898, for a “Design for a Milk-Jar” (Figure 1-12) Note that Nightingale’s patent remained in limbo for over two years and three months. After the long wait, the bottle was never popular. Although the “CLIMAX” mark appeared on square milk bottles, the term almost certainly identified the jobbing firm rather than the patent.

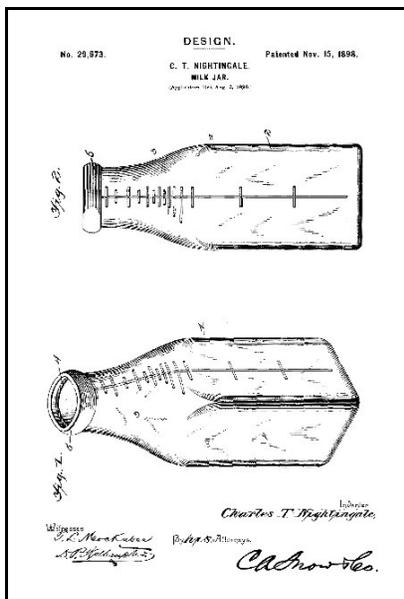


Figure 1-12 – Nightingale 1898 patent

Nightingale opened the Climax Stopper and Bottle Co. at 46 Murray St., New York, in May 1890 and retained sole right to manufacture bottles using the Nightingale patents. The firm did not produce its own bottles, however, and it may have had some made by the Binghamton Glass Works. Nightingale filed for bankruptcy in 1899, almost certainly signaling the end of the Climax Stopper and Bottle Co. (Hitt 2011:65-66). Albert Hamilton of the J.T & A.

Nightingale’s final patent featured a design for a round milk bottle. He applied for the patent on May 15, 1901, and received Design Patent No. 34,919 on August 13 of that year (Figure 1-13). This design had a very rounded heel, and actual bottles were often embossed with “EMPIRE” heel or basemarks – but the patent and the bottles were too late for the Climax firm. Despite the date, at least one bottle with a rounded heel and “CLIMAX” on the base was offered at an eBay auction.

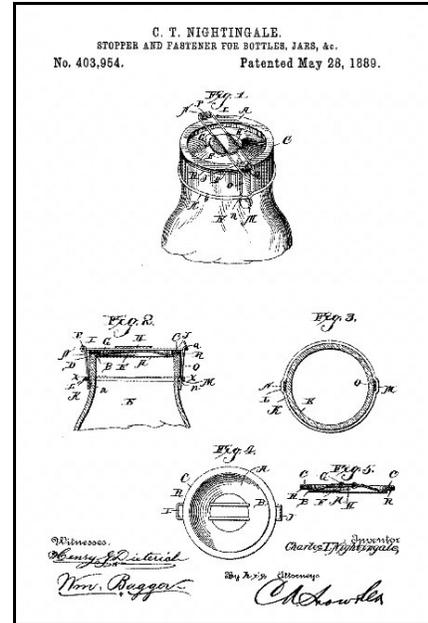


Figure 1-11 – Nightingale 1889 patent

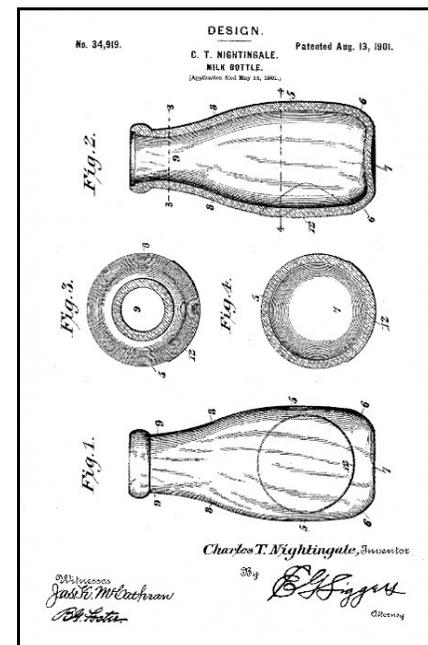


Figure 1-13 – Nightingale 1901 patent

Hamilton Co. acquired Nightingale’s interest and renamed the firm as the Climax Bottle & Mfg. Co. (Dairy Antique 2016).

It is fairly certain that Nightingale used the “CLIMAX” logo on milk bottles from the inception of the Climax Bottle & Supply Co. in 1890 until its demise in 1899. It is possible that J.T. & A. Hamilton continued to use the mark for a few years after the firm acquired Climax, possibly until the molds wore out. Even though the Climax Bottle & Supply Co. was a jobber, it is likely that the firm owned the molds with which its bottles were made. Although we have not discovered which glass house manufactured the bottles for Nightingale, he may have been affiliated with the Hamilton concern. For more information, see the Bottle Research Group (*Encyclopedia*).

EMPIRE (ca. 1901-1914)

“EMPIRE” was used by the Empire Bottle & Supply Co. of New York, a jobber, not a manufacturer, of milk bottles. These milk bottles had rounded heels and were similar to the “bowling pin” bottles (Figure 1-14). They were frequently marked with “EMPIRE” and “PAT AUG 13, 01” in various configurations – including combinations of arches, inverted arches, and horizontal formats (Figures 1-15 & 1-16). As noted above, Charles T. Nightingale



Figure 1-14 – Empire bottle (eBay)

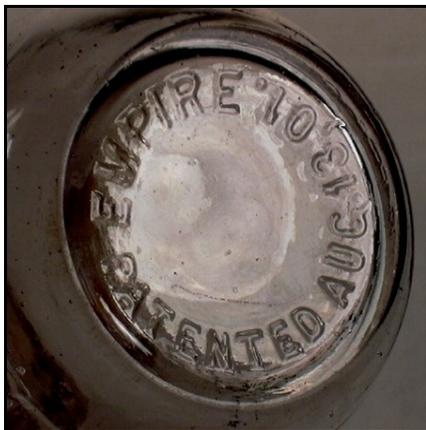


Figure 1-15 – Empire – arch (eBay)

received Design Patent 34,919 for this bottle on August 31, 1901, and assigned half the patent to the Empire Bottle & Supply Co. (Dairy Antiques 2016). Giarde (1980:38-39) also

discussed the mark, but he had not discovered the user by that time. However, he noted that “EMPIRE” was occasionally found in conjunction with the E4 mark used by the Essex Glass Co.

Schadlich ([ca. 1990]) noted that bottles with the Massachusetts shoulder seals bearing both the “E” and “P” factory codes (for Essex Glass Co. and Standard Milk Bottle Mfg. Co.)

were often embossed “EMPIRE” on the heel. These were sometimes accompanied by the 1901 patent date (noted above) embossed on the base. In Wisconsin, however, Empire was given its own code (17) in 1913 (*Stevens Point Journal* 1913:1), although we have never found an example. For further complication, Schadlich and Schadlich (1984:5) noted that the Standard Milk Bottle Mfg. Co. used a “Pe.” seal on Massachusetts milk bottles. Although we have never seen “Pe” Massachusetts seal, we had a milk bottle embossed “EMPIRE PE 32” on the heel (see Figure 1-16).

Hawkins (2009) further complicated the issue. He noted that another Empire – the Empire Glass Co. – was formed in 1900 at Jeannette, Pennsylvania, although it initially manufactured glass bowls. However, the plant also produced some bottles, including milk bottles. A group of business men purchased the company in 1910 and renamed it the Jeannette Shade & Novelty Co. Hawkins noted that this company was thought to be the producer of the bowling-pin bottles embossed with ““EMPIRE PAT AUG 13, 01.”



Figure 1-16 – Empire – heel (eBay)

The connection between Massachusetts “P” and “E” seals, however, suggests that the Standard Milk Bottle Mfg. Co. and the Essex Glass Co. made these bottles for the Empire Bottle & Supply Co. With Nightingale at the helm, the Empire Bottle & Supply Co. operated from 1901 to 1914. The connection *may* be the explanation for the “Pe” and “PE” embossings described above. Essex opened the Standard Milk Bottle Mfg. Co. as an auxiliary in 1911 but absorbed it entirely by 1913. Thus the “P” and “E” merged. For more information, see the Bottle Research Group (*Encyclopedia*).

ESSX

ESSX was a specific bottle style from the Empire Bottle and Supply Co. catalog. Heelmarks such as “P-3 EMPIRE ESSX” or “E-4 EMPIRE ESSX” distinctly tie the mark to Empire and both manufacturers – Poughkeepsie Glass Co. and Essex Glass Co. (see below). The bases were embossed with the Nightingale 1901 patent. Although the mark certainly exists, we have not discovered an example.

WEBER and KEYSTONE

The name “WEBER” appeared on bases in horizontal, arched, and inverted arch shapes, and all bottles we have found were used by California dairies (Figure 1-17). “WEBER” is almost certainly the mark of the O.J. Weber Co. of Los Angeles, California, a jobber in business from at least 1906 to 1939. Weber specialized in dairy supplies, but he also sold milk bottles. Giarde (1980:134) noted this mark on California milk bottles but had no idea who used it. He added that the Standard Milk Bottle Mfg. Co. (Parkersburg, West Virginia) made some of the bottles. Standard was only in business from 1910 to 1913, a subsidiary of the Essex Glass Co. As noted above, Essex entirely absorbed the plant in 1913.



Figure 1-17 – Weber (eBay)

An eBay auction offered a milk bottle embossed “SMBMCO” (Standard Milk Bottle Mfg. Co.) on the heel and “KEYSTONE (arch) / PAT. AUG. 13, 01 (inverted arch)” on the base. The dairy was in Kalamazoo, Michigan. The same seller offered four bottles with the Keystone and patent base, all from Michigan dairies (although only one with SMBMCO). In addition, the Dairy Antiques Site (2016) noted that the Poughkeepsie Glass Co. also made bottles for Empire, with a contract in 1910, stating that Empire would distribute the entire output of the Poughkeepsie plant. We might speculate that “EMPIRE” was used by Essex, and “KEYSTONE” was a Poughkeepsie logo, although we have no direct evidence to support this hypothesis. Dairy Antiques suggested that “EMPIRE” and “KEYSTONE” milk bottles had slightly different shapes, so these *could* be model names, but it could also mean that each glass house used molds with slightly different configurations.

Both of these marks appeared on a bottle embossed “KEYSTONE PAT. AUG. 13, 01 / WEBER” around the outside of the base and “EMPIRE / B5 // ONE PINT / S.C.S.D.” on the heel. As noted above, “EMPIRE” was connected to East Coast manufacturing, but “WEBER” was a West Coast jobber. It is possible that the Empire Bottle & Supply Co. maintained the Eastern distribution, while Weber handled the same bottles on the West Coast. Tying these together, Essex Glass Co. might have made the mold for this bottle then shipped it to Poughkeepsie after the 1910 contract. Poughkeepsie then added “WEBER” to the baseplate and shipped the bottles.

In summary, we have bottles embossed “WEBER” that were made for dairies on the West Coast and at least one embossed “KEYSTONE” for an Eastern dairy. In addition, a single bottle was embossed “WEBER,” “KEYSTONE,” and “EMPIRE” again for a West Coast dairy. Either the Standard Milk Bottle Mfg. Co. or the Essex Glass Co. made all of the bottles. It seems likely that the O.J. Weber Co. was the western distributor for the Empire Bottle & Supply Co. The “KEYSTONE” logo may have represented yet another distributor in the chain, possibly geared to a distribution of Nightingale’s bowling pin bottles in the Midwest. Obviously, these need more research.

Discussion and Conclusions

The bottle marks discussed in this chapter fall into two categories. First was the numbering system and associated terms that grew out of the inability of glass houses to produce mouth-blown bottles of sufficient consistency to guarantee a stated capacity. The introduction of semiautomatic and fully automatic machines to make milk bottles in the 1905-1915 period led to the ability to pass the Seal laws that reformed the milk bottle industry. The technology involved in making mouth-blown bottles simply did not possess the capability to form bottles with consistent capacity.

Originally, only a few states, spearheaded by New York, demanded an embossed number specified by the state to be blown into each milk bottle. As more states added that requirement, the numbering system became de facto national. Virtually all requirements ceased in or around 1947 because the consistency in size and shape was so automatically controlled by then that the need became redundant.

The second classification centers around the marks found on bottles connected with patents granted to Charles T. Nightingale between 1889 and 1901. Both “Climax” and “Empire” refer to the two Nightingale distribution firms, while “Weber” was a Western jobber. “Essx” was a model name used by Nightingale and the mysterious “Keystone” may have been another. Future research in this area should center around discovering the meaning and derivation of the term “Keystone” in milk bottle contexts.

Sources

Bottle Research Group

2013-2016 *Encyclopedia of Manufacturer's Marks on Glass Containers*. Historic Glass Bottle Identification & Information Website: Bottle & Glass Makers Markings, Bill Lindsey. Society for Historical Archaeology. <https://sha.org/bottle/makersmarks.htm>

Dairy Antique Site

2016 "Empire Bottle & Supply Company." Doug & Linda.
http://dairyantiques.com/Milk_Bottle_Makers.html

Department of Commerce and Labor

1912 *State and National Laws Concerning the Weights and Measures of the United States*. Second Edition. Department of Commerce and Labor, Bureau of Standards. Government Printing Office, Washington.

Giarde, Jeffery L.

1980 *Glass Milk Bottles: Their Makers and Marks*. Time Travelers Press, Bryn Mawr, California.

Hawkins, Jay W.

2009 *Glasshouses & Glass Manufacturers of the Pittsburgh Region, 1795-1910*. iUniverse, Inc., New York.

Hitt, Maurice R.

2011 *History of the Binghamton Glass Company*. Privately printed.

Lockhart, Bill, Pete Schulz, Al Morin and others

2010 "The Mysterious Number System." *Milk Route* 359:1-4.

Milk Dealer

1915 "Michigan Milk Bottle Law." *Milk Dealer* 5(1):32.

1916 Advertisement: "At Last We Have It." *Milk Dealer* 6(1):58-59.

Schadlich, Louis

[ca. 1990] "Milk Bottles Marked by Manufacturers and Jobbers." Unpublished manuscript, [Sturbridge, Massachusetts].

Schadlich, Louis and Nancy Schadlich

1984 "The 'MASS. SEAL' on Milk Bottles and Jars." Unpublished manuscript, Sturbridge, Massachusetts.

State of Michigan

1916 "Dairy and Food Department, Bulletin No. 248-249." State of Michigan.

Stevens Point Journal

1913 "Notice to Milk Dealers" *Stevens Point Journal* [Stevens Point, WI] September 22, 1913:1.

Toulouse, Julian Harrison

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