

Virginia Cavalcade,
Vol 9, No. 3, 1959.
 Richmond

Beads, Bottles and Bull's Eyes

As economically precarious as the
 "capricious substance" it produced,
 Virginia's glass industry moved
 west along the rivers.

by Ulrich Troubetzkoy



CAPTAIN John Smith was a bold administrator who put first things first and pointed out impatiently that the Jamestown settlement needed "Carpenters, husbandmen, gardeners, fishermen, blacksmiths, masons, and diggers of trees, roots, well provided" much more than fancier workmen "till the necessary things be provided." That he was overruled to a great extent by political and economic pull in England made Virginia glassmaking the first North American industry which produced glass as the first manufactured export and brought the "glasse-men" who caused the first labor troubles, from grumbling to sabotage.

However, the history of Virginia glassmaking did not begin and end at Jamestown as many have supposed. In Richmond alone there were at least six glassworking companies and the last factory was operating as late as 1925, when it was burned. There are records of others at Alexandria, Fredericksburg, Norfolk, Suffolk, Lynchburg and Bristol, and the economics of early bottlemaking were such that there may have been plants making at least common glass in other parts of the state.

Glassmaking at Jamestown seems a braver venture when we look at it in the perspective of glass manufacture in England where the industry was still quite primitive. Flint, or lead, glass had not yet been invented, nor had plate been cast, and the blowing of window glass and bottles was still in a pioneering stage. Yet, already in England, wood for fuel was becoming scarce and alkalis for the glass batch, high priced. All these materials were, and still are, abundant in Virginia and the English adventurers who invested in the company meant to cash in on them.

There were a number of incentives to Virginia glassmaking besides the growing shortage of fuel in England, some to be found in the complex of Baltic trade. The Muscovy Company was deriving the largest part of its profit from the transport to England of such products as naval stores, glass and soap ashes from heavily-forested Russia and Poland. However, there were many obstacles to freedom of trade between England and the northern European ports: the instability of the Russian government, Dutch competition; the ice which limited trade; the King of



Remains of three glass furnaces at Jamestown uncovered by archaeologists who began work in 1948.

Denmark's tax on cargoes and the attempts of the Hanseatic League to deprive the Russian company of right of way in the northern seas.

It looked as though colonization of Virginia might supply a large number of products the English were being forced to buy from foreign nations. Later on this attitude would change and the English would desire only raw materials from what might prove too-competitive colonies.

In the list of adventurers who invested money in the Virginia Company we recognize a number of names associated with the development of the glass industry in England. Sir Percival Hart, of Lullingstone Castle, Kent, invested thirty-seven pounds, ten shillings, in the Virginia venture. He was one of the heirs of the patent of his uncle, Sir Jerome Bowes, for the sole importing of Venice glass in 1616.

Sir Robert Mansell-Mansfield put nearly one hundred pounds into the company. A pirate-chaser, he backed a number of expeditions, including those of Hudson and Gates, and eventually became a vice-admiral of England. He was recorded as being interested in the glass business as early as June 1, 1615 and some time before May 1618, Mansfield, the Earl of Pembroke and others "had got the sole patent for making all sorts of glass with pit-coal."

The influential courtier, Sir Edward Zouch, the agent "for sending certain dissolute persons to Virginia" in November and December 1619, was another of those interested in the company who likewise had a stake in English glassmaking patents.

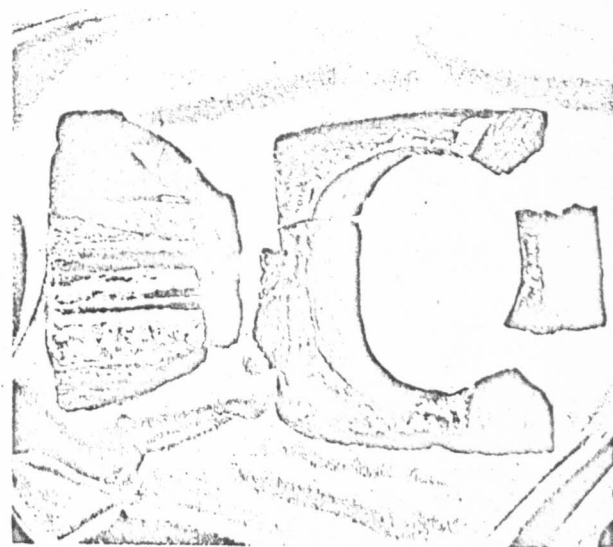
When Captain Christopher Newport and the Second Supply arrived in 1608, he had private instructions to stay until he found a nugget of gold, a route to the South Sea or one of the lost colonists of Raleigh.

Compared to these tasks, even glassmaking seemed easy.

He brought with him eight "Dutchmen" (probably Germans) and Poles who were to produce pitch, tar, glass and soap ashes and to erect sawmills. Although the "glasse-men" proved a volatile and unruly lot, Newport was able to take back to England that fall "tryalls of glass." That was quick work. Probably they had brought glass-pots along and Captain Smith must have had the "glassehouse" ready for them "in the woods near a myle from Jamestown." They made their furnaces there, of rounded river stones set into clay.

Glassmaking was a romantic, if not a thoroughly economic success. Smith's economic theories about glass and naval stores were a good deal sounder. He

Fragments of the glory holes of glass furnaces built by early settlers.



"In the woods near a myle from Jamestown," as described by Captain Smith, archacologists began their search for glass-house remains.



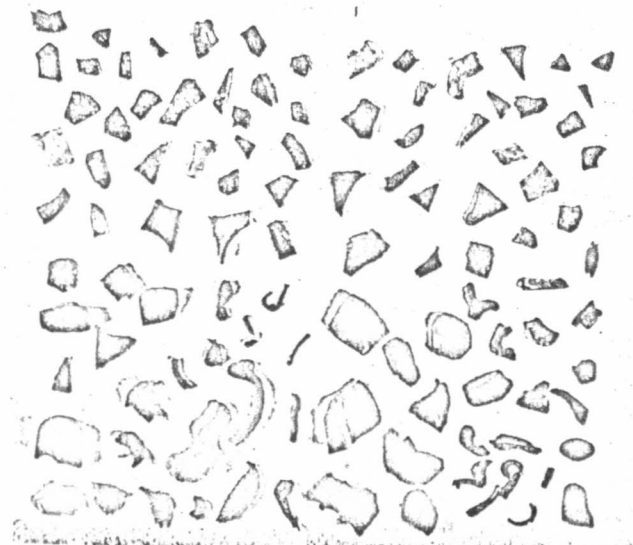
wrote to the Treasurer and Council in London.

It were better to give five hundred tun for them in Denmarke than send for them hither, till more necessary things be provided, for in over toyling our weake and unskilful bodies to satisfie this desire for present profit, we can scarce ever recover ourselves from one Supply to another.

Yet it was Smith who managed to keep the project going with some success until he was seriously injured in a gun explosion and forced to return to England.

Four of the Germans were also carpenters and were sent to build a house at Werewocomoco for Chief

None of the fragments of glass found was large enough for positive identification.



Powhatan in late December of 1608. Afterwards they loitered in the village and broke the winter monotony by plotting to arm the Indians and bring over to their side the malcontents of Jamestown. The glasshouse served as a rendezvous whence swords, hatchets, fire-arms and powder were smuggled to the Indians.

After Smith's departure in 1609 came the hideous "Starving Time" and the settlement would have been abandoned except for the providential arrival of Lord Delaware. It was such a close call that his ships met that of the defaulting colonists at the mouth of the bay.

The absence of Smith's discipline and the subsequent tobacco craze thrust aside all thoughts of glassmaking, so that when Captain Argall arrived in 1617, he found the glasshouse in decay.

In London, at a preparative court held for Virginia on the afternoon of June 11, 1621, the glassmaking project was formally revived:

Intelligence was given that one Captain Norton made an offer & would undertake to procure 6 straungers skillfull in makinge of Glasse and Beads to goe over to Virginia to be employed in the saide work for the Company for no other consideration than onely the halfe profitts of their labors, and the said Norton would likewise goe att his owne charge and carry with him some servants and is contented to putt himselfe uppon the consideration of ye Company for what hee shall have to dyrect and oversee the said persons in their saide works, concerning which the Court hath referred him to the former Committee to be treated and concluded with.

Norton was to bear the expense of transportation and the company was to furnish equipment. Within three months after his arrival, Norton was to erect "a Glass Furnace and to make Glasse and Beads for the



Early glass factory shown on one side of the Richmond Glass Works flask.

Company" and to have a monopoly for seven years on the manufacture of "round Glasse drinckinge Glasse or Beads." He was to retain no beads, because these were a medium of exchange in the Indian trade in which the company had exclusive right.

As so often happens, Norton's budget exceeded the original estimate, so on July 12, a roll was opened for private subscribers for "The advancement of the Glasse furnace." Nicholas Ferrar was chosen by the adventurers to act as treasurer. Adventurers underwrote ten pounds "a peece" for the glass venture and by November the roll had come to about 500 pounds.

Meanwhile, Captain Norton, his family, personal servants and his "gange" of six Italian glassmakers had sailed on the ship *George* and reached Virginia in the summer of 1621. Norton died before they could start making the proposed beads for the Indian trade, table glass, or bottles and crown glass for sale in England. Sir Edwin Sandys, the Treasurer, reluctantly took over Jamestown's most difficult labor relations job, interrupting his peaceful work of translating Ovid to wrangle with the intractable Italians whom he described in less scholarly language as "A more damned crew hell never vomited."

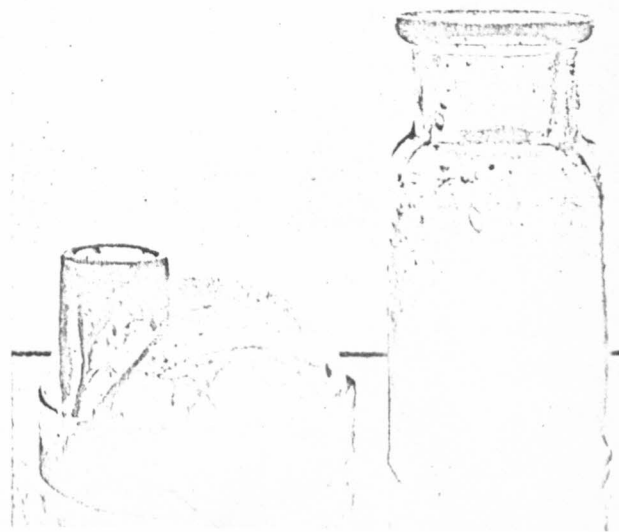
Apparently, the Italians were unhappy in the wilder-

ness and kept delaying the glass manufacture on one pretext or another. They complained about the sand from the beach at Jamestown, so Sandys sent a shallop to the Falls, but still the glassmen complained that it "would not run"—a trumped up excuse if there ever was one, since so much glass was later made of the sand at Richmond. Finally, at Cape Henry "they lighted on what they like," but to be on the safe side, Sandys wrote to Ferrar on April 8, 1623, asking that he "send us two or three hogsheads out of England."

The company had expressed anxiety that the "commodities of glass and beads should not be vilified by two common a sale to the Indians," but they worried needlessly. If beads were made at all, they were so rare that first excavations by Jesse Dimmock in 1931 and later ones of the National Park Service under the supervision of J. C. Harrington, have to date uncovered no trace of beads among the glass-working materials in the debris of the glasshouse. A pamphlet by Maude Pollard Hill (1933) refers to "a number of beads that have been found at Jamestown: as having vertical white stripes, but these were probably imports. The intention to make beads is well documented, but archaeological evidence is lacking. Mr. Harrington believes it likely that the second glasshouse was operated on the site of the first. Unless another is uncovered in the future, it looks as though the "bead mint" was no more than wishful thinking—and that the beads probably came to Jamestown from abroad, perhaps via the Bowes-Hart monopoly.

On top of everything else, the Indian troubles now came to a head. Three hundred and forty-seven were killed in the massacre of 1622, but the Italians and the glasshouse survived.

An ink bottle and a drug, or shoe shine, bottle, dug up in Mathews County.



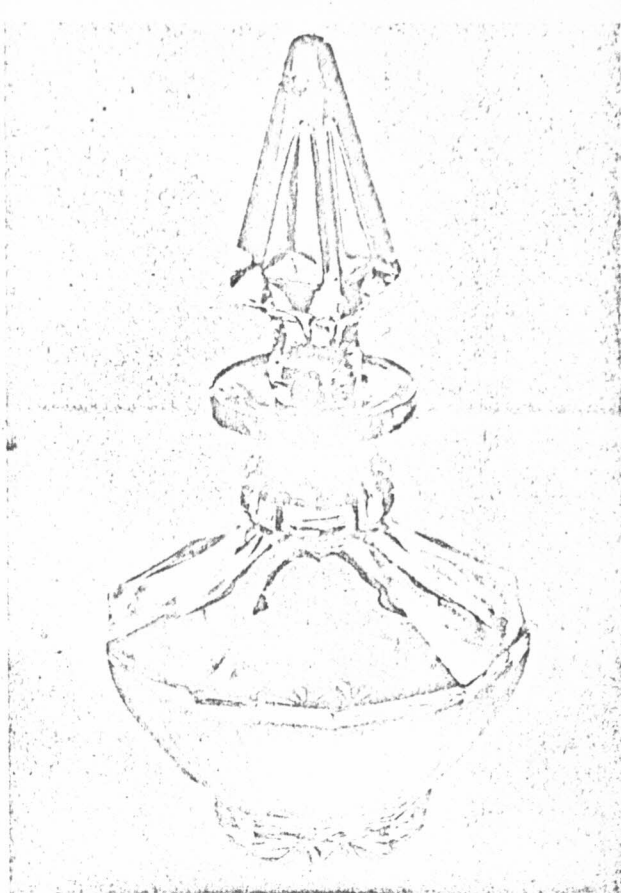
Sandys charged that the foreman, Vicenzio, broke the furnace with a crowbar into "a thousand shivering pieces," to get an excuse to return to England. Vicenzio also beat his wife so badly that Sandys was afraid he would murder her. The Minutes of the Council and General Court for the years 1622-29 record: "Yt is ordered yt Vicentia & Bern[ardo] shall have their passe to goe to England, they entering into a thousand pound bonde to ye Adventurers of the glasse workes to serve the remainder of ye tyme of their Covenants . . ."

By 1624 the sabotage made little practical difference, for James I revoked the Company's charter and Virginia became a royal colony. Colonial manufacture was discouraged, because the government wanted only raw materials and tobacco from Virginia. As long as Virginia remained a colony, glassmaking was in abeyance. It is possible, however, that small private glassworks existed on the large plantations of the wealthy. On the grounds of Governor William Berkeley's "Green Spring," excavation has turned up a heavily glazed pot and specimens of bottles and roundels (bull's-eyes). In his archaeological report on "Green Spring," (1955) Louis R. Caywood says:

It is difficult for us today to realize that here in Virginia, in the middle of the seventeenth century, flourished an estate which had servants and slaves in number. There were special buildings for artisans where spinning and weaving, glass blowing, pottery making, silk culture, woodworking, tool and implement making, and even a distillery and a winery, were undoubtedly part of the plan.

Although glass manufacture in the colonial period was carried on more conspicuously in Massachusetts, New Amsterdam, Pennsylvania, New Jersey and Maryland, Virginia did remain a steady customer and processor of glass and some glass was manufactured at least in northern Virginia. Early windows were often merely sliding panels, but glass panes were used in homes of any pretension and most were imported.

In 1684 Colonel William Byrd ordered through his London agent 400 feet of glass, with drawn lead and solder in proportion. Part probably was for his own use and some for re-sale in the colony. Glass appeared often in the inventories of estates and account books of such men as Ambrose Fielding, of Northumberland (1674), Edmund Berkeley, of Middlesex (1718), Dr. William Small, in Williamsburg (1758-64), Philip Ludwell, of "Green Spring," who died in England in 1767, and Peter Presley Thornton (1781), aide de camp to Washington.

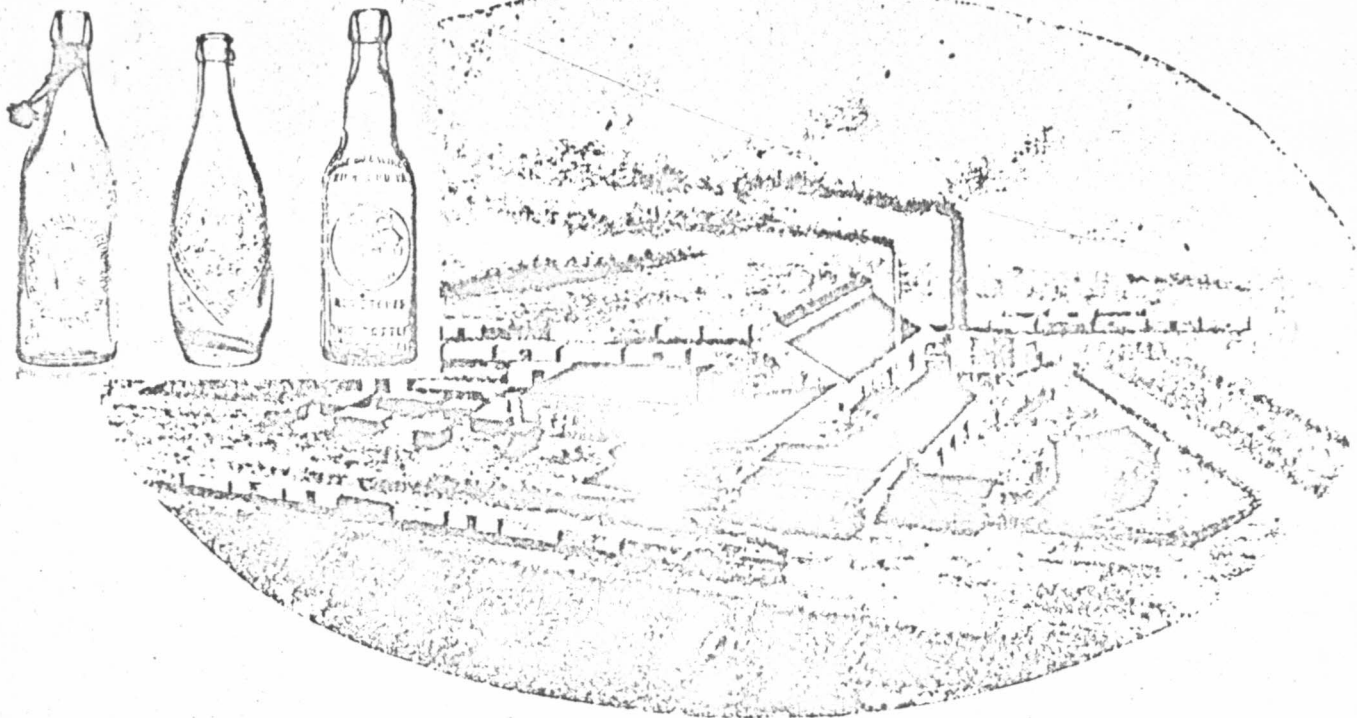


One of Henry Clay's brandy decanters, which is attributed to Isaac Duval.

One tantalizing item in the papers of Robert Carter, of Lancaster, is the listing in the inventory of "7 garden Virga Bell glasses" and "2 English Ditto." Possibly the former had been blown in the Old Dominion, but the record does not say where.

A glassworks at Alexandria, established in 1787 and employing 500 hands, is included in N. Hudson Moore's check list of American glass factories. J. P. Brisson de Warville, who visited Virginia in 1788, had an interview with George Washington at Mount Vernon, during which the General told him about a glassworks forty miles from Alexandria, which had exported 10,000 pounds of glass the previous year. Possibly he was referring to the large glass factory at Monocacy which he mentioned in a letter to Jefferson, February 13, 1789.

The Census of 1880 mentions that a glassworks had existed in Richmond in the early nineteenth century. Deming Jarves, of Boston, (later with the famous Sandwich Glass Co.), complained that a Dr. Adams of Richmond was among those who enticed his skilled workmen away from the Essex Street works (Boston Crown Glass Co.) by promises of higher wages. "A few years experience," continued the Census writer,



William Ready, who was general manager of the American Glass Works, says it was the first in Virginia to adopt semi-automatic equipment for its extract and beverage bottles.

"convinced them of the fallacy of the increased pay, for, after very heavy losses, the works were abandoned and the workmen thrown out of employ." More cheerful was the *Virginia Patriot* for February 6, 1817:

The Glass House of Samuel G. Adams is now finished. This is Intended for Crown Glass. The building is of brick. It is expected that glass will be made next week; and it is to be hoped that hereafter Boston glass will not be considered the best in the U. S.

About a year later, Dr. Adams was advertising in the *Patriot* that orders for coach or window glass would receive immediate attention at the factory, on Broad between 22nd and 23rd streets. It was customary for early glass factories to let their workmen have, after hours, the use of the corner pots to blow glass as they fancied and it is possible that some of this offhand work still survives in Richmond. Samuel Adams, probably Richmond's first glassmaker, was the son of the well-known Richard Adams and the brother of Dr. John Adams. In 1817, according to Mary Wingfield Scott's *Old Richmond Neighborhoods*, he built a large brick house at the northwest corner of Broad at 22nd, close to the glass factory.

The *Richmond Daily Dispatch* for December 8, 1855, was enthusiastic about another glass factory: "The Glass Factory, in Rockets, is now in operation, and turning out some as pretty specimens of blown glass as anyone need wish to see."

Although not mentioned by name, this was probably Gavinzel's Glass Works, for on February 4, 1856, the

Dispatch carried the notice that "Yesterday morning the new glass factory in Rocketts, owned by Dr. Gavinzel, was set on fire and completely destroyed. The loss was estimated at \$13,000 and was partially covered by insurance. The plant had been in operation only a short time."

But Richmond was not long without a glassworks. The *Dispatch* for Tuesday, September 16, 1856, referred to a glassworks at Rocketts going into operation "yesterday" to make "tumblers, decanters and other glass ware." Again the name of the works was not mentioned. However, the *Dispatch* for December 20, 1856, refers to the glassworks "below Rocketts, Mr. Jacob S. Atlee, Proprietor" and a manuscript reminiscence by L. B. Waller, in the files at the Valentine Museum, says: "The first Glass Factory in Richmond was located on the same Street (Water Street) just before the Cars turn to go to Fulton and was owned by Mr. Jacob S. Atlee. They made a cheap greenish Tumbler, I remember." Probably every house in Richmond had these tumblers in its kitchen at one time, but this common glass had such a high mortality rate that it has been difficult to find authentic locally-made pieces to illustrate this article.

One of the first factories in the country to specialize in fine lead glass—or crystal—both clear and colored, was established at Wellsburg, Brooke County (now West Virginia) by Isaac Duval in 1815. In 1831, there were two flint glass furnaces at work, but they were demolished in 1854.

Wheeling, in Ohio County, was still included in the state of Virginia when the first window glass factory (1821) and the first flint glass factory (1829) were founded, the latter by John and Craig Ritchie. There is a pressed window pane, made in this factory before 1834, in the Corning Museum of Glass.

Cheap fuel soon attracted other firms. The company founded by the Sweeneys in 1835 and bought by J. L. and J. T. Hobbs in 1845, eventually revolutionized the glass industry by large-scale pressing of glass and by the substitution of bicarbonate of soda for soda ash to improve the quality of lime glass so that this cheaper glass could compete visually with fine crystal.

In the ante-bellum period, while West Virginia was still a part of the Old Dominion, many pressed pieces of "Sandwich" type were made in West Virginia factories. Many historical flasks also originated there. Authenticated in the Corning Museum are the following: Lafayette and Andrew Jackson (Knox and McKee, Wheeling); Benjamin Franklin (Wheeling Glass Works); "Fair View Works" and an unidentified bust (Wheat, Price, Wheeling); an eight-pointed star with the inscription, "R. Knowles & Co." (South Wheeling); and a Wellsburg flask inscribed "M' Carty and Torreyson." The Moore checklist of Virginia glassworks names another, the Excelsior Company, at Martin's Ferry, as one established in the state by 1860.

Although Virginia was not reported in censuses after 1880 as a glass-producing state, only as a supplier of such raw materials as silica and soda ash, common glass at least was still being made here. The Southern Glass Works at the foot of Seventh Street in Richmond was already doing a small business when it was bought in 1909 by C. F. Sauer, Sr., who changed its name to the American Glass Works. He brought an Englishman, Edward Thomas Scrutton, to run the plant which employed 60 glass blowers to furnish bottles and jars for the Sauer extracts. About 70 percent of output was sold to outsiders, principally for beverages and drugs. By 1911, the factory was employing about 175 workmen. When the American Glass Works burned in 1925, Mr. Sauer turned from bottles, hand-blown into a mold, to machine-made bottles, following the inexorable industry trend.

Slag, glass fragments and similar evidence of old glass factories indicate that bottle-making, at least, was carried on in nearly every fairly well populated section of the state. Makers of fine glass would have been less apt to escape documentary notice and it was profitable to import luxury glass. Before the mechani-

zation of bottle-making, however, bottles were indispensable but bulky, difficult and costly to ship, whereas they were comparatively cheap and easy to make where they were needed, when ingredients and fuel were readily available as they were in Virginia.

Cheap fuel—first, coal, and then natural gas—the opening of the western markets by water and railroad transportation, and the mechanization of glassworking favored the growth of the great glass combines which today make small glass plants for independent manufacture a highly hazardous venture. Today, there are only five commercial plants for making hand-blown ware. As for the mass-produced common articles, such as machine-made tumblers, bottles and plate glass, the capital investment in heavy machinery alone would make it prohibitive for small local manufacturing.

Glassmaking in Virginia has now rounded out three and a half centuries, since free blown glass is again being produced at Jamestown, in the glasshouse restored as a working exhibition for the Jamestown Festival. Although the original oak logs have been superseded by gas as fuel and a pre-mix has taken the place of local beach sand and potash, the old methods of taking a gather of glass, blowing, shaping and annealing are practiced by glassblowers in seventeenth century costumes.

Bottles, vases and pitchers are being made at Jamestown today—a Virginia Company dream come true — but still no beads!

