

# Horlick's Malted Milk

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British brothers, James and William Horlick, moved to Racine, Wisconsin, then formed a Chicago corporation in 1873 to produce dried baby food. After a return to Racine two years later, William patented a formula in 1883, naming the new product Malted Milk four years later. When James returned to England ca. 1890, he opened a London office but began building a factory a factory at Slough, Buckinghamshire, in 1906 – the year the brothers renamed the company as the Horlick Malted Milk Co. James completed the British plant two years later.

When James died in 1921, his descendants gained control of the English plant, while William operated the American business. In 1927, the English family seceded from the U.S. company, dividing the world sales between the two, but the British firm purchased the U.S. branch in 1945, reuniting the company. U.S. sales declined sharply during the 1950s and 1960s, causing the firm to close the Racine plant in 1975. Although the ownership had changed, the firm remains in business as of this writing with popular markets mostly in the third world. Both in England and in the U.S., Horlick's used a variety of bottles with numerous variations, many of which may be dated with reasonable accuracy.

**Note About Figures:** The vast majority of the photos, many ads, and postcards used in this study came from eBay auctions. All uncited figures in the work below are therefore derived from eBay. Other sources remain cited in our usual format.

## History

Born in London in 1844, James Horlick and his brother, William (1846) eventually became the founders of Horlick's Malted Milk. James became a licensed chemist (pharmacist) in 1869, the same year William migrated to Racine, Wisconsin. James worked for the Mellin Co., making infant food before joining William in Racine in 1870. Three years later (1873), the brothers formed the J&W Horlick Co., a Chicago corporation, to promote the dried baby food formula – called Horlick's Food – developed by James (Bay Bottles n.d.; Grace's Guide 2018; Horlick 1937; University of Wisconsin 2016).

The brothers returned to Racine in 1875, where William added milk to the vacuum dried formula and patented the firm’s Malted Milk (Patent No. 278,967) – a sterile powder for use by babies and invalids – on June 5, 1883. On February 2 of that year, the brothers dissolved the original partnership and formed the Horlick’s Food Co. (*Racine Journal Times* 2/2/1883). The brothers received Trademark No. 14,856 for “Malted Milk” and for “*M.M.*” in a circular logo on October 5, 1887. The “*M.M.*” was produced in a strange font the looked almost like lower-case letters. Although we have not discovered a first use declaration, it was almost certainly in effect earlier, possibly as soon as 1883 (Figure 1). One of the most dramatic moves of the firm was to promote the product to soda fountains, where it became the “Malt” or “Malted Milk Shake” – a drink in great demand in the U.S. during the first half of the 20<sup>th</sup> century. James returned to England ca. 1890 to establish an office in London at 39 Snow Hill Rd. The firm soon moved to 34 Farringdon Rd. and initiated a factory at Slough, Buckinghamshire (now Berkshire) in 1906, completing the plant in 1908 (Bay Bottles n.d.; Grace’s Guide 2018; University of Wisconsin 2016; Wisconsin Historical Society 2020). An 1895 letterhead listed the products as “Horlick’s Malted Milk, Horlick’s Food for Infants and Invalids, Horlick’s Dry Extract of Malt, Horlick’s Wheat Phosphates, Horlick’s Diastoid, &c.” (Figure 2).

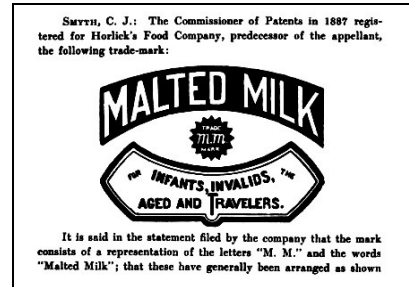


Figure 1 – 1887 trademark

On September 3, 1895, William Horlick applied for a patent for a “Method of Preparing Edible Tablets.” He received Patent No. 585,758 on July 6, 1897. Since Horlick applied for the patent in September of 1895, the Horlick’s tablets *could* have been available by that time. They were almost certainly in production around mid-1897, when Horlick received the patent.



Figure 2 – 1895 letterhead

A 1900 ad, offered on eBay explained that “Malted Milk tablets dissolve readily in the mouth.” A 1906 ad in the *Literary Digest* added that they were “in Lunch Tablet form, also, with chocolate. Samples free upon request.” Thus, we know that the term “Lunch Tablet” appeared sometime between 1900 and 1906. Please note that Horlick’s Malted Milk Tablets were *not* the same as malted milk balls, a later product, introduced as Giants in 1939 by the Overland Candy Co.

In 1906, the U.S. firm became the Horlick’s Malted Milk Co., and James (now Sir James) was granted a Baronet in July 1914. Upon the death of James in 1921, his descendants gained control of the English firm, incorporating the business as Horlick’s Malted Milk Co., Ltd., on December 11, 1925. Two years later (1927), the American and British firms separated. William retained the U.S. business, including Canada, the Caribbean, and South America – while the English corporation under the guidance of J.N. Horlick (son of James) controlled Britain and the remaining world – although the firms remained in liaison (Figure 3). When William died at the age of 90 in 1936, his son, Alexander J. Horlick, became president. The English firm adopted the name “Horlicks, Ltd. a year later – although the products continued to be called Horlick’s Malted Milk. In 1931, the business initiated “night starvation” advertisements, linking the consumption of Horlick’s with a good night’s sleep (Bay Bottles n.d.; Grace’s Guide 2018; Horlick 1937).

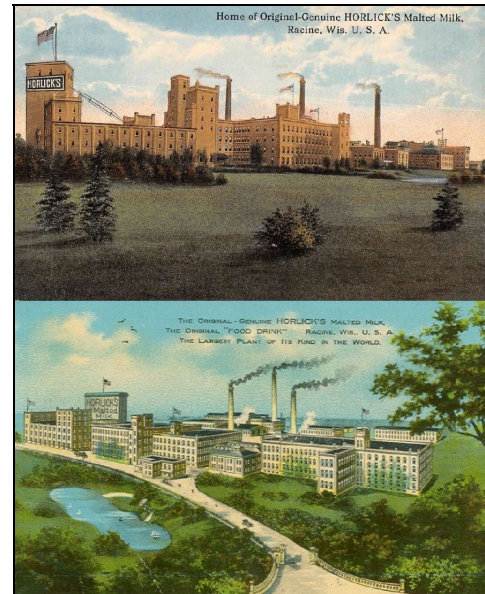


Figure 3 – Postcards

A.J. Horlick, William’s only surviving son, sold the U.S. business (Horlicks Malted Milk Corp.) to the British firm, reuniting the business in 1945. The Beecham Group purchased Horlick’s, Ltd., in early 1968 for £20 million and closed the Racine plant in March of 1975. The *Kenosha News* explained on January 10 of that year that “the market for malted milk products in the United States has all but disappeared.” The added problem of rising costs also spurred the decision to close.

A merger created SmithKlein Beecham in 1989, turning into GalaxoSmithKlein in 2001. Such intrepid explorers as Admiral Robert E. Perry at the North Pole, Admiral Richard E. Byrd at the South Pole, and Astronaut John Glenn on his initial orbital journey, packed Horlick's in their supplies, and the brand was included in military rations during the Spanish American War, World War I, and World War II (Grace's Guide 2018; University of Wisconsin 2016; Zumwalt 1980:249). Although the primary market is the third world, Horlick's remains in business in 2020.

## Manufacturing Characteristics

Before discussing the wide-mouth bottles actually used by the Horlick brothers, we need to examine the marks created by the earliest machines that produced these containers. These various scars will help us determine the order in which many of the Horlick bottles were made as well as a few absolute dates. Included will be a brief discussion of the glass houses that produced the Horlick containers. Except for the drug store display bottles and the earliest sample vials, all Horlick containers used continuous-thread finishes, so our discussions will center on that feature.

### Mouth-Blown Bottles (1858-1920s)

Although the use of a blowpipe to produce a bottle goes back to ancient Rome, our interest is in the ones with continuous-thread finishes, beginning with the John L. Mason patent (No. 22,186), received on November 30, 1858. The jars were blown into a mold, then the finish was broken off of the blowpipe and ground down until the rim was just above the threads (Figure 4). Since the ground rim could not be created consistently enough to form a seal with the metal lid, the base of the lid sealed against the shoulder of the jar. Later jars and wide-mouth bottles sealed against a ledge or bead at the base of the finish, although Horlick jars did not contain liquid and needed no water-tight seal. See the Keystone Mason Jars, Part I for more information about the early Mason jars. The cork-sealed vials used for the earliest Horlick's samples were similarly made.



Figure 4 – Ground rim

## The Charles Blue Machines (1896-1910s)

Charles E. Blue patented his first machine in 1896 and followed with improvements until 1900. Most of these produced a V-shaped groove just below the neck/shoulder joint, a feature apparent on several of the early Horlick's bottles. Beginning late in 1896, Charles Brady installed Blue machines at the Hazel Glass Co., continuing to use them until they were all replaced – possibly as late as 1910 or shortly after. They were replaced by Brady's own machines (that created valve scars on the bases – see below) or, later, the Owens machines (also see below). See Lockhart & Bernas (2014) for more information.

While Brady had the exclusive use of the Blue machine in the U.S., we have not determined whether the machines were exported to other countries. The reason this could be important is that some of the early *British* Horlick's bottles had distinct Blue machine V-shaped grooves below their finishes (Figure 5). Although it is possible that the bottles were made in the U.S. and shipped to England, they were embossed with the name of the Slough factory, not built until 1908 – a bit late for the Blue machine, although possible during the later years. It is also possible that a British firm imported some of the machines and continued to use them later than their American counterparts.



Figure 5 – Blue groove

## Machines that Left Valve Scars (ca. 1899-at least 1980s)

Frank O'Neill received Patent No. 605,648 for a glass press on June 14, 1898. His machine included a valve that relieved the pressure when a parison was extracted from the parison mold in jar/wide-mouth bottle production. As the valve opened it created a circular scar near in the center of the parison. Once the parison was transferred into the final or blow mold, the blowing of the final bottle shape slid the valve scar a bit off center (Figure 6). Edmund B. Ball filed for a patent for a press-and-blow machine on October 31, 1898,



Figure 6 – Valve mark



and received Patent No. 644,295 on February 27, 1900. Once these press-and-blow machines became common between 1905 and 1920, they virtually replaced both the mouth-blown jars and wide-mouth bottles and those made by the Blue machines. See Lindsey (2020) for more discussion about the process.

### **And the Owens Machine (1905-ca. 1980s)**

In 1903, Michael Owens patented the first fully automatic bottle machine, and the Owens Bottle Machine Co. granted exclusive licenses to a few glass houses that allowed them to make specific types of bottles and jars. The first of the licenses went out in 1904, but it was at least 1905 before any regular production began. The Hazel-Atlas Glass Co. captured the license to make all packers' ware – the category for the Horlick's bottles. The Hazel Glass Co. and Atlas Glass Co. merged in 1902 to form Hazel-Atlas, and the bases of their products included either valve scars or Owens scars. The Owens scar was an off-center circle, often extending onto the heels of many bottles, that was usually "feathered" (Figure 7). This feathering was caused by the "knife" used to cut the gob of glass that was drawn into the parison. For more information on the process and the companies involved, see the sections on the Owens Glass Co. and the Hazel-Atlas Glass Co., in the Encyclopedia of Manufacturer's Marks on Glass Containers as well as Lindsey (2020).



Figure 7 – Owens scar

### **Later Machine Scars (ca. 1905-present)**

Beginning sometime after 1900, various glass houses and machine shops developed semiautomatic glass machines to produce both narrow- and wide-mouth bottles. Despite various differences, almost all of these machines left a machine scar that looked like the Owens scar – but without the feathering (Figure 8). The few machines that left other types of basemarks soon vanished from the glass industry, and the machine scar became the norm. This was the type of scar found on the bases of the pocket flasks for lunch tablets.

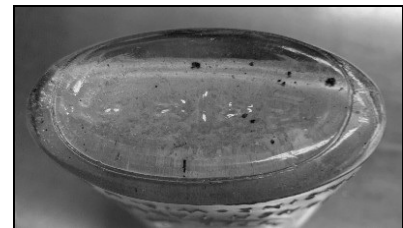


Figure 8 – Later machine scar

## Containers and Marks

As with most companies that used glass containers to bottle their products, the earliest ones are very difficult to catalog. The earliest embossed bottles used the name “Horlick’s Malted Milk,” a term not coined until 1887 – so the bottles cannot predate that year. The earliest wide-mouth bottle machine produced in the U.S. was the Blue machine, first used by the Hazel Glass Co. in 1896, so any bottles made during the first decade would have been mouth blown. Typically, older bottles are more scarce, thereby more difficult to find in quantity. We have only discovered three types of embossed bottles that were mouth blown – one a sample bottle the other two the wide-mouth style – and a few made by Blue machines. However, other issues – discussed below – suggest that the early products were packaged in generic bottles with paper labels, cans, or even paper boxes. The first embossed bottles were probably not used until ca. 1900.

Horlick’s glass containers may be divided into five categories: A) Wide-Mouth Bottles used in the U.S.; B) Wide-Mouth Bottles used in England; C) Pocket Flasks (Lunch Tablets); D) Sample-Sized Bottles; and E) Drug Store Display Bottles. All of these were used concurrently during different periods of the firm’s existence – with the wide-mouth bottles used during virtually the entire existence of the company. At some point – possibly 1945, when the British and American firms reunited – the company discontinued the use of embossed bottles, joining the vast majority of the food industry in the adoption of generic containers with paper labels. See the Discussion and Conclusions section for some very important comments about the accuracy of dating these bottles.

### A. Wide-Mouth Bottles – U.S.

These were the primary bottles used by Horlick’s for Malted Milk – the mainstay of the company – and for Lunch Tablets. The sizes ranged from only slightly larger than the sample bottles described in section D (below) to at least two-gallons. With the exception of the Lunch Tablet pocket flasks and a few of the early English



Figure 9 – Packaging

bottles, very few of the bottles had applied paper labels. Each, however, was packaged in a paper wrapper with instructions (and propaganda) on the inside (Figures 9 & 10). From the very early bottles, the packages were identified as “HORLICK’S MALTED MILK” with a red seal that repeated the name and had “TRADE / M.M. / MARK” in white letters. The product was recommended “for Infants, Invalids, the Aged and Travelers. An Ideal Lunch Food. A Nutritious Table Drink. Prepared by Dissolving in Water Only. No Cooking or Milk Required.”



Figure 10 – Packaging (*La Crosse Tribune* 3/29/1912)

The ads rarely discussed sizes, and the earliest ones probably were only available in two sizes – sample and regular. A 1921 price list from the N.A.R.D. Journal, however, showed three



Figure 12 – Diastoid

sizes for both Malted Milk and Lunch Tablets – Small, Large, and Hospital Size. Lunch Tablets were also available in the smaller Pocket Flask in plain or coco (later chocolate) flavors. There were also three sizes of the much cheaper Horlick’s Food – probably packaged only in boxboard containers (Figure 11). Diastoid was probably only in small packages – the same price as the small Malted Milk



Figure 11 – Horlick’s Food (Pinterest)

or Lunch Tablets – although we did find a photo of one jar (in the “London” variation, 1b below) that had “DIASTOID” across the center instead of “MALTED MILK” (Figure 12). The bottle appears to have been made on a Blue machine, so it was fairly early (1896-ca. 1910). An undated British ad included four sizes for Malted Milk, three for Lunch Tablets.



## 1. RACINE, WIS. in an inverted arch

The first variation, undoubtedly the earliest, was intended for use in the United States, while the second was available in both American and British venues.

- a. HORLICK'S (arch) / MALTED MILK (horizontal) / RACINE, WIS. (inverted arch) / U.S.A. (horizontal)

All examples we have seen with this embossing were mouth blown with ground rims (Figures 13 & 14). The lack of any wording indicating England suggests that this variation was made and used



Figure 14 – Racine only

prior to 1890, the year James Horlick moved back to London and sold the American-made products in England. These bottles could have been used as early as 1883 and may have

continued until as late as 1908 – although they were probably replaced by the next style in 1890.

- b. HORLICK'S (slight arch) / MALTED MILK (horizontal) / RACINE WIS. (slight inverted arch) / U.S.A. / ----- / LONDON, ENG. (both horizontal)

These bottles were very common in our sample (mostly from eBay) and exhibited four main basal patterns (Figure 15). It is possible that we will also find examples of this embossing on bottles that exhibit the characteristics of the Blue machine, used by the Hazel Glass Co. from 1896 to 1910 or later, since we have found those characteristics on English bottles and sample containers. It would seem likely that similar bottles would have appeared in the U.S. during the same period.

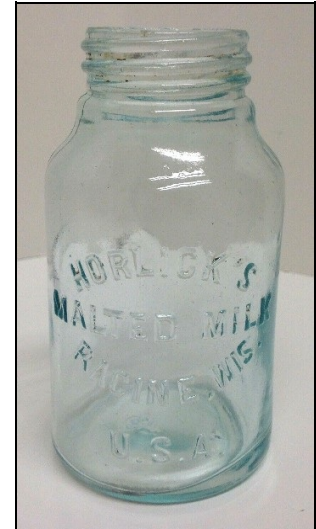


Figure 13 – Racine only



Figure 15 – Racine-London

A single example was mouth blown with a ground rim and a post-bottom mold – with no obvious basemark (Figure 16). The next fewest in the sample were embossed on the base with “W.T.CO.” in a slight arch just above the center of the base with a one- or two-digit number immediately below it (Figure 17).



Figure 16 – Mouth blown

These could not have been older than 1904,

when the Whitall Tatum Co. developed its machine and were used until at least 1909 – although not much later. From 1904 to 1908, was the only U.S. glass house making Horlick’s bottles by machine (Glass Bottle Blowers’ Assn. 1904:23; 1908:23; 1909:30).



Figure 17 – WTCo

Another, larger group of the LONDON bottles (23.1% of our sample) were embossed on the bases with “I.G.Co.” / 2 / X” (or other number in the center and letter below) along with a slightly off-center valve scar (Figure 18). Most of these bases had “I.G.Co.” in an arch at the top of the base, but at least one had the logo in an inverted arch at the bottom. The Illinois Glass Co. had its first press-and-blow machine in service by at least 1908 and continued to use the “I.G.Co.” logo until the merger with the Owens Bottle Co. that created the Owens-Illinois Glass Co. in 1929.

Another, larger group of the LONDON bottles (23.1% of our sample) were embossed on the bases with “I.G.Co.” / 2 / X” (or other number in the center and letter below) along with a slightly off-center valve scar (Figure 18).



Figure 18 – IGCo

The final common basemarks were centered around what became the Horlick code sequence, again 23.1% of our sample (Figure 19). These were embossed at virtually any location on the bases and often (especially in later years) were accompanied by the Hazel-Atlas H-over-A logo. The fractions consisted of a letter (or, more rarely, a number) above another letter with a line in between, the typical formation of a fraction in algebra. These were virtually exclusively found on Horlick’s products, although their meaning is



Figure 19 – Fraction

unknown to us. The numerator letters range from A-Y, with at least A-J in denominator – although “D” was by far the most common letter in our sample, especially on bottles made for use in the U.S. The code system apparently developed ca. 1927 – during the split between the U.S. and English firms. Although the reasons are not intuitively obvious, the fractions may have been developed to track bottles used in the two regions – and/or in the rest of the world.

Some bases also had a one- or two-digit number that could appear anywhere (left, right, above, or below), and all had valve scars. A few were accompanied by the H-over-A logo of the Hazel-Atlas Glass Co. used from 1902 to ca. 1982. Another base (only one in our sample) had the number “20” over “7” with no horizontal line between. However, these jars were only used until 1927, when the British and American firms separated.

A few bottles were embossed with only the letter “B” on the base plus a valve scar, and a single example had “M” in place of the “B” (Figure 20). These were probably made in England (see similar markings in the English section below). A final group (30.7% of the sample) were machine made but lacked any basal embossing. When considering percentages, it should be noted that our entire sample for this style was only 26 bottles. See Table 1 for a dating chronology.



Figure 20 – B base

## 2. *M.M.* Trade Mark

The major changes in this style included three major issues. First, all location information was at the bottle’s heel. Second, the trademark, “*M.M.*” in an unusual font, was placed in the center. Third, the format of the body embossing had changed. An inner circle surrounded a jagged circle similar to a cut made by pinking shears – reminiscent of the outline of a notary public’s seal – around “TRADE / *M.M.* / MARK.” The outer circle had an arched “HORLICK’S” above “MALTED MILK” in an inverted arch (Figure 21). Horlick probably began using the “*M.M.*” trademark in 1945,

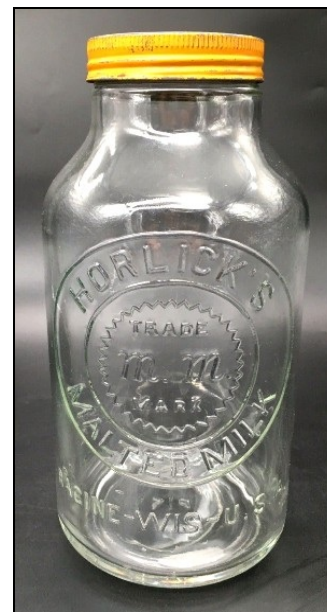


Figure 21 – *M.M.* trademark

when the firms were reunited. At some point, Horlick discontinued embossed bottles – probably during the late 1950s or early to mid-1960s – and adopted generic bottles with paper labels. By that time, such unmarked bottles had become the norm for culinary containers and were much more cost effective for the larger company.

- a. HORLICK’S (arch – outer circle) / TRADE / *M.M.* / MARK (all in inner circle with zig-zag outline) / MALTED MILK (inverted arch – outer circle / RACINE – WIS – U.S.A.

The majority of these bottles in our sample (64.3%) had the Horlick fraction or equation codes on their bases, usually with “W”-“Z” as the numerator and “D” as the denominator plus a two-digit number to the left (Figure 22). Another majority of the sample (60.7%) bore the Owens scars – either with or without the fractional codes. Surprisingly, 52.9% of the bases with Owens scars lacked the equation code.



Figure 22 – Fraction

The remainder of the sample (39.3%) were characterized by basal valve marks. Since Hazel-Atlas had the exclusive license for the manufacture of food bottles, it is a pretty safe bet to assume that Hazel-Atlas made all of the bottles with the Racine-only embossed labels – even though only 28.6% had the firm’s H-over-A logo (and all of those had valve marks).

- b. HORLICK’S (arch – outer circle) / TRADE / *M.M.* / MARK (all in inner circle with zig-zag outline) / MALTED MILK (inverted arch – outer circle / RACINE – WIS – U.S.A. / SLOUGH. BUCKS, ENG (all horizontal below circles)

Typical basemarks include the ubiquitous Horlick fractional code with virtually any letter of the alphabet in the numerator but only “D” in the denominator – although our sample included a single example with “T” over “A” – and each base could include numbers

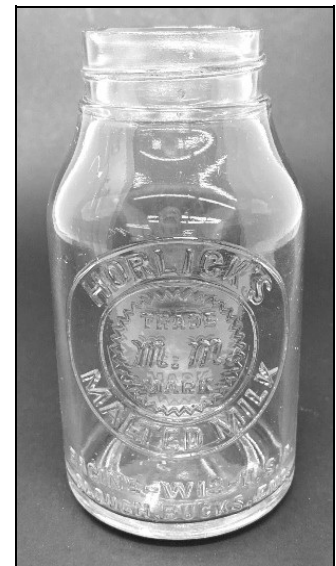


Figure 23 – Racine-Slough Bucks

ranging from “1” to “16” to one side of the fraction (Figures 23 & 24). The bulk of these (58.5%) had Owens scars in addition to the fractional code, although 34.1% had valve scars. None had manufacturer’s marks, although they were probably made by Hazel-Atlas. Our very small sample of English-made bottles is discussed below – including this style.



Figure 24 – Fraction

This was by far the most common variation with 42.3% of all the American bottle in our sample (36.6% of all the wide-mouth bottles, English included). The sheer volume of these bottles on eBay suggests that they were made and used in the U.S. – although they were probably used in England as well. See Table 1 for a dating chronology. See below for basemarks that could have been made in England as well as one that was certainly Canadian.

#### **Dating Wide-Mouth Bottles Used in the U.S.**

As noted above, Type A bottles were those used in the U.S. Style 1 had the factory location – RACINE, WIS. in an inverted arch on the side embossing but did *not* include any reference to England. Variation a was mouth blown and would have only been used from 1886, when the term Malted Milk was coined, to 1890, when James opened the English branch.

Variation b included the term LONDON below main embossing, just above the heel of the bottle. This variation may be further divided into five sub-variations, using manufacturing techniques and base markings. While our sample contains a single example that was mouth blown, there were probably also bottle made by a Blue machine that we have not discovered. So, mouth-blown bottles and ones with no basemarks would likely have been used between 1890 and ca. 1904.

Around 1904, Horlick’s purchased bottles from the Whitall Tatum Glass Co. – marked “W.T.CO.” on the base – and continued to use those until ca. 1908. The Illinois Glass Co. made bottles for the firm from ca. 1908 until 1927, when the English and U.S. Horlick’s companies separated – although Illinois Glass bottles could have continued in use for two more years, when



the glass house merged with the Owens Bottle Co. to form the Owens-Illinois Glass Co. These bottles would have all been embossed “I.G.Co.” on their bases.

The final sub-variation of the LONDON bottles was embossed on the bases with either the H-over-A logo or the Horlick’s fractional algebraic code or both. These had either valve marks or Owens matching base scars. In all these cases, the manufacturer was the Hazel-Atlas Glass Co. Hazel-Atlas bottles replaced those of the Illinois Glass Co. ca 1927 (possibly not until 1929) and were used until the adoption of the next bottle style in 1945.

The Horlick firm adopted Style 2 bottles in 1945, when the English firm purchased the American interests, reuniting the company. The firm used two variations of these bottles, notable by the “*M.M.*” trademark in the center of the side embossing. The first only had the Racine factory name on the side. The second include the Slough Bucks plant location. Both were likely used between 1945 and the 1960s, when sales diminished dramatically.

Be aware that this chronology was composed using the methods described above – manufacturing techniques, maker’s logos, labels used on Horlick’s pocket flasks, percentages of our sample that have the specific markings, and changes in the Horlick’s company. None of the dates were derived from actual known historical data because none exists – at least that we have found.

There is one major flaw in this first chronology. This places *all* of the Style 2 bottles, a large quantity (71% of our entire sample), during the 1945-1960s period – only 15+ years. While we would expect better survival of newer bottles, that percentage may be excessive. But, the more pressing issue is the division of Style 2 bottles into Variation a (only Racine) and Variation b (Racine and Slough Bucks). Why would American bottles *only* be embossed with the Racine location *after* the rejoining of the two firms? If the Racine only bottles were used in the U.S., while the ones with both Racine *and* Slough Bucks were used in England during the same 1945-1960s period, why would the English firm include the U.S. location?

There is one plausible answer that would satisfy both questions. The U.S. business may have adopted the new design (Variation b) just prior to the 1945 reuniting of the two firms and ordered a large supply of bottles. The combined company then liked the new design – one that

included the “*M.M.*” trademark used on the paper labels and wrappers since the late 1800s – and also adopted it for England, embossing the name of both locations to use for the foreseeable future. So, the U.S. used the Racine-only bottles until the supply ran out then adopted the dual-location variation. While this is speculation, it neatly wraps up the untidy loose end.

Although we discuss a second scenario immediately below, our only confirming evidence supports the first plan. As we will discuss in more detail in section C – Tablets and Pocket Flasks, ads for the pocket flasks show the changes in paper label – *and* we have example of actual pocket flasks with attached labels. The embossing style that matches A1b (non-“*M.M.*” bottles) had “arched” labels, advertised during the 1927-1945 period – solidly placing non-“*M.M.*” bottles in that time period. However, labels that matched the “*M.M.*” embossing were advertized from 1945-1950. These times match the first scenario perfectly.

**Table 1 – Dating Wide-Mouth Horlick’s Bottles used in the U.S. (Type A)**

Type*	Dates	Years	Base Markings or Characteristics
A1a	1883-1890	7	Mouth blown
A1b	1890-1904	14	Mouth blown or no mark
A1b	1904-1908	4	WTCo
A1b	1908-1927	19	IGCo
A1b	1927-1945	18	H/A and/or fractions
A2a	1945-1960s	15+	<i>M.M.</i> - Racine only
A2b	1950s-1960s	15+	<i>M.M.</i> - Racine and Slough Bucks

\* Type, Style, Variation

Unfortunately, there is an alternative possible chronology – that also contains a flaw. In this scenario, the first bottle – mouth-blown Racine only (A1a) would have been used during the same 1886-1890 period, with the mouth-blown Racine/London bottle (along with those with unmarked bases) would have followed from 1890 to ca. 1902. From that point, until 1927, when the Horlick firms separated into two separate companies – U.S. and England – The remaining Racine-London bottles would have been in use, with orders from Whitall Tatum, Illinois Glass Co., and Hazel-Atlas Glass Co. all used concurrently.

In this second scenario, the Racine-only “*M.M.*” trademarked bottles (A2a) would have been used during the 1927-1945 period, while the ones that included Slough Bucks (A2b) would have been used from 1945 to the 1960s. The problem with this scenario is that it compresses all the Racine/London bottles (A1b) with glass house logos into a single time span – ca. 1902-1927. This second look is presented in Table 2.

**Table 2 – Dating Wide-Mouth Horlick’s Bottles used in the U.S. (Type A)**

Type*	Dates	Years	Base Markings or Characteristics
A1a	1883-1890	7	Mouth blown
A1b	1890-1902	12	Mouth blown or no mark, poss. Blue machine
A1b	1902-1927	25	WTCO, IGCO, H/A and/or fractions
A2a	1927-1945	18	<i>M.M.</i> - Racine only; all H/A
A2b	1945-1960s	15+	<i>M.M.</i> - Racine and Slough Bucks

\* Type, Style, Variation

## B. Wide-Mouth Bottles – England

Where the American bottles may have been wrapped in paper from the beginning, the earliest British bottles had paper labels glued to the bottle, itself. We have only located two examples of these (from eBay), both of which were represented in truly awful photos. One label appeared on a mouth-blown bottle with a continuous-thread finish (Figure 25). Although the seller did not include a photo of the reverse side, the bottle probably represented the 1890-1908 period. See the section immediately below for a discussion of the second example. Please note that our sample of English bottles was very small, and the ones discussed here may not represent the full scope of British containers.



Figure 25 – Paper label English bottle

## 1. RACINE, WIS. in an inverted arch

a. HORLICK'S (arch) / MALTED MILK (horizontal) / RACINE, WIS. (inverted arch) / U.S.A. / SLOUGH. BUCKS, ENGLAND (both horizontal)

As noted above, a single example of a bottle with this embossing bore a paper label affixed to the reverse side. Although the bottle was machine made, the seller did not include a photo of the base, so we can only assume that it was an early example. Bottles sold in the U.S. were wrapped in paper with instructions and information printed on both sides – typically with no glued-on paper label. This was obviously not the case with the earliest English bottles.



Figure 27 – V over I

These bottles were made in three machine formats (Figure 26). The first (with only one example) had a base embossed with a fraction in the center (V above I) in a circle with a “3” below it (Figure 27). The shoulder showed the V-ridge left by the Blue machine. This was probably the second earliest of the British bottles, made in 1908 or 1909.

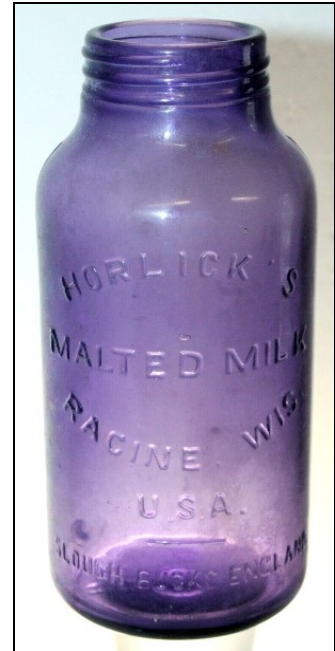


Figure 26 – Racine & Slough Bucks

The second type used the letter “B” on the base (a “D” in at least one case). This could be alone or accompanied by a two-digit number, a letter equation code, or the equation and a number (Figure 28). One of these had been irradiated by a collector to a deep purple color. Some in this type exhibited valve scars, the rest other machine scars, some possibly Owens. These almost certainly followed the Blue machine example.



Figure 28 – B

The final, most common group consisted of bases with valve scars and the now typical letter equations as base marks (e.g., see Figures 19, 22, & 24). These were probably used until 1927. See the next section (below) for a discussion of the British bottle sequence.

b. HORLICK'S (arch) / MALTED MILK (horizontal) / RACINE, WIS. (inverted arch) / U.S.A. / SLOUGH. ENGLAND (both horizontal)

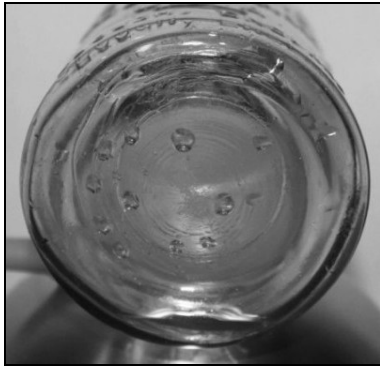


Figure 30 – Bubbles

Only two examples of this variation appeared in our sample, both machine made. One base had a machine scar, and the glass had many bubbles (Figures 29 & 30). The other had a valve scar with the equation “K” over “E” plus a smaller “L” turned sideways (Figure 31). These probably reflected single

orders where the “BUCKS” was unintentionally left off.



Figure 29 – Slough

## 2. SLOUGH BUCKS in an inverted arch

a. HORLICK'S (arch) / MALTED MILK (horizontal) / SLOUGH BUCKS (slight inverted arch) / ENGLAND / THE ORIGINAL (both horizontal)

One of our two examples was machine made with NO visible machine scar but had a JBK monogram on the base (Figures 32 & 33). The “K” in the monogram immediately brings the Kilner family to mind, but we have never seen a middle initial connected with John Kilner – and the elder John Kilner was much too early for these bottles.

Although a stretch, JBK *could* have indicated John and Barron Kilner. About 1900, John Kilner, Jr., passed the business to



Figure 31 – K over E





Figure 32 – Slough Bucks

his son, Barron, who had been involved in the firm for his entire life. The combination of the two names would only have had meaning just before 1900, when Barron assumed control, so that, too, seems highly improbable.

The second example had a distinctive Owens scar along with “F608 / GUC (possibly a fourth letter that was illegible due to the Owens scar) / UGB” on the base (Figure 34). The United Glass Bottle Mfg. Co.

used the “UGB” logo from 1913 to 1968. The firm had factories scattered about the British Isles.



Figure 33 – JBK



Figure 34 – UGB

b. HORLICK'S (arch) / MALTED MILK (horizontal) / SLOUGH BUCKS (slight inverted arch) / ENGLAND / AND / RACINE WIS. U.S.A. (all horizontal)

Like the bottle discussed above, this one – the only example in our sample – was likely adopted just about the time that the English company acquired the U.S. firm in 1945 (Figure 35). The bottle was machine made with an Owens scar but had no



Figure 36 – Swastika

manufacturer's mark. An interesting basemark on one example had a swastika and the number 219 (Figure 36). This was almost certainly made prior to the mid-1930s, when the swastika was adopted as a symbol by the Nazi party. Prior to that time, the swastika was a well-known Native American design that even appeared



Figure 35 – Slough Bucks & Racine

on the patch worn by the U.S. 45<sup>th</sup> Infantry Division (although the swastika was replaced by a thunderbird during World War II).

### 3. *M.M.* Trade Mark

See the *M.M.* Trade Mark in the U.S. section for a discussion of the differences from the earlier labels. As noted in that section, Horlick began using the “*M.M.*” trademark in 1945 and probably discontinued the embossed logo during the 1960s. At that point, generic bottles with paper labels had become the norm for culinary containers and were much more cost effective for the larger company.

- a. HORLICK’S (arch – outer circle) / TRADE / *M.M.* / MARK (all in inner circle with zig-zag outline) / MALTED MILK (inverted arch – outer circle) / RACINE – WIS – U.S.A. / SLOUGH. BUCKS, ENG (all horizontal below circles)

Not surprisingly, the British bottles seem to be less common in U.S. contexts but had a more complex set of markings. The bottles, discussed in the U.S. section – at least those with the addition of the “SLOUGH BUCKS, ENG.” designation and the typical Horlick fractional codes – were probably also used in England (see Figure 23). However, some bottles with more unusual marks were likely made in England as well. These include valve scar only; triangle-in-a-circle with a machine scar; “1” in a valve scar with “M-8” below; and 11 plus a valve scar (Figure 37). See Table 3 for our best estimates for the British bottles.



Figure 37 – British marks

### 4. Canadian Bottles

- b. HORLICK’S (arch – outer circle) / TRADE / *M.M.* / MARK (all in inner circle with zig-zag outline) / MALTED MILK (inverted arch – outer circle) / TORONTO CANADA (horizontal below circles)

Our only Canadian example was marked “TORONTO CANADA” above the heel and had a basemark of D-in-a-diamond



Figure 39 – Diamond-D

over “2” with an Owens scar – the logo of the Dominion Glass Co. from 1928 to the early 1970s (Figure 38). See the Dominion Glass section for more information on both the firm and the logo. Unfortunately, we know virtually nothing about the Canadian branch. However, another bottle embossed with Racine and Slough Bucks had the Diamond-D

logo and an Owens scar (Figure 39).

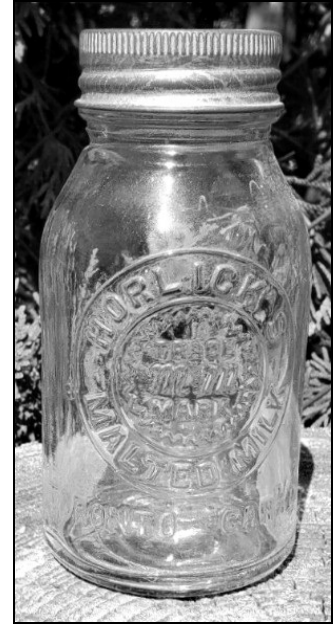


Figure 38 – Toronto

**Table 3 – Dating Wide-Mouth Horlick’s Bottles used in England (Type B)**

Type*	Dates	Base Markings or Characteristics
B1a	1908-1927	RACINE & SLOUGH BUCKS; machine (including Blue)
B1b	1927-1945	RACINE & SLOUGH; machine
B2b	1927-1945	SLOUGH BUCKS; machine
B2b	ca. 1945	SLOUGH BUCKS & RACINE; machine
B3a	1945-1960s	<i>M.M.</i> RACINE & SLOUGH BUCKS; machine

\* Type, Style, Variation

### C. Tablets – Pocket Flasks

These pocket flasks were oval in cross-section, with broad shoulders tapering abruptly to a comparatively small neck/finish with a continuous-thread finish. Although Horlick’s sold both Malted Milk and Lunch Tablets in the round, wide-mouth bottles, it only packaged the Lunch Tablets in the pocket flask – a design that closely resembled the Bayer Aspirin bottles. Unlike

the wide-mouth bottles that were wrapped in paper and generally lacked paper labels, the pocket flasks were only marked with the embossing and glued-on paper labels. These were only made in two configurations.

English pocket flasks followed a different pattern of use than the firm's American counterparts. The flasks were apparently never embossed, using only paper labels for identification. The earliest ones were mouth blown, and ads as late as 1915, still show lids that fit on mouth-blown, small-mouth flasks, embossed "HORLICK'S" on top (Figure 40). The rectangular paper labels covered most of the front sides

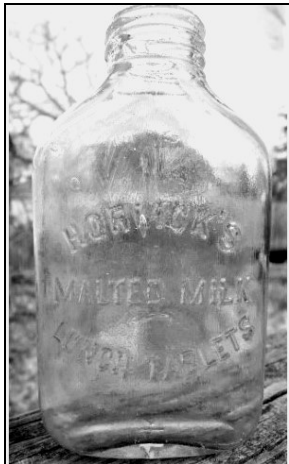


Figure 41 – Pocket Flask

of the flasks, and had "HORLICK'S / MALTED MILK" in a dark arched background. A central, circular trade mark depicted a flying angel. Horlick's used the angel trademark on Horlick's Food by at least 1875, and it may have continued on the paper-labeled flasks in England until the British firm discontinued the tablets (or, at least the advertising) ca. 1928. The labels covered most of the front of the flasks and had three descriptive paragraphs (none of which is sufficiently distinct to decipher in the ads). Unfortunately, we have no British examples after 1915. The American flasks were embossed on the reverse side and followed a different pattern from those in Britain.

Apparently, the U.S. corporation began use of the pocket flasks about the same time they were discontinued in England.

1. HORLICK'S (slight arch) / MALTED MILK (horizontal) / LUNCH TABLETS (slight inverted arch) – oval bottle

A single eBay auction offered a mouth-blown pocket flask with a ground rim finish. The flask was embossed with the typical fraction F / \_\_\_ / A (Figures 41 & 42). This lone example does not fit with any other evidence that we have discovered. It only makes sense in one of two



Figure 40 – Ad - flask (*Guardian* 12/4/1914)

ways. It is either the only example we have of an embossed English bottle, or it was hand manufactured as a test bottle in the U.S. See the Discussion and Conclusions section for more information. Since Horlick seems to have developed the fractional code during the 1920s, the second explanation is more likely correct.



Figure 42 – Base & finish



Figure 43 – Angel Label

In addition, we have a photo of what was almost certainly the first label used by the U.S. firm – possibly on the mouth-blown bottle. At the top was the old “angel” trademark above “HORLICK’S” in a scroll. The label identified “TABLETS / Natural Flavor” as the contents from the “Horlick’s Corporation” at Racine, Wisconsin, U.S.A. (Figure 43). However, the bottle had the same white cap with two thin red bands as the “squared” label bottles discussed above from the 1946-1950s period. The cap was probably added by the eBay seller. Both this label and the mouth-blown bottle were probably the first ones used by the U.S. business ca. 1927-1928.



Figure 45 – HA base

With the single mouth-blown exception, all other pocket flasks were machine made (Figures 44). Basemarks in our sample of machine-made bottles all included the Hazel-Atlas H-over-A logo and the typical Horlick fractional code – usually also with a one- or two-digit number (Figure 45).

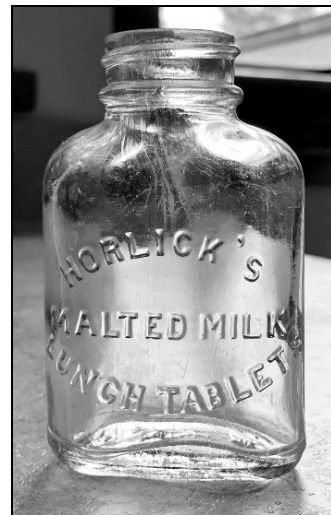


Figure 44 – Pocket Flask



a. Paper Labels

We have only discovered two types of paper labels used with this embossing – one for regular Malted Milk, the other for cocoa (later chocolate) flavored. Since our earliest U.S. ad with a picture of the label



Figure 47 – Arched label

is from 1931, we do not know the earliest label configuration. The label may have had the British angel logo in the central circle, or it may have had the “M.M.” trademark that adorned the later labels. By at least 1931, the main feature of the label was “HORLICK’S / REG. U.S. PAT. OFF. / THE ORIGINAL (these two lines in tiny type) / MALTED MILK” all in a dark, arched background (Figure 46). Like the British label, this one covered most of the bottle’s front and had more than one paragraph. The label also had “Horlick’s” in a red cursive signature diagonally across the typed message.



Figure 46 – 1931 ad

Later labels maintained the arched background (now blue) with the same wording, and the “M.M.” trademark in the center. These,

however, had a greatly reduced typed message and lacked the signature (Figure 47). These labels noted that the Lunch Tablets had “NATURAL FLAVOR In Hard Candy Form.” These bottles had gold-colored metal caps.



Figure 48 – Chocolate

The chocolate Lunch Tablets had their own labels, and these appeared in at least two slightly different formats. The simplest had “HORLICK’S” in an arch with

no background (although the letters were two-layered), followed by “Sweet Chocolate Flavor (italics) / MALTED MILK (two-layered letters) / LUNCH TABLETS (red) / IN HANDY CANDY FORM (red)” followed by the ingredients. The metal cap was golden. The other label was almost identical, but it was surrounded by a black border, and the bottle had a brown cap. We have no way to determine the order in which these were used (Figure 48).

2. HORLICK’S (slight arch at shoulder) / THE ORIGINAL (slight arch) / {Horlick’s Trademark Circle - *M.M.*} / LUNCH TABLETS (slight inverted arch) / RACINE – WIS – USA (horizontal) – oval bottle

This style of bottle followed – with the same type of basemarks as the earlier one (Figure 49). We have only found advertising for this style from 1946 to 1950, although the product could have continued in production for a period after the last ad. These were almost certainly used concurrently with the “*M.M.*” style of wide-mouth bottles.

a. Paper Labels



Figure 49 – *M.M.* flask



Figure 50 – 1946 ad (*Dayton Herald* 9/17/1946)

Beginning in 1946, the ads began showing the next generation of “squared” labels – where the words “HORLICK’S / TABLETS” in a red background on top and a yellow background below with “Malted Milk (italics) / NATURAL FLAVOR / A nutritious food confection. / Enjoy its rich delicious malt / and Full-Cream Milk flavor. / NET WEIGHT 1 OZ. / HORLICK’S MALTED MILK CORP. / RACINE, WISCONSIN, U.S.A.” (Figures 50 & 51). The caps on these bottles were white with thin double red lines near the top.

These labels were last advertised in 1950. Flasks with the second embossing – with the “M.M.” trademark – carried these “squared” labels. The “New Milk Chocolate Flavor” bottles had blue replacing the red in the label, and white lids carried a red cursive “Horlick’s” on the top. Both the labels and the embossed bottles may therefore be dated 1945 (when the British and American firms were reunited) to the early 1950s.



Figure 51 – Squared labels

The last advertisement we could find for the tablets (showing no flask) was in 1953. Although we have no more ads to use as time markers, there was one final label change to one where the rectangle with the red background was slightly raised above the now blue background for the natural and brown background for the chocolate – that we have dubbed the “Extended” label (Figure 52). The tablets may have been discontinued during the mid-1950s, although they may have lingered with no advertising into the 1960s. The bottles were probably unembossed. The best date range we can provide for these would 1950-mid-1950s, possibly 1960s (see Table 4).



Figure 52 – Extended labels

## D. Sample-Sized Bottles

Sellers on eBay have sized these bottles as  $3\frac{1}{4}$  or  $3\frac{3}{8}$  inches in height and  $1\frac{5}{8}$  inches in diameter. Some have referred to these as “samples” or “salesman’s samples.” According to ads, these small bottles were offered to give people a free taste of Horlick’s Malted Milk and Lunch Tablets. At some point, possibly during the entire tenure of sample-sized bottles, the samples were wrapped in paper just like the regular sized containers (see Figure 9).

**Table 4 – Dating Horlick’s Pocket Flasks (Type C)**

Type*	Dates	Base Markings or Characteristics
C1	poss. 1927	Malted Milk Lunch Tablets – Mouth blown probably “Angel paper label
C1	1927-1945	Malted Milk Lunch Tablets – Hazel-Atlas H-over-A “Arched” paper label**
C2	1945-1950s	Original Lunch Tablets – <i>M.M.</i> Hazel-Atlas H-over-A “Squared” paper label**
	1950s-1960	No embossing; paper label only “Extended” paper label**

\* Type, Style, Variation

\*\* See text for explanation of terms

### 1. Generic Bottles with Cork Finishes

Although few have survived, the original sample bottles – actually more like vials – were mouth blown, round in cross-section, with plain-rimmed finishes – sealed with corks. We have discovered two examples, one for Malted Milk, the other for Lunch Tablets – both identified by paper labels (Figure 53). These were probably only used between 1897 and ca. 1900.



Figure 53 – Sample

### 2. Embossing Read with Bottle on its Side

Much more common were similar bottles with continuous-thread finishes – sealed by metal caps with screw threads. These were embossed down the sides. We have discovered two variations, one to be read with the finish held to the right, the other to the left.



**a. Finish to Right** – HORLICK’S / MALTED MILK (both horizontal, read with finish to right)

Our only example of this variation had a finish with a ground rim – therefore mouth-blown – and was embossed with “3” on the base (Figure 54). This was one of the earliest Horlick’s bottles, probably used ca. 1900.



Figure 54 – Right embossing

**b. Finish to left** – HORLICK’S / MALTED MILK (both horizontal, read with finish to left)

One of these was embossed with a “4” on the base but no scars and had a ground finish – clearly mouth blown (Figure 55). These were probably used between ca. 1900 and 1904. Others had various basemarks, including “2” or “X / 6” plus the V-shaped



Figure 55 – Left embossing

grooves at the shoulder

indicating the Blue Machine

(Figure 56). The firm probably used Blue machine bottles at some point during the 1900-1908 period. Still

other bases were embossed “W / 5 / W.T.CO. (inverted arch)” – the logo of the Whitall Tatum Co. (Figure 57) and those were likely in use between 1904 and ca. 1908. Final bases had what became the typical Horlick’s code series, for example “2” to the left of “F” over “B” with a horizontal line between or

similar fraction-style codes – plus a valve



Figure 56 – Blue machine



Figure 57 – WTCO



scar (Figure 58). These were probably used between ca. 1908 and 1927. It is entirely possible that there were greater overlaps with *any* of these sample bottles.



Figure 58 – F/B

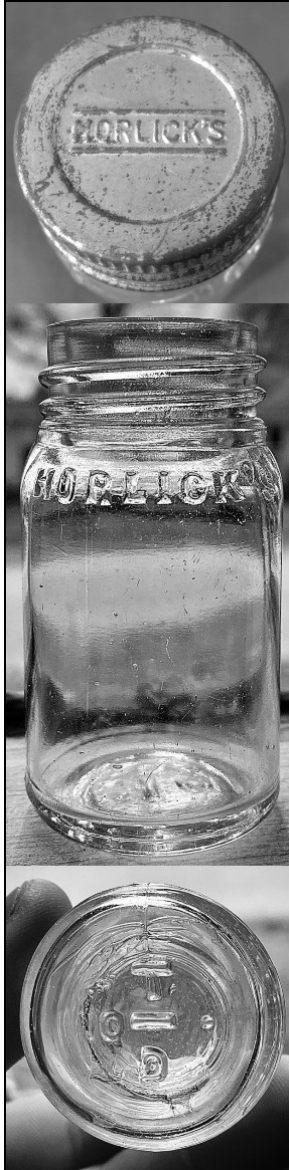


Figure 60 – Shoulder

Most of these were made by a Blue Machine – the exclusive property of the Hazel Glass Co. – although some of the machines may have been used in England.

Therefore, even though there was no manufacturer's mark, Hazel Glass produced these bottles in the U.S. no earlier than late 1896, when the first machine went into production. As other machines developed during the early 20<sup>th</sup> century, Hazel and Atlas Glass both adopted the better machinery and began marking their products more consistently after the merger in 1902 that

formed the Hazel-Atlas Glass Co. (see discussion above). The Whitall Tatum Co. developed its own machine in 1904, so bottles with the “W.T.CO.” logo could not be made prior to that time. At least some of these bottles were wrapped in paper *as well as* bearing a paper label (Figure 59).



Figure 59 – Paper Wrap

**c. Embossing around shoulder – HORLICK’S twice around shoulder (ca. 1927- ca. 1945)**

These were machine made (Figure 60). The bottles were likely produced soon after the new look in 1927 and continued until ca. 1945, when the companies were reunited – possibly a few years later. These were marked with paper labels, possibly no long wrapped in paper (Figure 61).

**E. Drug Store Display Bottles**

As the heading suggests, these bottles were used by drug stores for displaying and storing Horlick’s Malted Milk for use at the soda fountains. During the 1940s and 1950s, when one of the authors



Figure 61 – Paper label



Figure 62 – Drug Store Bottles

was growing up, one of the standard soda fountain drinks at the drug stores was the malted milk shake or just malt. Although he did not care for normal milk shakes, my standard order was a chocolate malt.

While many of these bottles were embossed “HORLICK’S / MALTED MILK,” others were unembossed with only paper labels. The bottles had ground stoppers and throats but no basemarks and could

**Table 5 – Dating Horlick’s Sample Bottles (Type D)**

Type*	Dates	Base Markings or Characteristics
D1	ca. 1897-ca. 1900	Mouth-blown vial; cork seal; paper label
D2a	ca. 1900	Mouth-blown; CT seal; HORLICK’S / MALTED MILK read from right**
D2b	ca. 1900-1904	Mouth-blown; CT seal; HORLICK’S / MALTED MILK read from left**
D2b	ca. 1904-ca. 1908	Machine; read from left; WT&Co on base**
D2b	ca. 1908-1927	Blue machine or Owens scar; read from left**
D3	1927-1945	HORLICK’S on shoulder**

\* Type, Style, Variation

\*\* See text for explanation of descriptions

## E. Lids

Our eBay sample disclosed three different lid styles. Because collectors like to find caps for their bottles, the lids matched with the containers offered for sale are not necessarily the originals. However, the order in which they were used is quite apparent.

### 1. HORLICKS

The oldest style lid was embossed “HORLICK’S” with lines above and below the word. Since this cap was found on mouth-blown wide-mouth bottles embossed with “RACINE” only as well as the sample-size bottles with horizontal embossing, there is no question that this one was the oldest – initially produced prior to 1908, probably earlier (Figure 63). In addition, these caps appeared on the “LONDON” bottles, “SLOUGH BUCKS” plus “RACINE,” both types of Tablets, and even one of the “M.M.” types (although this last one was questionable). These were probably still in use as late as 1927.



Figure 63 – Cap 1



## 2. ORIGINAL

We only found one of these lids on eBay, embossed “ORIGINAL (arch) / HORLICK’S (horizontal) / GENUINE (inverted arch)” (Figure 64). The lid was on a jar embossed “HORLICK’S (arch) / MALTED MILK (horizontal) / RACINE, WIS. (inverted arch) / U.S.A. / SLOUGH. BUCKS, ENGLAND (both horizontal)” – B:1:a in our numbering system (above). These could have been made as early as ca. 1910, and the lids may have been used as late as 1927 and possibly only in England.



Figure 64 – Cap 2

## 3. MALTED MILK

These lids were embossed “HORLICK’S (arch) / The / Original (both horizontal) / MALTED MILK (inverted arch)” (Figure 65). These lids were found on all but the earliest styles, including the ones marked London, Slough Bucks, the Tablet bottles, and the sample bottles with shoulder embossing. These probably began use sometime during the 1920s and continued until the 1950s.



Figure 65 – Cap 3

## 4. Horlick’s (cursive)

These were the final lids – probably 1950s-1960s. The lids were white with “Horlick’s” in red cursive on the top. We have only found these on paper-labeled pocket flasks (Figure 66).



Figure 66 – Cap 4

## Discussion and Conclusions

While this paper covers most of the Horlick’s bottles made and used in the United States, others not listed in this study were almost certainly used in England. We have not attempted to include all of the Canadian bottles or *any* of the containers used in the rest of the world. Our concentration here has been on American bottles.

Because Horlick's used glass bottles as the major packaging for Malted Milk and Lunch Tablets for ca. 80 years (ca. 1883-ca. 1960s), the variation of bottles in the U.S. was pronounced and fell into the various groups discussed in the text above. Dating, however, was not as obvious, especially for the wide-mouth bottles – although it mostly came together after months of contemplation.

For reasons noted in the section above, there are no reliable dates for the Drug Store Display Bottles and only an order for the lids. Similarly, we simply lacked sufficient data to do much more than order the British bottles with some dates thrown in. Our currently available information is simply insufficient to do more with those three categories.

Both Sample Bottles and Pocket Flasks, however, fell into a much more logical chronological order. The main containers – wide-mouth bottles – were more difficult. Eventually, we sorted them into two possible scenarios. Only one of those, however, matched the trajectory of the Pocket Flasks – strongly backed by data provided by newspaper advertisements – and also fit well with the chronology for Sample Bottles. Our final selection of Scenario 1 (see Table 5) was based on the idea that the wide-mouth bottles with the “*M.M.*” trademarks were used at the same time as “*M.M.*” trademarks embossed on Pocket Flasks. It would be illogical that the older embossing on wide-mouth bottles would have been replaced by the “*M.M.*” design 18 years earlier than the same change on Pocket Flasks.

We ignored one confounding issue with the early machine-made bottles. According to the Glass Bottle Blowers' Assn. (1904:29; 1908:29; 1909:30), the only machine-made Horlick's bottles were produced at Millville, New Jersey, from 1904 to 1908. This was the home of the Whitall Tatum Co., discussed in the text above for that era. The plant had two machines, making Horlick's and milk bottles in 1904 and eight machines, producing a much larger variety of bottles (as well as Horlick's) in 1908. In 1909, however, the Whitall Tatum machine load decreased to three, making “Horlick's, milk, etc.” Apparently, the glass house was decreasing its production load that year.

The proceeding also listed two other glass houses making Horlick's during 1909. One in Columbus, Ohio, used eight machines to make “Horlicks, milks, etc.”; while the other at Milwaukee, Wisconsin, had a single machine that solely produced Horlick's bottles. The only



glass house at Milwaukee at that time was William Franzen & Son – a firm that specialized in beer bottles. It is probable that someone from the Horlick’s factory at Racine talked Franzen into buying the machine, since the glass house was only a few miles north of the malted milk plant. Franzen likely only made the bottles for a very few years, returning to his concentration on beer bottles.

Columbus, however, supported two glass houses in 1909 – the Federal Glass Co. and the Winslow Glass Co. Winslow specialized in small-mouth bottles at that time and was in the process of converting entirely to milk bottle manufacture. Federal made fruit jars and other wide-mouth products, so Federal is a much more likely candidate. An unknown (and probably unknowable) number of the Horlick’s bottles with no manufacturer’s marks could have been made by Federal. However, Federal shifted to a concentration on tableware in 1918 and discontinued fruit jars a few years later. Although the firm produced some packers’ ware into the 1960s, it probably let the Horlick contract lapse after just a few years. By the early 1920s, the Illinois Glass Co. had almost certainly taken over the Horlick needs.

**Table 6 – Dating Wide-Mouth Horlick’s Bottles used in the U.S. (Type A)**

Dates	A <sub>1</sub>	A <sub>2</sub>	C	D
1883-1890	A1a mb	A1a mb		D1 (1897-1900) mb
1890-1904	A1b mb	A1b mb	poss. paper labels on unembossed bottles	D2b (1900-1904) mb
1904-1908	A1b WTCO	A1b all m		D2b WTCO
1908-1927	A1b IGC			D2b HA
1927-1945	A1b HA	A2a <i>M.M.</i>	C1**	D3
1945-1960s	A2a A2b <i>M.M.</i>	A2b <i>M.M.</i>	C2 (to 1950) <i>M.M.</i>	

\* Type, Style, Variation

\*\* Same embossing style as A1b

mb = mouth blown

m = machine made

## Future Research

Future research should center on a much larger sample of British Horlick's bottles. While our U.S. sample appears to be sufficient for an initial study to assign dates, separate variations, and understand processes, our British bottles are so few that we have little understanding of the true trajectory for those containers. Similarly, the photos of lids from eBay were sufficient for us to create an order for their use, but assigning dates was impractical. Perhaps a larger sample would help – as would discovering a way to ascertain whether a given cap actually belonged to the specific bottle.

## Acknowledgments

Our gratitude to Wanda Wakkinen for proofreading this study.

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