The Thatcher Firms

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Hervey D. Thatcher became known as "the father of the milk bottle" after his inventing forays into improving sanitation for the dairy industry. Although his partners actually patented what became the Common Sense milk bottle, it was Thatcher's firm that sold the bottles (manufactured by the Whitall Tatum Glass Co.). The firm morphed into the Thatcher Mfg. Co., formed to take advantage of the exclusive license to produce milk bottles on the Owens Automatic Bottle Machine. After a rough start, the company became one of the most successful milk bottle firms in the U.S. As the popularity of glass milk bottles began to wane, Thatcher expanded into other containers, eventually losing its identity in 1985.

Histories

H.D. Thatcher & Co. (1883-1924)

Dr. Hervey D. Thatcher, a Potsdam, New York, druggist, has been frequently described as the father of the milk bottle. Evidently a practical chemist as well as an inventor, he developed Thatcher's Orange Butter Color[1] in 1881 that he sold from his drug store – an operation that paid particular attention to supplying the dairy trade (Thatcher 1883). Although butter color, flour, and other items morphed into a national operation, what made his lasting reputation was a series of inventions intended to bring sanitary practices to the milk industry. Thatcher, himself, did not invent the first milk bottle or even the first "modern" milk bottle. Nor did he ever manufacture glass. But he put the first Common-Sense milk bottle on the market, and the company that he founded became the most important milk bottle manufacturer of the 20th century.

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[1] This was a type of food coloring. At the time (and possibly even today), people judged the quality of butter by its color. A deeper yellow color was perceived as being of higher quality. Thus, Thatcher's Orange Butter Color was used to deepen the hue by many creameries. See Wyant & Levitt 1987 for a complete history of H.D. Thatcher & Co.

Prior to the invention of the milk bottle, dairy wagons delivered "loose" milk in large, metal containers. At each stop, the milkman would use a dipper to transfer milk from the cans to the housewife's pitcher. In many parts of the U.S., this method of delivery continued into the 20th century. According to a local legend, Thatcher became interested in sanitary conditions in the milk trade when he "observ[ed] a little girl drop a soiled rag doll into an open ten gallon container of milk that a milkman was using to deliver milk door to door" (Gallagher and Munsey 1969:332). A more prosaic recollection was provided by Thatcher, himself. In a letter written on July 1, 1919, he recalled a conversation, years earlier, with a local dairyman:

> He said when he started to deliver milk in the morning, the cream would rise to the top (the dip can) so that the first served got a surplus of cream, and as he each time removed the cover, some dirt from the street, some hair from the horses would each time sift into the milk, so that when he reached the last customers, they were served skim milk with all kinds of foreign matter that had sifted in while on his route (Thatcher, in Rawlinson 1969:19).

Thatcher's first effort toward milk sanitation was the "Milk Protector," a covered milk pail with two sleeve funnels in which the teats were inserted during milking, thus preventing hair, dirt and insects from contaminating the milk (Thatcher 1883; Figure 1). He called this invention the Thatcher Milk Protector, and patented it in 1883. He then turned his attention to a method of getting the milk from the barn to the consumer without contamination.

Figure 1 – Thatcher Milk Protector ad

Although the first patented milk bottle appeared in 1875,[2] it was not until Thatcher invented a milk jar – soon vastly improved by his associates – that the delivery

[2] Gallagher (1969:50) stated that the earliest milk bottle was made in 1865 but failed to provide details. Gallagher & Munsey (1969:332) claimed the earliest patent for a milk bottle was in 1878. Tutton (1994:2) noted that the first patent for a milk bottle was issued January 5, 1875 (No. 158,406) and provided the patent office illustration.

of bottled milk became practical (Gallagher & Munsey 1969:332; Scharnowske 1998:6; Tutton 1994:2-3, 6). Thatcher's container became so popular that he was called the father of the milk bottle, and the container was embossed "THATCHER MILK PROTECTOR" on the front (Figure 2). Although this embossing may actually have referred to the pail, the bottle became accepted by that name.

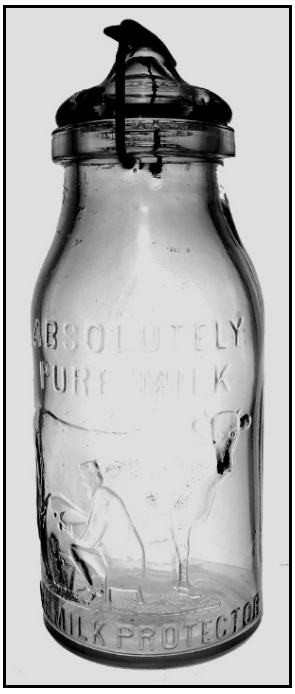

Figure 2 – Thatcher's first milk bottle

By 1885, Thatcher was advertising his milk protector as "the ONLY PLAN KNOWN that secures to the consumer ABSOLUTELY PURE MILK in such manner that it can be kept sweet for several days, furnish a good coat of cream and is handy to use. . . . THE SEALED BOTTLES are easy for the patron to store as they can be kept in a refrigerator without imbibing its odor" (Tutton 1994:8).[3]

In his 1919 letter, Thatcher noted that he "turned with my own hands at the lathe a wooden mould, including the wood stopper, for the [Milk Protector] milk bottles" and got it through the patent process in Washington, D.C.[4] He personally took the wooden prototype to the Whitall Tatum factory at Millville, New Jersey "and asked them to get out the goods." Thatcher took some bottles home with him and ordered "a quantity" of them to be delivered (Thatcher, in Rawlinson 1969:18-19).

The Milk Protector was originally sealed by a Lightning-style fastener that held a metal lid in place by a wire arrangement that allowed the lid to be tilted off the top of the bottle and replaced to re-secure the seal. Thatcher and his partner, Harvey P. Barnhart, also patented a simplified wire and metal arrangement with a domed glass lid on April 27, 1886 (Patent No. 340,833; Figure 3). These were apparently used on subsequent versions of the Milk Protector.

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[3] Note that ice boxes were also called refrigerators – mechanical refrigerators did not yet exist in homes.

[4] This is problematic. Although Thatcher's 1919 letter implies that this all happened in 1884, that cannot be correct. His first patent for a "bottle" was the 1886 Thatcher/Barnhart patent, which was really for a bail-fastened glass closure. It may be that in the meantime he used a bail-fastened metal cap. In any case, he must have taken the wooden mold to Whitall Tatum long before he sent the application to the patent office at the end of 1885.

Gallagher (1969:50) suggested that Thatcher patented the "common sense milk jar," which used the cap seat and ligneous disks as a seal, on September 17, 1889. In fact, the actual patent (No. 411,368) for the ligneous disk sealer was registered by his associates, Harvey P. Barnhart and Samuel L. Barnhart (Figure 4).[5] The Barnharts noted that their invention was intended for:

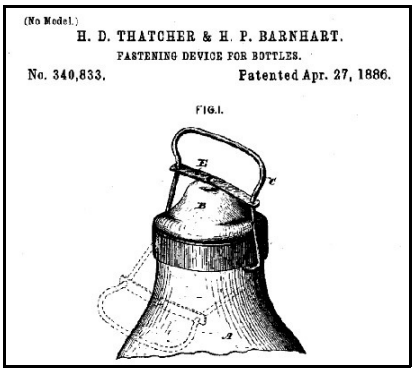
(No Model.)
H. D. THATCHER & H. P. BARNHART.
FASTENING DEVICE FOR BOTTLES.
No. 340,833. Patented Apr. 27, 1886.
FIG. 1.

Figure 3 – Thatcher and Barnhart's patented lid (Patent #340,833)

> bottles used by milk dealers in delivering milk to consumers, the bottles being left with the consumer and returned to the dealer after the contents have been used, the bottle being thus of necessity repeatedly washed and refilled. To this end it must be capable of easy filling and emptying and devised particularly with a view to ease and certainty of thorough cleansing (Patent No. 411,368).

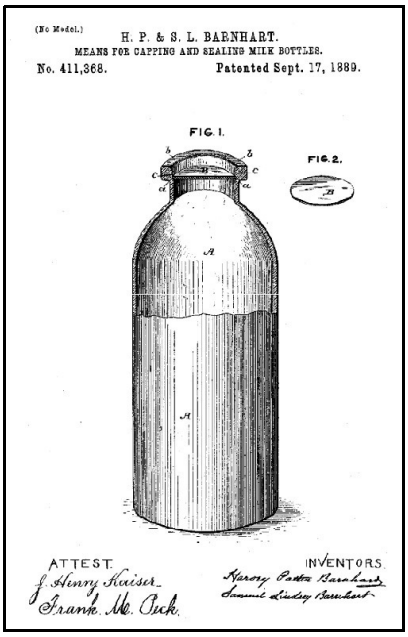
(No Model.)
H. P. & S. L. BARNHART.
MEANS FOR CAPPING AND SEALING MILK BOTTLES.
No. 411,368. Patented Sept. 17, 1889.
FIG. 1.
FIG. 2.
ATTEST.
INVENTORS.

Figure 4 – Barnhart's Cap-Seat patent (Patent #411,368)

The inventors thoroughly discredited the metal and glass lids in use at the time and suggested that their invention would solve the inherent cleaning problems with the earlier closures (Figure 5). They suggested instead a "thin wafer-like disk or cap" that would seal on "an offset or shoulder . . . to form a seat for the disk" inside the neck of the bottle (Figure 6). The "ligneous disk" was to be made from "clean tasteless inodorous white soft wood" that was "then immersed in boiling paraffin to thoroughly impregnate the grain" (Patent No. 411,368). By at least 1895, Thatcher advertised these bottles as the


The Common-Sense
MILK BOTTLE
Has established itself as the most perfect MILK DELIVERY PACKAGE on the market.
BOTTLES manufactured without our TRADE MARK are base imitations.
All CAPS and BOTTLES are marked legibly,
'Patented Sept. 17, 1889."
Send for Price-List and Samples to THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

Figure 5 – Ad for the "Common Sense" milk bottle (*Cultivator and Country Gentleman* 1895)

[5] The identification of the patent with Barnhart was first published in the secondary literature by Tutton (1994:13-14).

"Common-Sense Milk Bottle" (*Cultivator and Country Gentleman* 1895), although that term was not included on the patent document.

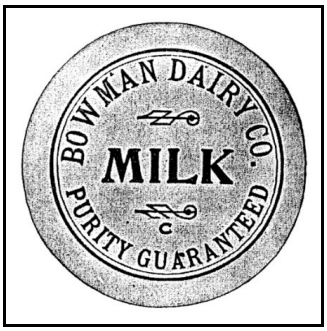

Figure 6 – Ligneous disk (Creamery Package Mfg. Co. 1912:206)

According to Scharnowske (1998:1), the initial company was called H.D. Thatcher & Co., in business from 1883 to ca. 1885. Milk jars were only marketed to a single dealer in each town and only then if the dairy also bought the Thatcher Milk Protector (pails). Although a new corporation began ca. 1889 to take over the milk bottle business (see below), H.D. Thatcher & Co. continued to operate selling other products, such as baking powder and paper containers. The company registered Trademark No. 24,338 for the baking powder on March 13, 1894.

Thatcher originally built his plant behind 19 Market St., but he moved it in 1898 to 1 Maple St. A disastrous fire covered most of Fall Island on June 2, 1900, causing $30,000 worth of damage to the new factory – with no insurance coverage. Thatcher built a new plant soon after, nearby on Raymond St., behind his original factory. In 1913, H.D. Thatcher & Co. declared bankruptcy (Wyant & Levitt 1987:4).

Robert A. Byrnes purchased the firm in 1914 and incorporated as H.D. Thatcher & Co. with Fred L. Dewey and Ira Kendall (and possibly others). The new firm continued to make and sell baking soda, paper containers, and other products. Kendall left the company in 1918. Apparently, Byrnes and his companions used the Thatcher name without Thatcher's permission, although there was no evidence that he sued the new firm. It was not until 1924, one year prior to Thatcher's death, that H.D. Thatcher & Co. officially dissolved. Thatcher continued as an inventor and businessman until his death, but our interest wains at the end of his involvement with milk bottles (Wyant & Levitt 1987:4-7). For a much more thorough history of both Thatcher's life and this early firm, see Wyant & Levitt (1987).

Thatcher Mfg. Co. (1889-1946)

Thatcher incorporated the Thatcher Manufacturing Co., a New York corporation, in 1889 (Moody 1921:615). The corporation was evidently created to manufacture milk bottle caps and other Thatcher products, especially Orange Butter Color, which it did for two decades (*Hoard's*

Dairyman 1908). It also sold the milk bottles, which were actually manufactured for Thatcher by Whitall Tatum & Co., Millville, New Jersey (Rawlinson 1970:19, 22). The future, however, lay entirely with the milk bottles, and it was not Dr. Thatcher who was to take the company in that direction.

At the turn of the century, Francis E. Baldwin and a group of investors purchased control of the corporation.[6] Baldwin – in prior business life, a lawyer – took direct control in 1902, and soon turned the foundering company into an efficient and profitable operation. In June, 1903, Baldwin heard about the Owens automatic bottle machine and determined to investigate it as the means of producing milk bottles directly. A few months later, he saw the machine in operation at Toledo. He was so impressed that he closed a contract for the exclusive use of the machine for milk bottles. The contract required liberal financing, and it was not until a year later in September 1904, that he had sufficient funds for a plant and to pay the Owens people. The firm at once erected a factory building in Kane, Pennsylvania (*Glass Container* 1927:38).

The Kane operation was variously listed as the Kane Milk Bottle Co. or the Baldwin-Travis Glass Co. In any case, the plant was intended – at least initially – as a separate entity that would manufacture bottles to be distributed by Thatcher. The reason was clearly that the Thatcher stockholders were leery of the huge capital investment necessary, so hard on the heels of the company's new-found stability (*National Glass Budget* 1904; *American Glass Review* 1934:167). The principals were Baldwin and H.E. Travis, and it was as Baldwin-Travis that the company secured the license from Owens on September 16, 1904:

> It seems that a Francis E. Baldwin, who was both the president and treasurer of Thatcher, had intended that Baldwin-Travis . . . would make the bottles which Thatcher would sell. As the National Glass Budget predicted on November 19, 1904, the two companies soon combined under the Thatcher name. H.E. Travis, with whom Baldwin had associated to obtain the Owens license, was a practical

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[6] Gallagher and Munsey (1969:333) placed the sale of the corporation in 1898. J.A. Arrondale (a longtime Thatcher employee) reported that in 1898 Dr. Thatcher met Baldwin, who "became . . . interested in Thatcher's work on sanitation in connection with the sale and distribution of milk," but he did not say that Baldwin invested immediately in the corporation (Rawlinson 1970:22). *Glass Container* (1927:7) and Giarde (1980:114) set the Baldwin takeover date at 1900.

glass manufacturer who had been superintendent at the Fidelity Glass Company in 1903 and who later established his own plant and made milk bottles by hand process (Scoville 1948:104-105).[7]

If it was intended that Travis' experience as a practical glass maker would ensure the successful inauguration of the new factory, that proved not to be the case. The installation was plagued with problems from the outset. According to J.A. Arrandale, a longtime Thatcher employee, "The first year of their glass making experience was somewhat of a nightmare. It was almost a complete failure. They had made virtually millions of bottles, none of which were commercial" (Arrandale, in Rawlinson 1969:22-23). Scoville (1948:104-105) claimed that the Thatcher Mfg. Co. "had never made glass" prior to the installation of the Owens machines, and Arrandale's commentary supports that statement.

The Owens machine was a new technology, being tried on a new type of bottle for the first time, and no one had the understanding to bring the machines into effective production. It was only when Baldwin hired R.W. Niver, a young engineer, that the company was able to begin successful operation. It is not altogether clear when this occurred, but since they were not yet in production in March, 1905, the earliest possible date for the beginning of commercial bottle manufacture by Thatcher would be later in that year (Rawlinson 1969:22-23).

Thatcher stressed the quality of what the ads called "the Thatcher method" (actually improvements created by the Owens machine). The ads noted structural improvements, especially "uniform thickness" of the glass, claiming that a Thatcher bottle "breaks less readliy than the ordinary milk bottles." The ads also stressed the "accurate capacity" of Thatcher bottles, a leap in quality that handmade bottles simply could not match (e.g., *Milk Dealer* 1912; Figure 7).

Figure 7 – Thatcher ad for Quality and Capacity (*Milk Dealer* 1912)

[7] This was the Travis Glass Co. It seems likely that it was the early Thatcher experience that soured Travis on machine production. See the Travis Glass section for more information.

Meanwhile, Baldwin had already moved to merge the Baldwin-Travis operation with Thatcher. Not surprisingly, the union was opposed by some of the Thatcher shareholders, who unsuccessfully sought an injunction to block the merger. It is notable that Thatcher at that time was capitalized at $50,000 and Baldwin-Travis at $1,500,000 (*Syracuse Herald* 1905). Given the problems with the Owens machines, the investors' concerns were predictable. But with success at Kane, Thatcher entered a new and profitable era.

Thatcher expanded in 1908, building a second plant at Ottawa, Illinois, but it soon moved to Streator, Illinois, because of a nearby fuel source. In 1912, the firm opened a third plant at Elmira, New York, where the main office had been moved at the end of 1904 (Toulouse 1971:496-498; *National Glass Budget* 1904).

In 1909, the "Thatcher-Baldwin Co." was listed as having four Owens machines, all at Kane, Pennsylvania. The Kane plant still operated four machines in 1910, and Streator had two. In addition, four new Owens machines were to go to a new Thatcher plant in New Jersey the next year, but these were apparently deferred to the Elmira plant. By 1913, Thatcher was listed as manufacturing "fruit jars and milk"[8] bottles using the Owens machine at six continuous tanks. The following year, the Elmira, Streator, and Kane plants were each listed as having four machines, all making "milk jars." The most detailed inventory of Thatcher's Owens machines is from late 1916, when Kane and Streator each had four 6-arm machines, while Elmira had four 6-arm and two 10-arm machines (Hayes 1909:1; *National Glass Budget* 1910:1; *Journal of Industrial and Engineering Chemistry* 1913:954; 1914:864; *Milk Dealer* 1916a; Palmer et al. 1917:213).

The Owens Bottle Machine Co., meanwhile, had been pleading with its licensees to allow Owens to make bottles on their license. Thatcher was the only one who granted that option – in return for a reduction of the royalties from 40 cents to 10-15 cents per gross. Thatcher granted Owens permission to make 50,000 to 150,000 gross per year *for Thatcher* at the Clarksburg plant

[8] We have found no evidence of any kind to support Thatcher's manufacture of fruit jars. All Owens machine references we have seen only mention an Owens license for milk bottles, and we have found no evidence that the Thatcher Mfg. Co. made any containers by hand or used any other form of machine prior to the 1920 acquisition of the other milk bottle manufacturing companies.

(Scoville 1948:107). The emphasis is important. There are no marked Owens milk bottles from this period.

The largest expansion in Thatcher history occurred in 1920, when Baldwin negotiated the purchase of four rival companies: Essex Glass Co. (factories at Dunkirk, New York, Mt. Vernon, Ohio, and Parkersburg, West Virginia), Travis Glass Co. (Cedar Grove and Clarksburg, West Virginia), Lockport Glass Co. (Lockport, New York), the Woodbury Glass Co. (Winchester, Indiana), and the milk bottle business and Hartford-Fairmont (later Hartford-Empire) machine and license of the J.T.&A. Hamilton Co. of Pittsburgh. Although the deal allowed Thatcher to take over much of its competition, the real objective was to gain exclusive rights to the new Hartford-Empire machines for milk bottles, then held by the acquired companies. To arrange for the $3,000,000 acquisition, Baldwin negotiated substantial loans from Edward D. Libby and other investors.[9] He then took Thatcher public, offering $2,000,000 worth of bonds to cover the purchases (Moody 1921:615; 1924:1010; *Glass Container* 1927:42, 44; *New York Times* 1920). For a list of Thatcher plants, see Table 1.

Thatcher was clearly in transition from relying on Owens machines to the more user-friendly press-and-blow machines. Soon, the Owens machines were no longer used for milk bottle manufacture. Empirical evidence suggests that Owens machines were mostly eliminated by 1925, the last date code we have found on an Owens-made bottle with a Thatcher logo.

The dramatic 1920 expansion, however, attracted the attention of the Federal Trade Commission, and it began an investigation of the transactions. In 1923, it held that the stock transfers involved (the basis for the acquisitions) were conducted to materially reduce competition and were thus unlawfully acquired. Thatcher was therefore ordered to divest itself of the Essex, Lockport, Travis and Woodbury properties. Thatcher appealed this ruling to the district court but lost. Thatcher then appealed to the Supreme Court, which in 1926 ruled that while the stock was illegally acquired, the FTC had no authority to order the company to divest

[9] Edward D. Libbey was the son of William L. Libbey, founder of the Libbey Glass Co. (1892-1935) – a major producer of tableware. Edward Libbey took over his father's position with the company and sponsored the work of Michael J. Owens, inventor of the Owens Automatic Bottle Machine. Libbey was also an important backer of the Owens Bottle Machine Co. See the Owens Bottle Co. file for more on Libbey.

itself of material property. The divestment order was consequently moot (272 U.S. 554; *Yale Law Review* 1934).

Thatcher meanwhile had closed the Kane, Mt. Vernon, Clarksburg and Winchester factories between 1923 and 1926. The company later closed the Parkersburg and Dunkirk plants, but, in 1933, it acquired the Peerless Glass Co. with a factory in Long Island City, New York (Toulouse 1971).

In 1927, the combined Thatcher plants operated ten continuous tanks with 16 Hartford-Empire feeders. Although listings for Owens machines remained, it is likely that none were still in use. The plants made "milk jars only," and reference to the Owens machine was removed the following year. In 1932, the company listed one less tank and one less feeder, with the elimination of the Parkersburg, West Virginia, plant. The listing remained the same until at least 1944 (*American Glass Review* 1927:145; 1928:149; 1933:72).

Figure 8 – Ad for Thatcher's Pyroglaze Process (*American Carbonated Bottler* 1945)

For bottle collectors, probably the most interesting development of the 1930s was the introduction of applied color labels. This labeling technique – called "pyroglazing" by Thatcher – was reportedly "demonstrated" by the company in 1932 (Figure 8). Their first ads for the process, and presumably its first appearance on their bottles, was in March, 1934 (*Food Industries* 1935:117; *Milk Dealer* 1934; *Milk Plant Monthly* 1934).

The most significant development for the company in this era, however, followed from its 1935 acquisition of the capital stock of the Olean Glass Co., Olean, New York. Thatcher's control of this plant initially seemed of little note, since the company announced that the Olean operation would continue to manufacture "containers for beer, carbonated beverages, cider, foodstuffs, oils, polishes, proprietary medicines and vinegars" (*Glass Packer* 1935:574). This opened up an entirely new venue for Thatcher. However, the Olean plant retained its own identity until Thatcher acquired complete ownership in 1943. Olean became a division of Thatcher effective January 1, 1944 (*Olean Times Herald* 1943; *Wall Street Journal* 1944).

Thatcher's acquisition of Olean was part of a plan to diversify the company, long dependent on milk bottles as its only product. Franklin B. Pollack was a man of vision in the Thatcher hierarchy. Along with some associates, Pollack began buying Thatcher stock in 1943, until his group had acquired a working control of the firm (20% of the stock). At that point, they began revising the Thatcher procedure to diversify (Abele 1960). Thatcher began advertising non-milk bottles in 1944 (*Food Packer* 1944:57).

Figure 9 – Thatcher beer bottle Ad – 1945 (*Modern Brewery Age* 1944)

As part of a revamping of the Olean plant in 1944, Thatcher installed "equipment for the manufacture of amber beer bottles" (Gingold 1945:11; Figure 9). By the end of the first year, Thatcher had "turned out millions of beer bottles including Steinies, Export and One-Ways, the new single trip bottle." The company even planned to renovate part of its Streator, Illinois, factory for beer bottle manufacture.

Table 1 – Thatcher Plant Locations and Dates of Operation

City	State	Dates in Operation	Sources
Kane	PA	1905-1924*	Toulouse (1971:497-498); Ads
Ottawa	IL	1908-1909	Toulouse (1971:498); *National Glass Budget* 1904
Streator	IL	1909-1985**	Toulouse (1971:498); Ads; *Syracuse Herald-Journal* (1985)
Elmira	NY	1912-1985	Toulouse (1971:498) Rawlinson 1969:23; *Milk Dealer* (1916); *Syracuse Herald-Journal* (1985)
Lockport	NY	1920-at least 1944; by 1947	*Wall Street Journal* 1944; Ads
Dunkirk	NY	1920-at least 1936; by 1939	Ads; Moody (1921:615)
Mt. Vernon	OH	1920-1924*	Moody (1921:615; 1924:1010); Ads
Clarksburg	WV	1920-1925	Toulouse (1971:498); Moody (1921:615; 1924:1010); Ads

Cedar Grove	WV	1920-1931	Toulouse (1971:498) Ads; Moody (1921:615; 1924:1010)
Parkersburg	WV	1920-at least 1930; by 1934	Toulouse (1971:498); Ads
Winchester	IN	1922-1923***	Toulouse (1971:498); Ads
Long Island	NY	1933-at least 1941; by 1947	Toulouse (1971:498); Ads; Harvard (2006); Moody; Porter (1935)
Olean	NY	1944-1948 †	*Olean Times-Herald* (1943; 1948); Arrandale (1945); *Bradford Mirror* (1951)
Lawrenceburg	IN	1951-1985	*Glass Industry* 1951; *Syracuse Herald-Journal* (1985)
Jeannette	PA	1951-1961 ††	Harvard (2006); Moody; Whittten 2006
Saugus	CA	1955-1985 †††	*Los Angeles Times* (1955); *Syracuse Herald-Journal* (1985)
Tampa	FL	by 1960-1985	Abele 1960; *Syracuse Herald-Journal* (1985)
Toledo	OH	by 1965-at least 1971	Moody
Wharton	NJ	1966-1985	Kelly and Kelly (2004); *Syracuse Herald-Journal* (1985)

* Although Toulouse stated that these plants closed in 1925, they were no longer listed in a December 1924 ad (*Glass Container* 4(2):1924:55). The Kane plant was built late in 1904, but production on the new Owens machines took a long while to perfect. As late as March, 1905, no Owens machines were in production outside of the Owens demonstration plant at Toledo ("The Owens Bottle Machine." *National Glass Budget* 20[45]:11. 1905). Therefore the earliest possible year for production at Kane is 1905.

**Rawlinson (1969:23), however, placed the installation in 1907 with a second furnace added in 1908. We have found no confirmation for this.

*** The Winchester first appeared in Thatcher ads in May 1922 but was dropped in September 1923.

† Thatcher controlled the Olean stock by 1935, but the company retained its own identity until January 1, 1944.

†† The Jeanette plant was purchased in 1951 but was first listed in Thatcher ads in 1954.

††† Ads list the Saugus as early as 1954, but it was not completed and in operation until late 1955 (*Los Angeles Times* 1955).

Thatcher Glass Mfg. Co. (1946-1966)

The company changed its name to Thatcher Glass Manufacturing Co., Inc., in 1946 (*Wall Street Journal* 1946). The firm moved its corporate headquarters from Elmira to New York City in 1957. About 1959, Thatcher revealed a new process, it called "Nu-Glass." Returnable bottles were given a "renovating finish" when they were returned to bottlers. Thatcher claimed the process "cut in half breakage on the filling line" (*Glass Industry* 1959:18). That same year, Thatcher opened a new plant in Tampa, Florida (*Glass Industry* 1960:68).

By 1960, Thatcher became one of the driving forces behind the push toward non-returnable bottle use in the soft drink industry, and it ranked fifth in the glass container industry – behind Owens-Illinois, Hazel-Atlas, Anchor-Hocking, and Brockway (Abele 1960).

Thatcher Glass Mfg. Co. (1966-1981)
Thatcher Glass Corp. (1981-1985)

In 1966, the Rexall Drug & Chemical Co. (later Dart Industries, then Dart & Kraft Inc.) acquired Thatcher, which then became a division. Dominick & Dominick then bought the firm in 1981 (*Wall Street Journal* 1966; 1981). Thereafter, it operated as the Thatcher Glass Corp. Thatcher declared bankruptcy at the end of 1985, and Diamond-Bathurst, Inc. acquired its remaining assets (Barlett & Steele 1992; Owen-Illinois 2001). In both 1982 and 1985 (prior to the bankruptcy), Thatcher maintained six manufacturing plants, making "containers: beer, beverage, food and liquor" (*Glass Industry* 1982:56; Perrine 1985:46).

Containers and Marks

The Thatcher Mfg. Co. used a large variety of manufacturer's marks over the life of the firm. For a quick reference, see Table 2 at the end of this section.

H.D.T. & CO. POTSDAM, N.Y. (1884-1889)

This mark was embossed in a plate on the reverse side of one of the early Thatcher Milk Protector bottles. Although these early bottles were made by Whitall Tatum & Co., Thatcher's

initials were included from ca. 1883 to ca. 1885 (Scharnowske 1998:1; Tutton [1997]:6). Potsdam, New York, was Thatcher's earliest location and was not a glass factory.

We feel a date range of ca. 1884 to 1889 is more likely. Thatcher's letter (discussed above) implied that he took his prototype bottle to Whitall-Tatum in 1884, making that the earliest possible year of production. In 1889, the bottle section of the business transferred to the Thatcher Mfg. Co.

THATCHER MF'G CO. POTSDAM, N.Y. (1889-1905)

According to Giarde (1980:112-114), this mark was used "possibly 1880's-1890's." This would indicate bottles made for Thatcher by Whitall Tatum & Co.; Thatcher did not actually manufacture bottles until 1905. Giarde (1980:116) noted that dating Thatcher bottles was "an extremely inexact undertaking on bottles made before 1920" and admitted that he had made "no visual confirmation" of this mark.

Scharnowske (1998:1-2), however, noted the use of the mark (always with POTSDAM, N.Y.) on at least three variations of the Thatcher Milk Protector in both quart and pint sizes. Some of these were also marked PAT. SEPT. 17, 1889, or with abbreviations for the year (on Common Sense milk bottles). Scharnowske dated the bottles without the patent date from 1885 to 1889. Although he offered no date range for the later bottles, all we have seen were mouth blown, thereby predating 1906. Since patents expired after 14 years during that period, there would have been no reason to have used the patent date after 1903.

T. M'F'G CO's. PAT. SEPT. 17-89 (ca. 1889)

At this point, we have only found a single milk bottle (eBay) with a base embossed "T. M'F'G CO's. (arch) / I.G.CO. (horizontal) / PAT. SEPT. 17-89. (inverted arch)." The "I.G.CO." indicates that the bottle was actually made for Thatcher by the Illinois Glass Co. As noted in the history section, Scoville (1948:104-105) claimed that Thatcher did not make milk bottles prior to the adoption of the Owens machines in 1905, and this bottle supports that claim.

THATCHER MANUFACTURING COMPANY (1905-1909)

Knipp (1990:4) showed a rubbing of this mark from a bottle in his collection. He stated that he believed the bottle to have been made "c. 1905, early in the Thatcher manufacturing history, by virtue of their being machine made with very shallow cap seats and tin tops." The mark consisted of "THATCHER MANUFACTURING" in an arch and "COMPANY" in an inverted arch, to form a complete circle around the edge of the base (Figure 10). The bottle was almost certainly made during the pre-date-code era of Thatcher machine manufacture: 1905-1909.

Figure 10 – Thatcher circular mark (Knipp 1990:4)

T.M'F'G.Co. (ca. 1890-1919)

Giarde (1980:112) dated this mark from the 1890s to ca. 1917. As mentioned above, these early marks are difficult to date. However, Giarde (1980:117) also stated that most bottles fit into the 1889-1914 period, but dated bottles are as late as 1919. The only Thatcher ad we have seen that mentions this mark is from October 1916. It refers to "Milk bottles with the 'T.Mfg.Co.' on the bottom" (*Milk Dealer* 1916b). Note that this logo had a large temporal overlap with the next mark below. All T.M'F'G.Co. marks are found on bottle bases.

Figure 11 – T. M'F'G Co. PAT. SEPT. 17TH 1889 (eBay)

This mark appeared in three configurations that we can confirm:

1. T. M'F'G Co. (arch) / PAT. SEPT. 17TH 1889 (inverted arch) – mouth-blown bottles; the "o" in "Co" can be either capital or lower case (Figure 11)
2. T. M'F'G Co. PAT. SEPT. 17TH 1889 in a complete circle around the outside edge of the base – mouth-blown bottles; lower case "o" in "Co"
3. T. M'F'G CO horizontally across the base – Owens scar (Figure 12)

Date codes accompany most but not all of the No. 3 configuration. In all cases we have observed or have seen reported, the date code is embossed below the logo. Since the Owens scar sometimes distorted the logo, it is frequently difficult to distinguish this mark from the one without the apostrophes (discussed below). The authors have seen date codes accompanying the horizontal variation (No. 3) of this mark ranging from "10" (1910) to "18" (1918), although these, too, were often distorted by the Owens scar. Giarde added a reported date code of "19" (1919).

Figure 12 – T. M'F'G Co. horizontally across base (California State Parks)

T.MFG.Co. (ca. 1900-1925)

According to Giarde (1980:112), this mark was used from ca. 1910 to 1924. This form and the T M'F'G.Co. logo described above are very similar and are frequently difficult to distinguish because of weak strikes of the mark and/or distortion because of the Owens scars. Although this is not obvious from his text, Giarde's dating is primarily based on date codes. This mark is found in at least four configurations.

Figure 13 – T.MFG.CO. PAT. SEPT. 17TH 1889 (eBay)

1. T.MFG.CO. (arch) / S / PAT. SEPT. 17TH 1889 (inverted arch) on an apparently mouth-blown bottle (eBay; Figure 13) [also found with an "F" replacing the "S"]
2. T.MFG.CO. (inverted arch) with "8" in the center, Owens scar. [also with an "N" in the center] (eBay; Figure 14)
3. T.MFG.CO. embossed horizontally across the center of the base with Owens scar (Figure 15)
4. T.MFG.CO. (arch)

Figure 14 – T.MFG.CO. – inverted arch (eBay)

Certainly, the mouth-blown bottles were made prior to the Owens production by the Kane plant in 1905. The inverted arch variation with an "8" in the center was probably used during the 1905-1909 period, and the "8" may even have been an early date code for 1908. Another bottle with a similar or identical mark

was described on eBay. The bottle with the "N" in the center also had a "25" date code at the top. The "N" is larger than the other letters and is almost certainly the initial of the dairy that used the bottle. The use of a single large letter for the initial of either the dairy or the dairy owner was very common from the early 1920s until the advent of square milk bottles.

Figure 15 – T.MFG.CO. – horizontal (eBay)

The "F" and "S" on the arched variations may be manufacturer's marks. If Scoville (1948:104-105) was correct that Thatcher did not make bottles prior to the inception of the Owens machines, then all mouth-blown bottles had to have been manufactured by other glass houses. Since Toulouse (1971:449, 458) claimed that the solitary "S" was used by the Salem Glass Works (1895-1937), it is tempting to look in that direction for the maker of this milk bottle. However, Salem was never listed as a milk bottle manufacturer. Although the Sheldon-Foster Glass Co. (1895-1913) made milk bottles, it was an unlikely candidate, since it began milk bottle production ca. 1905, just when Thatcher adopted the Owens machine. However, we have been unable to find another milk bottle manufacturer that begins with the letter "S" who was in business during the ca. 1900-1905 period.

The "F" mark also currently remains a mystery. Although the Fidelity Glass Co. embossed both FG and FGCo on milk bottles, the company used those marks too late to have made the milk bottles for Thatcher. Even after another decade of data collection, we are no closer to solving the riddle of this initial.

The arched variation indicates that Thatcher was willing to be adaptive. In order to fit the "JOHN W. LADD (arch) / DETROIT (horizontal) / COMPANY (inverted arch)" embossing on the base, the "T.MFG.CO." had to be arched between "JOHN W. LADD" and "DETROIT," with the "16" date code between "DETROIT" and "COMPANY." A photo at an eBay auction is the only example we have seen of the arched variation.

Although we have only seen date codes placed below the logo on the Owens-scarred bottles, sellers on eBay have reported date codes above the logo. Reported and observed date codes range from 1911 to 1925 (the latter bottle in the collection of one of the authors). One bottle listed on eBay was embossed 17 above the logo and 11 below it. The "11" was the

identification mark that was assigned to Thatcher in Maine in 1913. The number "11" was also embossed on the bases of the first of the Maine seal bottles – in the typical date code position! Thus, the "11" code *can* mean the company number (at least on early Maine seal bottles). By 1914, the Thatcher "11" company code was embossed on bottle heels or was often just not present.

Albert Morin (personal communication 2/19/2007) had a milk bottle embossed "T MFG CO" with date code of "09." Another milk bottle in his collection had an acid-etched Massachusetts seal date coded "1908" along with the "T MFG CO" mark on the base but no accompanying Thatcher date code. This makes 1909 the year of probable adoption for date codes, likely late in the year. The totaled information suggests a use range of date-coded marks from 1909 to 1925. However, the use of the mark on at least one mouth-blown bottle suggests that the mark was first used prior to the adoption of Owens machine. Since mouth-blown bottles with the mark are unusual, they were probably only used for a short time prior to machine adoption. We have selected an arbitrary date of ca. 1900 for the probable earliest use on mouth-blown bottles.


Figure 16 – TMC mark on base

TMC (1920-1924)

Giarde (1980:112) dated this mark in the early 1920s. Because of inconsistent date code usage, the TMC marks are sometimes difficult to date, but this was the most common mark used from ca. 1920-1923. All examples of this mark that we have observed lacked punctuation. The logo was embossed variously on the front heel, back heel, base, or both heelmark and basemark on the same bottle (Figure 16 & 17). Although numbers that cannot be date codes (e.g., 11 or 63) appear in conjunction with the mark, we have also recorded date codes of 21-24. Although most the bottles reported were machine made with ejection (valve) marks on the bases, we have observed two with the TMC logo and Owens scars, both on the base. Although most Thatcher ads of this

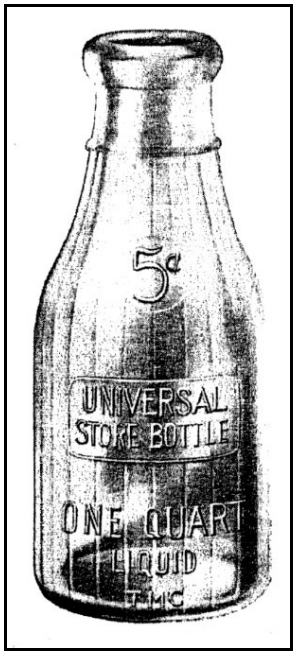

Figure 17 – TMC on heel in ad (*Milk Dealer* 1922).

period depict bottles without showing the marks, an exception occurred in October, 1922, when a bottle was illustrated with this mark on the front heel (*Milk Dealer* 1922).

Ejection scars (also frequently called marks) are found on the base of bottles made by the press-and-blow method. In this method, the first step entails the dropping of a gob of glass into the parison mold and pressing it with a plunger to form the finish of the bottle as well as creating a hollow to allow the second stage to work. The parison is pushed from the mold by an ejection rod, which leaves a small circular scar on the base of the completed milk bottle. The second stage moves the parison to the final mold where compressed air blows the bottle into its completed shape.

To alleviate any doubts that this was an intermediate mark, it appeared in conjunction with the mark that preceded it. On one bottle, the TMC logo was embossed on the heel with T MFG CO. / 21 on the base. The T MFG CO. logo was still in use until 1925 (see above), although it was being phased out in favor of the TMC mark. This combined mark suggests, however, that the TMC logo was in use by at least 1921. In 1923, the TMC mark was used along with the MTC logo (see below) that was adopted at the end of the TMC mark usage (Giarde 1980:117). With a single exception, the TMC mark appeared horizontally on all logos we have seen. The exception was in an inverted arch on a base we observed.

This sort of mark mixing was not unusual. Molds were made in three parts (not including the finish, which could consist of multiple parts): two side pieces and a baseplate. Since the bottles were made to uniform dimensions (at least where the baseplate joined the side pieces), each part of the mold was used until it wore out. Occasionally, a baseplate with an old logo would still be used, often in conjunction with a newer mark on another part of the bottle – after the older logo had been discontinued.

This timing fits perfectly with Thatcher's acquisition of several former competitors in 1920. Since part of the reason for the massive purchases was to acquire the use of the press-and-blow machines, the appearance of the TMC mark on press-and-blow bottles at this time is one of the most intuitive changes we have found.

Some of the TMC marks are embossed on the heels of bottles that have Massachusetts "E" and "L" shoulder seals. Along with the "T" seal for Massachusetts, Thatcher also used the

"L" and "E" seals after the acquisition of Lockport and Essex in 1920 (Brad Blodgett, personal communication 1/25/2007; Lockhart et al. 2017). These were probably only used until the molds for them wore out, although Thatcher certainly acquired rights to the logos along with the companies.

TMCo or TMC Co

Although this mark was not recorded by Giarde, and we have not seen an example, it was reported on two different eBay auctions. In one case, a seller described a bottle with TMC on the back heel and TMCo. 22 on the base. Another seller reported a mark of TMC 11 on the heel and TMC Co on the base. Although both of these are probably mistaken readings, either or both could be engravers' errors.

THATCHER MF'G CO. (early to mid-1920s)

A milk bottle offered on an eBay auction was embossed on the base THATCHER MF'G CO. (arch) / 7 / {illegible two-digit code}. An obvious Owens scar encircled the base of the letters (Figure 18). Another auction for a bottle with the same mark had a date code of "25" and the MTC mark on the heel. Although we currently know little about the mark, it was used during the transition period when Thatcher had acquired the new press-and-blow machines, and the company was apparently uncertain as to how it wanted to mark its products. Another bottle with the same mark had an "8" as the central figure.

Figure 18 – THATCHER MF'G CO. (eBay)

MTC [rectangular] (1923-ca. 1954)

Giarde (1980:112, 116-117) dated this mark 1923-1949. This was the first mark with what he called regular usage and was the dominant logo from 1923 to 1949, although it has been found on bottles up to at least 1954 (Figures 19 & 20). The trademark was actually first used on August 1, 1923 (see the next section below for an explanation). Beginning in 1923, the date code

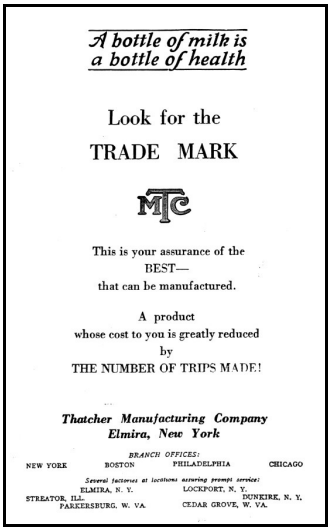

Figure 19 – MTC mark (*Glass Container* 1927)

Figure 20 – MTC mark on Heel

may be inside the ejection (valve) scar, often with a letter between the two numbers (see the Plant Code section below for a discussion about the letters). About 1937, the date code moved outside the ejection mark on the base. On some bottles, other numbers were embossed on the heels, but these are not date codes.

The MTC logos were most often embossed on the heels of milk bottles, and they were illustrated in that location in Thatcher ads beginning in September 1923 (*Milk Dealer* 1923). These logos were sometimes placed on bases. We have encountered a single example with the logo embossed on both heel and base. Date codes (Figure 21) and plant codes (see Plant Code section below) were almost always embossed on bottle bases, but they were placed in a complex variety of configurations. As noted above, the earliest date codes we have encountered were inside the ejection marks. These were sometimes joined by plant codes, also inside the ejection marks. The date/plant code combination was embossed in five patterns:


Figure 21 – 1943 date code with MTC Mark on Base (eBay)

1. Date code split around plant code inside ejection mark (range 3E0 to 3E7)
2. Date code following plant code inside ejection mark (range D24 to L37)
3. Date code inside ejection mark; plant code outside
4. Plant code inside ejection mark; date code outside
5. Date and plant code both outside the ejection mark (could be any location on base)

Sellers on eBay have reported date codes in conjunction with the MTC logo as early as "24" and "25" – both within an ejection mark on the base in the No. 2 configuration. The earliest split date code we have encountered was "3E0" and "3D0" (see ranges above). Date codes outside the ejection marks extend from at least "26" to at least "47" with a single outlier recorded as "51."

With a single exception, all of the bottles marked with the MTC logo were made by press-and-blow machines (leaving ejection scars). A single bottle was reported on eBay with MTC-S11 embossed on the heel and an Owens scar on the base.

 (1944-1985)

According to Giarde (1980:112, 117), this mark was used from 1949 until his book was published in 1980. This is the only mark noted by Toulouse (1971:496), and his illustration did not show the serifs. He dated the mark "1900 to date" (i.e., 1971). Giarde's information was obviously researched in much greater depth. However, neither author was entirely correct.

Thatcher registered Trademark No. 926,847 on January 11, 1972, claiming a first use on August 1, 1923. The date was actually for the previous logo – with block letters and no serifs. For some reason (probably just forgetfulness on the part of a single employee), Thatcher delayed the registration of the mark for 49 years – then failed to recognize the distinction between the marks.

The serif mark is clearly shown in 1944 ads for Thatcher's new line of packers' ware (food bottles) and beer bottles (*Food Packer* 1944; *Modern Brewery Age* 1944) and almost certainly represents the Thatcher entry into new product lines that year (Figure 22 – also see Figure 9). The earliest date code we have observed for the mark was "54," although our sample for this newer mark is small. Hanlon (1971:6-17) illustrated an example of this mark in his 1971 chart. The logo remained listed in 1982 (Emhart 1982:75). The mark was certainly used until Thatcher closed in 1985.

Figure 22 – Serif MTC mark on Liquor Bottle

MTC in a triangular outline

According to Giarde (1980:119-120), "The Thatcher mark used after 1923 has been found within a triangle on a one ounce coffee creamer (Rochester Dairy). Use of the surrounding triangle is an oddity for Thatcher." We have not seen this anomalous mark.

Outlined T (1983-1985)

Figure 23 – Outlined-T logo (David Whitten)

Whitten (2019) cited a letter from "Bill F." – an employee of Thatcher from 1984 to 1985 – noting that Thatcher used an outlined "T" logo from ca. 1981 until the closing of the firm in 1985 (Figure 23). He noted that it was "my understanding that the T logo was used on all new molds manufactured after the company was purchased by Dominic & Dominic from Dart-Kraft Industries in 1981." He cautioned that there may have been a transition period.

The document for Trademark No. 1,227,03 1, however, claimed a first use for the Outlined-T with rounded corners on January 17, 1983. Thatcher registered the trademark on May 8, 1984. The mark was actually used for a bit over one year. Oddly, Thatcher received Trademark No. 1,227,032 – just one numeral higher – on the same day for and outlined T with squared corners, claiming a first use of January 11, 1983 (six days earlier than the one for rounded corners). The only examples we have seen on glass had the rounded corners.

T in the Massachusetts Seal (1909-1947)

Beginning in December 1900, the Commonwealth of Massachusetts instituted a "seal" law to regulate the capacity of milk bottles. Initially, local jurisdictions etched the seals on individual bottles, noting that each bottle met the standards and condemning those that held too much or too little. In 1909, Massachusetts shifted the onus from the dairies to the manufacturers, requiring that all glass factories selling bottles to dairies within the state permanently mark each of their containers with a Massachusetts seal. The seals took various forms, and the mark used by Thatcher was "T" (Blodget 2006:8; Lockhart et al. 2017; Schadlich & Schadlich 1984; Schadlich ca. 1990).

Figure 24 – Mass Seal T (eBay)

The earliest seals, beginning in 1909, were in the form of a slight arch above the front plate, embossed "MASS SEAL T" (Figure 24). By at least 1911, a configuration with the same

wording was embossed horizontally across the upper back body – although the arched variation may have also continued in use. The final shape, "MASS / T / SEAL" in a circular format, was in use by at least 1914, although Massachusetts law did not require that specific configuration until 1918 (Figure 25).

Figure 25 – Mass T Seal

As Thatcher bought other milk bottle manufacturers, it continued to use their seals until the existing molds wore out. This is notable on a bottle in the Morin collection with the "MASS / L / SEAL" embossed on the shoulder (Figure 26) and the TMC mark of Thatcher appearing on the heel. By 1924, however, the transition appears to be complete. It is also probable that Thatcher used both the seals and marks of the former companies while filling existing orders, probably only during the first year of transition. Most (possibly all) Thatcher milk bottles with Massachusetts seals were made in either the Elmira or Lockport plants, both located in New York. For more information on all the milk bottle seal systems, see Lockhart et al. 2017.

Figure 26 – Massachusetts "L" Seal on Thatcher-Made Bottle (eBay)

K9, K-9, or K.9 (1932-late 1930s by Thatcher)

These marks are found on bottles, both with or without a Thatcher mark. These bottles lack date codes, although Giarde (1980:118-119) suggested a date range from the 1920s to the late 1930s. Giarde attempted to explain the marks but finally concluded, "In the final analysis it can only be said that K9 milk bottles should be attributed to Thatcher. Beyond that the K9 will remain a mystery until some researcher finds the answer."

A complicating piece of evidence is the listing of the mark as belonging to the Knox Glass Bottle Co. in the 1928 Massachusetts Bulletin (Schadlich and Schadlich 1989). Blodget (2006:8) also identified "K9" in the Massachusetts seal as the mark identifying the Knox Glass Bottle Co. The earliest listing we have found for milk bottle production by Knox was 1930, although the Massachusetts Bulletin suggests and earlier use (*American Glass Review* 1930:91).

The resolution of these apparently conflicting lines of evidence is fairly simple. In December, 1932, Thatcher "purchased bottle machines, molds and name-plates, certain Hartford Empire licenses relating to the manufacture and sale of milk bottles, and good-will, etc., of Knox Glass Bottle Co., of Knox, Pa." (Porter 1935:1518). Bottles exhibiting both the K9 designation and a Thatcher mark were clearly made by Thatcher after 1932 (Figure 27). Bottles with an embossed K9 but lacking any Thatcher mark were presumably made by Knox before the Thatcher purchase.

Figure 27 – K9 Mass Seal in a Thatcher ad (*Milk Dealer* 1934)

The "K" in the mark obviously indicated Knox, but the number "9" is less obvious. In 1910, the state of New York required all glass houses producing bottles for use in the state emboss a logo plus a number assigned by New York on the heels of each milk bottle sold. This rapidly developed into an informal national numbering system. The number "1," for example, was assigned to the Lockport Glass Co. and was consistently used by that company in conjunction with the LGCo mark. Fidelity Glass Co. marked its bottles FG2 until the Atlantic Bottle Co. purchased the company and began using a mark of ABC2. This system continued in sequential order to at least 52 (the L52 mark used by Lamb Glass Co.). The number assigned to Knox was "9" (Lockhart et al. 2017).

These marks are found in at least three locations and configurations on milk bottles. As discussed above, "K9" is found on Massachusetts shoulder seals only in the "MASS / K9 / SEAL" format, a configuration officially adopted in 1918, although it was used by at least 1914. The mark is also embossed on the heels of milk bottles, with and without the Massachusetts seal. A more unusual configuration is "SEALED / K9" in a plate on the shoulder (Figure 28). We have not discovered a specific reason for this usage.


Figure 28 – K9 shoulder seal (eBay)

An interesting bottle was auctioned on eBay. The bottle was used by the Hood Dairy, a company known for having the makers of its bottles emboss a four-digit date code on the base of each bottle.

This bottle wore the "MASS / K9 / SEAL" on the shoulder, "HOOD / 1935" embossed on the base and "3E5" in the ejection scar. Thatcher used the number-letter-number code during the 1930s into the 1940s. The "3" and "5" indicate a manufacture in 1935, and the "E" signals the Elmira, New York, plant. This provides corroboration for the "1935" on the base being a date code.

Figure 29 – Maine 1 & 11 seals

Maine 1 and 11 Seals (1913-1947)

Beginning in 1913, Maine also initiated a seal requirement that continued until 1947 and mostly used numerical codes, although some initials were included.

Figure 30 – Maine 1 Seal

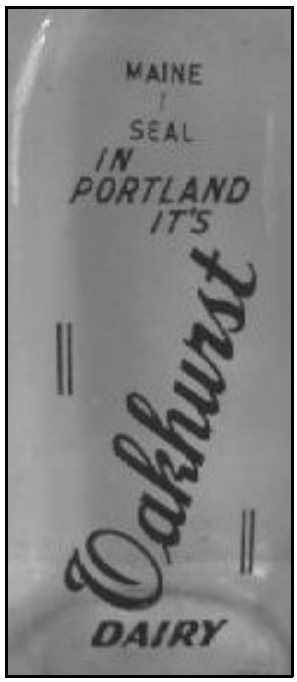

Figure 31 – Maine 1 seal in Pyroglaze (eBay)

Thatcher was awarded both "1" and "11" codes, with "1" being the earliest and most common (Figure 29). Like the Massachusetts seal, the early ones from Maine can be found virtually anywhere on the bottles – base, heel, body, or shoulder (Lockhart et al. 2017).

The Maine seal, like those discussed above for Massachusetts, was eventually embossed on the shoulder and was often in a round plate. The configuration for Thatcher was "MAINE (arch) / 1 / SEAL (inverted arch)" (Figure 30) In a few unusual formats, the seal was found in red or green pyroglaze (and possibly other colores) on the shoulders of square milk bottles in the same format, except that "MAINE" and

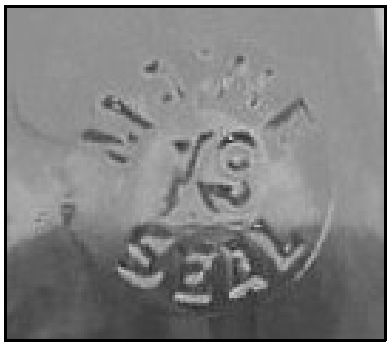
Figure 32 – Maine K9 shoulder seal (eBay)

"SEAL" were both horizontal (Figure 31). An embossed MAINE K9 SEAL also exists (Lockhart et al. 2017; also see discussion above – Figure 32).

Figure 33 – RI 11 Seal [or RI T Seal] (eBay)

Other "Seals" and Required Marks (1913-1947)

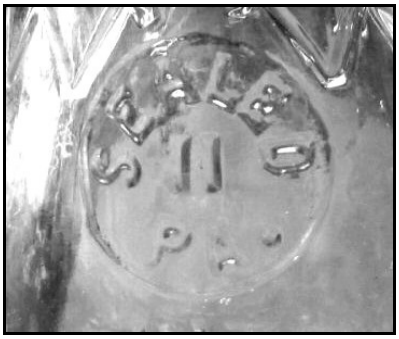

Figure 34 – Sealed 11 PA (eBay)

Rhode Island also used a seal system by at least 1926 (possibly earlier), but we have found very little information about those bottles. Like the other states, Rhode Island dropped the seal system as obsolete in 1947. Thatcher used both the number "11" and the letter "T" in Rhode Island shoulder seals (Lockhart et al. 2017). Seals typically appeared in round plates in a "R.I. / 11 (or T) / SEAL" (Figure 33).

Pennsylvania also carried a seal program between ca. 1930 and 1947, granting Thatcher the number "11." The number was generally embossed in a round shoulder plate – "SEALED / 11 / PA" – although the slogan was also embossed in a continuous circle (Figure 34). At least one bottle was embossed "SEALED 11 PA" at the heel (Lockhart et al. 2019).

Figure 35 – Michigan Seal 14 (eBay)

Michigan instituted a seal law in 1915, typically leaving out the state initials and requiring glass houses to emboss "SEALED / 14" (the Thatcher number for Michigan) on the shoulder – usually in a circular plate (Figure 35). The Wisconsin requirement for an embossed seal also began in 1915, and Thatcher was assigned a "1." The typical configuration was "WISC / 1 / SEAL" (Figure 36). Like the others, the seal system for these two states ended in 1947 (Lockhart et al. 2019).

Figure 36 – Wisconsin 1 Seal (eBay)

Minnesota 1 Triangle (1913-1947)

Figure 37 – Minnesota shoulder triangle (eBay)

The state of Minnesota also carried a seal system from 1913 to 1947, as usual assigning Thatcher the number "1" – but with a different twist. Although the seal remained on the shoulder, it was in the form of a triangle with the "1" above "MINN" separated by a line (Figure 37). The triangle moved to the heel by at least 1940 (Lockhart et al. 1947). For a list of Thatcher seals, see Table 3 at the end of this section.

1-11-14 or 1-7-11-14

Giarde (1980:146) also noted that the heelmark "REGISTERED SEALED 1-11-14" was commonly associated with Thatcher marks. Morin (personal communication 3/3/2007) hypothesized that the number combination was derived from numerals used by the various glass plants acquired by Thatcher in 1920. Lockport Glass Co. universally embossed a "1" beneath its "LGCo" heelmark; Thatcher was identified by "11"; and "14" was associated with J.T. & A. Hamilton milk bottles. While all this is correct, Thatcher was also granted all three numbers by various states discussed above. This was clearly a Thatcher way of displaying the numbers that it used, including 1-7-11-14 (Figure 38). Since several states included a defining number in their requirements for milk bottle identification, the embossing of all the numbers alleviated the need for Thatcher to make sure that the correct number appeared on bottles sent to specific states. This notation was probably not used before 1930, but we have not determined a date range for the system.

Figure 38 – 1-7-11-14

N.C. 11 APPROVED

Dairy Antiques (2016) noted that this seal was given to the Thatcher Mfg. Co., but we have discovered no further information about the system.

T in an inverted triangle

This mark has sometimes been attributed to Thatcher (Snyder 2006:13). Giarde (1980:123-125) discussed four possible contenders, proposed by collectors as the user of the Inverted-Triangle-T mark. A key issue in his discussions is that the Inverted-Triangle-T mark is known to have been accompanied by a "TR" in the Massachusetts seal. Giarde (1980:124), however, stated, "There is not the slightest shred of evidence supporting such a conclusion." Contemporary evidence solidly identified the Inverted-Triangle-T mark with the Travis Glass Co. See the section on Travis for more information.

Table 2 – Thatcher Manufacturer's Marks

Company Name	Manufacturer's Mark	Dates
H.D. Thatcher & Co. (1883-1924) [bottles only to 1889]		
	H.D.T. & CO. POTSDAM, N.Y.	1884-1889
Thatcher Mfg. Co. (1889-1946)		
	THATCHER MF'G CO. POTSDAM, N.Y.	1889-1905
	T. M'F'G CO's. PAT. SEPT. 17-89	ca. 1889
	THATCHER MANUFACTURING COMPANY	1905-1909
	T.M'F'G.Co.	ca. 1890-1919
	T.MFG.Co.	ca. 1900-1925
	TMC	1920-1924
	MTC [rectangular]	1923-ca. 1954
		1944-1985
Thatcher Glass Corp. (1981-1985)		
	Outlined T	ca. 1981-1985

Table 3 – Thatcher Milk Bottle Seals

State	Seal Format	Date Range
Massachusetts	MASS SEAL T	1909-ca. 1913
	MASS / T / SEAL	ca. 1911-1947
Maine	1 and 11 Seals in various formats	1913-1947
Rhode Island	R.I. / 11 / SEAL (round) (also same with T)	at least 1926-1947
Pennsylvania	SEALED / 11 / PA. (round)	ca. 1930-1947
Michigan	SEALED / 14 (round)	ca. 1915-?
Wisconsin	WISC / 1 / SEAL (round)	ca. 1915-?
Minnesota	1 / MINN (triangle)	1913-1947

Plant Codes

Often, milk bottles made by Thatcher during the ca. 1923-1947 period (bearing the non-serif MTC mark) were embossed on the base along with a single large letter that covers most of the base. These large initials represent the dairies or creameries that actually used the milk bottle; they are not related to manufacturer's marks or plant codes. In addition, we have observed numerous milk bottles embossed on the bases with smaller, single letters. Although these smaller letters may be embossed anywhere on the bases (including within the ejection mark – with or without a date code), with a very few exceptions, they fall into predictable patterns.

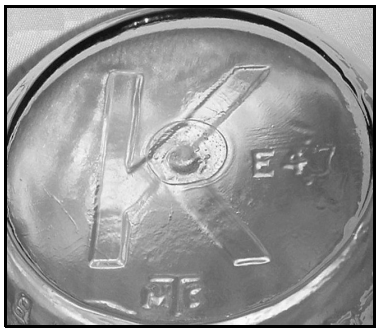
Figure 39 – "E" Code for the Elmira factory (eBay)


Figure 40 – "S" Code for the Streator factory

We repeatedly see the letters "D," "E," "L," and "S" embossed either near date codes or on some other part of the

base (Figures 39 & 40). Schadlich ([ca. 1990]) suggested that these letters were plant codes for Dunkirk, New York; Elmira, New York; Lockport, New York, and Streator, Illinois. Although we have not seen a bottle with the mark on the base, Shadlich included the "K" from Kane, Pennsylvania, and Morin (personal correspondence 11/15/2007) reported the letter "P" (Parkersburg, West Virginia) on Thatcher bottles used in Massachusetts.

Pollard (1993:290) also noted the four initials for the four plants. Marks we have observed fit into the following ranges based on accompanying date codes:

D – 1924-1930
E – 1925-1960
L – 1925-1937
S – 1924-1963

The "S" mark also appeared in association with one TMC basemark and a "24" date code as well as on a bottle embossed T.MFG.CO. (arch) / S / PAT. SEPT. 17TH 1889 (inverted arch) and another that is identical except that it has the T M'F'G CO mark. We have only found the other "D" and "L" factory codes in association with the MTC mark. Both the "S" and "E" codes continued in existence long enough to be associated with the final mark in the inverted triangle shape.

Our sample for non-milk bottles is very small, but we have recorded "O" codes on beer (1953) and food (undated) bottles; "S" with a 1945 date code on a Pepsi-Cola bottle; and "L" (1974) on a liquor bottle. The "O" with a "53" date code is too late for the Olean, New York, plant and too early for the one in Toledo, Ohio. Since only five plants were in operation at the time, and four of those used identified letters (e.g., S for Streator), only the plant at Jeanette, Pennsylvania, remains. If the "O" is, indeed, a plant code, the reasons for the choice are a mystery. Another liquor bottle had a "T" code, probably indicating the Tampa, Florida, plant (1959-1985) and a "73" as a date code.

The "S" almost certainly indicates the plant at Streator. The "L" is too late for Lockport and probably indicates the Lawrenceburg factory. A mystery code, however is "N 42" on a milk bottle base, unless it signifies the Long Island, New York, plant. A final letter is a "C" mark that

was used in conjunction with date codes from at least 1958 to at least 1962. This could indicate the factory at Saugus, California.

By comparing the ranges for date codes in conjunction with factory codes, it is clear that all fall within the known dates of operation for the main Thatcher plants. Using this as a test, it is almost certain that the "D," "E," "L," and "S" codes represent Thatcher factories, and it appears that the system was continued until at least 1965. By that time, glass milk bottles were rapidly being replaced by waxed paper and plastic, and Thatcher had completed the shift to a dependence on a more diversified container line.

Discussion and Conclusions

Thatcher manufacturer's marks, in general, correspond nicely with Thatcher history and technology. The earlier marks on mouth-blown bottles for example, all pre-date the adoption of the Owens Automatic Bottle Machine and the building of the Kane factory in 1905. The date codes beginning in late 1909 also fit in well with the adoption of the Massachusetts seal at that time. The last date code found on any Owens-machine-made Thatcher bottle was 1925 – almost certainly the end of the phasing out of the Owens machines.

The use of the TMC mark, beginning in 1920 on bottles made with press-and-blow machines, also matches history, as Thatcher acquired the various companies that had formerly used the Hartford-Fairmont machines and began the process of switching to those more versatile machines in Thatcher factories at that time.

Thatcher was one of the major players in milk bottle production throughout the 20th century, so pinpointing information on its marks and codes became increasingly important. Although the earliest marks from the company are difficult to date closely, Thatcher was one of the early users of date codes, beginning in late 1909. This allows virtual pinpoint dating for the manufacture of most Thatcher bottles. In many cases, plant codes also allow the identification of the factory of manufacture, as well.

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