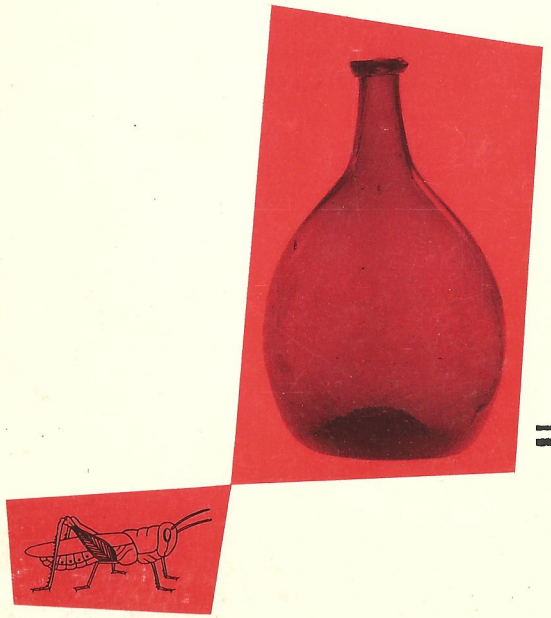

Glass in New England

Old Sturbridge Village, Sturbridge, Massachusetts

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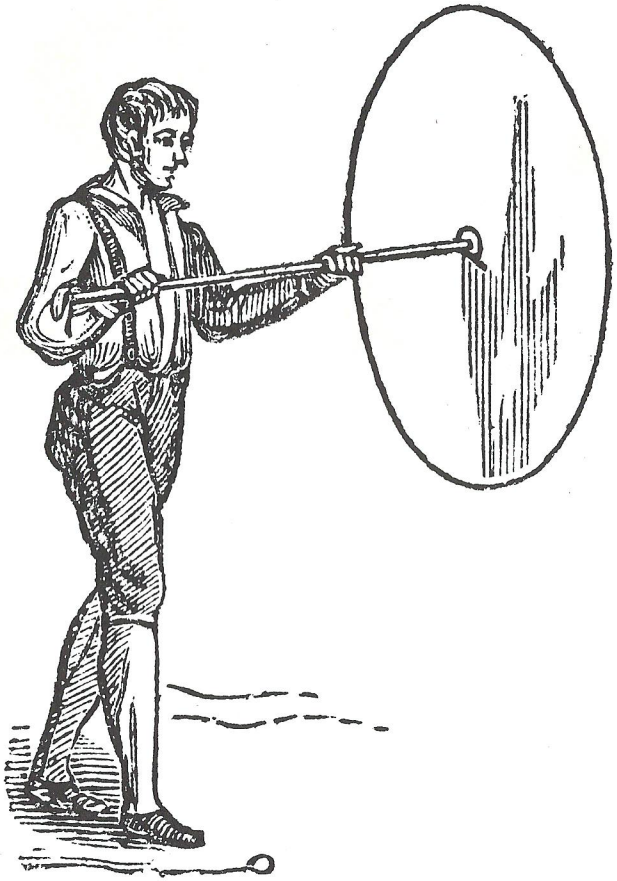

Glass in New England

by Kenneth M. Wilson

Old Sturbridge Village, Sturbridge, Massachusetts

OLD STURBRIDGE VILLAGE BOOKLET SERIES

EDITOR: Catherine Fennelly
DESIGNED BY John O. C. McCrillis

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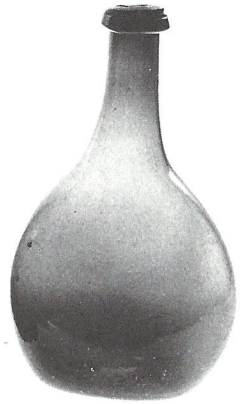


GLASS was a product highly prized in New England a century and a half ago. Not only was it universally used as a means of letting light into buildings, but its ornamental qualities — as fanlights, fine tablewares, lamps, and chandeliers, to mention only a few uses — made it a valued possession in every home with pretensions to fashion and the amenities of living. In the poorest homes in New England in the early nineteenth century glass was probably limited to windowpanes and bottles, but in most households its use was fairly widespread.

Prior to the Revolution nearly all glass was imported, but after the peace treaty, and especially after the outbreak of the Napoleonic Wars in the 1790's and consequent trade restrictions made it difficult to get and expensive to import, New Englanders made repeated efforts, as they did in so many fields, to produce their own glass. This they did with more or less success, largely less, until well into the nineteenth century, when New England found itself in the glass manufacturing business on a large scale. A high protective tariff combined with a better transportation system and new methods for making glass more quickly and more cheaply had changed both the nature and the production of the industry a good three decades before the Civil War, and the story of glassmaking in New England after that conflict became primarily one of large-scale industrial enterprise.

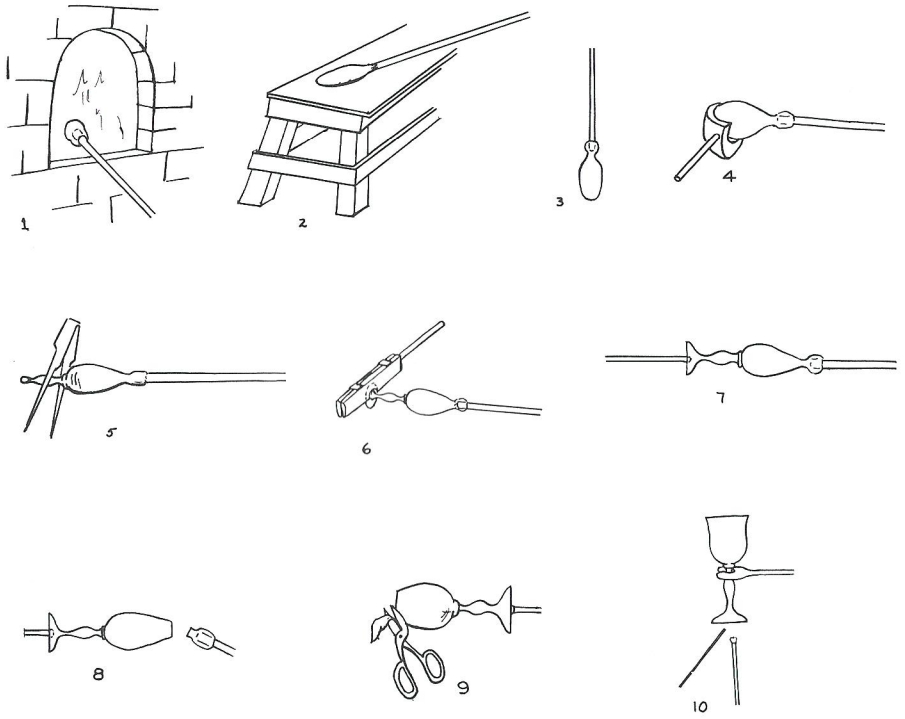
Prior to the mid-nineteenth century the raw materials, the methods, and many of the individual products varied little from what they had been for centuries, and indeed in many respects from what they had been in ancient times.

Basic raw materials of glass are silica in the form of sand, flints, or quartz; alkalies for flux such as soda or potash; and lime as a stabilizer. Lead in the form of red lead or litharge is sometimes substituted for lime to produce a softer and more brilliant glass. Metallic oxides such as copper, cobalt, and manganese give color to the glass. The combination of these ingredients depends upon the type of glass being made and the purpose for which it is intended. There are literally thousands of glass formulae in use today, and although hundreds of different mixtures were used by European and American glassmakers in the eighteenth and nineteenth centuries, they were all formulae for making three basic types of glass: *bottle glass,* usually called green and sometimes "black" glass, the least refined glass made; *window glass,* somewhat more refined, usually of a greenish or purplish tinge; soda-lime glass, and *flint* or *lead* glass from which table, decorative, and commemorative wares were made.

Glass is shaped when in a molten or plastic state. Whatever the type being made, it is possible for the glassblower seated on a special bench termed a "chair" to accomplish most of his work with but three tools: the *blowpipe;* the *pontil rod,* usually called a "punty"; and the *pucellas,* often referred to simply as the "tool." The glassmaker, however, did not restrict himself solely to the use of these tools, but like all other craftsmen simplified and made easier his work by developing special purpose tools. Five men, sometimes more or fewer working coöperatively as a team called a "shop," produced a goblet or similar piece in a few minutes.

The sketch illustrating the forming of a goblet will be of assistance in understanding the use of some of these tools, as well as the problems confronting the glassmaker in producing a piece of handblown glass.

At a very early date, glassmakers discovered that by using



FORMING A GOBLET

1, 2, 3. A gather of molten glass is taken from the furnace, rolled on an iron table, called a marver, and expanded slightly to form a hollow ball.

4. The gather is expanded and shaped with a block to give uniformity to the bowl.

5. The stem is formed from a second gather of glass and tooled into shape with the pucellas.

6. The foot is formed from another gather of glass with the aid of a clapper.

7. A pontil rod is attached to the foot.

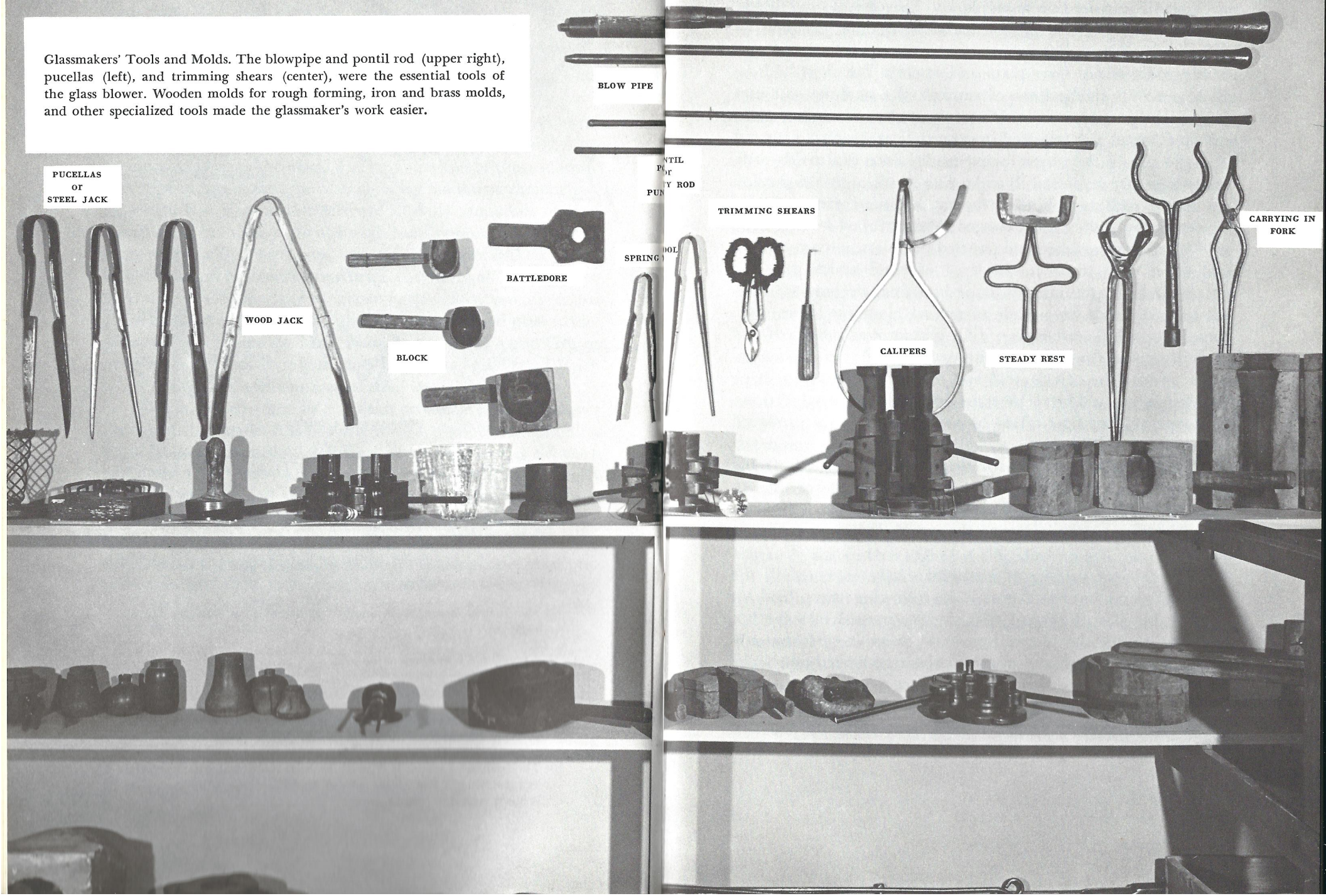
8. The blowpipe is cracked off.

9. The rim of the goblet is trimmed with shears and the bowl shaped by the pucellas.

10. The completed goblet is cracked off from the pontil rod and taken by a carrying-in fork to the lehr or annealing oven where the glass is slowly cooled to remove strain.

GLASSMAKERS TOOLS AND MOULDS

Glassmakers' Tools and Molds. The blowpipe and pontil rod (upper right), pucellas (left), and trimming shears (center), were the essential tools of the glass blower. Wooden molds for rough forming, iron and brass molds, and other specialized tools made the glassmaker's work easier.



molds their work could be made easier and greater production achieved. Molds were of three general types: dip molds of one piece, small part-sized piece molds, and hinged full-sized molds, usually of two or three vertical leaves or sections, occasionally of four, plus a base plate.

Some dip molds were plain and smooth; but most had designs, generally in the form of vertical ribs, or flutes, cut into their slightly tapered sides. When the gather of molten glass, known as metal, was removed it was usually necessary to expand it to the size of the object being made, since dip molds ordinarily were not made to full scale. As a result of this expansion the design, such as ribbing or fluting, became correspondingly fainter as the gather was enlarged. Many ribbed bottles, such as "Pitkin" flasks, ribbed and paneled tumblers, salts, and other tablewares were made in this type of mold which gave the article both its preliminary shape and final decoration. Full-size hinged molds were made of several pieces or leaves, each containing a full scale design (if a pattern was intended) and hinged together so that after the gather of glass had been introduced into the closed mold and expanded to take its shape and design, it could be removed by opening the hinged sections. The type of glass now called blown-three-mold was produced in this manner. This mold, as well as the dip mold, was developed in the Roman period, afterwards used sparingly for table glass until the early nineteenth century, when it was used to produce what we now call pictorial or "historical" flasks, and adapted as a means of imitating the expensive cut glass then in style.

A method of pressing glass mechanically, invented in the mid-1820's and improved greatly in following years, made it possible for glass decorated with designs pressed into the hot metal to replace the blown-three-mold as an inexpensive substitute for cut glass. Hand pressing tools that looked much like pliers with a design cut in the ends, were developed and used in Holland, England, and Ireland in the late eighteenth century to form stoppers, bases for salts, and similar articles. The

first mechanical pressing was a rather crude extension of this simple hand press. The quantity of metal required was simply estimated, cut off, and dropped into the lower section of the mold; then the top section or plunger was lowered and the metal pressed between the two. Improvements followed rapidly, and by the 1840's almost complete sets of matched dinnerware were being produced. Automatic pressing is today one of the chief means of producing glassware.

It was a long step, however, and one that took about five thousand years, from the earliest discovery and use of glass to the adoption of today's pressing and mechanical blowing methods. Glass was first used to make beads, possibly in Mesopotamia. As early as 1500 B.C. or thereabouts the Egyptians made small glass vessels for perfumes and unguents, usually very colorful and decorative. They were made either by dipping and redipping a sand core in molten glass or by tediously winding threads of glass around the core, then smoothing the surface by rolling or marvering it on a smooth stone. Decoration was achieved by applying threads to the still hot and plastic vessel and dragging them into zigzag or herringbone patterns, which were imbedded by further marvering. After being slowly cooled to anneal the glass, the sand core was removed. This slow and laborious process produced but a limited quantity of glass, possibly available only to the nobility; it was not until the invention of the blowpipe that glass became somewhat more generally obtainable by persons of all ranks. This invention came probably about the end of the first century B.C., somewhere in the eastern end of the Mediterranean, possibly Syria.

Glassmaking spread with Roman conquest, developed both in quality and quantity during the Empire, and made its way into the provinces of Europe, including what is now France, Germany, Spain, and Britain as well as into Rome itself and into the eastern end of the Mediterranean. Large numbers of fragments and vessels have been recovered from all these areas and may be found in almost any museum of the ancient cultures. Glass of the Roman era exerted an influence that lasted

for many centuries after the decline of Rome.

With the fall of the Empire, glassmaking continued in France, Germany, and the Middle East. Germany produced a type of glass, referred to as "waldglas" because it was made deep in the forest where plenty of wood was available, which indirectly influenced New England glassmaking. In Italy glassmaking lay almost dormant until the eleventh century, when gradually in the northern section, especially in Venice, this craft again developed, and had so greatly expanded that by the fifteenth century these Venetian houses were supreme in the making of mirrors and table glass. Stringent laws forbidding the migration of workmen from Italy were intended to prevent the secrets of the craft being taken to other countries.

In the sixteenth century there was a revival of glassmaking in Germany, France, Holland, and England. Despite the prohibition of emigration, some Italian workmen entered these countries, carrying with them the Venetian style, termed today *façon de Venise*, of the fifteenth and sixteenth centuries. It is difficult to tell in many instances whether glass of that period was actually made in Italy or produced in the Low Countries, in parts of France, or in England.

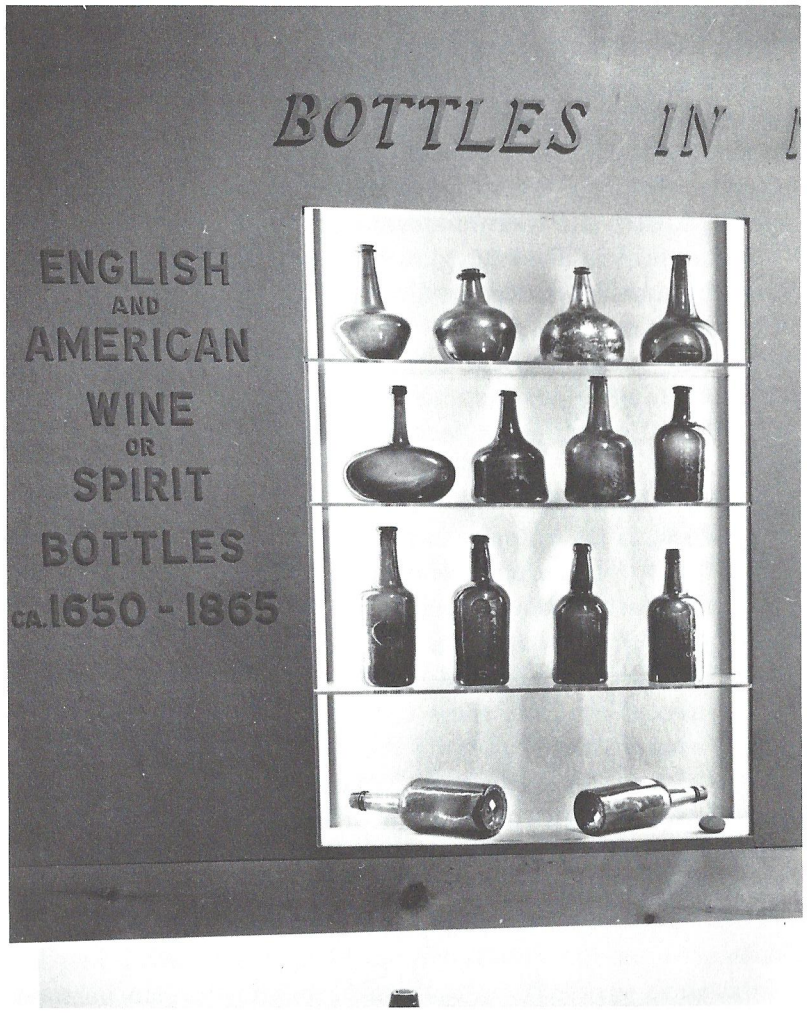
The manufacture of glass in many instances obtained royal patronage. This was the case in France where under the patronage of Colbert and Louis XIV a manufactory was established in Paris with the aid of Venetian workmen. Here in 1688 the founding, or casting, of glass in large sheets was developed, and the Venetian monopoly on making glass mirrors was ended. In England in the sixteenth and seventeenth centuries the Venetian Jacob Verzelini, Sir Robert Mansell, and the Duke of Buckingham all established factories that constituted the real beginnings of glassmaking in that country.

The making of vessels in the Venetian fashion came to an end in England in the latter part of the seventeenth century, with George Ravencroft's perfection in 1676 of a formula for making lead glass called flint glass. In contrast to the thin and somewhat brittle Venetian glass, Ravenscroft's formula produced a softer glass that generally assumed thicker walls when blown. This flint glass was clearer and more sparkling than the Venetian soda glass, or *crystallo*, and lent itself to bold forms as well as to engraving and cutting. Its subsequent development placed England in the forefront of glass manufacture from the late seventeenth to the early nineteenth century. English glassmakers during this period developed their own techniques, styles, and forms. The Irish glass industry, established to a large extent by men intent on evading the doubling of the English excise on glass that took place in 1777 (to help pay the cost of the American War), was able to supply markets abroad when restrictions on Irish exports were lifted in 1780. After that date Irish glass, English in style and origin, was shipped to the United States in some quantity.

Because of British legislation aimed at protecting English trade with the colonists and preventing the colonies from trading freely with other European countries, most of the glass imported into New England came from English and Irish factories. Some glass from Holland and Germany arrived in the colonies by way of England, and perhaps indirectly via the West Indies. Glass from these countries, which had continued to follow in large part the old Venetian and Germanic "waldglas" style, together with English glass, was the chief influence upon glassmaking in America, an influence exerted both indirectly and directly through the importation of glassware and of European workmen.

New England began importing glass at a very early date. While many of the wealthier persons kept abreast of English fashion and imported fine tablewares, the most urgent demand for glass during the founding of the first colonies and for many years to follow was for window glass and bottles. In 1629, only seven years after the Massachusetts Bay settlement, the Rev. Francis Higginson wrote from Salem to his friends in England: "Be sure to furnish yourselves with glass for windows."

Window glass continued to be imported in the eighteenth and throughout the nineteenth century. Abner Chace adver-



English or American wine or spirit bottles, c. 1650 — c. 1865. The spirits bottle form developed from a squat, rounded body with tall neck popular c. 1650 to the tall, cylindrical form of 1865, somewhat similar to today's wine bottles.

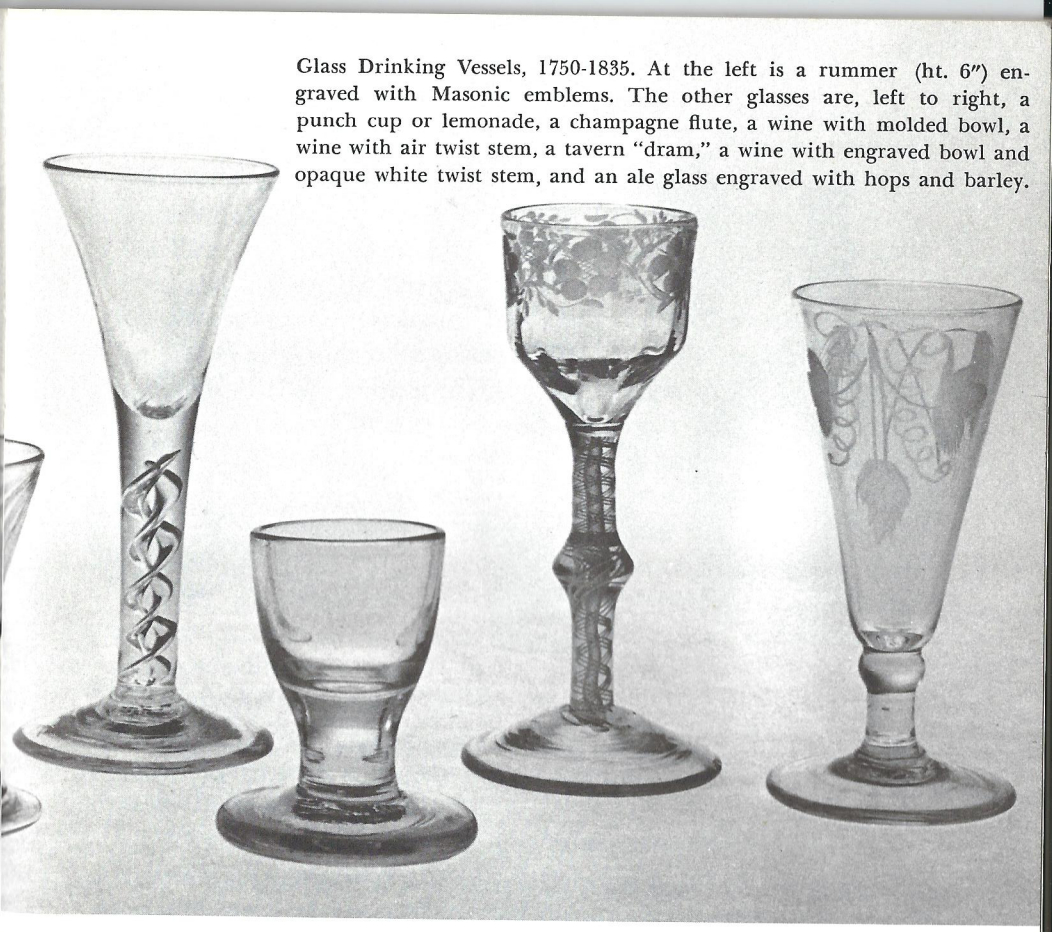
tised in the *Essex Gazette*, May 28, 1771: "Bristol crown window glass 7x5, 6x8, 7x9, 8x10, 9x11, 9x12." Isaac D. Bull, of Hartford, in 1830 offered "Window glass — Boston, South Boston, New-England and English crown glass," an indication that even at this date, after the establishment of numerous New England and other American factories, English window glass was still being imported in considerable quantities.

Bottles of all sizes and descriptions for use as containers of wines, cider, porter, and other liquids such as oils and vinegar were in great demand and were imported in large quantities. In the seventeenth century most wine bottles were of a globular form with a tapering neck. They were used primarily as decanters to serve wine on the table after it had been drawn from casks. After the introduction of the practice of storing wines in bottles, the shape of the bottles was modified to permit their being stored on their sides. The chronological development of these shapes can be readily traced by a careful study of the various bottle styles — a study made easier by the fact that frequently individuals and taverns ordered placed upon their bottles made at the glass factory, a round seal bearing a coat of arms or family mark of some kind or the initials of the proprietor and usually the date, signifying the vintage. Study of these dated bottles has indicated certain features characteristic of different periods. These include: the general shape of the bottle, whether it is round and squatty or has a short, broad, cylindrical body or one slightly smaller and higher; the type of neck; the depth of the kickup in the base of the bottle; and, above all, the type of collar. Each of these features assists the student in dating unmarked bottles.

New England also imported tablewares of all descriptions, as the advertisement of Thomas Tisdale of Hartford, Connecticut, in June 1790 indicates:

> JUST IMPORTED, A large assortment of
> Double Flint and Tale Glass Goods, . . .
> by the package or retail — consisting of
> Double Flint quart Decanters labelled
> and cut bottoms; . . . Pints to match
> the quarts, Flint Oil and Vinegar

Glass Drinking Vessels, 1750-1835. At the left is a rummer (ht. 6″) engraved with Masonic emblems. The other glasses are, left to right, a punch cup or lemonade, a champagne flute, a wine with molded bowl, a wine with air twist stem, a tavern "dram," a wine with engraved bowl and opaque white twist stem, and an ale glass engraved with hops and barley.



Cruets, label'd, cut and ground; plain do. [ditto] with cut stops and bottoms; common do. Stair Case bells for lights with suitable shades and hangings; cut and polished Candlesticks really brilliant; scallop'd and diamon'd Salts with rose feet; beaded and scollop'd do. Common moulded and plain salts; Egg Cups in flint with blue edges; Dining Room Bell Handles with do. Patty Pans; Double Flint ribbed Jelleys; plain do., large and midling sized Goblets; Spanish boweled Rummers; balloon Mustards cut and polished tops; common do. moulded and plain; Sugar Bowls

moulded and plain; Bird Fountains; . . . well constructed Breast Pipes and Nipple Shells; Quarts Mugs with or without covers; Pint Tumblers cut bottoms; do. plain; barrel-shaped and upright half pint Tumblers cut bottoms; Upright common Tumblers; Gill and Half-Gill Tumblers; *Truly Masonic* heavy bottomed Wines, well adapted in *part* to celebrate the ever glorious St. Johns; Tale Masons; Flint Wines; common Wines; Half pint flat Dram Bottles, suitable to carry the *comfort of life* into the fields; Inks for school boys; Proof Phials; Smelling bottles different shapes.

Typical products of early New England bottle glasshouses, including a "chestnut" bottle. The "Pitkin" flask with swirled ribbing was blown by the German half-post method, in which a second gather of glass reinforces the original gather but extends only to the shoulder of the flask. The sunburst flask, made of heavy, light green flint glass, is attributed to Keene, New Hampshire, 1815-1817. Above are a shoe blacking bottle with applicator and two snuff bottles.

Bottle glasswares from Connecticut glasshouses. Left, a witch ball and holder (ht. 13″) attributed to the Westford Glass Company, 1857-73. The ornamental hat and tumbler, probably made before 1840, are attributed to the Willington Glass Works; the jar and "Pitkin type" inkwell may have been made at the Pitkin Factory, East Hartford.

In addition, Tisdale also advertised: "A large assortment of Amsterdam Glass Tumblers and Mugs, some with covers, and from the size of five pints to a gill, figured and plain."

This advertisement is typical of many of this period and even earlier. Among the wide variety of goods offered to attract customers from all walks of life, there were numerous articles no longer used today, for instance staircase bells for lights, made obsolete with the passing of open flame lights such as the candle and the oil lamp, and bird fountains, once quite fashionable. The "truly Masonic" wines, which are "firing" glasses, are much prized and sought after today by collectors. The listing of the half-pint flat dram bottles "suitable to carry the comfort of life into the field," gives us some insight into the humor and personality of storekeepers of the day. Amsterdam glass tumblers and mugs, figured and plain, were probably very similar to the three tumblers to the left in the illustration on page 20. The figures were lightly and quickly engraved, oftentimes in a band around the rim of the glass, sometimes in a floral design on the sides of the glass. This type of tumbler is today referred to as a Stiegel-type.

The salver, in fashion from the late seventeenth century to about 1790, is another obsolete form. These salvers came in different sizes and were often used in graduated sets of three to form what was known as a pyramid. Sweetmeat glasses for both wet and dry sweetmeats were placed on each salver in the pyramid, the uppermost usually topped by a master glass, often extensively and elegantly cut. The salver was also used as a serving tray, to pass glasses of wine to guests.

Drinking glasses of all types formed a large part of the English glassmakers' production during the eighteenth century. The Venetian fashion of the late seventeenth century was succeeded by styles more decidedly English in character. The first of these styles was the baluster stem, which through the years underwent a series of changes. Some of these variations included heavy baluster stems, the so-called Silesian stems, light baluster stems, and knopped stems. These styles began about

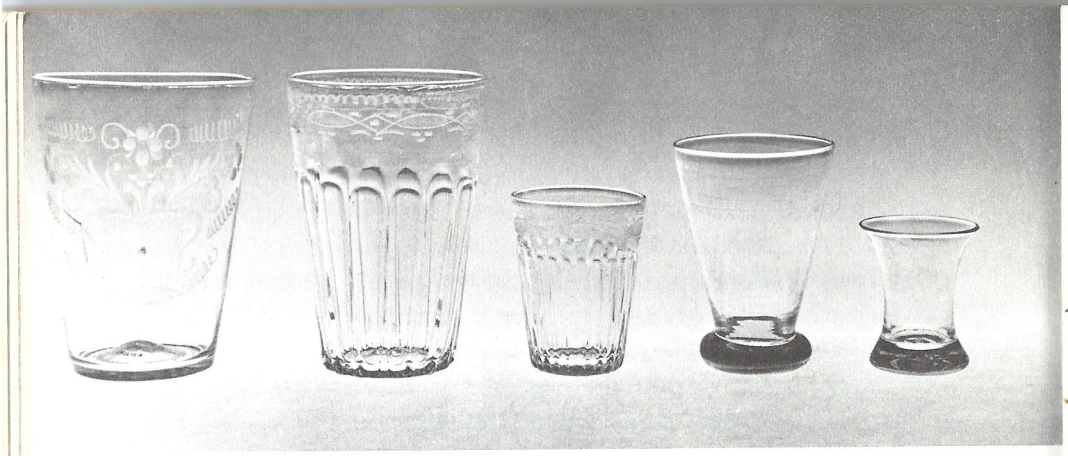
1685-90 with the introduction of heavy balusters and ended with the lightly knopped stemmed glasses of the 1760 era. Paralleling their development was that of the plain-stemmed glass, some entirely plain and straight, some with drawn teardrops, others with hollow stems. These glasses were produced chiefly during the period from 1700 to about 1775. Among the most interesting wine glasses of this period are those with air or opaque white twist stems, the latter commonly called today "cotton stem" wines. Air-twist stemmed wines were a development of the simple, plain stem with teardrops drawn out and twisted. This form came into fashion about the year 1740 and prevailed for the next quarter of a century or so. For some thirty or more years after the middle of the eighteenth century, the opaque white twist-stemmed wine was in high fashion. Simultaneously, the color twist was developed, though made in much smaller quantities. Even rarer was the mixed twist stem, a combination of an air and an opaque white twist. Of all these decorated wines, perhaps the most pleasing is the air twist. The decoration is inherent in the glass itself, being merely a manipulation of the glass in combination with entrapped air.

Faceted and cut stemmed wines began to be developed about the middle of the eighteenth century and continued in popularity among the upper levels of society until about 1820. In 1745 the English government placed on glass an excise based upon the pot-weight of molten glass which had an important effect on the industry. The lighter the glass the more cheaply could it be sold, and since the majority of the glassmaker's custom came then, as today, from the person of average means, it was essential to sell as cheaply as possible. Manufacturers began making lighter-bodied vessels, often with hollow stems, in order to meet the popular demand for glass and keep within the market. In another category, those well able to afford it were naturally inclined to prefer the heavy glass suited to the fine cutting that began to develop about the middle of the eighteenth century. This cutting on the heavy glass was a distinguishing mark between glass made for the upper and for the

lower classes of society.

In addition to the wine glasses so popular throughout the eighteenth and early part of the nineteenth century, there were numerous other styles of glasses in vogue, a special type prescribed or developed for each beverage: ale glasses, champagne flutes, cider glasses, mugs and cans for beer drinking, rummers, lemonades, punch cups and glasses, and tumblers of various sizes. A group of these glasses is illustrated to show a comparison of their forms. The tall champagne flutes, in style throughout most of the eighteenth century and until about 1830, were at that time replaced by the stemmed glasses with broad, open bowls we now know as champagnes. Ale glasses, looking somewhat like smaller versions of champagne flutes, were often engraved with a design of hops and barley. The ale, unlike our ale today, was very potent, being more like a whisky or brandy. The rummer was a capacious glass used not only for rum in various mixtures but also for other drinks requiring large vessels. Use of these glasses was widespread, not confined to one class or locality, but appearing in the tavern, the home, and even at more elegant social functions. The size of the bowls on such glasses rendered them admirably suited to engraving, and many of the finer glasses bear engraved scenes, often commemorative, as does the Masonic rummer illustrated on page 14.

Most importations prior to the Revolution came directly or indirectly from England, whether or not made in other countries. Later, in 1794, however, Abraham Isaac of Portsmouth, New Hampshire, was able to advertise "that he has just received a fresh supply of glass ware by the ship Pacific from Hamburgh, and now ready for sale, at his shop in Buck-Street, consisting of elegant Decanters, Tumblers, Wine Glasses, &c. &c." Dutch glassware consisting of half-pint flint tumblers, half-pint plain and assorted flowered tumblers, wines, three cases of small quart decanters, and two cases of full quarts was advertised in the Boston *Daily Advertiser* in 1815. Charles Sigourney of Main Street, Hartford, advertised in 1816 as imported from Amsterdam "four cases Dutch Looking Glasses and looking glass plates."

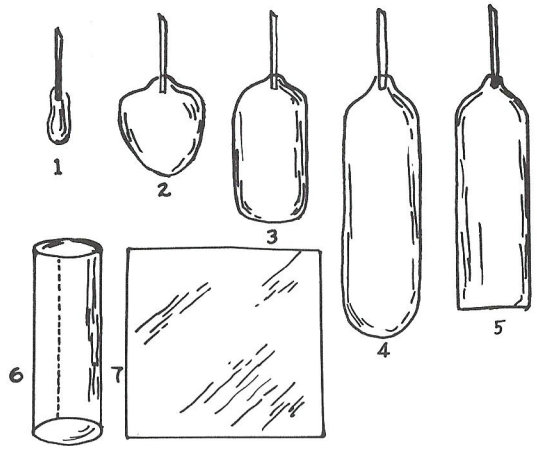


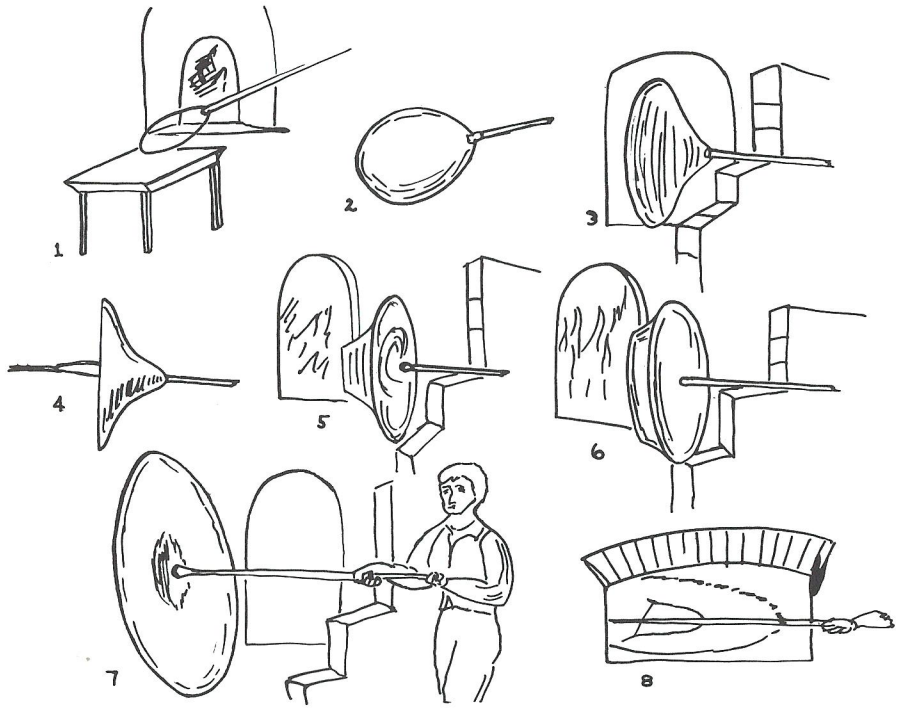
Tumblers and Tavern Glasses, late 18th–early 19th century. Two of the three engraved tumblers, called "Stiegel type," are paneled and fluted. The tavern glass with the heavy foot is a "firing glass."

All these kinds of glass were imported, but with the great demand for glass of all types coupled with the existence of great quantities of raw materials in New England, it is no wonder that many enterprising men felt that "home" manufacture of glass was a means not only of making a personal fortune, but also of developing a domestic industry. This conviction first took form in New England in 1639, about thirty years after the ill-fated Jamestown, Virginia, venture. In that year, several men formed a glass company in Salem, Massachusetts, for the purpose of manufacturing bottles for local needs. Little is known of this enterprise or its production, but it is evident that the life of the company was of short duration. No further recorded effort was made for over a century.

Then in September 1752 the Boston *Weekly Newsletter* carried a news item:

> We hear that among the Artificers which came in the Ship from Holland, mention'd in our last, there are Numbers of Men skilled in making of Glass, of various Sorts, and a House proper for carrying on that useful Manufacture, will be erected at Germantown as soon as possible.





TOP: Method of Making Cylinder Glass.

BOTTOM: Method of Making Crown Glass.

In August of the following year came a second statement:

> Notice is hereby given, that for the future none will be admitted to see the new manufactory at Germantown, unless they pay at least one shilling lawful money; and they are then desired not to ask above three or four questions, and not to be offended if they have not a satisfactory answer to all or any of them.

Jonathan Williams and Joseph Palmer, a merchant, were among the men associated with this venture, which continued in operation until about 1768. Their advertisements throughout the 1750's and 1760's indicate that they made bottles of all types including snuff bottles, pint, quart, two-quart, and gallon bottles, pots for pickles and conserves of all sizes, and chemical vessels of different types. It is interesting to note that this glass factory, like most others, advertised for broken glass. Palmer offered a pistareen (about twenty-five cents) per hundred weight for broken green and black glass; and two coppers per pound for white glass. Why the manufactory was discontinued is not known, but the unrest and economic fluctuations preceding the American Revolution may well have contributed to its cessation, as they did in the case of other factories during this period.

Not until 1780, close to the end of the War, was there another effort at glassmaking in New England. In that year Robert Hewes, variously listed in Boston directories as a tallow chandler, a manufacturer of soap and blueing, a hog butcher, fencing master, surgeon, bone-setter, and a starch-maker, left Boston with an inheritance from his father and went to Kidder Mountain in the vicinity of Temple, New Hampshire, to establish a glassworks. Here he hoped to make crown window glass and perhaps bottles and tablewares. Why he should have chosen so isolated and inaccessible a place to set up his glassworks is hard to understand. Local abundance of wood and other raw materials may have been one reason. The fact that Hewes was employing deserters among the German mercenaries who had been fighting in the Revolution, and against whom feeling was still running high, was an even more important factor.

Hewes, like many another enterprising man of his day, was not a practical glassmaker; he was dependent to a large degree upon the knowledge of his workers. This fact, plus the inaccessibility of the factory site, doomed the venture almost from the start. He did, nevertheless, succeed in erecting a glassworks which after some small production burned to the ground. Hewes rebuilt the glassworks but was still financially unsuccessful; in 1781 the legislature authorized a lottery to raise 2000 pounds "to enable one Robert Hewes to carry on the manufacture of glass."

Though the lottery tickets were printed, either they were never sold or little revenue was raised. In the following winter the glassworks met with another calamity when frost shattered the foundations of the furnaces and ruined them. Hewes, without money to repair this damage, left Temple and returned to Boston.

Little is known of the actual glass production at Temple. Shards dug at the factory site indicate that light and dark green bottle glass was made, apparently in the form of junk bottles, handled jugs, and some small bowls. Several such junk bottles still in the possession of families in the vicinity of Temple are said to have been made there. It is also recorded that a specimen of window glass, supposedly the principal product of the Temple Glass Works, was presented to Harvard University by Hewes.

Following the Revolutionary War, but before the peace treaty had been signed, Elisha and William Pitkin of East Hartford, Connecticut, were granted a monoply to manufacture glass in that state for a period of twenty-five years. They began their enterprise in 1783 in association with Samuel Bishop. The factory seems to have operated, intermittently at first, until about 1830 when it closed presumably for lack of wood for fuel. The Connecticut General Assembly in 1789 and 1791 granted

Glass from Massachusetts and New Hampshire glass factories. The lilypad pitcher and wine, mid-19th-century bottle glasswares, are attributed to a Stoddard glass factory. The small sauce dish is from the Lyndeboro Glass Works, South Lyndeboro, New Hampshire, 1866-86. The bowl in the center (9¼" diameter) was made at the Franklin Glass Works, Warwick, Mass., which operated from 1812 to 1816. The vase at the right is attributed to the Suncook Glass Works, Suncook, New Hampshire, 1839-50.

lotteries "for the purpose of encouraging and carrying on the glass manufactory in East Hartford." The petition of 1791 asserted that the owners "have expended large sums of money in erecting a glass house and other buildings, purchasing stock and tools, and procuring workmen in order to carry the manufacture of glass into effect."

While few pieces of glass can be specifically identified as having come from the Pitkin factory, it is believed, though not proved by excavation, that their production included "chestnut," junk, and snuff bottles as well as jars, ink stands, "Pitkin" and pictorial flasks. All these objects were of green or black bottle glass. Illustrated are several pieces which might have been made at this factory. The so-called "Pitkin" flasks, varying in size from several ounces to almost a pint capacity, and ink stands were made in olive amber, amber, and olive green bottle glass. They were blown by what is known as the German half post method, and patterned in molds which produced a vertically ribbed pattern that was often twisted to produce a

swirled effect. Although this type of bottle was produced elsewhere, for example at Coventry, Connecticut, Keene, New Hampshire, and in the Midwest, the term Pitkin has been applied to the type as a whole.

At the May 1790 session of the Connecticut State Legislature Mark Leavenworth petitioned for permission to hold a lottery for the benefit of the New Haven Glass Works, stating "that he has at great expense erected buildings and furnaces for the purpose of making glass." He was permitted to raise four hundred pounds, and the lottery was run off in 1790 and 1791. He

Table and Ornamental Wares. The blown glass apple paperweight and opaque white mug with deep red decorative loopings were produced at the New England Glass Company c. 1865 and 1830, respectively. The tooled, domed sugar bowl (ht. 8¾") of colorless glass was probably made at the Boston & Sandwich Glass Company c. 1830.

seems never to have gone into actual production, and in 1792 the legislature ordered an investigation into how the proceeds of the lottery had been applied. Leavenworth, never a success-

Pictorial flasks: GIV-2, pint Masonic-Eagle flask, Keene (Marlboro Street) Glass Works, 1815-1817; GV-10 half-pint Eagle-Railroad flask, Coventry Glass Works, c. 1824-1840; GIII-7, half-pint Cornucopia-Urn flask attributed to both the Keene (Marlboro Street) Glass Works and the Coventry Glass Works, c. 1824-1840; pint flask, "Granite Glass Co.," Stoddard, N.H., c. 1860-1870.

ful businessman, later settled in France. In 1790, also, one John Brown secured a privilege to erect a glass factory in Providence, and this project too seems to have come to nothing.

The first really successful New England glass company in this era was the Boston Crown Glass Company organized July 6, 1787, by Robert Hewes, Samuel Walley, John Gore, and eight others. Robert Hewes had again entered the glassmaking field, now with more experience and one of the few owners with some practical knowledge of the business. Despite Hewes' hopeful statements as to the immediate commencement of operation, the company did not begin production until November 11, 1793. This factory, located on Essex Street, Boston, became renowned throughout the United States and abroad for its crown window glass of the highest quality, apparently superior even to that imported from England. With certain changes in management this company continued in business with considerable success until February 1829 when its buildings burned and were never again rebuilt. By that time the New England Crown Glass Works was in operation.

Window glass was made in New England factories as elsewhere by the crown and cylinder glass methods. Cylinder glass was also sometimes referred to as broad, or sheet glass. The two methods are shown and explained in the accompanying illustration. Basically, crown glass was made by blowing a large bubble, attaching a pontil rod opposite the blowpipe, and then cracking off the blowpipe, which left a hole in the bubble. Successive reheating, enlarging the hole with a wooden paddle, and twirling this steadily opening bubble caused it to open into a flat disc. The disc, after cooling, was cut into panes of glass. The center, or bull's-eye, to which the punty had been attached, was usually remelted as cullet or used as windows where light but not good visibility was essential. Today surviving bull's-eyes are highly prized. This method of blowing window glass was wasteful since the disc could be cut into only a limited number of rectangular panes. Cylinder glass, more economical but thinner and more brittle, was made by blowing a

cylinder approximately five feet long and one foot in diameter, cutting off the end, and, after cracking off the blowpipe, slitting the cylinder and opening it out into a flat sheet. Glass produced by this method was usually more fragile and apt to be less clear, with more streaks and waves than crown glass.

In 1805 John Mather established a glassworks in East Hartford, Connecticut, principally for the manufacture of bottles. Some indication of the amount of wood consumed by these glasshouses is given by an advertisement of Mather's that appeared in that year: "Wanted to contract for the cutting and splitting 750 cords of wood, to be done within four months. Apply to the new Glass House. Also wanted one thousand bushels Wood Ashes for which Cash will be paid." For the next fifteen years Mather's East Hartford bottles were widely advertised throughout Connecticut and apparently well thought of. Mather did not, however, operate without adversity. In October 1806 the glassworks burned, apparently a complete loss, for it was not until January 17, 1807, that Mather announced that the new glass manufactory had been reëstablished.

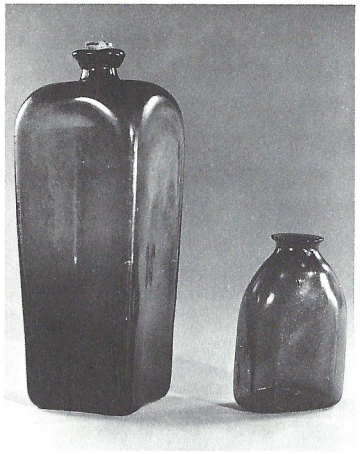
A number of new glass factories sprang up in New England about the time of the War of 1812. On February 6, 1812 the Franklin Glass Factory located in Warwick, Massachusetts, was incorporated. It made its first glass in October 1813. Although essentially a window glass factory, some bottles and jars were made, as well as other individual pieces made by workmen for their own use. This factory, like so many others established during the period, failed in 1816. An interesting bowl shown on page 24 is attributed to this factory.

The Coventry Glass Works at Coventry, Connecticut, fared somewhat better. It was established in 1813 and under different managements operated until 1848 or 1850. This factory produced principally bottles, but its products were more varied than those of some bottle glass factories. They included "Pitkin" flasks, junk bottles, porter bottles, blacking bottles, half pint and pint pictorial or "historical" flasks, and snuff bottles, ink bottles, and ink stands. One of the best known

flasks made here was that bearing portraits of DeWitt Clinton and Lafayette, made in commemoration of Lafayette's visit to this country in 1824-25. Other flasks of this type bore eagles, Masonic emblems, and other purely decorative devices such as the urn and the cornucopia, favorite motifs of a number of glass factories.

Another successful Connecticut glassworks was established not far from Coventry, in 1815. The Willington Glass Company, located in West Willington, continued in operation until 1872. It too was primarily a bottle glass factory and produced a variety of bottles, jars for snuff, pickles, shoe blacking, and the like. One of its best known products is a quart flask with the word "LIBERTY" above the American eagle on the obverse and with "WILLINGTON GLASS, CO WEST WILLINGTON CONN" on the reverse. A certain number of crude household wares probably were also produced along with the black and green glass made at this factory. Among the whimsies made by the glassworkers in their spare moments is the small hat pictured on page 16 together with a tumbler attributed to this glass factory. Still another product was light, aqua-colored glass from which "cathedral" pickle jars and huckleberry bottles were made. Some wine bottles made here in the 1860's — probably until the factory ceased operation — bear on their bases the name "Willington Glass Works."

The Glastenbury Glass Factory Company, established in South Glastonbury in 1816 by a group of local men, was much less successful and ceased operations in 1827 or possibly in 1833. It too was a bottle glasshouse. Its products have been determined, by means of archaeological work undertaken by Old Sturbridge Village in 1962, to have been limited to green and black glass junk bottles; "chestnut" bottles; "Pitkin" flasks, bottles, and ink stands; and gin or case bottles. A selection of fragments typical of these products and several bottles formerly owned by descendants of an owner are shown in the accompanying illustration. No evidence was found for the production of pictorial or historical flasks.



Case or "gin" bottle and snuff bottle made at the Glastenbury Glass Factory Co.'s works in South Glastonbury, 1816-1827. New England Pitkin flask of the type made at the Glastenbury Glass Factory Co. Fragments of the Pitkin flasks excavated at the Glastenbury site. The case and snuff bottles descended in the family of one of the original owners of the factory, and proof of the production of these kinds of bottles was confirmed by thousands of fragments excavated.

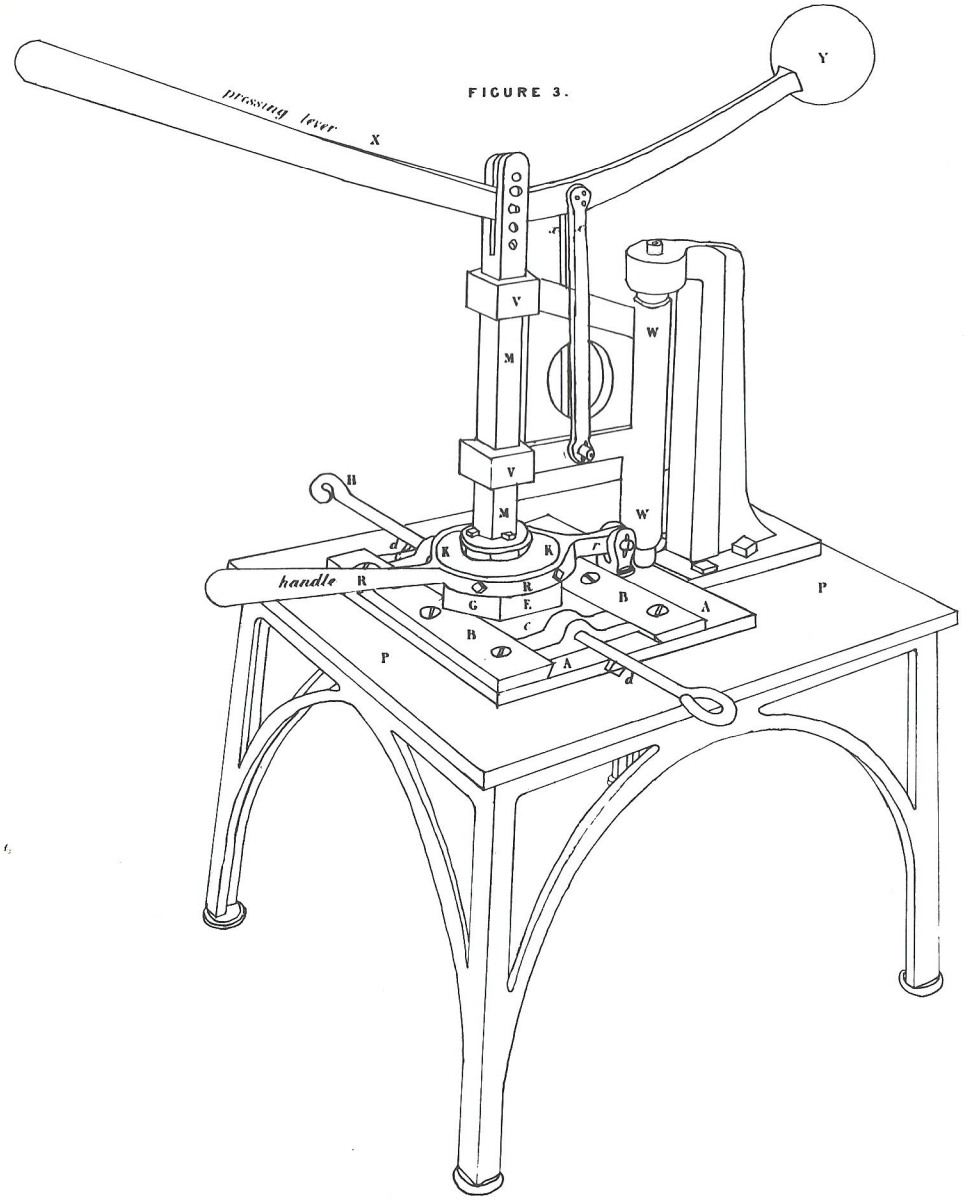
After a short career as manager of the Vermont Glass Works at Salisbury, Vermont, established in 1813 for the purpose of making bottles and tablewares and which failed in 1817, Henry Rowe Schoolcraft, who had learned some glassmaking techniques from his father, arrived in Keene, New Hampshire, and in partnership with Timothy Twitchell, in 1815, started the Keene Flint Glass Works, now known to collectors as the Keene (Marlboro St.) Glasshouse. The production of flint glass in this manufactory — the first in New England outside the Boston area — was discontinued by August 1817. The factory continued to operate as a bottle glasshouse until 1850. Its production was less limited in variety than that of most small glass factories. Here was made one of the finest groups of pictorial flasks as well as several different types of decanters and ink wells in varying blown-three-mold patterns. The early pieces were made not only in bottle glass but also in colorless and colored

flint glass. Most were in brilliant greens, but some appeared in various shades of green, blue, and amethyst as well. Outstanding among early products of this factory was a series of heavy Masonic flasks and flasks with sunburst decoration.

Contemporary advertisements tell us some of the uses of such flasks and bottles. Advertised in 1820 were: "60 Groce black junk Bottles, suitable for bottling cider." Burdett and Co., grocers of Hartford, advertised in 1826: "salad oil in bottles and flasks." And E. Bull, druggist in Hartford in 1823, advertised in part: "and the public are informed that the Flasks and Bottles are now full of the following, viz. Madeira wines . . . L. P. Port, L. P. Teneriffe, Sherry, Sicily Madeira, Lisbon, Malaga, St. Juliens, Claret, and Muscat Wines. *Also* Cogniac Brandy, which has been a voyage to India; Old Jamaica Spirit, from London; Holland Gin, Metheglin, fresh leghorn oil, &c." Carboys held vitriol and other acids, demijohns wines and bland liquids; housewives used small "chestnut" bottles for rose oil, toilet water, and the like.

Jefferson's Embargo and the War of 1812 had the same effect upon the supply of tablewares that it had upon window glass and bottles. The subsequent demand for glass gave the proprietors of the Boston Crown Glass Company, who in 1811 had erected a second factory in South Boston in order to expand their facilities for producing crown glass, the opportunity to produce tablewares. During the War they were unable to get from the West Indies the sand used in the manufacture of their window glass; consequently the English workmen imported and the new factory were both left idle.

Among these workmen was Thomas Cains, who persuaded the proprietors of the Boston Crown Glass Company to build and lease to him a six-pot flint furnace in the new factory in South Boston. Here in the year 1813 he began to manufacture flint glass tablewares, and continued operations in this factory, which came to be known as the South Boston Flint Manufactory, until about 1820. An agent for this glass works advertised:



Machine for pressing glass. Apsley Pellatt's specification for a patent dated March 9, 1831. The rapid adoption in Europe of this American invention, patented in England, is indicated by this drawing and application.

decanters, pitchers, salts, lamps,
tumblers, sugars, castor bottles,
celeries, lemonades, wines, jellies,
creams, &c. &c. Also druggists ware—
tinctures, species, salt mouths,
jewellers globes, graduated measures,
essence phials, nipple shells, breast
pipes, nursing bottles, urinals,
funnels assorted, retorts and re-
ceivers, cylinders, mortars and
pestles, carboys.

One of the favorite decorative motifs of Thomas Cains was a chain applied around the bodies of pitchers, decanters, and sugar bowls, and to plates and bowls of various sizes. This chain decoration, termed a guilloche in England where it had been popular some years earlier, was formed by trailing two heavy threads of hot glass on the object, then nipping or pinching the threads together to make the chain.

Upon leaving the South Boston Flint Glass Works, apparently in 1819 or 1820, Thomas Caines established the Phoe-

Blown-three-mold glass. Tumbler (ht. 6″) and covered preserve dish with plate, pattern GII-18, probably made at the Boston & Sandwich Glass Company c. 1830. Pint pitcher, Arch and Fern pattern GIV-7 with the word GIN on the body under the lower end of the handle. Blown in a decanter mold probably in the 1830's.

Tablewares: Plate and decanter of colorless blown glass with applied chain decoration. This type of glass was produced in numerous forms and made at Thomas Cains' South Boston Glass Factory, probably at his Phoenix Glass Works, and possibly at the New England Glass Co. in East Cambridge. *Photograph courtesy of The Corning Museum of Glass, Corning, New York.*

nix Glass Company, across the street from the South Boston factory at the corner of B and Second Streets. Here he undoubtedly continued to produce the same types of glasswares he had been making; in the ensuing years he evidently produced a variety of glasswares like those made by his competitors, very likely including pressed, blown-three-mold, cut and engraved glass, and other glass currently in popular favor. The

Pressed pattern glass. Goblet, covered butter dish, and creamer in the New England Pineapple pattern, probably introduced in the early 1860's and made by the Boston & Sandwich Glass Company, as well as by Midwestern firms. Almost complete settings of pattern glass tablewares began to appear in the 1840's.

company continued to operate until May 1870 when it closed its doors. After the death of Thomas Cains the company was operated by his son William.

Numerous other small glass companies were formed during the War of 1812, most of which failed shortly after the cessation of hostilities. It may be noted that most of those that failed were located, undoubtedly because of the proximity of raw materials, in isolated areas. Lack of suitable means of transporting the finished product to market areas plus the flooding of the market by imported wares were the chief factors in the failure of these small glasshouses established with such high hopes.

Location, then, played an important part in the success or failure of a company. In the year 1814 a group of men, including one Deming Jarves, established in Cambridge, Massachusetts, the Boston Porcelain and Glass Manufacturing Company. It was their intention to manufacture and supply the demands

Typical Boston and Sandwich Glass Co. products: The tall bellows bottle of opalescent white glass decorated with ribbed loopings was made c. 1835 by Henry Benson. The engraved goblet was especially made at the Sandwich Glass Works and presented to the Rev. Charles S. Nutter when he retired from the pastorate of the Sandwich Methodist Church in 1869.

for pottery, porcelain, and glass. For reasons other than its location, for in this respect it possessed an advantage, the company was forced to close its doors in 1817. It sold out to a group of businessmen who formed the New England Glass Company, which, in contrast to its predecessor, continued in operation for seventy years.

The New England Glass Company was incorporated February 16, 1818. Among its founders were Amos Binney, Edmund Monroe, treasurer, and Deming Jarves, agent. This company soon expanded the facilities of the previous owners, but abandoned the porcelain and pottery making parts of the operation. An extensive cutting shop, manned by experienced European glass cutters working at steam-operated cutting wheels, was soon added, one of the first used in a United States glass works.

The quality of the products from the start was of the highest, although the company catered not only to the well-to-do, but also to the needs of the average householder. In October, 1819, Joseph S. Hastings of Boston, who had been made agent for the company in that city, advertised:

> Chemical wares . . . apothecaries wares, lamp glasses, of all kinds and sizes, astral lamp shades made to pattern, hall or study lamps complete of all sizes, lamps made to fit old — grecian lamps from 12 to 20 inches, richly cut, from 120 to 300 dollars per pair. Chandeliers for churches and hall made to any pattern or drawing. Table and dessert services complete with centre dishes, sallad ditto all shapes, celery stands, plates, dessert, with trim jellies, clarets, champagnes, lemonades, custards, liquers, salts, castors, liquor stands, etc. Plain flint glasses — castor glasses, etc., made to pattern.

As may be seen from this listing, the scope of the company was broad indeed. Nor were its sales limited to local areas. Agents were appointed throughout the country and much glass was made for export, as witness the following advertisement: "Glass for exportation — The New England Glass Company has on hand packages of assorted glassware suitable for the African, W. India, or South American markets, which they offer for sale on reasonable terms." The company once established did not rest on its laurels. In 1829 it began making enameled glassware, which according to *Niles' Register*

> resembles the finest porcelain and pearl; and surpassing what has been done in Europe, has extended it to the making of dishes, plates, nappies, cups, saucers, jelly, custard, and egg cups, salts, knobs, &c. — They are most beautiful articles — attract general attention — and so strike and interest the public taste that already large orders have been given for them.

Deming Jarves left the New England Glass Company in 1825, and other changes in management took place throughout the years. The company continued to operate successfully until after the Civil War when it suffered at the hands of competitors following the discovery of a lime glass formula which could be substituted much more cheaply in the manufacture of tablewares, but which this company refused to use because of its less desirable quality. In addition to the articles already mentioned a wide variety of lamps was manufactured and paperweights were produced from about 1850 onward. In this latter field the New England Glass Company is particularly noted for its delicately blown pear and apple weights, usually mounted on a heavy glass base. The company also produced quantities of lacy pressed glass, commonly referred to today as "Sandwich glass," and probably also produced quantities of blown-three-mold glass, although as yet proof of the manufacture of only one pattern has been established.

In addition, beginning about mid century, numerous products influenced by Bohemian glassmaking were produced. This influence may be especially noted in the character and type of engraving on wineglasses, goblets, and other items during this period, often on cased glasses of two layers, such as ruby over a colorless glass. Many cased glasses were cut and sometimes further embellished by gilding. This Bohemian influence resulted directly from the employment of Bohemian workers who migrated to this country and indirectly from the large quantities of Bohemian glasswares imported and sold here during this period. One of the most noted engravers working in the Bohemian style was Louis Vaupel, who came to the New England Glass Company in 1856 and was superintendent of its engraving department for many years.

William Libbey became agent for the company in 1872 and his son Edward a clerk in 1874. In 1880 the firm name was changed to New England Glass Company, W. L. Libbey and Son, Proprietors. In the 80's the firm produced several types of art glass including a peachblow glass called "Wild Rose"; Amberina, a transparent glass shading from amber at its base to a deep red or fuchsia at its top; Agata, in effect a form of "Wild Rose" decorated with a stain; and Pomona, a delicately textured and stained glass.

In 1888, following a strike by the workers and their refusal to return to work, Edward Libbey moved the company to Toledo, Ohio. At first it continued under the New England Glass Company name, but on April 14, 1888 the firm was incorporated under Ohio law as the W. L. Libbey and Son Company, New England Glass Works. In 1890 the New England Glass Company surrendered its charter, but not until February 3, 1892 did the firm officially become the Libbey Glass Company. The old glassworks buildings in East Cambridge were put to other uses and not demolished for some years; the great chimney, long a Boston landmark, was finally razed in 1921.

Perhaps one of the most widely renowned of all glass companies was the Boston & Sandwich Glass Company, established

Vaupel engraved goblet: Presentation goblet or chalice, free-blown of colorless glass cased with ruby glass and engraved with a hunting scene by Louis Vaupel of the New England Glass Co., c. 1875-1880. The engraving, faceted stem, and cut foot indicate the strong influence Bohemian glassmaking had on American glass in the last half of the 19th century. *Photograph courtesy of Mr. John L. Vaupel.*

in 1825 by Deming Jarves in Sandwich, Massachusetts, on Cape Cod. Deming Jarves was essentially a businessman, not at first a practical glass man. He had, nevertheless, the ability to instill enthusiasm in others and a great desire to exploit new ideas and produce new wares. At Sandwich he established not only a glass factory but also a small village containing dwelling houses, a general store, and a church for his workers. In a sense Jarves was a benevolent father to his workmen, paying good wages and creating favorable working conditions in his factory, not entirely from unselfish motives, for he was astute enough to realize that poor working conditions adversely affected production.

The location he had chosen was extremely favorable, with dockage for ships which could bring raw materials to the factory and in turn easily take the completed product away to centers of distribution. Working under these favorable conditions and adopting a policy of continued production, regardless of sales, Jarves' enterprise flourished and his workers were happy, for there were few of the layoffs that occurred frequently in other factories. According to the *Merchant's Magazine* of 1839 the glassworks at Sandwich covered six acres of grounds, employed 225 workmen, who, with their families, occupied 60 dwelling houses. The raw materials used, per annum, were: glass 600 tons; red lead 700,000 pounds; pearlash 450,000 pounds; saltpeter 70,000 pounds. They consumed 1,100 cords of pine wood, 700 cords of oak wood, and 100,000 bushels of bituminous coal. Seventy tons of hay and straw were used for packing the glass. At this time the glassware manufactured there amounted to $300,000 per year. It was production, to sum it up, that built the Boston & Sandwich Glass Company's reputation. Jarves adopted in this factory the new technique of pressing glass, and indeed was issued on December 1, 1828 his first patent for pressing glass. In 1829 he obtained a patent for a new type of pressed glass knob with a glass instead of a metal screw. In 1830 Jarves patented a mold in which it was possible to press a handled article in one operation, the handle being

"Lacy" pressed glass: Plate, imitation popular cut glass of the period. Possibly New England Glass Co., c. 1825-1830. Bowl, attributed to the Boston and Sandwich Glass Co., c. 1830-1840. Covered sugar bowl, possibly made at either the Providence Flint Glass Works, 1831-1832, or the Boston and Sandwich Glass Co., c. 1830-1845.

molded with and on the body.

In addition to the lacy pressed glasswares produced from 1825 to about 1850, for which the company is justly famous, it also made quantities of blown-three-mold glass, including decanters, dishes, tumblers, celery vases, lamps, and other articles. Cut glass was also produced as well as pressed pattern glass in a wide variety of patterns and forms.

Numerous candleholders and lamps were pressed from both colorless glass and glass of canary, green, vaseline, blue, and amethyst, as well as combinations of colors. Vases were produced in patterns similar to those used for lamps and candleholders. (Many of the patterns used by this company have been recorded in Ruth Webb Lee's books about this factory, and in McKearin's *American Glass*; many of these same patterns were also made at the New England Glass Company.)

A variety of flowered and candy cane paperweights was also made at the Boston & Sandwich Glass Factory, from about 1850 until the company went out of business in 1888. During the 80's the company produced certain types of art glass such as satin glass and other novelties, and vast quantities of perfume bottles and other toilet articles in a great variety of colors, sizes, and shapes. Like the New England Glass Company, the Boston & Sandwich Glass Company was put out of business by striking workers, but unlike the former, it was never resurrected or continued in another location.

The Mount Washington Glass Works was established in South Boston in 1837 by Deming Jarves and under various managements continued to exist until quite recently, in later years under the name of the Pairpoint Glass Works. Little is known of its early production other than that it made both free-blown and pressed tablewares and lamps. In 1869 William Libbey moved the company to New Bedford. In the last quarter of the century it was noted for its art glass, particularly Burmese, patented in 1885, fine quality "crystal," cut glass, and chandeliers. This company also produced during this period both gas and electric lighting goods and numerous pressed glass

articles, about which relatively little is yet known. In 1894 the Mount Washington Glass Company merged with the Pairpoint Manufacturing Company which had been established next door in 1880 as a silverplating and metal wares firm. In 1900 the firm was reorganized as the Pairpoint Corporation. After several subsequent changes of ownership and corporate name this company, then the Pairpoint Glass Works, terminated early in 1958.

In all there were more than forty attempts to establish glass factories in New England prior to 1850, most of them in the early years of the century. With few exceptions, however, many of these companies failed soon after the War of 1812. These exceptions were factories blessed with favorable locations that enabled them to distribute their finished products. Gradually many of these smaller surviving factories were forced to draw their fires because of lack of fuel, generally wood, which they used in tremendous quantities and which became prohibitively expensive as local supplies dwindled.

Only a few factories, well organized and well financed, utilizing the most modern methods of the time and with an eye to the future, achieved a measurable degree of success. Even the two most successful, the New England Glass Company and the Boston & Sandwich Glass Company, found it difficult to operate in the last twenty years of their existence, largely because of the competition from Midwestern factories situated in an area where coal and, in the 1880's, natural gas were abundant and cheap fuels. These economic factors, plus the increasing number of labor difficulties and strikes, finally closed these factories, and with them ended a chapter in the history of New England glassmaking.

The story of glass importing and glassmaking in New England is but one facet of its social, commercial, and industrial story. As such it follows a pattern that was undeviating and fairly widespread. The glass that came in from England, Ireland, Holland, and elsewhere on the continent of Europe was both common window and bottle glass, distributed and used

widely by every class, and fine drinking and serving vessels, lamps, and chandeliers, household furnishings priced for the most part for the upper classes. Enterprising New Englanders after the Revolution envisioned a triple market that, with the aid of a carefully scaled tariff, they could capture and confine to themselves: the two existing markets for window and bottle glass and for the finer wares, that could later be made, and a market, as yet potential only, for cheap household articles that would be available to the poorer classes and to less exacting tastes.

To the task of gaining and keeping these market, then, the New England glassmakers set themselves. Their halting start, the difficulties they encountered through lack of knowledge, lack of skilled workmen, and in a few cases lack of material, the too temporary impetus they received between 1800 and 1816 when their ports were artificially closed to imports, the setback that all but destroyed the industry when England set herself grimly to recapture her trade and destroy competition after the War of 1812, their gradual recovery with the aid of a newly expanding transportation system and a high protective tariff, and their final blossoming in the years before the Civil War and gradual and at first imperceptible decline after it, form a record familiar to anyone with but a cursory knowledge of New England's industrial history. But the details of how the individual factories started, what they produced, what technical advances and changes they made, how widely and intensively they sold, give to that history a sense of struggle, achievement, and failure that were part of the very life of New England in the early nineteenth century.

Suggestions for Further Reading

G. Bernard Hughes, *English, Scottish, and Irish Table Glass,* London, 1956.

Ruth Webb Lee, *Early American Pressed Glass,* Pittsford, New York, 1933.

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George S. and Helen McKearin, *American Glass,* New York, 1941.

George S. and Helen McKearin, *Two Hundred Years of American Blown Glass,* New York, 1950.

Lura Woodside Watkins, *Cambridge Glass, 1818-1888; the Story of the New England Glass Company,* Boston, 1930.

OLD STURBRIDGE VILLAGE BOOKLET SERIES

1. The New England Village Scene: 1800.
2. Something Blue. Some American Views on Staffordshire.
3. Country Stores in Early New England.
4. New England Clocks at Old Sturbridge Village. The J. Cheney Wells Collection.
5. New England Character and Characters as Seen by Contemporaries.
6. Old Sturbridge Village: A Guidebook.
7. Architecture in Early New England.
8. Customs on the Table Top: How New England Housewives Set Out Their Tables.
9. Glass in New England.
10. Early New England Pottery.
11. Country Art in New England, 1790-1840.
12. Child Life in New England, 1790-1840.
13. Textiles in New England, 1790-1840.
14. Early New England Gardens, 1620-1840.
15. Town Schooling in Early New England, 1790-1840.
16. Food, Drink, and Recipes of Early New England.
17. A Primer of New England Crewel Embroidery.
18. The Village Mill in Early New England.
19. Herbs and Herb Cookery Through the Years.
20. Medicine in New England, 1790-1840.
21. Rum and Reform in Old New England.
22. The Garb of Country New Englanders, 1790-1840.
23. The Country Lawyer in New England, 1790-1840.
24. Roads and Travel in New England, 1790-1840.
25. Floor Coverings in New England before 1850.
26. The ABC's of Canvas Embroidery.
27. Glass Paperweights at Old Sturbridge Village. The J. Cheney Wells Collection.