

Paul McNally

Table Glass in Canada 1700-1850



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Front Cover: *Left* British, lead glass tumbler, late 18th century;
centre Anglo-Irish, cut, lead metal decanter, first
quarter 19th century; British target finial stopper,
1760-70; *right* British, lead metal, stemmed glass,
ca. 1825-1840s. (Photo by R. Chan.)

Back Cover: British stemware, 1740-70, Fortress of Louisbourg. (Photos
by Danny Crawford.)



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ABSTRACT

This report describes and discusses representative glass artifacts from 15 archaeological sites excavated by the National Historic Parks and Sites Branch, Parks Canada, between 1962 and 1974. The objects are chosen to illustrate either the typical wares of the sites excavated, or the history of glass manufacture and styles during the period, or both.

Preliminary information consists of the terminology, technology and history of glass manufacture discussed in sufficient detail to clarify the descriptions and discussions making up the survey, which is organized chronologically in three sections. The first, reflecting the dominance of France in early Canada, comprises artifacts originally from France or her trading partners between about 1700 and 1760. The second comprises British-made glass from about 1760 into the 19th century, a period in which Britain was dominant politically in Canada as well as economically in the manufacture and trade of glass around the world. A third section describes the early products of American glass factories which began, though slowly, to make their way onto Canadian tables as the middle of the 19th century approached.

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INTRODUCTION

The artifacts discussed and illustrated in this study come from a variety of sites excavated by the National Historic Parks and Sites Branch between 1962 and 1974 and cannot be regarded as evidence of the life-style of a unified culture. In fact, the collection represents different societies and different social and economic periods. However, a collective study of the table glass of the site collections is worthwhile for two reasons. First, the table glass excavated by the Branch has often differed in minor but significant ways from what the glass historian would expect, or has represented styles or periods of glassmaking for which there is little documentation in the history of glass. Such shortcomings of the standard literature on glass history in its application to Canadian historic site archaeology require correction. Second, there is a stage in archaeological enquiry when it is methodologically appropriate to tally up and articulate existing hypotheses and to solicit others (Clarke 1968: Fig. 2). The study of individual site collections of table glass has reached that stage. Consequently, the purpose of the report is twofold: selecting from and supplementing the general history of glass for the peculiar needs of Canadian historic sites archaeologists, and advancing hypotheses about the trade in table glass and the use of table glass in Canada from ca. 1700 to 1850.

The synthetic or multi-site format demanded by these intentions has not been without benefits. For instance, I have been able to select for illustration and discussion examples of artifact types from many sealed excavation contexts and accordingly to suggest approximate dating and attribution for otherwise puzzling groups of objects. Conversely, it has been easy to avoid arbitrary dating and attribution for some ubiquitous objects. The chronological, geographical and cultural staging of the numerous sites has provided a constant source of comparisons and contrasts and has suggested in general overview the growth and decline of styles, and indeed the absolute growth of table glass usage for most of the populations represented. The collective study of table glass from many archaeological sites will interest a wider audience than individual site reports normally appeal to.

The sites from which the glass was excavated are indicated in Figure 1, and the historical significance and occupation period(s) of each are briefly outlined in Appendix A. Table glass in Canada until about 1760, that is, during the French period, originated from several regions in Western Europe. Thereafter, with the victory of the British over New France, British glass is almost exclusively found in Canada until the first half of the 19th century, when American wares begin to appear, although only gradually. These general phases reflect the political and commercial history of the Canadian colonies, but further



Figure 1. Sites represented in the survey: 1. Castle Hill, Nfld.; 2. Fortress of Louisbourg, N.S.; 3. Fort Anne, N.S.; 4. Beaubassin, N.S.; 5. Fort Beauséjour, N.B.; 6. Fort Gaspereau, N.B.; 7. Fort Amherst, P.E.I.; 8. Roma Settlement, P.E.I.; 9. Wreck of *Le Machault*, Que.; 10. La vieille maison des Jésuites, Que.; 11. Artillery Park, Que.; 12. Fort Lennox, Que.; 13. Fort Coteau-du-Lac, Que.; 14. Fort George, Ont.; 15. Yuquot, B.C.

delineations result not only from political history but from the nature of the sites excavated by Parks Canada. Most of the site collections derive from military establishments. Heavy population on such sites was naturally concentrated during wars, of which there were several in the period considered, including the French-Indian war, the Seven Years' War, the American revolutionary war, and the War of 1812. Also, the cultural remains on such sites represent the life-styles of French and British soldiers stationed temporarily in the New World more than they represent the life-styles of domestic, permanently settled people. However, such concentrations are only a bias, for there are sites or portions of sites that represent a great variety of societies: French and English, urban and rural, commercial and religious as well as military and domestic. The different kinds of site populations suggest interesting comparisons between the glass found and its connection with their occupancies.

The primary classification of table glass is suggested both by the general phases of political and commercial history in Canada just mentioned and by the technical and stylistic traditions of the glass industry in the 18th and 19th centuries. The glass is divided into three groups: Continental European glass, ca. 1700 - ca. 1765; British glass, ca. 1750 - 1850; and American glass to 1850.

GLASS: MANUFACTURE, DECORATION, ANALYSIS

Before beginning discussion of the table glass artifacts it is necessary to briefly review some of the technology involved in fusing, shaping and decorating table glass of the 18th and 19th centuries. Evidence of manufacturing and decorating techniques is a major diagnostic feature of the glass discussed and will be referred to frequently. Even stylistic attributes can be greatly affected by technology. This survey of technology is limited to matters germane to the glass described in this study.

Glass Compositions

Glasses are formed by the fusion of silica with a fluxing oxide - sodium oxide or potassium oxide - and at least one stabilizing oxide - such as lime (calcium oxide), lead oxide, magnesium oxide or aluminum oxide (Peddle 1927: 74-75). The fluxing oxide drastically reduces the fusing temperature of the silicate. A stabilizing oxide renders the glass insoluble in water and stable. These oxides also enhance the working properties of glass by lowering its melting temperature still further and extending its working time (or viscosity range) by varying amounts. "Cullet" - broken waste glass - may also be included in the glass batch and is a useful flux. Modern glasses are normally classified according to their primary stabilizing oxide, so that one speaks of "lime glass" or "lead glass," or other of the many glasses with different properties for different applications (Peddle 1927: 75).

Historically, the majority of glass has been lime glass, of alkali-lime-silica composition. Until a chemical process (the Le Blanc process) of deriving soda from common salt was developed in 1790 (Biser ca. 1899: 30), the alkali was normally in carbonate form - soda or potash obtained from the sea or the forest. In some glassmaking areas, the industry would rely on soda from the lixiviated ashes of seaweed; in regions where forest was plentiful wood and bracken ashes provided potash (Hodkin and Cousen 1925: 5). Soda and potash could be used in combination as a flux. The stabilizing agent, excepting impurities which acted as stabilizers, was almost always lime until the late 17th century, after which some glass was made using lead oxide.

With crudely refined batch materials, the simple mixing and firing of alkali, lime and sand allowed fabrication of common or "bottle" glass, normally discoloured green because of the presence of iron. However, glassmakers aspired to produce colourless glass which imitated rock crystal: indeed, colourless glass was and is called crystal

(*cristallo*, *kristall*, *cristal*) (Perrot 1962; Thorpe 1961: 136). Making colourless glass, however, was a much more deliberate and complicated procedure than making common glass. The batch ingredients had to be carefully selected and refined for purity, and an appropriate quantity of decolouriser had to be added. The decolouriser was a metallic oxide, usually manganese, which coloured the glass toward the red end of the spectrum, cancelling out the green tint which was inevitably present because of iron oxide (Peddle 1927: 153).

Even though glassmakers had limited chemical sophistication before the 19th century, it is possible to generalize about the properties of certain different metals because historic glassmakers tended to adhere pragmatically to whatever formula was successful for them (Bosc d'Antic 1780: 122; Angus-Butterworth 1948: 43); consequently, entire national industries produced crystal of as nearly uniform composition as the consistency of batch materials permitted (Elville 1951: 256-61). The first post-medieval colourless glass, Italian *cristallo*, was perfected in Venice and used soda for its alkali, presumably because seaweed, such as Spanish barilla, was more readily available to Venice and Altare than forest products. By the 17th century Italian crystal was imitated in various European countries. In Bohemia, rock crystal engravers at the beginning of the 17th century began decorating artificial crystal. Although these efforts were successful, it was found that the soda-lime glasses were not suitable for producing thick-walled vessels that would give more liberty to the engraver and cutter. Consequently, a new potash-lime-silica crystal, using the forest products near to hand, was perfected about 1670 (Hettes 1958: 18), and this became the standard crystal of the Bohemian and imitative *façon de Bohême* industries during the 18th century. Just slightly later was the Englishman Ravenscroft's first glass of lead (Thorpe 1969: 116ff.), a crystal of potash-lead-silica composition, perfected during the late 1670s. This metal was the usual medium for English table glass during the 18th century, and in the course of the 19th century came to be accepted as the standard of crystal ware for the bourgeois table.

These three crystal metals - two lime glasses and one lead glass - had different properties which either caused or made possible the most fundamental stylistic distinctions in 18th-century glassware. The different virtues of the metals are sometimes described with ebullience, but their properties can be empirically recited, at least on a comparative basis. The major contrast is between the lead glasses and the lime glasses. Substituting lead for lime lowers the melting point of the metal by about 200°F, and since a very hot mass dissipates heat at a greater rate than a relatively cooler one, this change means a longer working time, or viscosity range, for lead glass (Elville 1951: 37). As well, the substitution of lead for lime sharply increases the specific weight of the metal, and the refractive power is accordingly increased (Angus-Butterworth 1948: 37). Finally, lead glass is "softer than lime glass and can be cut and polished more readily" (Hodkin and Cousen 1925: 103).

The difference between glasses utilizing different alkalies is more subtle, but most investigators agree that potash makes a more colourless glass than soda because it reduces the effectiveness of colouring oxides (Angus-Butterworth 1948: 35; Hodkin and Cousen 1925: 103). This, of

course, pertains to both lime and lead glasses: English lead crystal used a potash flux, as did Bohemian lime crystal, while Italian crystal was fluxed with soda. In comparing the two main species of lime glass, viscosity seems to be the main feature of further interest. The viscosity range of all lime glasses tends to be short, compared with lead glasses. Both alkaline oxides increase fluidity and extend the viscosity range, but sodium more so than potassium oxides; hence the viscosity of potash glasses is generally higher than that of soda glasses (Morey 1936: 551). The property of greater viscosity presumably leads to a thick-walled vessel, an essential feature of Bohemian crystal (Vavra 1954: 137). However, the effect is variable since the proportion of lime to alkali can be varied: a reduction in alkali and corresponding increase in lime not only decreases viscosity range but also creates a glass that stiffens rapidly when it chills, a useful attribute in extensive hand manipulation (Hodkin and Cousen 1925: 100). Comparison of the hardness of soda-lime and potash-lime glasses seems inconclusive and contradictory, but on the whole, potash glass is apparently harder and also lower in density and refractive index than soda glass (Hodkin and Cousen 1925: 25, 94, 96).

While the glass industries of the three major glassmaking nations adhered quite consistently to these norms of crystal metal during the 18th century, the glassmakers of other nations sometimes continued to make rather primitive, non-crystal or common glass tablewares, or in imitating the crystal of the main centres, created glasses that for one reason or another are distinctive and significant. This topic is pertinent to the study of table glass from historic sites of the French period in Canada because of the nature of the French glass industry in the first three-quarters of the 18th century.

In France, common glass was still used fairly extensively in some places to make table glass during the first half of the 18th century (Barrelet 1957: 104). Such glass is readily recognized because it is green or green-hued. It was composed essentially of sand mixed with vegetable ashes (Chambon 1955: 300). In France and the Low Countries this glass was called *verre fougère*. It was stable only because of the inclusion of impurities, normally aluminum and magnesium oxides, in the potash and sand (Chambon 1952: 793), and green because of the inevitable presence of iron oxide.

Apparently when glassmakers tried to refine the batch materials they used for common glass to make colourless glass or crystal, they sometimes did not recognize the need to add lime to ensure stability in the glass. Bosc d'Antic, in his 1760 memorial on the French glass industry (1780: 117), remarked that few people were aware of the need for the third constituent. The alkali-rich glass that such a mistake would cause was water soluble to a greater or lesser degree. In the presence of humidity the alkali leached out and left a devitrified surface which initially looks like crazing. Such a surface is called *crizzled*. At their worst, objects of metals too rich in alkalies would decompose before the merchant could sell them (Bosc d'Antic 1780: 123); less severe cases have survived but are *crizzled*, some more so than others. Such *crizzled* metal, much of which has a tendency to turn pink as it decomposes, has been identified as characteristic of one distinct

group of 18th-century glasses attributed to France (Charleston 1952b: 18-19).

Contemporary descriptions of glass and glassmaking in France in the 18th century make repeated reference to a quality of glass called *verre blanc commun*, which falls between common green glass and crystal. Chambon (1955: 300) defines *cristal ordinaire* as Venetian-style soda-lime glass, no longer deserving the name crystal because it was considered inferior to both the new Bohemian and English crystals by the 18th century. There is a distinct group of apparently French stemware in muted Venetian forms which seems to bear out this hypothesis, but in the main it may be remembered that during the slow development of a fine glass industry in France, much sub-standard colourless glass, like the crizzled glass discussed above, must have been made. Also, there was a great quantity of glass made for export from Bohemia and probably from England which was also probably not of the best quality (Vydrova 1972). As the Diderot author of an article on "*Crystal Factice*" commented in 1754, good crystal "n'est proprement qu'un beau verre blanc" (*Encyclopédie* 1966: 526).

Perhaps the single most admired crystal in the 18th century was English lead glass, the secrets of which were only haltingly deciphered by imitators during the course of the century, for the process of making lead glass was more complex than simply adding lead oxide. It was evidently also necessary to fire with coal and to employ covered pots (Charleston 1959: 157). However, glassmakers on the Continent who wished to emulate the English crystal could and did add some lead as early as the late 17th century (Charleston 1957; Chambon 1955: 300), but the glass thus produced would normally have a lower lead content than English metal, which was remarkably consistent in its composition all through the century (Elville 1951: 259-60). Thus, there were "demi-lead crystal" metals made during the 18th century (Chambon 1952), and some artifacts of this type of metal have occurred in mid-century contexts at the Fortress of Louisbourg (McNally 1974).

Off-Hand Manufacture

The off-hand process dates from the 1st century B.C. when the blowpipe was invented. It involves the use of only three basic tools (although others may be used for specialized tasks): the blowpipe, the pucellas and the pontil. The blowpipe, an iron tube, is dipped and rolled in molten glass (called metal) to form a gather. The gather is roughly shaped by rolling on a flat polished slab called a marver. The worker then blows through the blowpipe to force a bubble of air into the glass, and the bubble expands as the air heats. The incipient vessel is called a parison. Further shaping of the glass is done with pucellas, a simple pair of tongs which may be wood-tipped. While the blowpipe is rolled back and forth, the parison may be manipulated in its plastic state by pressure from the pucellas. Further gathers of glass may be added to form stems, feet, handles, or applied decorations: glass at working heat fuses perfectly on contact. The vessel is accordingly

completed except for the upper rim which is still attached to the blowpipe. To shape this portion the parison must be transferred to the pontil, which is stuck to the bottom of the vessel by means of a very small gather of glass. The vessel is cracked off the blowpipe by a tap of the pucellas which have been dipped in water to cool the area where the break is desired. The vessel, held by the pontil, is reheated at this time (and at any other time that it becomes too stiff to work) and the pucellas and sometimes shears are used to shape and smooth the rim or lip. Another sharp tap knocks off the pontil and the vessel is ready to be annealed, or cooled at a controlled rate to avoid the instability of internal stresses which result from one part of the glass cooling more quickly than another. During the 1850s a cradle device known as a spring pontil, snap case, etc., was invented and used in lieu of the pontil on most vessels (Elville 1961: 188). Of course, this meant that the pontil scar no longer appeared on the base of most articles.

Moulding Glass

The earliest and most fundamental use of moulds constitutes a slight refinement of the initial shaping of the parison, obviating some of the marvering in off-hand manufacture. For simple vessels such as tumblers, a part-sized unpatterned dip mould might be used before or during inflation to establish the basic shape of the vessel, which would be retained during further expansion and finishing. Since this type of moulding leaves no mould lines and since the rest of the process is the same as in off-hand manufacture, there is no way of distinguishing a vessel made in this manner from a similar product of purely off-hand manufacture.

Pattern Moulding

Pattern moulding employs a part-sized mould made of metal, which not only forms the approximate shape of the vessel but also impresses a pattern, usually ribs or diamonds, onto the parison. When the vessel is expanded to full size the design is retained, but the pattern-moulded vessel takes on two distinguishing characteristics of this kind of manufacture. First, the design is diffused to both sight and touch because of the expansion, as are any mould lines caused by a mould composed of more than one part. Second, the interior and exterior surfaces of the patterned glass take on a convex-convex relationship. This is because the metal is thicker after moulding, where it has flowed into intagliated grooves of the mould, and the thicker areas of the parison tend to expand less when free blown than the thinner areas (Lorrain 1968). The interior/exterior surface relationship of a contact-moulded vessel, by contrast, will be concave-convex. Pattern moulding was in widespread use in Europe throughout the 18th century, but became uncommon during the first half of the 19th, probably eclipsed by the production of contact- and press-moulded wares, with more sharply defined patterns.

Contact Moulding

Contact moulding is the blowing of a vessel or part of a vessel in a mould which gives the final shape and decoration to the piece. Generally, the vessel was empontilled while the upper portion was finished by hand. If the decoration and form were complicated, the mould had to be made in two or more hinged sections which could be opened to remove the vessel. Simple fluting or other vertical decoration on a vessel that tapered downward could, however, be made in a one-piece contact dip mould. Contact-moulded glass is distinguished by a concave-convex interior/exterior pattern surface relationship, and by mould lines on vessels blown in moulds of more than one piece (though designers naturally attempted to conceal the mould lines in the pattern). The technology of the contact-mould procedure was evidently not beyond 18th-century glassmakers, since it was used for some specialized pieces, such as patent medicine bottles in England (Ridley 1966: 25) and occasionally on the Continent for table glass (Fig. 28) by mid-century. Still, it was not used very much for tablewares until the 19th century when American glassmakers especially made use of complex designs that required multi-piece moulds (McKearin and McKearin 1948: 244). Some English authorities date the "invention" of the open and shut mould to 1802 (e.g. Elville 1953: 73) but this probably only indicates the revival of the technique for tablewares.

Press Moulding

Press-moulded or pressed glass is formed by pressure between a plunger and a mould. The mould may be of one or of several pieces, and the available designs are unlimited in variety and complexity. In contrast to any form of blown-moulded glass, the interior surface of a pressed object bears little relationship to the patterned surface because it is formed by the plunger. Mould seams on pressed glass are sharp ridges, due to the pressure of the plunger, as opposed to the softly rounded seams of contact-moulded blown glass. Once again, however, the seams may be concealed in the design and/or softened by fire polishing. The making of pressed hollow ware became possible about 1827 with the invention of a hinged plunger mechanism which guided the plunger precisely (diagram, Pellatt 1968: 121). Formerly, an unsophisticated method of pressing had been used to make stopper finials and other small solid objects or parts of objects: this merely entailed the use of two matching dies, probably on tongs and hand-held (diagram, Hughes 1958: 109). The rapid chilling of the glass surface in contact with the metal mould and plunger caused early pressed glass to lose "much of the brilliant transparency so admired in cut glass" (Pellatt 1968: 31); in addition to fire polishing - reheating to smooth the surface - glassmakers had recourse to two compensatory devices in the second quarter of the 19th century. For a time they used moulds that patterned the entire surface so closely that dullness would pass unnoticed (McKearin and McKearin 1948: 336-37), and they persistently used lead metal in spite of its expense, because of its high refractive index. A new lime glass developed in the United States in the early

1860s proved nearly as effective as lead metal and much cheaper, and there was very little pressed glassware made of lead metal in that country after that time (McKearin and McKearin 1948: 395; Lee 1960: 7). In non-lead glass a multitude of patterns appeared in the second half of the century in North America, and pressed glass speedily became the standard table glass in less affluent households.

Decoration: Intrinsic

While decoration is rather arbitrarily defined as any attribute of an object unnecessary to the functional requirements of the object, intrinsic decoration denotes any decorative process enacted on a glass object while it is hot, and before annealing. Thus, surface patterns moulded on a glass vessel are intrinsic decoration, and illustrate the way in which intrinsic decoration is often imparted cheaply and inherently in the fabrication. In fact, the dividing line between pleasing form and decoration is often imperceptible.

Superimposed Decoration

Superimposed decoration encompasses any addition of glass that does not have a primary functional purpose to the surface of the object being formed. While superimposed decoration is not a major feature of the glass of the period under discussion, occasional prunts (blobs of glass often impressed with a die), trailed threads, and gadrooning (an additional gather of glass is taken on the lower half of a vessel and shaped decoratively) are found. Superimposed decoration is particularly associated with Venetian and *façon de Venise* glass in the centuries immediately preceding 1700, and it reflects the working properties of Venetian soda-lime metal, which set quickly without the tendency of a heavier metal or metal with a longer viscosity range to sag. The use of superimposed decorations adapted from *façon de Venise* glass subsisted briefly in the new crystal metals after they were invented, but rapidly gave way to formal and decorative characteristics more suited to the different properties of the new metals. English glass of lead, for instance, in the first decade after its invention was made into vessels with vermicular collars, extensive gadrooning and even serpentine handles and finials (Thorpe 1969: Pls. XVII-XX), all of which disappeared during the 18th century.

Enclosures

When glass is in a plastic or working state, it expands (when blown) and elongates (when pulled) with uniformity. Thus, air or enamel enclosures introduced at an early stage in the working of a vessel will retain their relative spacing during insufflation, stretching, and even twisting of the parison in which they are imprisoned. Bubbles of air

may be enclosed simply by gathering over an indented surface of a parison. The enclosed tears of air may then be drawn out into threads of air and twisted in regular repeating spirals. This was the method employed for English air-twist stems, and indeed, air enclosures were very popular in English glass in the middle decades of the 18th century. From Venetian *lattice* came the technique of enclosing regularly spaced coloured rods or canes of glass in colourless glass; these canes are spaced around the sides of an open mould and then embedded in a gather of glass forced into the centre of the mould (diagram, Wilson 1972: 23; or Thorpe 1969: 37). After the enclosures are covered with a further gather of glass, the parison may be worked into the desired shape. In the 18th century this technique was used by English glassmakers for making opaque-twist (or "enamel-twist") stems.

Colour

While the perfection of the art of making completely colourless transparent glass is of comparatively recent origin, the secrets of imparting colour to glass and of creating opaque glass have long been known. The Venetians produced not only colourless *cristallo* from the mid-15th century, but coloured glass objects as well, and by the late 16th century, objects made of opaque white glass in which tin oxide was used as the opacifier (Charleston 1954: 295). Certainly Venetian glassmakers knew very well that certain metals added to the glass batch created glass of specific colours: Antonio Neri's much translated *L'Arte Vetraria* (1612) discussed, for example, copper and iron, which impart red and green, respectively (Turner 1963: 181). In 18th-century Europe, arsenic and bone ash were used to create opaque white glass from which was manufactured entire objects, often painted with *chinoiserie*, in imitation of porcelain (Charleston 1952a: 159; Barrelet 1957). Although both England and France produced this type of ware during the 18th century, limited amounts have been found to date on historic sites in Canada.

The common glass or *verre fougère* of the first half of the 18th century and earlier, with its delicate hues of grey, purple, green and blue, may or may not have been deliberately coloured; although it is generally assumed the glass batch that produced these wares was made by the rather haphazard addition of various unpurified ingredients, one does not find these colours reproduced in ordinary bottles of the same period.

With the end of the French period in Canada, coloured glass, like superimposed decoration, becomes atypical of most of the table glass dating before 1850, even though it became popular in the second quarter of the 19th century in Germany and began to spread to other countries by the time of the Great Exhibition in 1851 (O'Looney 1971: 4). The fascination with factitious crystal seems to have remained strong throughout the 18th century, and even in the first half of the 19th century, table glass on Canadian historic sites is colourless with very few exceptions. In fact, during the English period starting about 1760, the occasional examples of coloured glass that have been excavated, except for opaque-twist stems (Figs. 43-45), are usually blue. Blue

glass is made by adding cobalt to the batch. But coloured glass is only rarely recovered from sites of the period under discussion and seemingly was not much to the taste of Canadian glass users. The most commonly used colouring agent was in fact manganese, but it was used as a decolouriser, to cancel out the effect of iron and other impurities in colourless glass.

Decoration: Extrinsic

Extrinsic decoration, the converse of intrinsic, is any ornamental process enacted upon a vessel after annealing.

Enamel Painting and Gilding

A few examples of Continental European glasswares decorated with enamel in the 18th century have been found on Canadian historic sites, but though enamelled English glasses have also been recorded (Bickerton 1971: Chapter XVI), there are to date no examples in the National Historic Parks and Sites (NHPS) archaeological collections. To apply the nearly opaque colours, soft enamels, calcined together with a colourising metallic oxide until they were powdered, were mixed with an oil medium and painted onto glass. The object was then heated until the enamel fused onto the glass surface (Thorpe 1969: 48). This procedure required glass with a relatively high melting point, and enamelling was consequently used more extensively on lime than on lead glasses. Gilded glasses, also from the Continent, are also rare in Canadian archaeological collections. Gilding was normally not fired onto glass in the 18th century, but was applied in a mixture with strong, water-resistant cement (Thorpe 1969: 49).

Wheel Engraving and Cutting

A decorative technique that removes parts of the surface of glass can have one of two purposes: either to break up the light transmitted by creating a new reflecting plane, or to outline images, lettering, or designs by creating a whitish translucent surface area. Wheel engraving is one of the techniques employed for the latter purpose; others are diamond engraving and acid etching. Cutting is the usual technique employed for the former purpose. Cutting and wheel engraving are similar processes because each is conducted by abrading the glass surface on a revolving wheel which is either abrasive in itself or fed with an abrasive compound. When glass is cut, however, relatively large wheels are used and the cut surface is polished with successively finer agents to re-achieve the lustre of the original surface. Engraving is conducted on smaller wheels and normally left unpolished, except in sophisticated work in which gradations of translucency provide relief shading.

To date, no tableware objects in the NHPS collections have been decorated by diamond engraving or acid etching (acid etching was in fact still very novel at the middle of the 19th century [Wakefield 1961: 41-42]). Wheel engraving and cutting, by contrast, were the two most widely used decorative processes on both English and German crystal glassware found on Canadian sites during the period under discussion. The thick-walled and very colourless potash-lime glass of Bohemia proved especially suitable for engraving from the 1670s onward (Pešatová 1968: 9, 24). In England, some lead glasswares were embellished by cutting before the mid-18th century (Thorpe 1969: 189ff.), and cut lead crystal, lustrous and prismatic, steadily proliferated in England and then Ireland until, at the time of the Great Exhibition, it was so popular that critics began to find it vulgar (Elville 1953: 71ff.).

Analysis

Four different methods of distinguishing lead glass from other glass have been used on artifacts in the collection. One is the spot test: a drop of hydrofluoric acid is placed on the glass surface and to it is added a drop of ammonium sulphide. If a black precipitate forms, there is lead in the glass. For quantitative study, this method (*pace* King 1957) is not very sensitive, and nor is it conveniently conducted on large numbers of artifacts. The quantitative shortcoming is relieved by a specific gravity test described by Elville (1951: 257-59). Because it entails weighing glass suspended in water, however, the specific gravity test is awkward for archaeological specimens, many of which are mended with water-soluble glue, and consequently this test has not been extensively used.

The method we have used most is exposure to ultraviolet light (Elville 1951: 265-66). Short- and long-wave UV light are normally both used (a *Mineralight* UVSL-25 gives two wavelengths, 2537 Å and 3660 Å), though short-wave UV alone is normally sufficient for determining presence or absence of lead. Lead glass fluoresces a characteristic pale icy blue under short-wave UV, and a rather faint purple under long-wave UV. With experience, this test is not only reliable but also fast and cheap in the examination of large collections. However, it is non-quantitative.

The test best combining speed and quantitative accuracy was developed by Cloutier (1972). It uses a radioactive source (Technetium 99) of beta particles mounted in a plastic tube with a window restricting the field of emission; the tube also contains a Geiger-Muller register. The window at the end of the tube is held against the surface of the glass or ceramic glaze, and since lead is opaque to beta particles, a percentage of particles is "back-scattered" and recorded by the counter. Counting for a fixed period and using glass and glazes of known lead content (determined by electron microprobe analysis), a graph was derived by plotting the co-ordinates of lead content and beta count. The method is quick, non-destructive, and accurate within a range of plus or minus two per cent (Cloutier 1972).

Ultraviolet light has also been used in the examination of non-lead glass and has proved useful in establishing categories of metals originating on the Continent in the first half of the 18th century (McNally 1974), when glassmaking in regions like France and the Low Countries was in a confused state of imitation and transition. A mid-18th century Belgian glassmaker wrote: "il m'a fallu contrefaire toutes les verreries de l'Europe, parce que dans ce pais-cy il y a des verre[s] de toutes les verreries" (Chambon 1955: 133). In general, there is no ready method of distinguishing between soda-lime and potash-lime metals, and rather than hazard guesses, it has been convenient to refer to the non-lead crystal glasses, some of which are apparently belated appearances of Venetian-style soda-lime glass, as "lime metal."

Colour, where relevant, is measured by the *Nickerson Color Fan* (Munsell Color Company).

Terminology is mainly derived from the texts on glassmaking history used to help identify the artifacts. The rather specialized terminology for stemware bowls, stems, and feet is adopted from Haynes' "Nomenclature and Classification" (1964: 193-208). A schematic of the main parts of a stemware is given in Figure 2. A brief glossary has been compiled for ease of reference, even though most of the terms in the glossary are explained in the text.

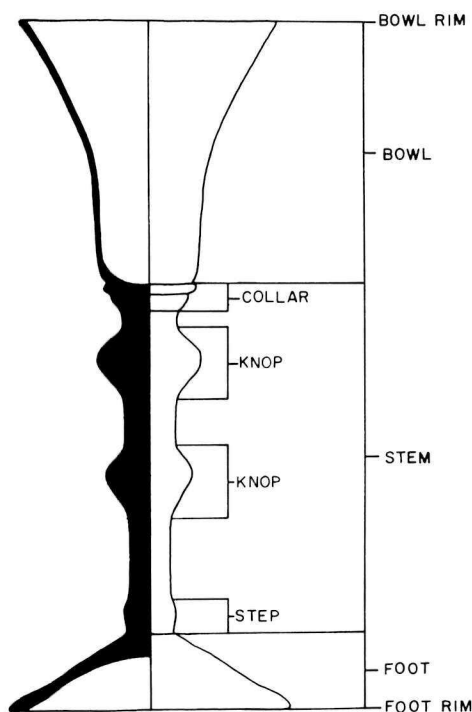


Figure 2. Stemware terminology

The glass is hypothetical. More specialized terminology (bowl shapes, knob shapes) is based where possible on Haynes 1964: 193-208.

CONTINENTAL EUROPEAN GLASS, 1700-CA.1765

The glass products of Continental Europe in the 18th century represent a *mélange* of four different glassmaking traditions: common or *fougère* glass, *façon de Venise* glass, Bohemian glass, and English glass. Each tradition, as we have seen, has a characteristic metal and, correspondingly, some more or less unique stylistic attributes. But the distinctiveness of styles that do not actually typify any one tradition is abated by complex crosscurrents of influence, manifest in the widespread imitation of technology and style and the apparently equally widespread catering to export markets. These features of glassmaking in 18th-century Europe are particularly elemental in the case of glass from French occupation contexts on Canadian sites. While such glass (McNally 1974) includes one integrated group of *fougère* glasses and another of Bohemian-German decorated export wares, it also includes some French colourless glass in a most sober *façon de Venise* style, a rather distinctive group of crizzled glasses, quantities of *façon de Bohême* wares possibly made outside of Germany, a few lime metal wares strongly influenced by English styles, and finally some distinctive pieces made in a demi-lead metal approximating English crystal but utilizing *façon de Venise* decorative features and probably made in the Low Countries.

Verre fougère

Fougère glass, essentially the application of common green metal to table glass forms, underwent a revitalization in France in the first half of the 18th century (Barrelet 1957). The popularity of *façon de Venise* glass had declined markedly by about the beginning of the century, and before the French glass industry could consolidate itself and begin extensive production of the new potash-lime and potash-lead crystal metals which replaced Venetian glass in dominating the international glass trade, the forest houses enjoyed a time of considerable prosperity. Barrelet (1957: 104) quotes Savary des Bruslons' 1723 *Dictionnaire* to demonstrate the popularity of common glass: "à l'égard des verres, les fins gourmets s'étant imaginé que le vin étoit plus fin et plus délicieux dans la simple fougère, à peine sçait-on en France ce que c'est que le verre de Venise." As late as 1757 *fougère* glasses in Diderot and d'Alembert's *Encyclopédie* are referred to as "si communs en Europe" (1966: 219); but by 1780 the memorialist Bosc d'Antic asserted that common glass was no longer used in France except for phials.

The forms of *fougère* glass in 18th-century France were derived from Venetian glass, but very simply rendered. Apart from its colour - almost always tinted green ranging from yellow-green to blue-green - *verre fougère* is distinguished by its delicacy (Barrelet 1957: 105). To date, the only tablewares found on Canadian sites in *fougère* glass are stemware, and the bowls and feet especially show the extreme thinness to which it was blown. Thin blowing was one of the essential characteristics of late (i.e. 17th-century) Venetian glass (Elville 1961: 167). However, the only decoration found on *fougère* glassware is light pattern moulding on the bowls or occasionally on the hollow stems (Fig. 6).

Fougère stems seem to be of two main types: one, that I have called spindle stems, relatively tall and thin and usually containing a tear in one or more knops (Figs. 3 and 4); and the other hollow blown, normally in inverted baluster shapes (Figs. 5-7). There does not seem to be any chronological significance to this division, however. Both spindle and hollow-blown inverted baluster *fougère* stems were found in a French 1690-1713 archaeological context at Castle Hill in Newfoundland (Grange 1971: Fig. 110); both seem to occur through the first half of the century at the Fortress of Louisbourg, and there is no evidence to demonstrate that one of the two principal varieties outlasted the other. There is evidence to suggest that Venetian-oriented glassmaking persisted longer in the south of France than in the German-influenced north and northeast (Charleston 1952a: 253; Scoville 1968: 22-23). One distinctive *fougère* hollow stem form in the collection may possibly be Spanish in origin (Fig. 8).

Whether or not *fougère* glass, as Barrelet (1957) suggests, was for a while more fashionable than colourless glass in the first half of the 18th century in France, a 1731 price list indicates that drinking glasses of "*fougerre* (sic) *commune*" metal cost just less than half as much as drinking glasses in colourless metal (Canada. Public Archives, MG6, B3, 1731: 4). In New France in 1770, by which time *fougère* glasses were doubtless unfashionable, an inventory indicated that a glass of crystal metal was worth nearly four times the price of a glass of *fougère* metal (Genêt et al. 1974: 257, 270n).

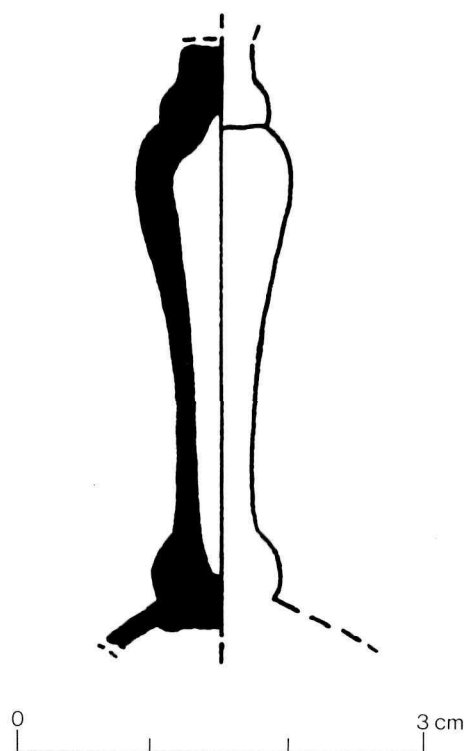


Figure 3. Stemware, spindle stem

Verre fougère (common green metal) 2.5G

French, first half 18th century

Extant height 45 mm

Fortress of Louisbourg (provenience unknown)

Since no chronological significance has been discovered for different *verre fougère* stemware forms, they can only be generally dated, hence the extended date range above and following. Barrelet (1957) dates such glasses to the first half of the 18th century, although they may have been made in the 17th century as well: examples found at Castle Hill (Grange 1971: Fig. 110) were deposited between 1694 and 1713. The inverted baluster with small cushion knop is seen in J.-F. de Troy's 1737 "Le Déjeuner aux huîtres" (Barrelet 1957: Pl. 9). At Louisbourg, these diminutive inverted balusters with cushion knop are the most common spindle stems. A similar spindle stem is illustrated by Barrelet (1957: Pl. 13, A). (Drawing by P. McNally.)

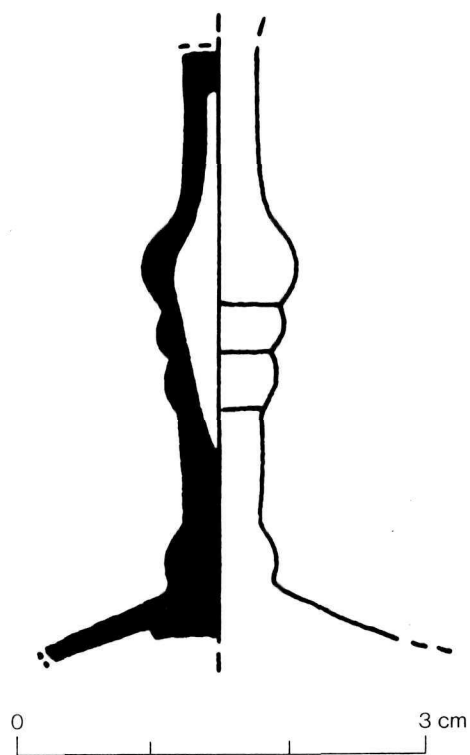


Figure 4. Stemware, spindle stem
Verre fougère (common green metal) 5G
 French, first half 18th century
 Extant height 47 mm
 Fortress of Louisbourg (17L.21B2.2)

Dating and attribution are the same as Figure 3. Spindle stem *verre fougère* glasses are found with a variety of knopping. (Drawing by P. McNally.)

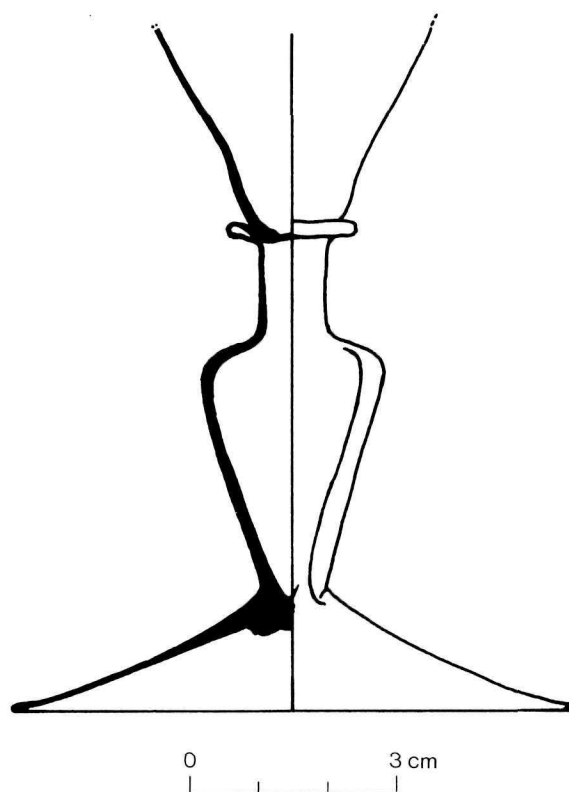


Figure 5. Stemware, hollow quatrefoil inverted baluster stem
Verre fougère (common green metal) 7.5G
 French, first half 18th century
 Extant height 101 mm
 Fortress of Louisbourg (2L.50G6.1)

While the form might have been made throughout the first half of the 18th century, this particular stemware is from an archaeological context of the second quarter of that century. Hollow blown quatrefoil inverted balusters in *verre fougère* are seen in the following French paintings: Chardin's 1728 "Le Buffet" (Barrelet 1957: Pl. 8), and in André Bouys' (born 1656, died 1740) "La Collation aux pêches" (Faré 1962: n° 303). A similar stemware found at Place Royale in Quebec City has been dated late 17th or early 18th century, presumably on the basis of archaeological context (Genêt et al. 1974: 257, 293). An example illustrated by Barrelet (1957: Pl. 19B) does not have the neck and merese-like collar seen on this glass. (Drawing by P. McNally.)



Figure 6. Stemware, faintly ribbed hollow inverted baluster stem
Verre fougère (common green metal) 7.5G
 French, first half 18th century
 Extant height 56 mm
 Fortress of Louisbourg (16L.2A15.1)

A parallel glass found at Place Royale in Quebec City is dated by sealed archaeological context to the late 17th and early 18th centuries (Lafrenière and Gagnon 1971: 71) but the same generalized dating for *verre fougère* applies to this example as to others. An otherwise identical glass illustrated by Barrelet (1957: Pl. 14, C) does not have the faint pattern-moulded ribbing seen on this and on the Place Royale glass. (Drawing by P. McNally; photo by J.D. Crawford.)

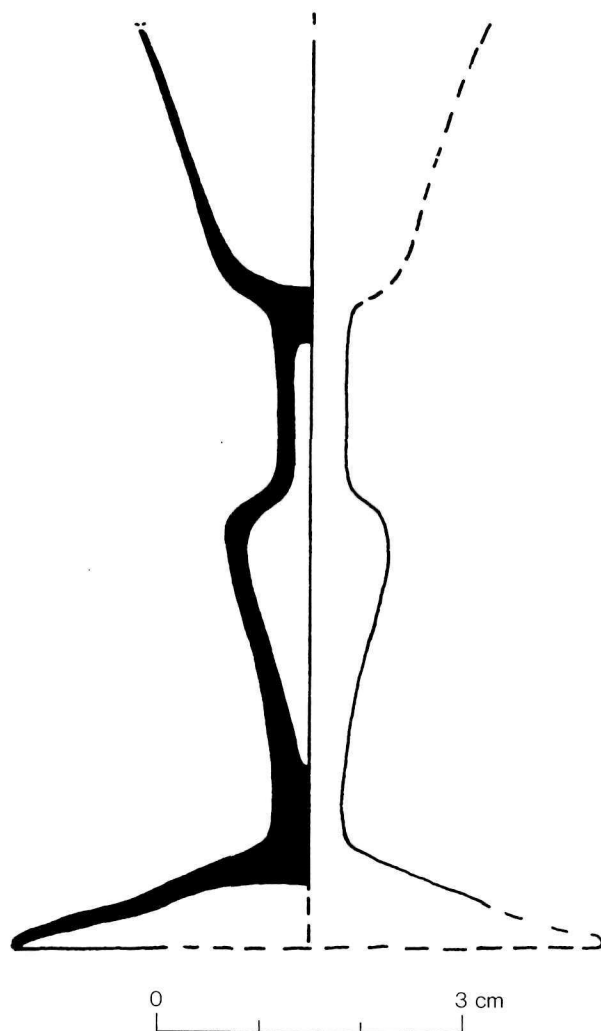


Figure 7. Stemware, hollow inverted baluster stem
Verre fougère (common green metal) 2.5G
 French, first half 18th century
 Extant height 97 mm
 Fortress of Louisbourg (4L.22F6.2)

This is another variant of the *verre fougère* hollow inverted baluster: in its various forms the hollow inverted baluster seems to be the most common *verre fougère* stemware. A parallel glass was excavated at Castle Hill, in a French context of 1694–1713 (Grange 1971: Fig. 110). (Drawing by P. McNally.)

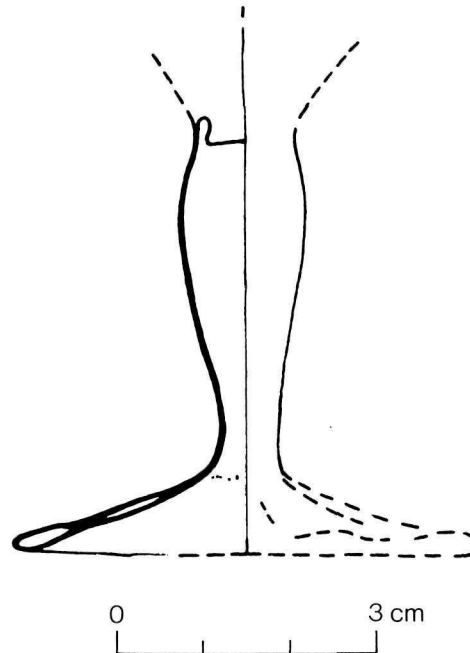


Figure 8. Stemware, hollow cigar-shaped stem
Verre fougère (common green metal) 10GY
 French or Spanish, first half 18th century
 Extant height 55 mm
 Fortress of Louisbourg (16L.24T2)

This stemware was evidently formed - stem, bowl and foot - from a single gather of metal. Thus it is a one-piece glass (most stemware is of either two- or three-piece manufacture). Here, a thinly blown parison was pushed up from a point opposite the blowpipe until the top of the push-up became the base of the bowl. The stem and the foot were then tooled to shape from the lower, double-inwards portion of the parison. Entrapped air is found in a large bead around the foot rim; on stemmed glasses of one-piece manufacture, other blisters of air often evidence the double thickness of glass on the stem and especially the foot - on the latter, blisters sometimes seem to be intentionally arranged in regular spacing. The top of the stem sometimes bulges irregularly into the bowl, and the bottom of the stem is left open although sometimes covered with glass deposited by the pontil. The only glasses I have found in the literature made by this technique are Spanish, from Cataluña in the 18th century (Frothingham 1963: Pl. 39). Charleston (1952a: 253) suggests that the glass industries of southern France and northern Spain in the 18th century were similar and their products in green glass virtually interchangeable. (Drawing by P. McNally.)

Façon de Venise

Separate from common green *fougère* glass because it was colourless, but of such mediocre clarity that it was also separate from crystal, was a kind of glass 18th-century French writers called *verre blanc commun* (Bosc d'Antic 1780: 118, 125). Probably this phrase normally referred to an ordinary soda-lime crystal, such as had formerly been fashionable at the height of the Venetian hegemony of the fine glass trade, but was now overshadowed in lustre and clarity by potash-lime and potash-lead crystals imported from Germany and England (Chambon 1955: 300). Evidently some colourless soda-lime glass, after the Venetian tradition, continued to be made during the 18th century (Scoville 1968: 22), but one looks in vain for serpentine stems, winged knops, and other fantastic Venetian ornament on 18th-century French glass.

A group of austere formed glasses found at the Fortress of Louisbourg seems to supply the want of wares in *verre blanc commun*. These glasses retain the thin blowing of Venetian glass, and a Venetian prototype can be found for each of the stems represented in the group (Figs. 9-11), but the forms verify Barrelet's (1953: 90) remark that the French characteristically simplified the lines of the Venetian shapes they adopted. In spite of the very thin sections, the metal of these glasses has not the clarity of English and German metal, being generally slightly straw coloured. On the other hand, the glasses show considerable kinship with *verre fougère* glasses, and Barrelet (1957) in fact groups them with *verre fougère*.

However, colourless glass and common glass are distinctive. If the difference under natural light is insufficient distinction, it may be shown under ultraviolet light that a metal that has had decolouriser added will fluoresce, while common glass will not (Elville 1951: 265-66). Scoville (1968: 18) has argued that common and crystal glass were made in the same glassworks, the only difference being the refining and decolourising of batch materials. But while they demonstrate common ancestry, *verre fougère* and *verre blanc commun* forms in the National Historic Parks and Sites collection never duplicate one another, as they would have done if worked by the same people in the same glasshouses. The two distinct glassmaking traditions co-existed in the first half of the 18th century in France or in neighbouring countries.

Texts on English glass indicate that the forms of the muted French *façon de Venise* are very similar to some of those of English stemware immediately before the discovery of lead crystal metal (Elville 1961: Fig. 243; Haynes 1964: Pl. 59a, b). Other authorities ascribe related *façon de Venise* glasses to the Low Countries (Honey 1946a: Pl. 35B, 36B; Chambon 1955: Pl. XXXIII, 110). Attribution is thus obviously difficult, for the *façon de Venise* style, stripped to simple shapes and thin-blown metal, led to similar stemware objects in several European countries.

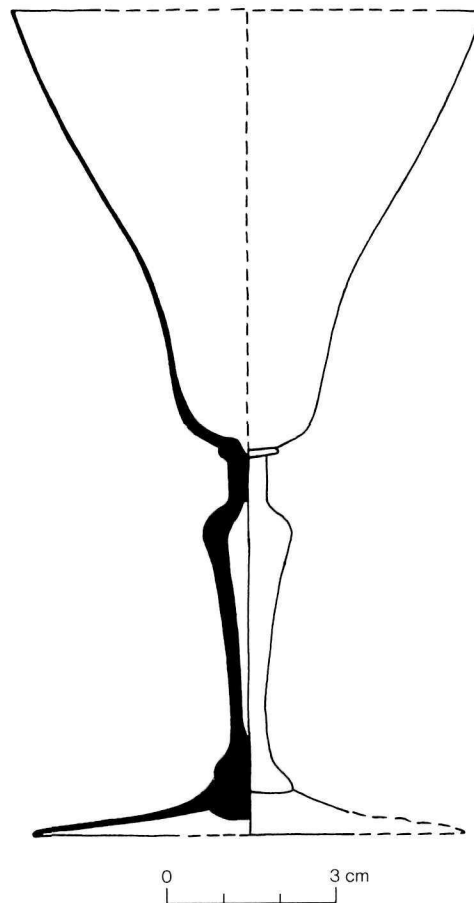


Figure 9. Stemware, hollow inverted baluster stem
 Lime metal (*verre blanc commun*) colourless
 French, first half 18th century
 Height 152 mm
 Fortress of Louisbourg (1L.34D5.2)

This glass was one of many inverted balusters - about half of which are quatrefoil (Fig. 5) and the rest plain like this one - found shattered together on the remains of a basement floor at Louisbourg. They may have been broken during the 1745 bombardment of the town - the house in question suffered a direct hit (Henderson, pers. com.). The variety of attributions given similar glasses in the literature suggests that simplified *façon de Venise* styles were widely made in Europe: the elongated inverted baluster has been identified as English, third quarter 17th century (Haynes 1964: Pl. 59a, b), possibly French, late 17th or early 18th century (Charleston 1952b: Fig. 23a), and French *verre fougère*, first half of the 18th century (Barrelet 1957: Pl. 16 A, B). This example is not likely to be English by the time of the Louisbourg occupation, and it is not *verre fougère* because the metal has been decolourised; however, it does share the same Venetian heritage as the *verre fougère* glasses in Figures 5-7. (Drawing by P. McNally.)

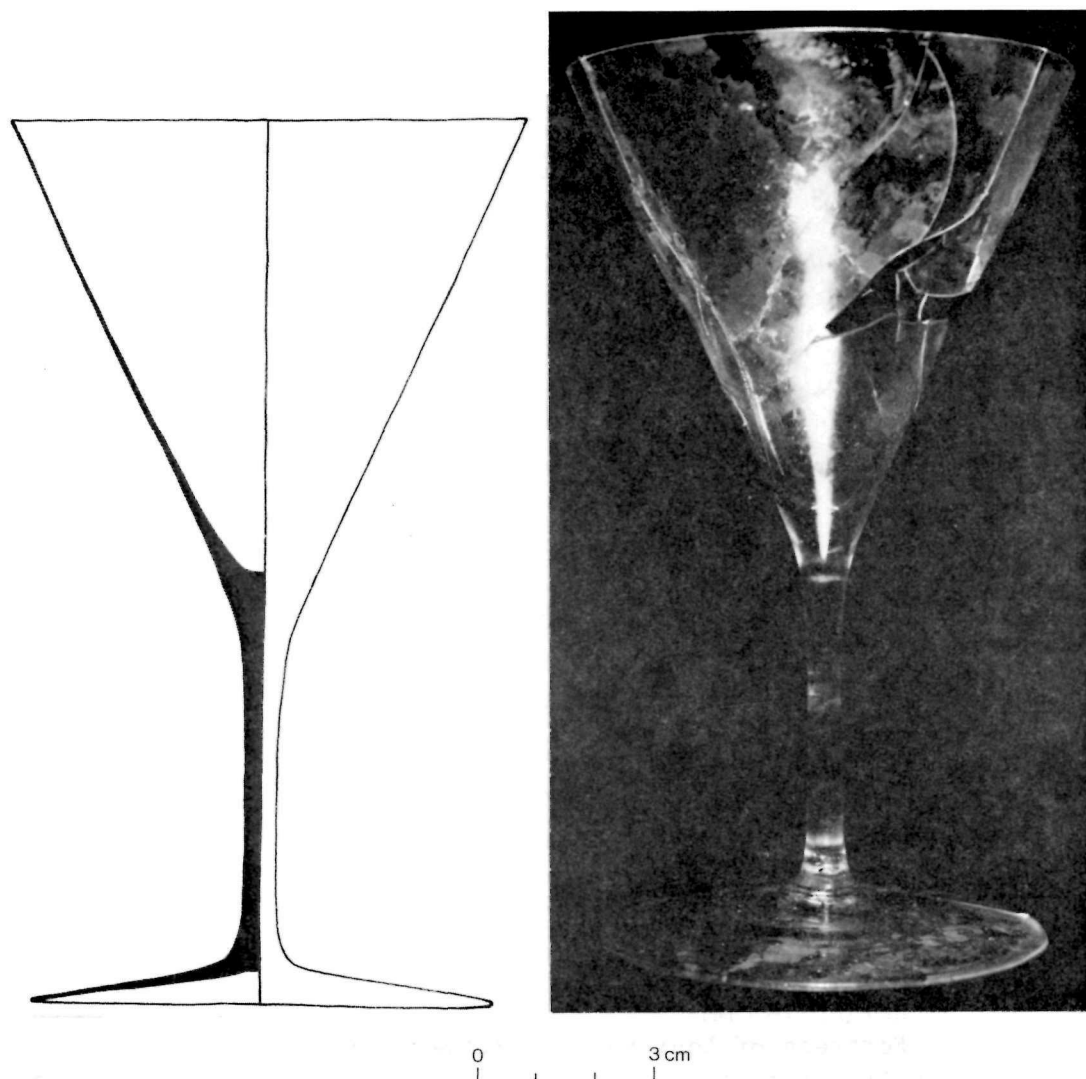


Figure 10. Stemware, thin plain stem
 Lime metal (*verre blanc commun*) colourless
 French, first half 18th century
 Height 157 mm
 Fortress of Louisbourg (1L.34D5.3)

This glass and others like it were found on the same cellar floor as the elongated inverted baluster glass illustrated in Figure 9. The form is presumably derived from 17th-century Venice (Thorpe 1969: Pl. XLV), but again a variety of attributions are offered for similar glasses: Low Countries (Honey 1946a: Pl. 36B), Belgian 18th century after Venetian style (Chambon 1955: Pl. XXXIII, 110), and French second half of the 18th century (Barrelet 1957: Pl. 17A). The extreme thin blowing is characteristic of late Venetian glass. A slight straw tint is normal in *façon de Venise* metal, in spite of the thinness of the glass.
 (Drawing by P. McNally.)

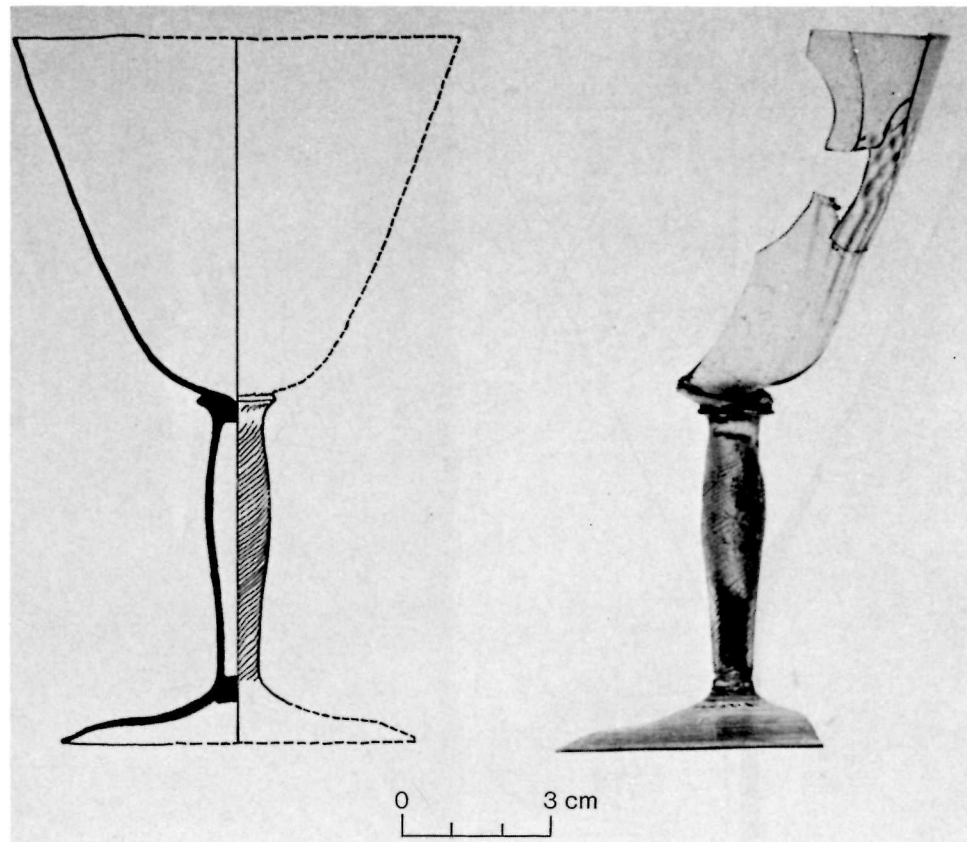


Figure 11. Stemware, hollow writhen cigar stem
 Lime metal (*verre blanc commun*) colourless
 French or Belgian, first half 18th century to ca. 1760
 Height 148 mm
 Fortress of Louisbourg (1B.1J44.53)

While Haynes (1964: 88-89) describes glasses such as this as common products of the Liège area in the second quarter of the 18th century, they were evidently made also in France and over a long time span. Attributions include French *verre fougère* (though again the glass is decolourised and has not been found in green glass in Canada), first half 18th century (Barrelet 1957: Pl. 12), 18th-century Normandy (Charleston 1952b: Fig. 19, left), and the Low Countries 17th century (Honey 1946a: Pl. 34B). Barrelet finds it in paintings as early as 1704 (1957: Pl. 4) and as late as 1755 (1953: Pl. XLVIIIB), and it is to be found in the still-life works of Vallayer-Coster well into the second half of the 18th century (Roland Michel 1970). Haynes (1964: 88-89) stated that the Liège second quarter 18th-century examples had a significant lead content, and it is found that about half of the hollow writhen cigar stems from Louisbourg are not lime metal, like this example, but demi-lead crystal metal (McNally 1974). The Venetian prototype (e.g. Honey 1946a: Pl. 26A) had spiral enamel threads instead of incised ribs. (Drawing by P. McNally; photo by J.D. Crawford.)

Crizzled French Glass

In his 1760 *Mémoire* Bosc d'Antic describes the product of an anonymous glassmaker who was trying to produce colourless glass without having been initiated into Bohemian glass composition and technology. The resulting crystal was not very durable: "... peu solide, très susceptible d'humidité, ressuoit le sel, se decomposoit à la longue, & le pied creux des verres à boire se remplissoit dans le magasin...d'une liqueur saline ou dissolution de sel" (Bosc d'Antic 1780: 123-24). These symptoms suggest a glass too rich in alkalies, that is, without sufficient stabilizing oxide to make it insoluble. The "sweating" of salt suggests a crystalline or crizzled surface on the decomposing glass. Less severely afflicted glass doubtless lasted long enough to be sold and may have survived with a greater or lesser degree of crizzling.

Crizzled glass has been consistently found on sites with mid-18th century French occupation, usually in the form of small pattern moulded tumblers (Figs. 12-14). These tumblers, which probably correspond to the crizzled, pinkish glass described by Charleston (1952b: 18-19) as characteristic of central and western France in the mid-18th century, consequently seem to be the most everyday glassware of humble households in the period.

French crizzled glass not only demonstrates an evolution of common green *fougère* glass into crystal glass, but also an evolution of forms toward Bohemian prototypes. Tumblers in themselves seem a much more typical form in Bohemian than in Venetian glass styles (cf. Barrelet 1957: 104), and the only stemware form normally found in crizzled glass shows distinct Bohemian influence (Fig. 15) and in fact also appears in a non-crizzled, colourless metal more or less indistinguishable from flawless Bohemian potash-lime metal (Fig. 27).



Figure 12. Tumbler, with diffuse vertical pattern-moulded ribs
 Crizzled metal, pinkish-brown tint
 French, mid-18th century
 Height 75 mm
 Fortress of Louisbourg (2L.18D3.9)

Tumblers such as this do not normally appear in collectors' histories of glass, but the date suggested is probably accurate on the basis of Charleston's identification of the metal (1952b: 18-19; also Haynes 1964: 80), occurrence in a 1760-61 Chardin still life "A Basket of Strawberries" (Wildenstein 1963: Pl. 46), and the frequent occurrence of such crizzled metal tumblers in mid-18th century French archaeological contexts. The latter include Michilimackinac (Brown 1971: 122-23), Forts Beauséjour (McNally 1971a: 30-31) and Gaspereau (Harris 1974: 81-82), the Acadian village of Beaubassin (Harris 1971: 19), and the 1760 wreck of *Le Machault* (McNally 1972a). (Photo by J.D. Crawford.)

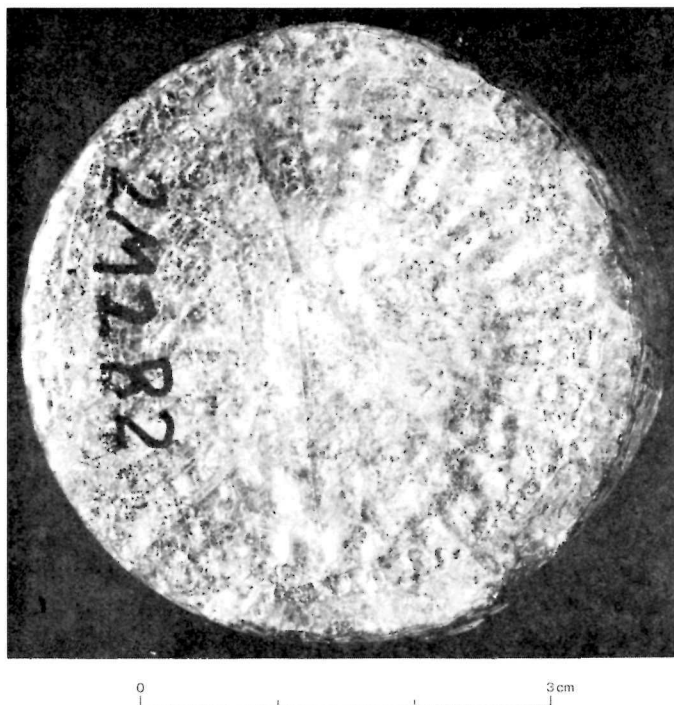


Figure 13. Tumbler base, with pattern-moulded ribs
 Crizzled metal, red-brown tint
 French, mid-18th century
 Base diameter 46 mm
Le Machault wreck (2M2B2)

This detail of the base of a tumbler similar to that in Figure 12 shows the fine crizzling which in extreme cases like this makes the metal quite opaque, or even causes it to disintegrate completely. The reddish tint is probably the result of manganese used to decolourise the impure materials. Brown (1971: 122) and Harris (1971: 19) found single fragments with traces of enamelling, and Harris (1974: 82) found a finished pontil mark on a base, but either embellishment on such tumblers is rare. (Photo by G. Lupien.)

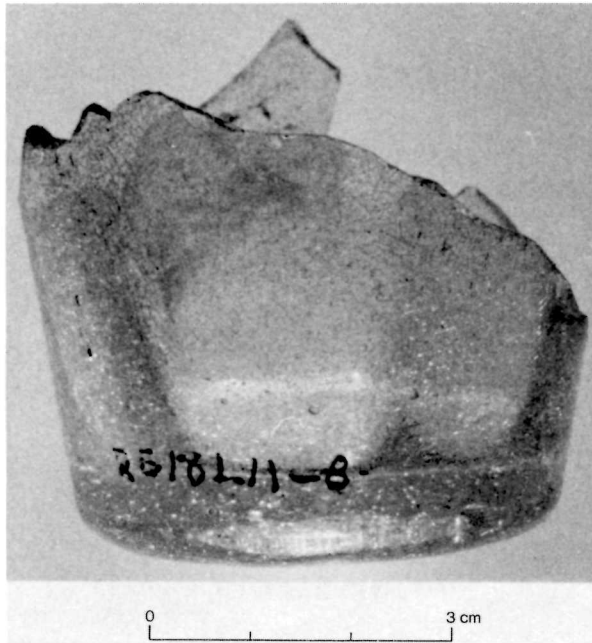


Figure 14. Tumbler base, optic-moulded panels
 Crizzled metal, pinkish tint
 French, mid-18th century
 Base diameter 49 mm
 Fort Beauséjour (2E18L11-8)

The metal, date, and attribution are the same as the tumbler in Figure 12, but this tumbler has been manufactured by a technique known as optic-effect moulding (Larsen et al. 1963: 389). The vessel was first moulded in a part-sized pattern mould and then blown in a plain full-sized mould to transfer the pattern to the interior surface, where it had a defractive effect. The example shown is, in cross section, hexagonal on the interior and circular on the exterior surface. (Photo by G. Lupien.)



Figure 15. Stemware, hollow corrugated conical stem
 Crizzled metal, colourless
 French, mid-18th century
 Extant height 71 mm
 Fortress of Louisbourg (1B.18H4.29)

Corrugated conical stems are found not only in crizzled metal but also in quite stable Bohemian-like lime metal (Fig. 27). Haynes (1964: Pl. 20a) attributes the form to France, early 18th century, and Charleston (1952b: Fig. 17b) to France also, about the middle of the 18th century. Bickerton (1971: Pl. 4) suggests English origin, which is most unlikely. Examples in French paintings are two Chardin still-life works both dated 1760 (Wildenstein 1963: Pl. 42, 44). The corrugated conical stem seems to illustrate the evolution of style from hollow inverted balusters in *verre fougère* to moulded pedestal stems in Bohemian potash-lime metal (Fig. 28). This evolution would substantiate the hypothesis that crizzled metal itself is an evolutionary stage in the mastering of Bohemian potash-lime metal by French glassmakers.

Bohemian Decorated Glass

"Bohemian" is used rather loosely here and by many glass historians to denote Germanic glass, which during the 18th century was typified and greatly influenced by the products of Bohemian (present-day Czechoslovakian) glasshouses.

It has been argued that Bohemian glassmakers made a clear distinction between fine pieces and very cheap wares, preserving their craftsmanship and originality for the former (Kampfer and Beyer 1966: 155). The distinction has survived in modern writers on Bohemian glass, who have tended to dismiss the vast quantity of drinking glasses made for inexpensive export as "Stimpler-Arbeiten" (Pazarek 1932: 225) or as the unfortunate manifestation of a craft become an industry (Hettes 1958: 26). Only recently have writers begun to acknowledge the contribution of the Bohemian industry in providing durable and useful glass to thousands of European households (Vydrova 1972).

Bohemian export glass is indeed utilitarian and even pedestrian in form. On our sites it is mainly represented by tumblers of a versatile four- to six-ounce capacity, but it is rarely without some decoration, usually engraving and cutting but occasionally also enamel painting or gilding. One author has commented that virtually all Bohemian and Silesian glass of the 18th century was decorated to some extent (Haynes 1964: 121). The acute problem of attribution of export quality Germanic glass in the 18th century must be addressed largely on the basis of the quality of decoration. Where the engraving is wholly undistinguished, sequacious or clumsy, I have placed the artifact in the succeeding *façon de Bohême* group, that is, the wares probably made elsewhere in imitation of Bohemian models. The distinction is not wholly satisfactory, since German engravers are known to have worked abroad and since Germany itself was scarcely a homogeneous entity, but I have followed Charleston (1952a: 254) in believing that the majority of well-executed engraved and cut glass in France (and hence in French proveniences on Canadian sites) was actually Bohemian in origin (McNally 1972b).



Figure 16. Tumbler, cut and engraved
 Lime metal, colourless
 Bohemian, second quarter 18th century
 Height 81 mm
 Roma Settlement (1F4G9-8)

This tumbler along with other engraved or cut and engraved or pattern-moulded tumblers was found in a storage cellar where it must have been deposited between 1732 and 1745. However, it is impossible to date Bohemian export wares of this type accurately on non-archaeological grounds. Hartshorne illustrated a similar tumbler (though he called it large) and suggested that they were common in the first half of the 18th century on the Continent (Hartshorne 1968: 331, Fig. 332). A similar tumbler illustrated by Wilmer (n.d.: Fig. 133) is not attributed. On many of the examples from the Roma site, the pontil marks have been finely ground and polished, a treatment common on Bohemian glass in the 18th century but not on English glass until later. (Photo by G. Lupien.)

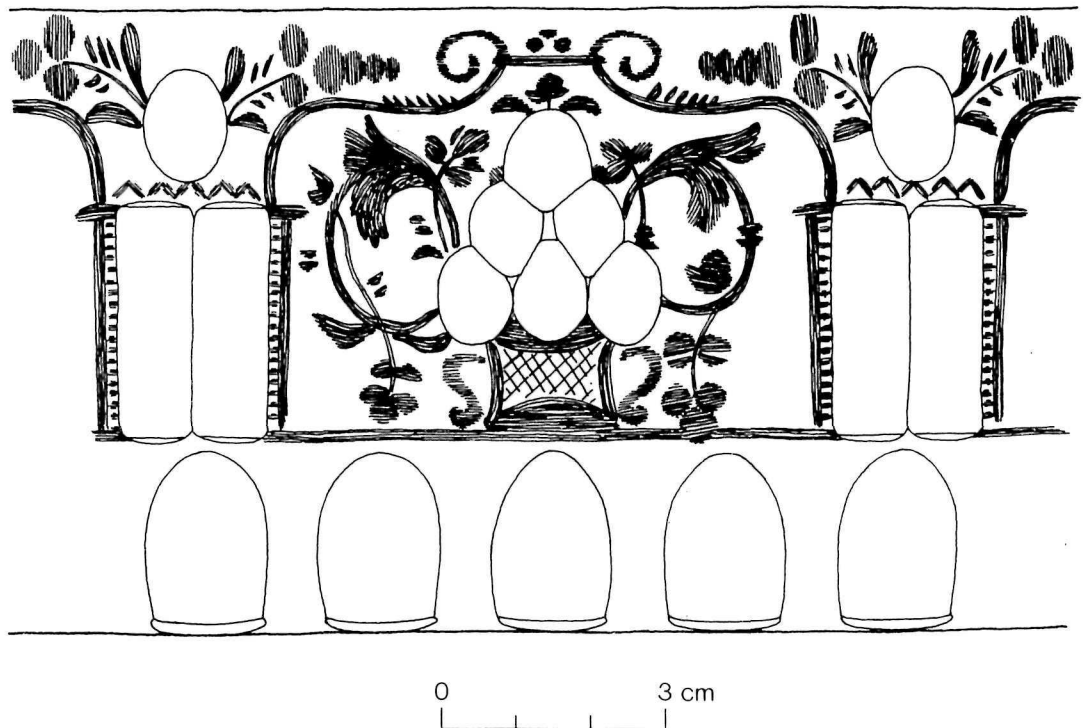


Figure 17. Engraved and cut motif, plan view
Roma Settlement (1F4G9-8)

The motif is taken from the tumbler in Figure 16. The olive facets and the vertical flutes are cut, the rest of the design engraved. Conventional foliate motifs were the stock-in-trade of Bohemian export glass. (Drawing by Jane Moussette.)

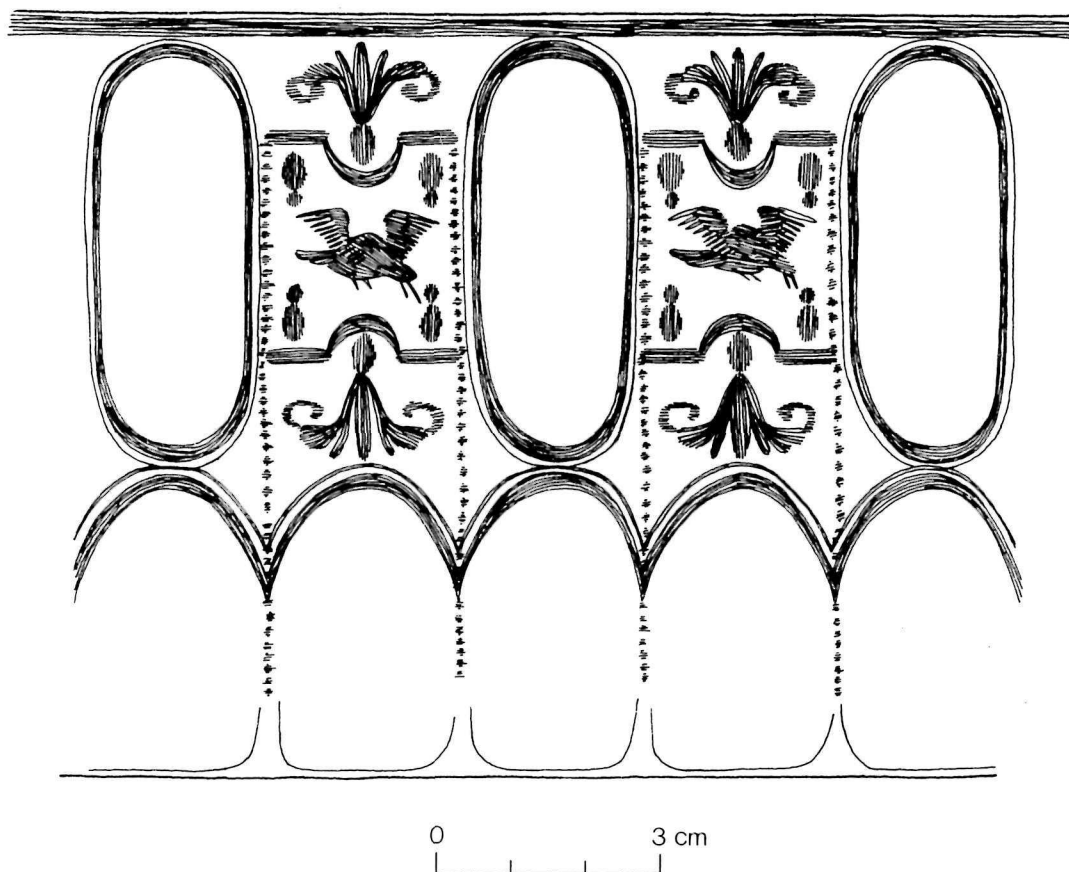


Figure 18. Engraved and pattern-moulded motif, plan view
Roma Settlement (1F24B14)

This plan view is reconstructed from the fragments of another tumbler found at the Roma Settlement, also dating between 1732 and 1745. On this tumbler there is no cutting, but it was pattern moulded with vertical ribs defining panels on the body - the vertical rows of engraved nicks follow these ribs. Panels alternate between blank engraved ovals and bird-and-scrollwork engraving. (Drawing by Jane Moussette.)



Figure 19. Tumbler, cut and engraved
Lime metal, colourless
Bohemian, 18th century
Height about 88 mm

Fortress of Louisbourg (1B.16F6.126, 1B.16F6.125)

This tumbler compares closely with some in a group of Bohemian table service wares illustrated by Vydrova (1972: Fig. 7). (Photo by A. MacNeil.)

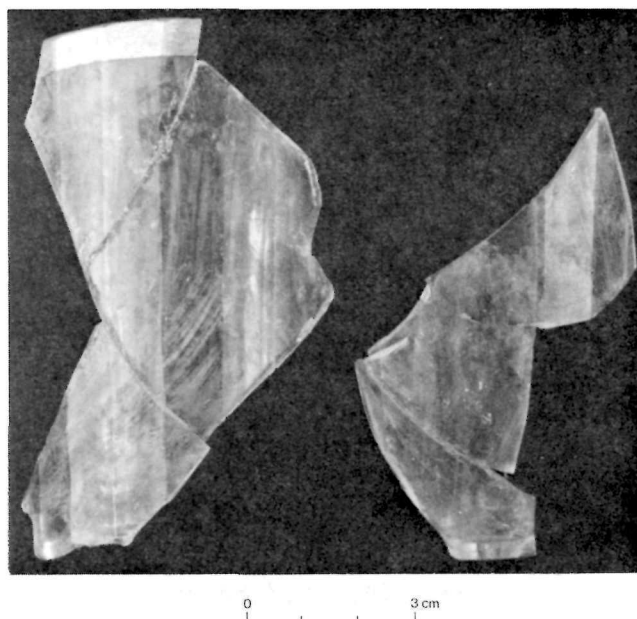


Figure 20. Tumbler fragments, cut and gilded
 Lime metal, colourless
 Bohemian, 18th century
 Height of tumbler about 93 mm
 Fortress of Louisbourg (1B.18D8.5)

This style - vertical cut facets all the way up the body with a band of gilding at the rim - appears to have been popular in France in the third quarter of the 18th century, as shown by a decanter in Chardin's 1763 "La Brioché" (Wildenstein 1963: Pl. 49) and a tumbler in his "Le Déjeuner" (Barrelet 1953: Pl. XLIX). A tumbler such as this might have been made in France, but importation is more probable for finer pieces (Charleston 1952a: 254). (Photo by A. MacNeil.)

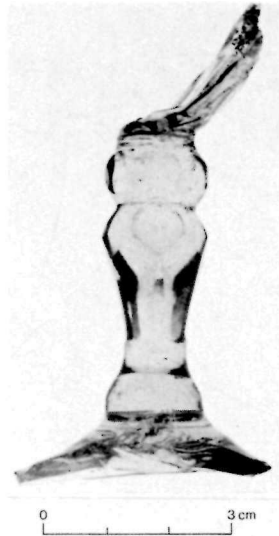
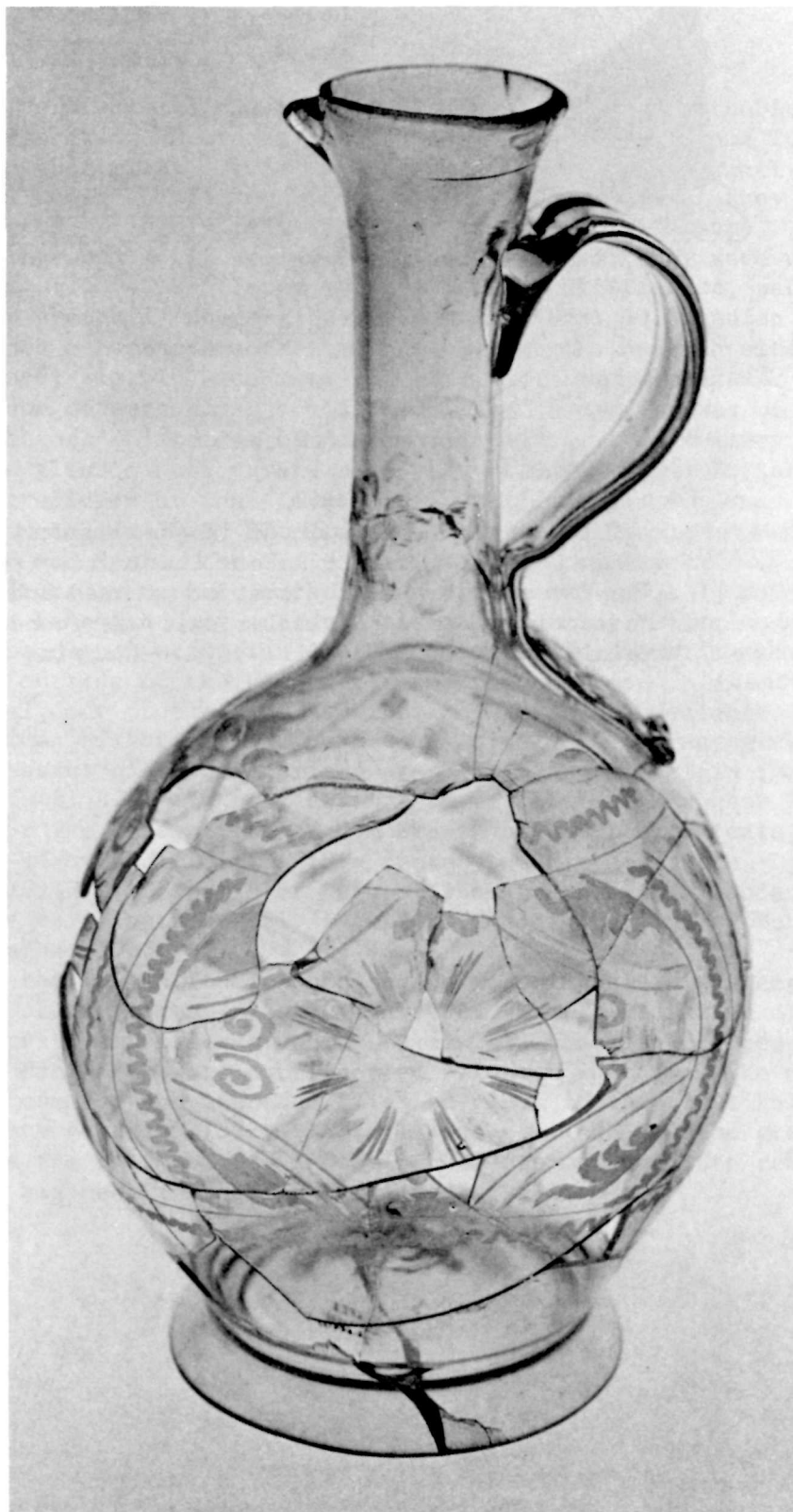


Figure 21. Stemware, facet-cut inverted baluster stem
Lime metal, colourless
Bohemian, 18th century
Fortress of Louisbourg (1B.5A8.182)

The inverted baluster stem, cut in flutes with diamond facets at the shoulder and sometimes called a Silesian stem, was the most popular and successful of Bohemian stem formations in the first half of the 18th century (Vydrova 1972: 214), and also the most influential. The Continental moulded pedestal stem (Fig. 28) and the English Silesian stem are directly inherited from it. Examples are illustrated by Vydrova (1972: Figs. 3-5).

Figure 22. Decanter, cut and engraved
(*opposite*) Lime metal, colourless
Bohemian, 18th century
Height 280 mm
Fortress of Louisbourg (3L.6E5.3)

Although it was imitated in other parts of Europe, this jug or decanter is evidently Bohemian export ware (Charleston, pers. com. to John Dunton). This piece illustrates the fact that much of the knowledge about Bohemian popular or export glass must be gleaned from studies of imitative industries rather than studies of the German industry they imitated; close parallels illustrated in the literature, though with rather different cutting and engraving are Spanish (Frothingham 1963: Pl. 79) and Italian (Drahotova 1972: Fig. 3). The archaeological context of this decanter is late 1760s to 1780s, and its deposit was probably related to English occupation at the Fortress, suggesting that the English did use some imported glass even when their own glass industry was thriving. The decanter is one of a pair found. (Photo by D. Crawford.)



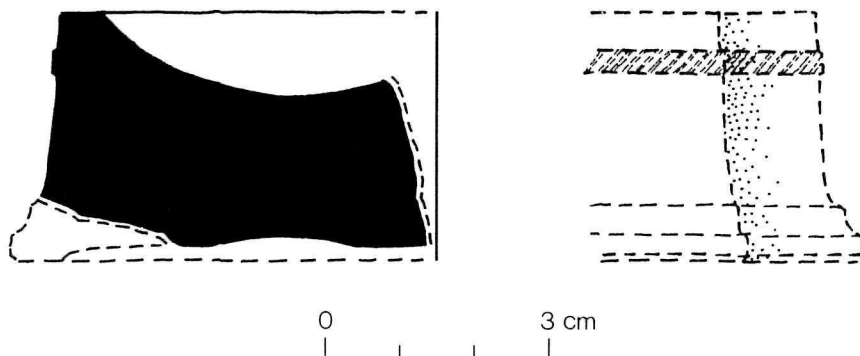


Figure 23. Trencher salt, cast and cut
 Lime metal, colourless
 Bohemian, last quarter 18th century
 Height 33 mm
 Fort Beauséjour (2E17L17-12)

This is typical of Bohemian salts exported in some quantity from Bohemia in the period indicated, according to Robert Charleston (pers. com. to Olive Jones). The vessel is evidently cast or pressed and lightly touched up on the cutting wheel. A similar salt was found in Marlborough, Virginia (Watkins 1968: Ill. 47). (Drawing by Jane Moussette.)

Continental Façon de Bohême

There is reference to the production of Bohemian-style tumblers at one French glassmaking centre in about 1740 at the rate of some 20,000 a week (Scoville 1968: 23). It is not possible to ascertain exactly what these tumblers would look like, but it is very probable that they were utilitarian wares, probably pattern moulded and often with some conventional engraved motif around the rim if, indeed, they were not of crizzled glass. There is a large group of fairly utilitarian, pattern moulded and/or sketchily engraved wares in lime metal on Canadian sites, mostly in French occupation contexts, but also at one Spanish site (Jones 1970: 5-6; Fig. 1F) and occasionally in English contexts. Much of our knowledge of such glass comes, curiously enough, by way of American collectors' histories of glass, for the few 18th-century American table glass manufacturers made glasses in the same imitative tradition, a tradition of what is sometimes called peasant glass (McKearin and McKearin 1948: 87, Pl. 29). Like some European countries, such as France and Spain, the early American industries lured German workers who naturally worked in their own medium and style. Students of European glass have had many artistic pieces to occupy their interest and have not paid much attention to the common wares, made in the German tradition but outside of the German glassmaking centres.

In general, our problems of attribution are as irremediable as those of American historians who cannot definitely assign any given specimen of peasant glass to American or to Continental origin (McKearin and McKearin 1948: 87). In most cases I am satisfied to suggest French manufacture for the peasant glass from French occupation contexts, even though by the second half of the 18th century such pieces were apparently made in other parts of Europe (though there is a tendency in the literature to illustrate only later, refined imitations of Bohemian glass [Frothingham 1963: Pl. 79, 81]).

Not only the conventional engraving of Bohemian glass was copied but also some of the forms. I have mentioned the proliferation of simple and versatile tumblers: another example is the moulded pedestal stem, derived from the flute-cut inverted baluster which was the most popular stem form for Bohemian and Silesian glass in the first half of the 18th century (Vydrova 1972: 214). This so-called Silesian stem became perhaps the most universal Continental stem of the 18th century (Fig. 28) and was made in English versions as well.

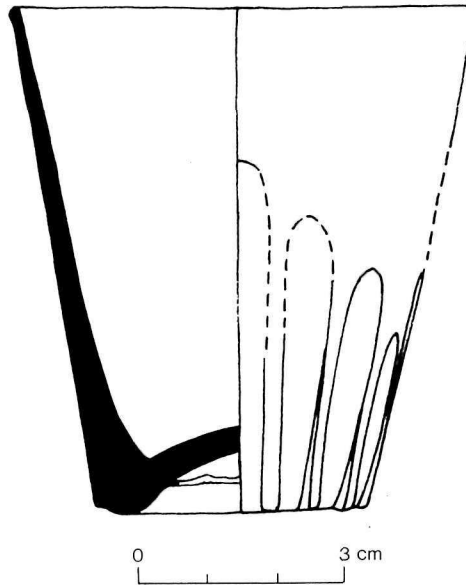


Figure 24. Tumbler, pattern moulded with flutes
 Lime metal, colourless
 Continental, 18th century
 Height 76 mm
 Fortress of Louisbourg (46L.5F4.2)

The pattern moulding is very well defined, indicating that the mould was only slightly undersized. Pattern-moulded lime glass tumblers are found on 18th-century sites where there was French occupation - Forts Beauséjour and Gaspereau, for instance - but are usually less numerous than crizzled glass tumblers (Figs. 12-14). (Drawing by P. McNally.)



Figure 25. Tumbler, pattern-moulded ribs and engraving near rim
 Lime metal, colourless
 Continental, 18th century
 Height 94 mm
 Fortress of Louisbourg (2L.18D3)

This tumbler is dated by archaeological context to between 1745 and 1784 and is typical of peasant glass tumblers throughout the century and even as late as the early 19th century (Greiff 1972: 15-16). A number of similar glasses are illustrated by Moore (1939: Fig. 130) as American. Similar glasses were found at Fort Gaspereau (Harris 1974: Fig. 11), Yuquot (Jones 1970: Fig. 1f) and at the Hudibras Tavern at Princeton University (Greiff 1972: 16): the engraved motif in each of these instances is more or less identical. The same motif was even used on undoubtedly English glasses (Turnbull and Herron 1970: 10/36). (Photo by J.D. Crawford.)



0 3 cm

Figure 26. Tumbler, footed
Lime metal, colourless
Continental, 18th century
Height 109 mm
Fortress of Louisbourg (2L.18D3.4)

In an illustrated Norwegian glass catalogue of the third quarter of the 18th century, a tumbler like this bears a German name, and it is asserted that the form came to Norway with German glassmakers (Polak 1969: 104). (Photo by P. Jeddrie.)

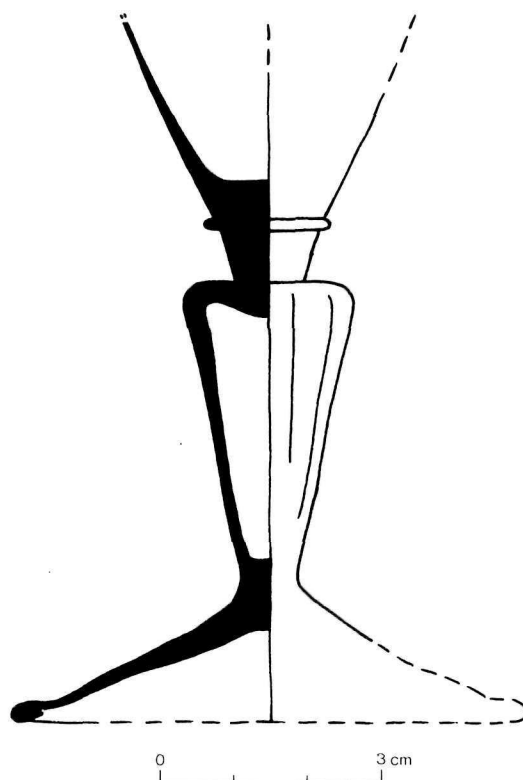


Figure 27. Stemware, corrugated conical stem
 Lime metal, colourless
 Probably French, mid-18th century
 Extant height 98 mm
 Fortress of Louisbourg (2L.6C1.1)

This glass, the nearly identical counterpart of glasses in crizzled metal from France (Fig. 15), is apparently a transitional form in the development of the hollow moulded pedestal stem (Fig. 28) under the influence of the Silesian cut stem (Fig. 21). For illustrations in the literature and occurrence in French paintings *see* Figure 15 legend.
 (Drawing by P. McNally.)



Figure 28. Stemware, hollow moulded pedestal "Silesian" or
"bouton carré" stem
 Lime metal, colourless
 Continental, 18th century
 Height 155 mm
Le Machault wreck (2M104A1)

This was one of hundreds of such glasses, apparently cargo, which were on board the *Le Machault* when it was scuttled in 1760 (McNally 1972a). The French borrowed the form, which they called *bouton carré*, from Bohemia (Barrelet 1957: 114). This, and the numerous similar glasses at the Fortress of Louisbourg, are probably French, but the style was common throughout Europe by about the mid-18th century: Chambon (1955: 116-17) calls it an ordinary drinking glass in Belgium; Polak (1969: Fig. 39) finds it in a Norwegian glass catalogue and refers to it as "a Continental model"; and Haynes (1964: Pl. 62g) contends that it might even have been made in lime metal in England, as does Bickerton (1971: 198). (Photo by G. Lupien.)

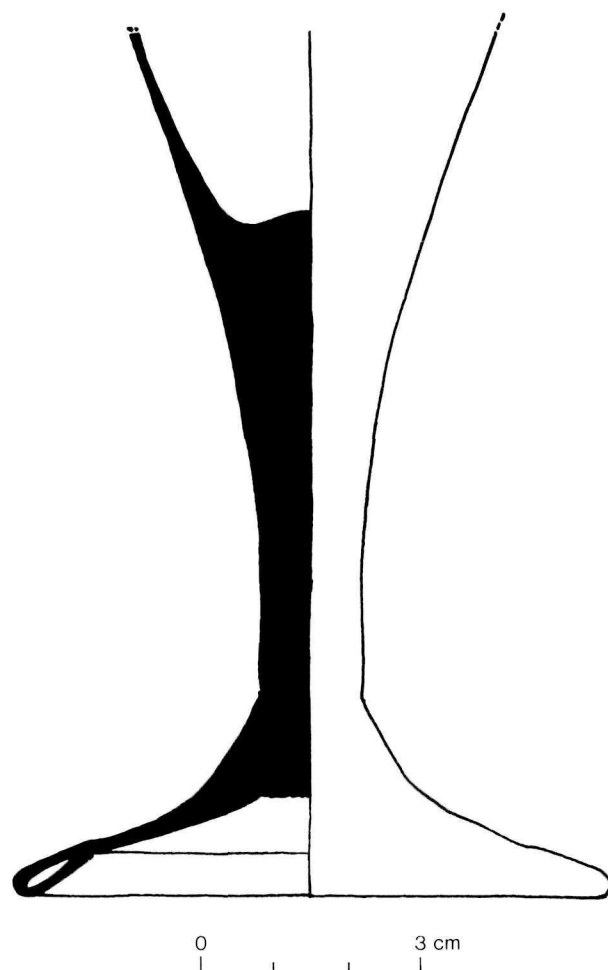


Figure 29. Stemware, plain stem
 Lime metal, colourless
 Continental? 18th century
 Extant height 124 mm
 Fortress of Louisbourg (17L.23G9.2)

This glass is very like the English plain stem and may in fact have been manufactured in England (Haynes 1964: 248, 252) in spite of the fact that it is made of lime metal. The profile of the stem of this glass is rather more conical than on the normal English glass, however (cf. Fig. 40), approximating a German model (Schmidt 1912: 344) and a Norwegian one apparently derived from Germany (Polak 1969: Fig. 42). Consequently, a Continental origin seems likely. (Drawing by P. McNally.)

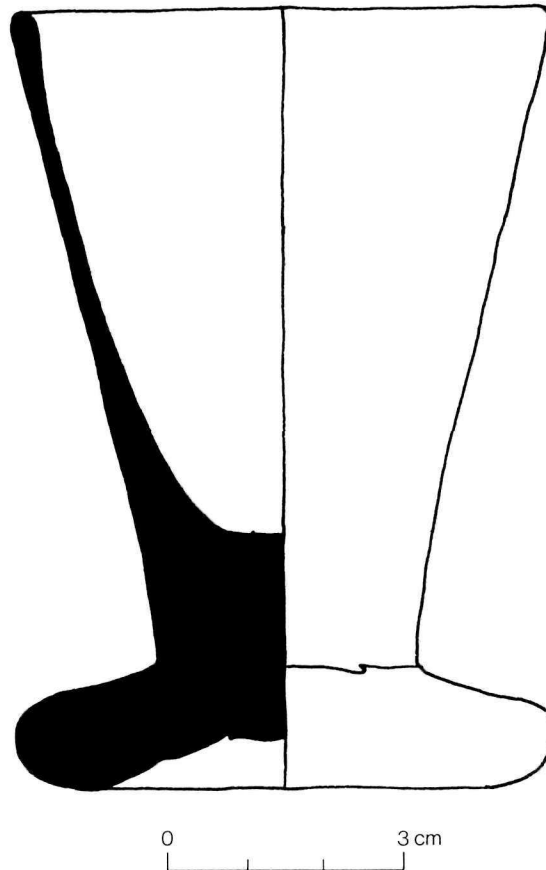


Figure 30. Firing glass
 Lime metal, colourless
 Continental? 18th century
 Height 107 mm
 Fortress of Louisbourg (2L.30H3.5)

This glass presents exactly the same dilemma of attribution as Figure 29, for although the firing glass is a common form in English lead glass, this example is lime metal and has a much more conical profile than the English prototype (cf. Fig. 49), once more a trait it shares with a Norwegian example (Polak 1969: Fig. 49). (Drawing by P. McNally.)

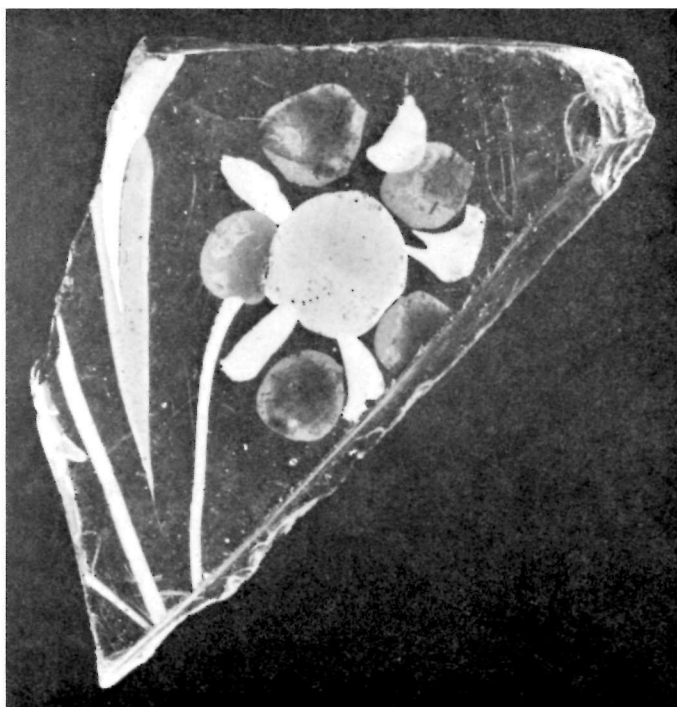


Figure 31. Flask fragment, enamel painted
 Lime glass, colourless
 Continental, 18th or early 19th century
 Extant length of fragment 35 mm
 Fort Beauséjour (2E17N18-64)

A common form in the peasant glass tradition, though only rarely found in Canada, were eight-sided flasks brightly if hastily enamel painted, usually with floral designs (McKearin and McKearin 1948: Pl. 30). This small fragment from the body of such a flask has four opaque enamel colours: white, blue, yellow and red. It was found in a probably English context at Fort Beauséjour. Other enamelled fragments, sometimes apparently from tumblers, have been found at the Fortress of Louisbourg. Kenneth Wilson (pers. com. to Olive Jones) suggested the attribution I have given for the flask. (Photo by G. Vanderflugt.)

Continental Demi-Lead Crystal

A number of items of specialized use found at the Fortress of Louisbourg, many in a sealed French context of 1750-54, were made of a colourless glass with considerable lead content (in most cases about two-thirds the normal percentage of English glass [McNally 1974]). Not only the archaeological context but also such identifications in 18th-century paintings and in the literature of glass history that have been found suggest that the objects are French, and yet there seems no doubt that no French glassmakers succeeded in making English lead crystal until at least the 1770s (Charleston 1959: 159; Barrelet 1953: 107-9; Scoville 1968: 23). There is equally convincing evidence that the demi-lead crystal is not English, for not only are the stylistic attributes decidedly non-English for the period - rather *façon de Venise* than anything else - but also it has been shown that the percentage of lead employed in the English glass batch throughout the 18th century did not vary much from a norm of slightly more than 30 per cent (Elville 1951: 259-60). While some of the Louisbourg pieces are close to this norm, most contain only about 23 per cent, according to Elville's displacement specific gravity test, described above (Elville 1951: 257ff.).

There is little information on early Continental imitations of lead metal, but what there is suggests a Low Countries origin for the demi-lead crystal pieces found at Louisbourg. A Liège glassmaker succeeded in making "le veritable 'cristal anglais'" about the mid-1750s after having added limited amounts of lead to his batch for several years (Chambon 1952). Haynes (1964: 88-89) states that hollow writhen cigar stems - the only demi-lead crystal drinking glass form found at Louisbourg (Fig. 11) - were a common product of Liège glassmakers in the second quarter of the 18th century, often with some lead content. Thorpe (1969: 174) states that *façon de Venise* was a stronger tradition in the Low Countries than elsewhere in Europe. It has been shown that as early as the late 17th century small amounts of lead were introduced into glass made in the Low Countries (Charleston 1957). Finally, in 1722 a Belgian glassmaker boasted of his products: "leur beauté et leur blancheur égalent en tout le verre d'Angleterre, et on renonce à ce dernier dont on fait des imitations parfaites." To substantiate this contemporary claim, Chambon has pointed out that the works in question enjoyed a good reputation and "exportait non seulement dans les Provinces-Unies mais aussi en France" (Chambon 1955: 121).



0 3 cm

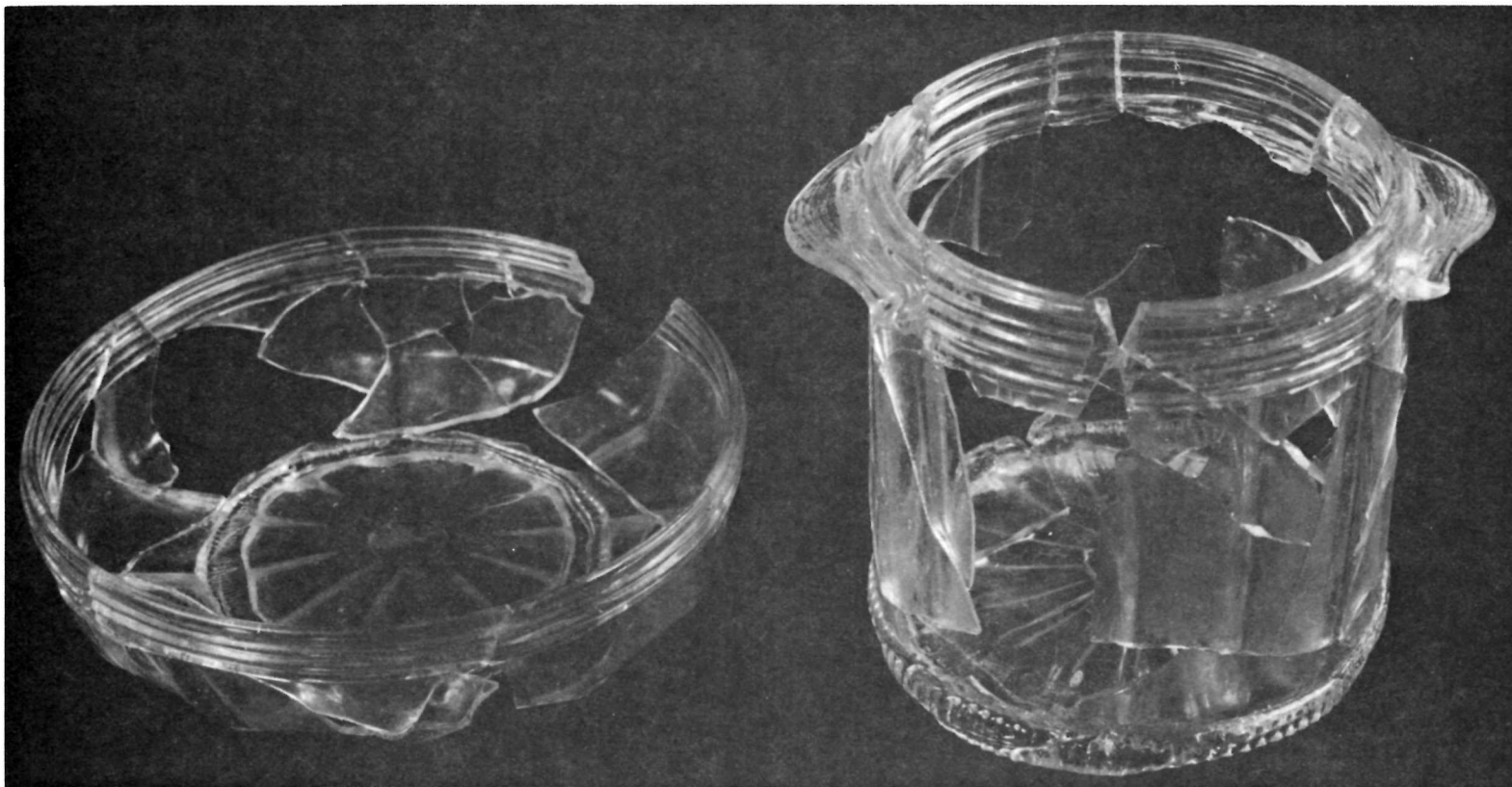
Figure 32. Two *brocs* or jugs, pattern-moulded ribs
 Demi-lead metal, colourless
 Continental, possibly Low Countries, mid-18th century
 Height of object on left 255 mm
 Fortress of Louisbourg (2L.12H8.3, 2L.12H7.11)

Barrelet (1953: Pl. LIa) illustrates a *broc* similar in size and form to the left-hand example and dates it early 18th century possibly from Normandy, in the *façon de Venise* tradition. He does not mention whether his example has lead content. Smaller but otherwise identical pairs of such vessels, apparently used as cruets, are seen in several 18th-century French still life works: Chardin's 1763 "Les Débris d'un déjeuner" (Wildenstein 1963: Pl. 50), Anne Valayer-Coster's 1775 "Still Life" (Royal Academy of Arts 1968: Fig. 201), and André Bouys' (born 1656, died 1740) "La Collation au melon" (Faré 1962: n° 301).

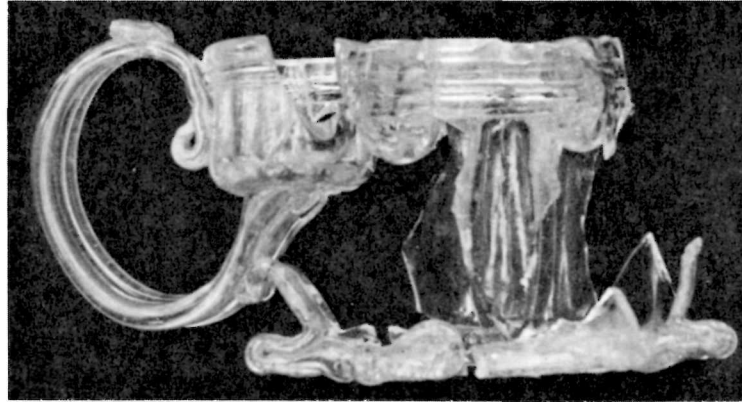
Louisbourg *brocs* are large enough to easily hold the contents of a bottle of wine. They are from a French latrine where they were deposited between 1742 and 1768. (Photo by J.D. Crawford.)

Figure 33. Wine glass cooler (*right*) and matching low bowl,
 pattern- moulded ribs
 Demi-lead metal, colourless
 Continental, possibly Low Countries, mid-18th century
 Height of cooler ca. 110 mm
 Fortress of Louisbourg (2L.12H7.10, 2L.12H7.2)

Chardin's 1758-59 "Pêches, dit le bol de cristal" (Wildenstein 1963: Figs. 131, 132) shows a wine glass cooler with a glass upended in it, which is very similar to the bowl on the right. These bowls were used for rinsing and/or cooling glasses between refillings. The wine glass cooler stands snugly in the matching low bowl, which may have served as a saucer to catch spills. Apart from the pattern-moulded panels, the bowls are decorated by applied foot and lip rims, the lower rim rigareed and the upper ribbed, and the cooler has pincer handles. Such ornament is typical of Venetian table glass. A very early (1680s) Ravenscroft bowl of English lead glass demonstrates a similar adaptation of Venetian style to lead metal (Wills 1968: Signature 5, Fig. 1). Charleston (1952b: Fig. 22) illustrates a French bowl he calls a bottle stand, identical to the wine glass cooler but with lion mask handles rather than pincer ones. A faience bowl at Louisbourg, cylindrical with a small semicircular indentation in the rim, has handles like the glass wine glass cooler, painted in imitation of the pincer glass. These bowls were found in the same 1742-68 context as the *brocs* in Figure 32. (Photo by J.D. Crawford.)



0 3 cm



0 3 cm

Figure 34. Cruet stand, pattern-moulded ribs
 Demi-lead metal, colourless
 Continental, possibly Low Countries, mid-18th century
 Height 77 mm
 Fortress of Louisbourg (2L.18D3.6)

This cruet stand originally had two rings to hold cruet bottles and two small wells for salt or other condiment. The decoration and style are closely related to the *brocs* and bowls in Figures 32 and 33 - wide pattern-moulded ribs, applied rims, and hollow handles (originally one at either end) with thumb pads - hence the dating and ascription. The nearest parallel I have found in the literature is much simpler, with only two rings and no ornament, illustrated by Savage (1973: 93) who identifies it as 18th century French. (Photo by J.D. Crawford.)

BRITISH GLASS, MID-18TH CENTURY TO 1850

After Ravenscroft had perfected glass of lead during the 1670s, English table glass makers rapidly adapted forms inherited from Venetian glass, such as the baluster stem, to their own new material. The so-called baluster period, in the first half of the 18th century, saw the use of heavy, lustrous forms unique to English glass (Thorpe 1961: 183ff.). By the mid-18th century, the English glass trade was at least as prominent in Western Europe as the Bohemian-German trade, and Bosc d'Antic (1780: 59) reports that an astonishing four-fifths of the English glass production was exported by about 1760 - a significant portion of this export was to the American colonies. So strong an industry was able to develop independently, and the period of English glass represented on Canadian sites is one of commercial and stylistic distinction. But the industry could also bear taxation, and an Excise Act which first came into effect in 1746, levied by weight of material, and which remained in force with periodic increases until 1845, played a significant role in shaping the English glass industry (Thorpe 1961: 196-97; Sandilands 1931).

The two major stylistic periods into which the 100 years of glassmaking from the mid-18th to the mid-19th century in England and Ireland is normally divided are the excise period, from the 1740s to about 1780, and the Anglo-Irish period, strictly speaking from 1780 to 1825. The second quarter of the 19th century showed a gradual change in style and technology as the British glass industry had become very traditional, and traditionalism was reinforced by the rigorous bureaucracy of the excise collection (Elville 1961: 89-90; Thorpe 1961: Chapters VIII, IX; and Sandilands 1931). The repeal of the excise tax on glass in 1845, and the Great Exhibition of 1851, combined to make a considerable change in the second half of the 19th century.

Glass in Parks Canada's archaeological collections appears to reflect these phases of the British industry in a significant way. In the third quarter of the 18th century, glass deposited on Canadian sites faithfully mirrors the well-known styles of the excise or rococo period (Thorpe 1961: 196ff.): twist stems, flower engraving, and early diamond facet cutting are typical and well represented. Towards the end of the century, however, a split develops. A relatively few items of fine Anglo-Irish cut glass familiar to collectors' histories of glass (Warren 1970; Elville 1953) are overshadowed by prodigious quantities of common tumblers and stemware of which the literature tells us very little indeed. The split is roughly parallel to that which I have described between Bohemian crystal and Bohemian export quality glass. This development evidently marks the entrenchment of fine glass as a decorative and ostentatious possession, along with the expanding application of plain glassware to daily domestic purposes.

The Excise Period, ca. 1740-80

While the Excise Act of 1745-46 has been seen by many authorities to have caused the considerable change in English glass styles that took place during the 1740s, a move to what Thorpe (1961: 196) called "a smaller, lighter, daintier style" was evidently already well underway by 1740 (Fig. 39), and probably only gained impetus from the economic need to conserve material in order to make more vessels from a quantity of metal. In any case, stems lost their knopping and between 1740 and 1760 at least four new decorative stems began periods of popularity (air-, opaque-, and incised-twist stems, and facet-cut stems), all in apparent compensation for the loss of liberal application of metal to heavy stem formations. On other vessels in the collections, pattern moulding, engraving, cutting and some superimposed decoration are found, demonstrating a more varied use of decoration than English glass was to see in later periods. Some of the excise period English glass was found in French occupation contexts (McNally 1972a), which attests to the accuracy of Bosc d'Antic's remarks cited above on the export of English glass.

In most cases, the dating of 18th-century styles in collectors' histories of English glass coincides with their archaeological occurrence on Canadian sites (McNally 1972a: 15-16). This is in contrast to the experience of archaeologists on some Virginian historic sites, where a significant time lag between glass fashions in England and occurrence in America has been noticed (Noël Hume 1969: 27).

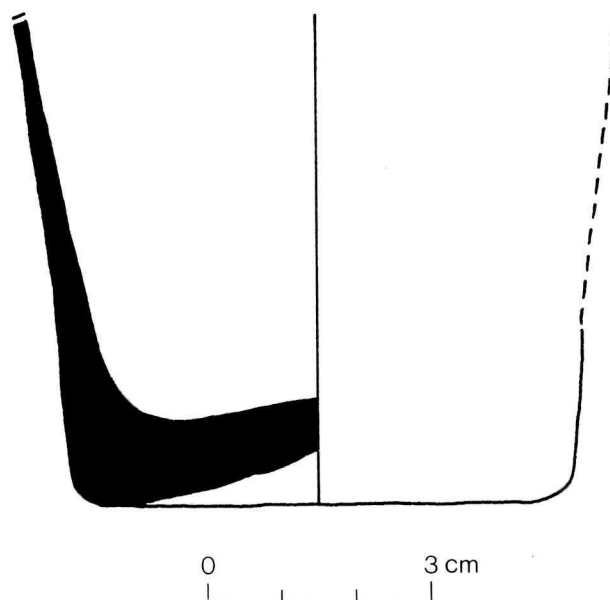


Figure 35. Plain tumbler with unfinished base
 Lead metal, colourless
 English, mid-18th through early 19th century
 Base diameter 66 mm
 Fort Beauséjour (2E22J5-13)

Plain lead metal tumblers are the most common table glass artifacts on sites with British occupation in the 18th and 19th centuries. They were certainly a common table vessel, serviceable and versatile, though not necessarily cheap, since glass was sold by weight and a tumbler such as this weighs much more than most stemware. The only stylistic variation through their long period seems to be a tendency to increasingly vertical sides (cf. Fig. 65). (Drawing by Jane Moussette.)

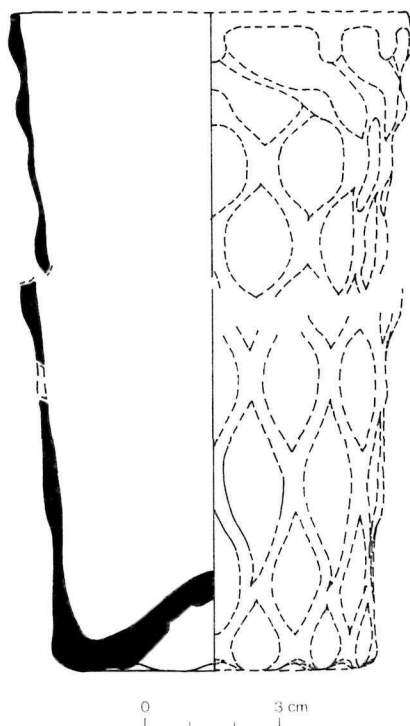


Figure 36. Tumbler, pattern-moulded diamonds
 Lead metal, colourless
 English, third quarter 18th century?
 Base diameter 71 mm
 Fort Beauséjour (2E17N18-77)

I have found no parallel examples in the literature on glass history, but the excavation context at Fort Beauséjour suggests deposit during the first British occupation there, 1755-68, and similar tumblers found at Michilimackinac (Brown 1971: Figs. 13g, h) were presumably deposited between 1760 and 1781. A fragment of similar manufacture and design at Rosewell, Virginia, has been dated after 1730, but is evidently from a jelly glass rather than a tumbler (Noël Hume 1962: Fig. 34, no. 7).
 (Drawing by Jane Moussette.)

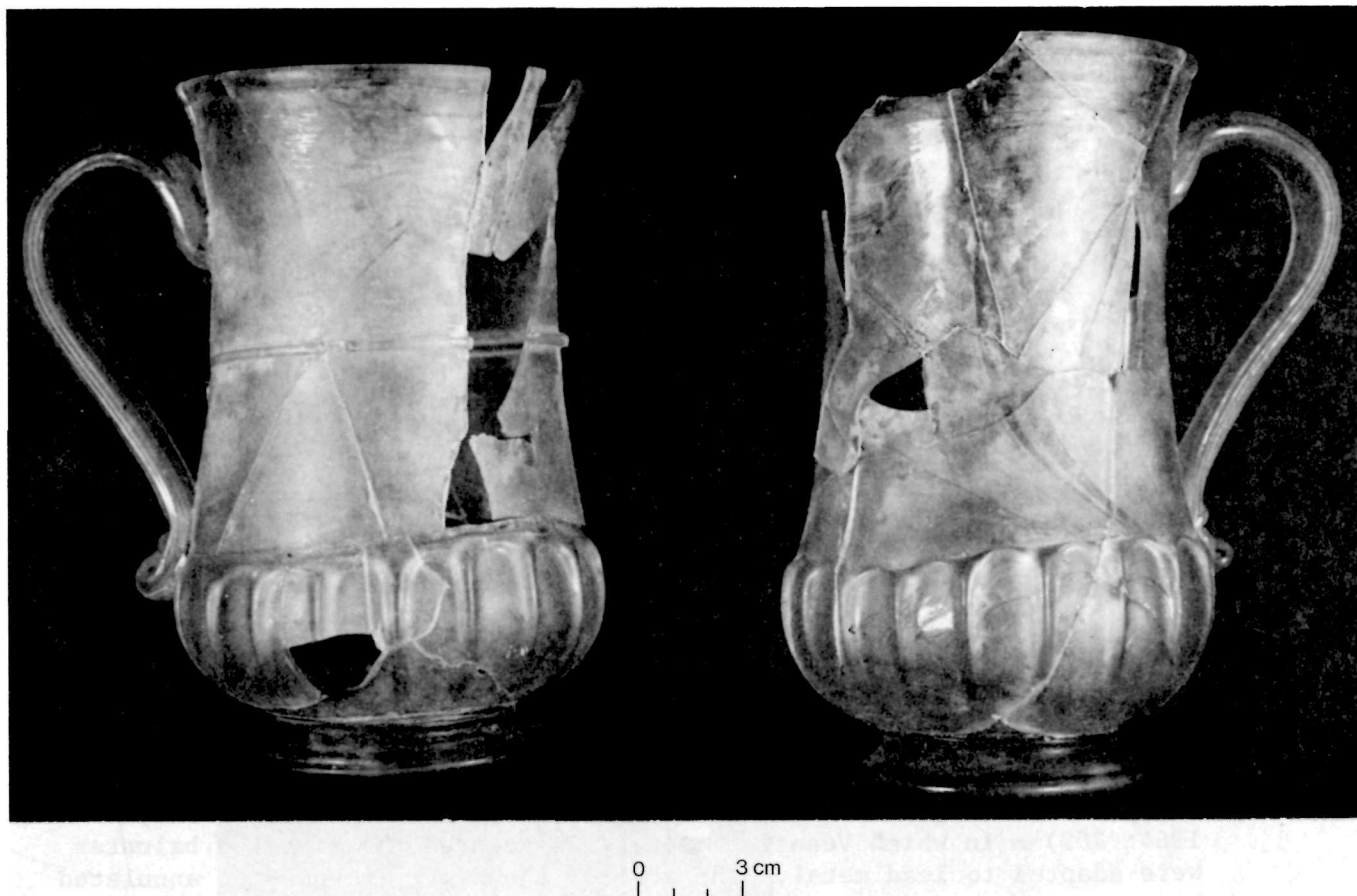


Figure 37. Two tankards, gadrooned and footed
 Lead metal, colourless
 English, mid-18th century or later
 Height of object on left 173 mm
 Fortress of Louisbourg (46L.4W4)

A similar tankard illustrated by Davis (1964: Pl. 28) is dated mid-18th century, but Wilson (1972: Fig. 37) dates an engraved example 1780-1800, and Hughes (1958: Pl. 39) shows an example with a 1785 coin enclosed between the foot and base of the mug. A handle found at La vieille maison des Jésuites is probably from a similar tankard, since it is the same size and shape as the handles on these ones and is similarly ribbed. A similar tankard was found at Michilimackinac (Brown 1971: 123, Fig. 14b and Pl. 25). (Photo by Velma McComber.)

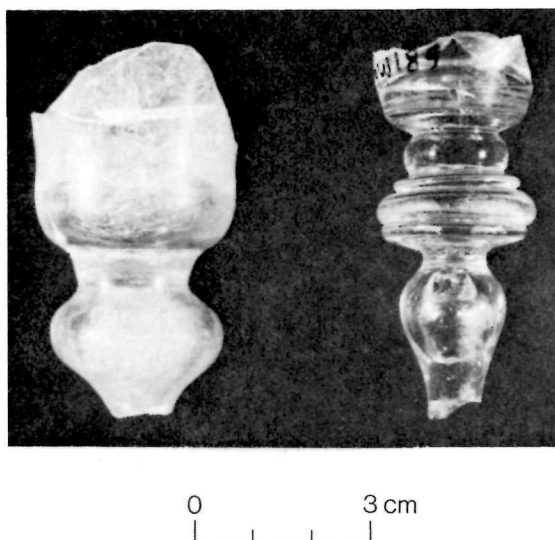


Figure 38. Stemware, baluster (*left*) and balustroid stem fragments
 Lead metal, colourless
 English, 1700-25 (*left*) and 1715-ca.1750
 Bowl base diameter (*left*) 33 mm
 Fort Anne (5B2J5-11, 5B1M6-3)

The main feature of the stem on the left is a nearly hollow inverted baluster under a waisted bowl with a solid base. This is a typical stem of the baluster period – the first quarter of the 18th century (Haynes 1964: 209) – in which Venetian prototypes such as the inverted baluster were adapted to lead metal. The stem on the right features an annulated knop over a teared inverted baluster, and the bowl is apparently a cross between round funnel and conical. Such a stem combination is typical of the entire baluster period (1715-50) according to Haynes (1964: 213). The distinction between baluster and balustroid is made on the basis of knop elements. If one knop is decisively the principal feature of the stem to the exclusion of other elements, it is a baluster; if no single stem element predominates, it is a balustroid, (Haynes 1964: 209-10). The balustroid stem tends to be taller and less massive than the baluster. (Photo by G. Lupien.)

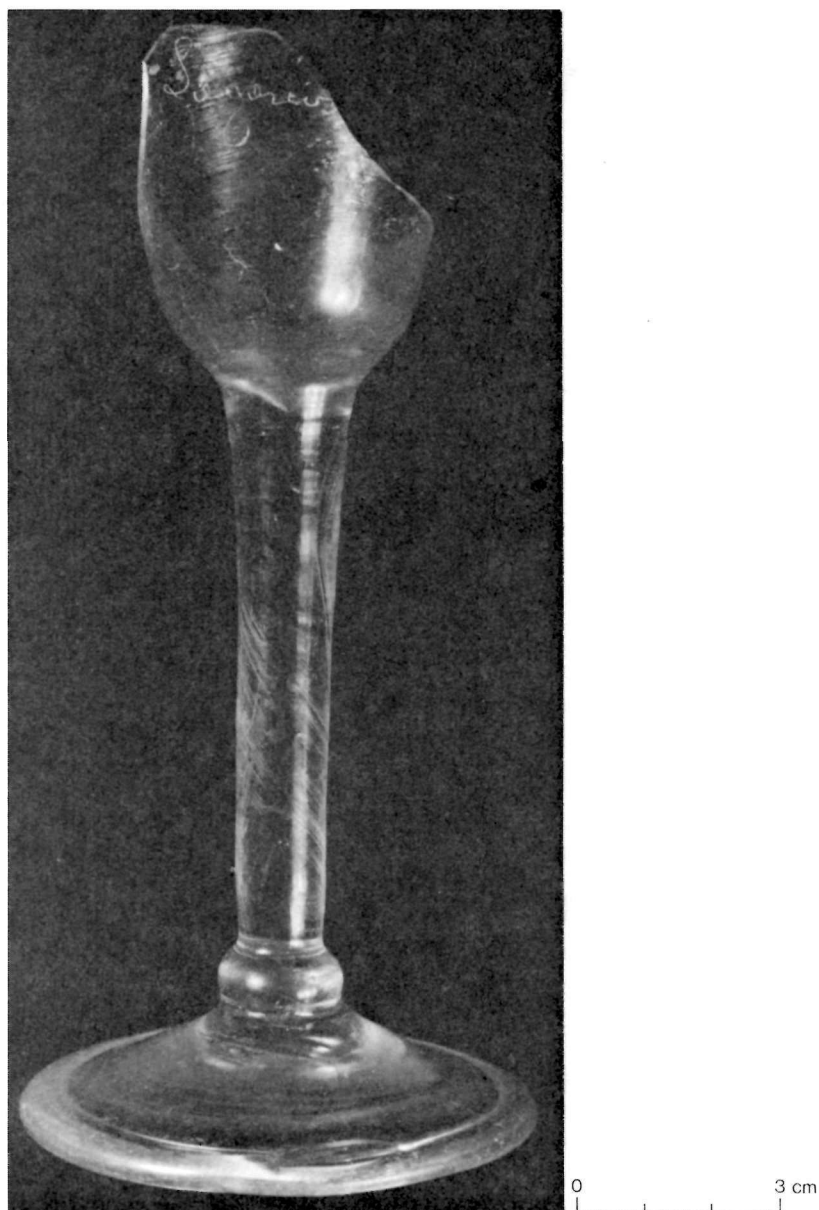


Figure 39. Stemware, "deteriorated" balustroid stem
 Lead metal, colourless
 English, ca. 1740-60
 Height 146 mm

Fortress of Louisbourg (1B.1B2.282)

Late in the balustroid period, the knopping dwindled to a rudimentary bump at the foot, and the metal might be of poor clarity (Haynes 1964: 222); the metal of this example is streaky. The folded foot rim was a common feature on English glasses until about 1750 but rare thereafter (Thorpe 1969: 209; Elville 1951: 88), although it became common again on lightly made, cheap glasses in the late 18th and early 19th centuries (Elville 1951: 89; and Fig. 72). This example's round funnel bowl bears some improvised diamond engraving, probably scratched on by its owner, reading "Lègeriv...." Similar glasses without engraving were found at Fort Beauséjour and Fort Anne.

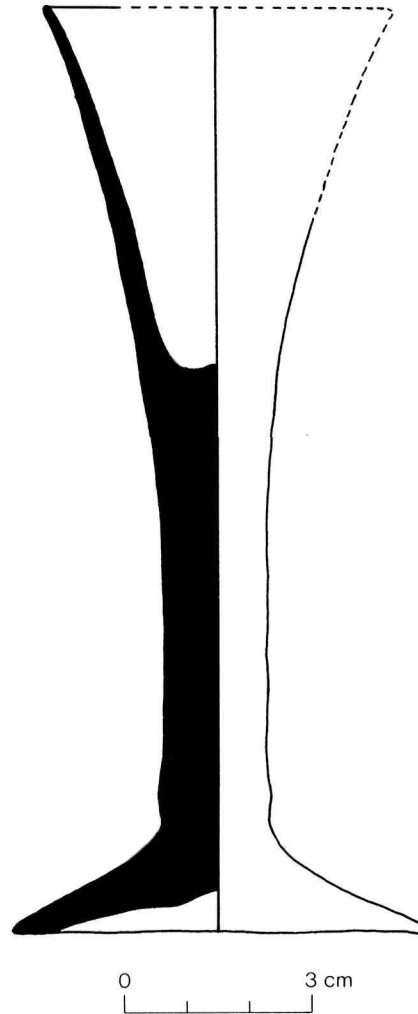


Figure 40. Stemware, plain stem
 Lead metal, colourless
 English, ca. 1730-65
 Height 147 mm
Le Machault wreck (2M6A3-4)

This tall, elegant glass is quite distinct from later plain stem glasses (Fig. 71) which were more lightly and apparently more cheaply made. The period of greatest popularity was ca. 1740-60 (Hughes 1956: 89), but this period of popularity is not as rigidly proscribed as those of more decorative styles in the excise period. Frequently, tears occur in the stem, ranging from small tear-drop enclosures immediately below the bowl to a thin column of air the length of the stem, and may indicate that the specimen is earlier than ca. 1750, according to several writers on English glass (e.g. Elville 1961: 155). The glass shown is one of several from the wreck of the *Le Machault*, 1760, and demonstrates the attraction English glass had for French consumers (McNally 1972a: 12-17). Other specimens were found at the Fortress of Louisbourg and at Fort Beauséjour. At the former site, non-lead glasses of similar form were found, apparently made on the Continent (Fig. 29). (Drawing by S. Martin.)

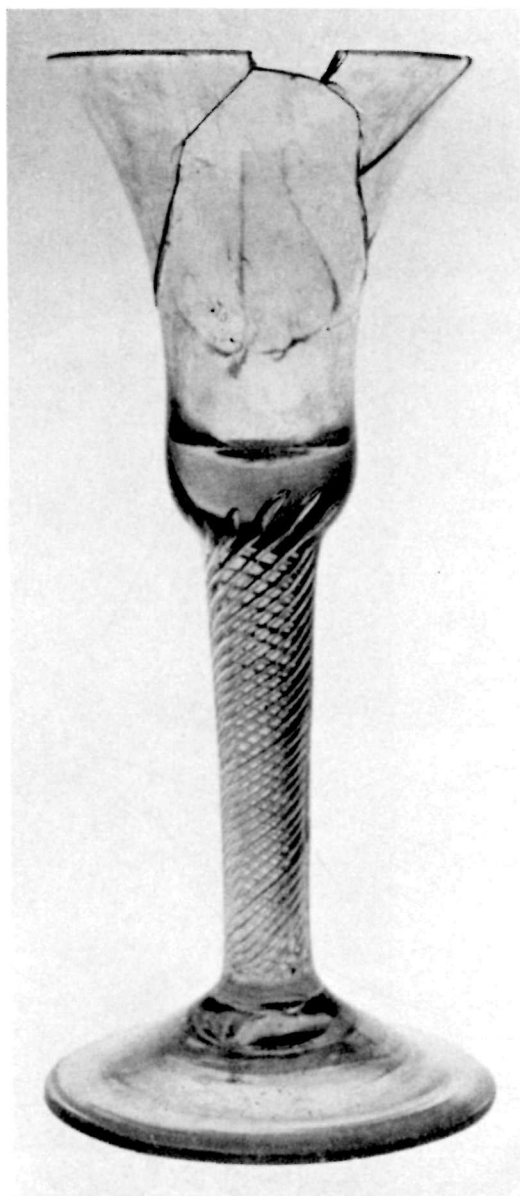


Figure 41. Stemware, air-twist stem Lead metal, colourless
 English, 1740-70 Height 173 mm
 Fortress of Louisbourg (3L.6E5.1)

It is thought that the air twist, a characteristic English style, had its tentative beginnings in elongated tears in stems and in teared stopper finials, and that it might in some instances date to the 1730s. A possible date for this particular specimen is ca. 1750 (Turnbull and Herron 1970: 131), but 1740-70 is the general dating for the stem style (Thorpe 1961: 200). This specimen is a two-piece glass - the stem was drawn out after tears had been enclosed in the thick base of the waisted bowl. The twist is a single-series, multiple spiral. (A classification of twists, air and opaque, is to be found in Haynes [1964] - normally, no chronological significance is attached to twist variations.) Other air-twist stems were excavated at Fort Beauséjour and Fort Amherst and reported from Michilimackinac (Brown 1971: 120) as well as Virginian sites (Noël Hume 1969: fig. 9, 10). (Photo by Danny Crawford.)

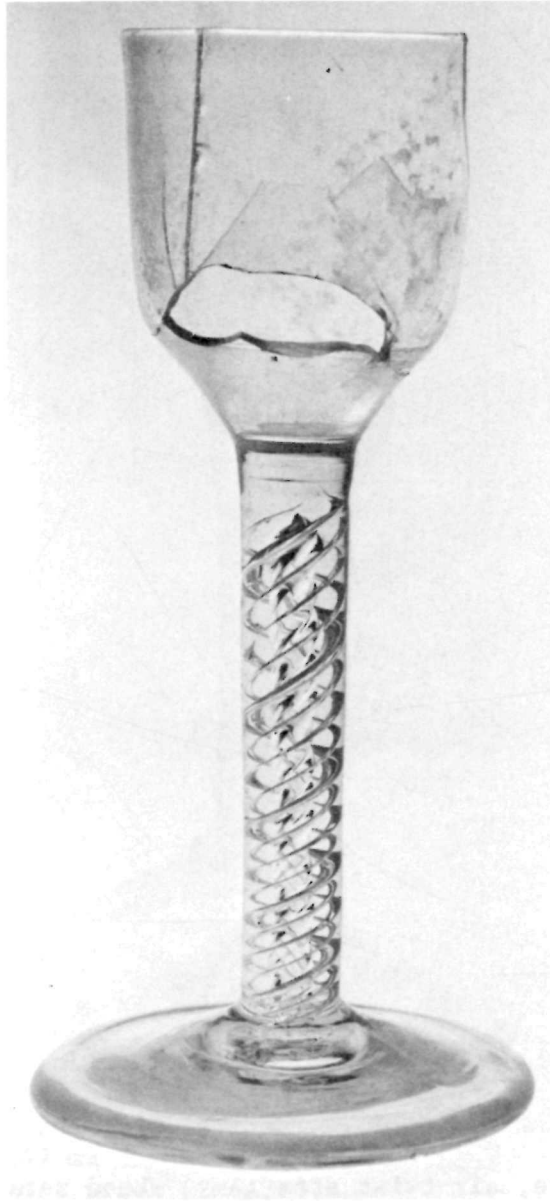


Figure 42. Stemware, air-twist stem

Lead metal, colourless

English, 1740-70

Height 143 mm

Fortress of Louisbourg (17L.26E5.1)

The ogee bowl was common on excise period English glasses, especially those with twist stems. On this specimen, the double-series twist (multiple spiral around double corkscrew twist) necessitated three-piece construction - the stem was made separately and then attached to the base of the bowl. Three-piece stemware are sometimes called stuck shanks, and here that name is quite graphic, for the tooling at the join between stem and base of bowl is clearly visible as horizontal striations. (Photo by Danny Crawford.)

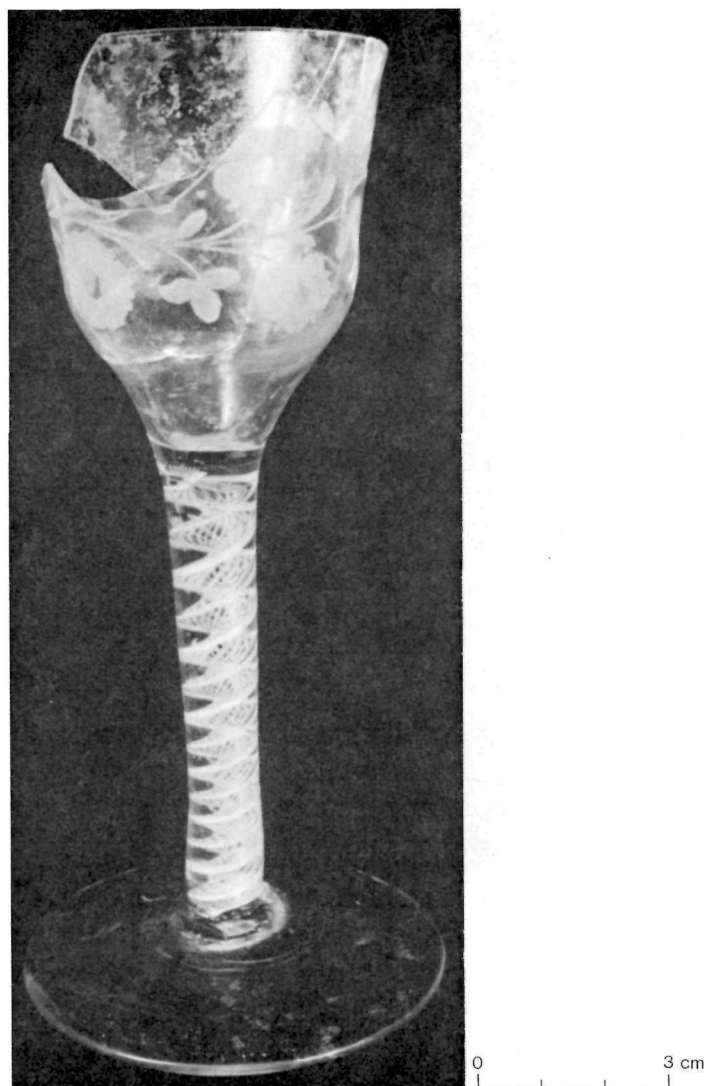


Figure 43. Stemware, opaque-twist stem with flower-engraved bowl
 Lead metal, colourless; English, 1750-70
 Fortress of Louisbourg (1B.1B2.281)

The opaque twist, another of the compensation by ornament styles typical of the English rococo in glass, became popular by the early 1750s (Haynes 1964: 267). Changes in the excise tax in 1777 apparently played a role in the demise of the style by 1780 (Thorpe 1969: 213-14). This particular stemware may be more narrowly dated because of the engraving on the bowl. Contemporary advertisements referred to such engraved pieces as flowered glasses, and the dates of such advertisements indicate their vogue began about 1740 and lasted not far beyond 1760, when more formalized motifs began to hold sway (Thorpe 1969: 241-43). The dating for this glass is supported by its context, for English occupation at Louisbourg more or less ceased in 1768. Opaque-twist stems were also found at Forts Beauséjour, Amherst and Lennox, on the *Le Machault* and at Artillery Park. Brown (1971: 120, Pl. 19) records them at Michilimackinac, and Noël Hume (1969: 21) in Virginia.

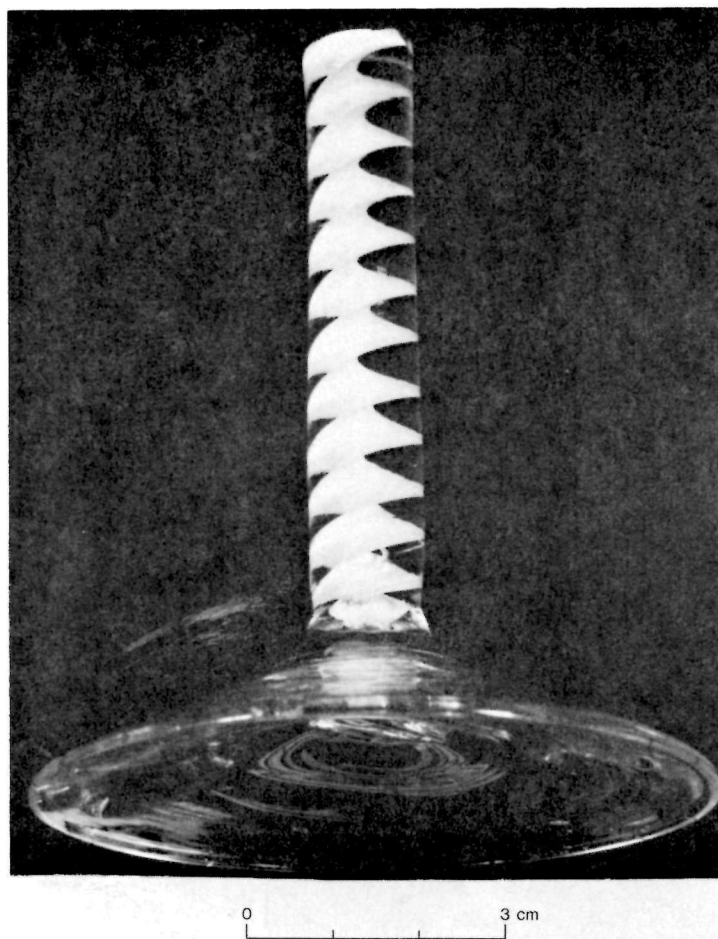


Figure 44. Stemware, opaque-twist stem with plain foot
 Lead metal, colourless
 English, 1750-80
 Extant height 90 mm
 Fort Amherst (3F5C3-1)

This is a single-series twist, the wide twisted band called laminate because it is made up of many rods of opaque white glass placed closely together. The manufacturing technique for opaque-twist or enamel-twist stems is as follows: the stem, made separately and then joined to the bowl, was formed by lining a cylindrical cavity or mould with coloured glass rods spaced as desired, and pushing a gather of colourless metal into the mould, thus embedding the rods in the colourless metal; with marvering and a further gather the enclosure was complete, and the parison could be drawn and twisted to form a long cane of the appropriate thickness. To form double-series (twist within a twist) stems, the procedure would be repeated before drawing. The long cane would then be broken up to make stems (for detailed description and diagramming *see* Wilson 1972: 22-23). The illustrated example has a large, high foot, with distinct tooling striations on the surface: these features are characteristic of excise period English stemware feet, as opposed to those of the 19th century which are lower, smaller, and rather disc shaped.



Figure 45. Stemware, opaque-twist stem with bowl
 Lead metal, colourless
 English, 1750-80
 Extant height 64 mm
Le Machault wreck (2M105B1-1)

This is a double-series twist, a corkscrew within a corkscrew. The bowl is round funnel shape, a common excise period English form. Found in the wreck of a French ship sunk in 1760, this glass was evidently in the possession of the French, either as booty or as an importation. Thorpe (1961: 210) argues that it was the rococo flair to English glass (which twist stems epitomize) that was particularly attractive to French consumers. (Photo by G. Lupien.)

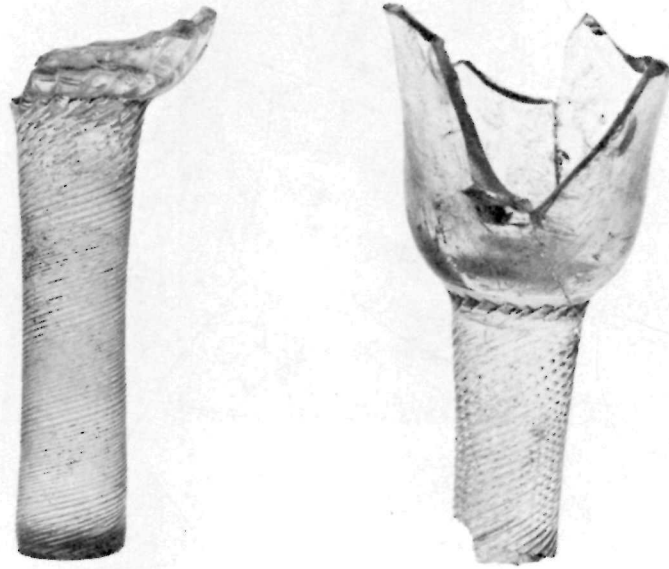


Figure 46. Stemware, incised-twist stems with bowls

Lead metal, colourless

English, ca. 1750-65

Height of fragment on left 65 mm

Fortress of Louisbourg (3L.1B3.3, 3L.1B3.1)

The incised twist is yet another of the compensation by ornament decorative stems used in the immediate post-Excise Act period by English glassmakers, but it is much less common than the air and opaque twists or the facet-cut stems. These are the only examples, in fact, excavated to date by Parks Canada. The decoration was imparted by drawing the stem through an intagliated matrix, and then twisting. Some stem fragments from two-piece plain stemmed glasses of the sort shown in Figure 73 have pattern-moulded ribbing on the bowl continuing onto the stem and might show slightly spiralled, regular incisions. However, these are not to be confused with the legitimate incised twist, which is quite distinctive. Numerous authorities might be cited for the dating ca. 1750-65 (e.g. Ash 1962: 111; Elville 1951: 100). Contextual archaeological evidence for these two fragments concurs with such a dating. Both bowls are apparently round funnel shape, that on the right being slightly waisted. The bowl on the left is pattern-moulded with spiral ribbing. (Photo by Danny Crawford.)

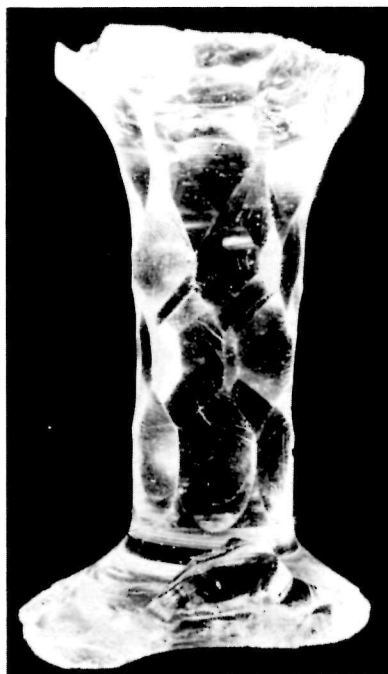


Figure 47. Stemware, facet-cut stem
Lead metal, colourless
English, after 1760-ca.1800
Height of stem 50 mm
Fort Beauséjour (2E1652.15)

The stem shown has hexagonal facets, but elongated diamonds were also used in the same period. The facet-cut stem has a very early history influenced no doubt by Bohemian styles (Fig. 21) going back to before the excise, but is extremely rare until about 1760 (Haynes 1964: 285). Even 1760 may be early - finds in Canada suggest that an advertisement in the *Quebec Gazette* calling the style new-fashioned in 1772 is probably correct. About 1790, the style seems to be supplanted by small glasses with six flutes all the way up the stem and onto the bowl (Fig. 84). The example shown has a short, thick stem, and though the bowl is missing, the stem could be from a compote rather than a wine glass. Cutting proved the most lasting of English techniques in table glass decoration, though motifs changed radically after 1780. Facet-cut stems were also found at Coteau-du-Lac, La vieille maison des Jésuites, and Fort Amherst. (Photo by G. Lupien.)

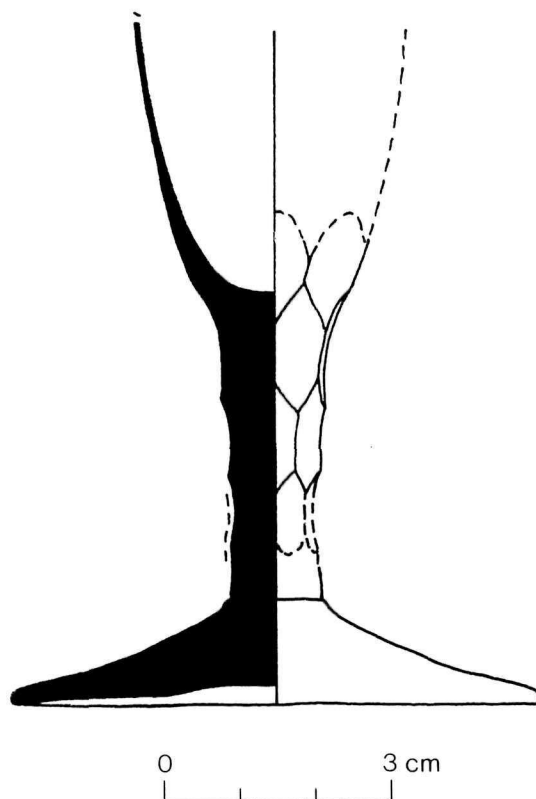


Figure 48. Stemware, facet-cut stem glass (reconstructed drawing)
 Lead metal, colourless
 English, after 1760-ca. 1800
 Foot diameter 67 mm
 Fort Beauséjour (2E16A4-7)

The bowl, which was a more or less conical form with slight incurve, is made almost ogee shape by the elongated facets at the bottom. According to Ash (1962: 104-5), these facets joining the stem and the bowl, called bridge flutes, are not found on the few examples of facet-cut stem glasses that predate 1760. It is noteworthy that this and other facet-cut stem glasses in the collection have an unfinished pontil mark. Since the glasses were evidently on the cutting wheel anyway, this observation can only be taken as evidence of the truth of an old rule of thumb, to the effect that 18th-century English glassware rarely or never has finished pontil marks. (Drawing by Jane Moussette.)

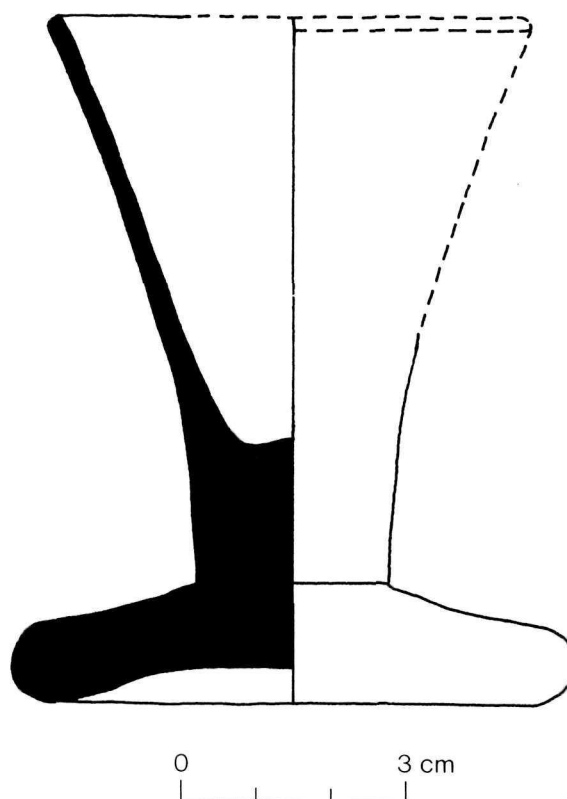


Figure 49. Firing glass
 Lead metal, colourless
 English, ca. 1750-80
 Foot diameter 73 mm
 Fort Beauséjour (2E17J13-24)

The dating of 1750-80 reflects the period of greatest popularity as indicated by collections found on Parks Canada sites. The literature on glass tends to consider firing glasses popular at least throughout the second half of the 18th century (e.g. Ash 1962: 84-86). However, firing glasses are numerically strongly represented in third quarter contexts at Fort Beauséjour, Louisbourg, and Michilimackinac (Brown 1971: 120-21), prove rare in the later 18th century at Forts Coteau-du-Lac and Lennox, and do not occur on sites with large and comprehensive representation of early 19th-century table glass, such as Fort George. The glasses have a popular connotation as toasting glasses, in which use their thick and strong foot was rapped on a table to express approval and is said to have produced a racket similar to musketry - hence their name. Advertisements of the period (including several in the *Quebec Gazette* in the 1770s) refer to them as "mason glasses." Hogarth's 1750 engraving *Gin Lane* shows that similar glasses were used for spirits. (Drawing by Jane Moussette.)

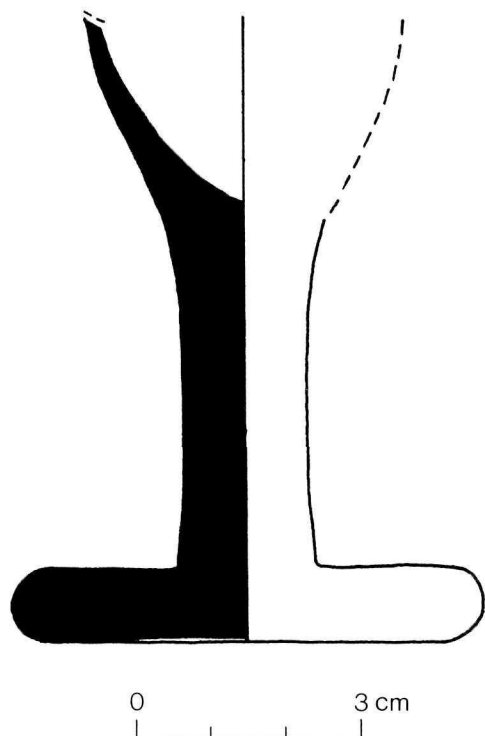


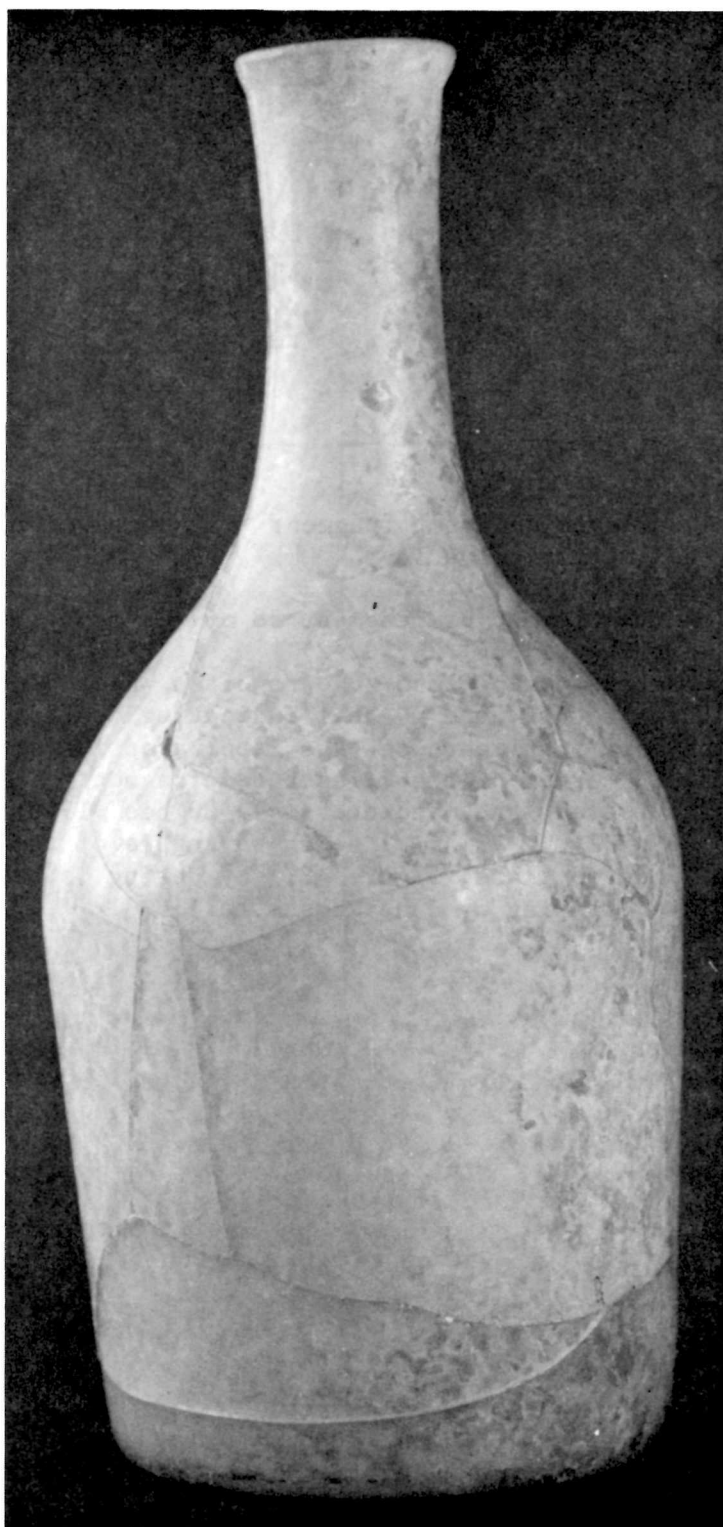
Figure 50. Firing glass variant
Lead metal, colourless
English, ca. 1750-80
Foot diameter 62 mm
Fort Beauséjour (2E23J3-34)

This is a variant on the normal firing glass, with a taller, thinner stem, and the normal trumpet-bowl tending in this instance toward a round funnel. Variants of the standard form are rare in the collection, but Brown (1971: 121) records other varieties of bowl shape at Michilimackinac. Another possible variant, an example of which was found in fragmentary condition at Fort Beauséjour, might have an opaque-twist stem. (Drawing by Jane Moussette.)

Figure 51. Decanter, shouldered
Lead metal, colourless
English, third quarter 18th century
Height 242 mm
Fortress of Louisbourg (17L.27E5.2)

This is a normal decanter shape for the period (Hughes 1956: Pl. 215, 221) when they were often engraved (Fig. 52) with labels and foliate motifs. The stoppers were either spire shaped or lozenge shaped (Hughes 1956: Pl. 221), in either case often cut (Figs. 56 and 57a). Eighteenth-century decanters are rare on Canadian sites probably because they were expensive. In Book II of *The Prelude* (1850, lines 140-44), referring to the 1780s, Wordsworth describes a "splendid" inn, as distinguished from humble public houses:

"no homely-featured house,
Primeval like its neighbouring cottages,
But 'twas a splendid place, the door beset
With chaises, grooms, and liveries, and within
Decanters, glasses, and the blood-red wine."
(Baker 1954; photo by D. Crawford.)



0 3 cm

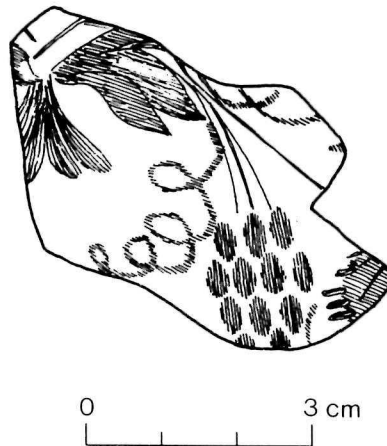


Figure 52. Shouldered decanter fragment with engraved label

Lead metal, colourless

English, 1755-70

Maximum length of fragment 58 mm

Fort Beauséjour (2E22C2-2)

Shouldered decanters during 1755-70 were often wheel engraved with foliate and grape motifs, and a label indicating designated contents, "Red Wine" or "Port" for instance. The label area is partially present at the upper left corner of the illustrated fragment. For illustrated examples of shouldered label decanters *see* Hughes (1956: Pl. 221) and Thorpe (1969: Pl. CXXVII). The engraving is of the same period and style as the flowered glass, Figure 43. My dating is based on Thorpe (1969: 319-20). (Drawing by Jane Moussette.)

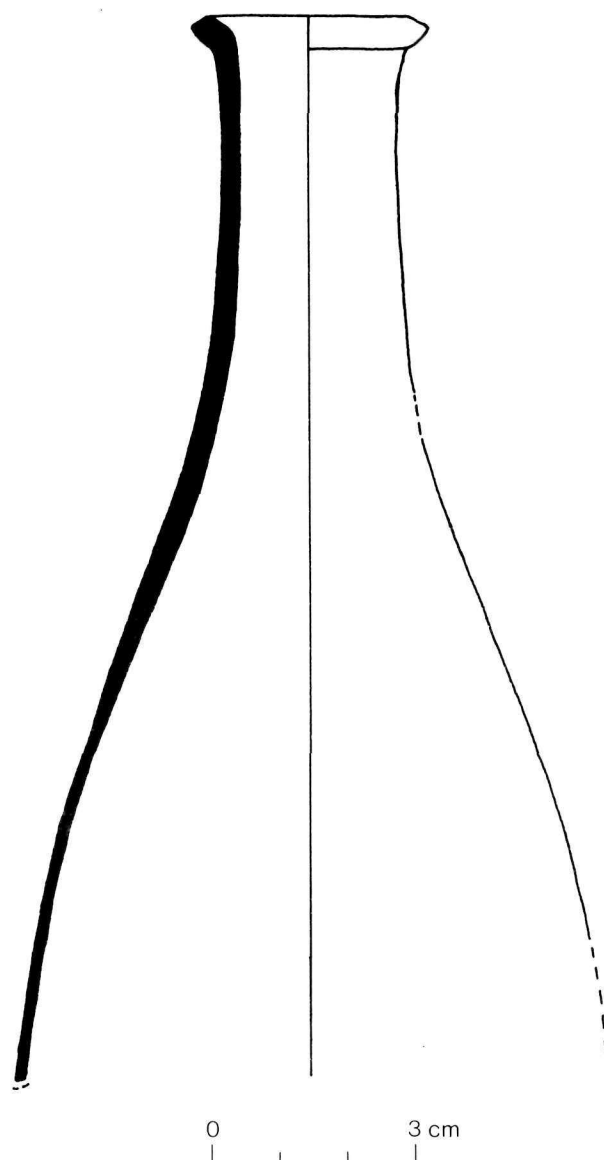


Figure 53. Decanter neck and shoulder, taper style
 Lead metal, colourless
 English, second half 18th century
 Diameter of lip 35 mm
 Fort Beauséjour (2E19Q13-8)

This decanter, with slightly everted lip and ground orifice for a stopper, seems to be of the tall shouldered variety, most current in the third quarter of the 18th century, but lasting until the end of the century (Hughes 1956: 255). Thorpe (1969: 320) describes a form called the taper decanter, with slender, almost non-existent shoulder, beginning in the late 1760s, as a late development of the shouldered decanter, and the illustrated fragment seems to agree with his description. (Drawing by Jane Moussette.)

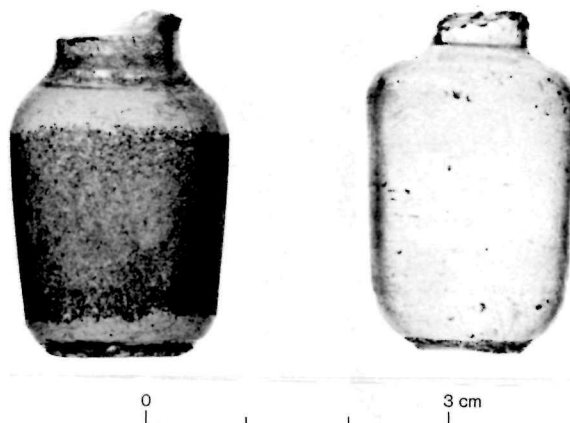


Figure 54. Stopper shanks, ground (*left*) and unground
 Lead metal, colourless
 English, *left* 18th or 19th century; *right*
 pre-ca. 1750
 Height of shank on left 25 mm, height of shank on right
 27 mm
Left Coteau-du-Lac (9G23A1); *right* Fort Anne
 (5B1H1)

While stopper shanks were ground for a tight seal as early as 1665 (McKearin 1971: 123), Hughes (1956: 254) states that the practice did not become routine until about 1745. Thus unground shanks (which are exceptional in the collection) are presumably early. (Photo by R. Chan.)

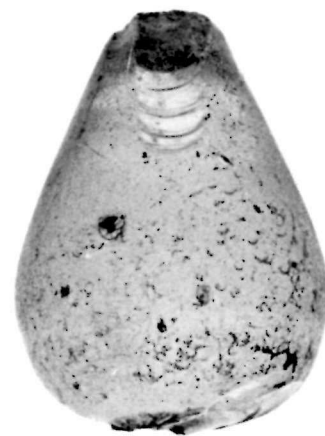


Figure 55. Stopper, teared ball
Lead metal, colourless
English, 1720-70
Diameter 36 mm
Fort Beauséjour (2E13C3-14)

Noël Hume (1970: 200) indicates that these were used with "mallet" decanters from 1720. They obviously outlasted the decanter style, which ended by 1740, for they occur with some persistence in archaeological contexts of the 1760s. This example, for instance, was deposited after 1755. Examples at Fort Ligonier were deposited between 1758 and 1766 (Grimm 1970: Pl. 64). The style bears enough relation to the air-twist stem (Figs. 41 and 42) to suggest concurrency in popularity. Hughes (1956: Fig. 219) shows a shouldered decanter, ca. 1770, with a similar stopper. Such stoppers were found at Forts Beaubassin and Amherst, at Louisbourg, and at Michilimackinac (Brown 1971: 125). (Photo by G. Lupien.)

Figure 56. Stopper, spire finial
Lead metal, colourless
English, mid-18th century
Height 47 mm
Fortress of Louisbourg (1B.1J49.34)

According to Thorpe (1969: 320) such a stopper would be normal on a decanter such as that shown in Figure 53, though spire stoppers would not be restricted to use on only that decanter shape. Dating is based on Thorpe (1969: 260) and on occupation dates at Louisbourg. (Photo by Danny Crawford.)



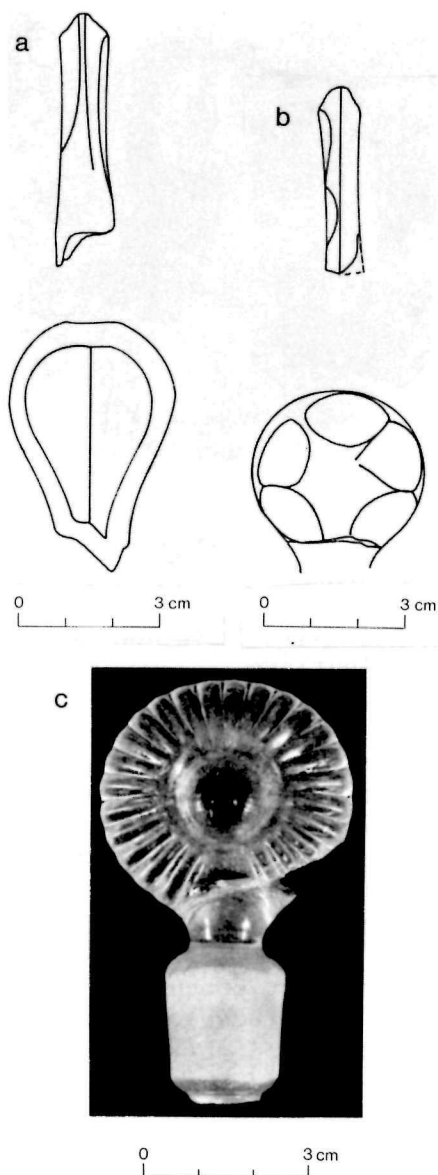


Figure 57. Three stoppers: a, lozenge finial; b, disc finial; c, target finial
 Lead metal, colourless
 English, 1760-70
 Heights: a, 50 mm; b, 37 mm; c, 48 mm
 a and b, Artillery Park (18G1E3, 18G2D1); c, Fort Coteau-du-Lac (9G1B21)

Between 1760 and 1770 the lozenge-shaped stopper finial (a) came into fashion (Elville 1953: 43) and is to be found on taper and shoulder decanters (Hughes 1956: Pl. 221). Somewhat later is the disc or wheel finial (b). The bull's eye or target finial (c) is formed by pincering with dies in a hand pressing method, and found on some Anglo-Irish period barrel- and Prussian-shaped decanters (Hughes 1956: Pl. 223). For a diagram of the pincering process *see* Hughes (1958: 109). (Drawing by K. Gillies.)

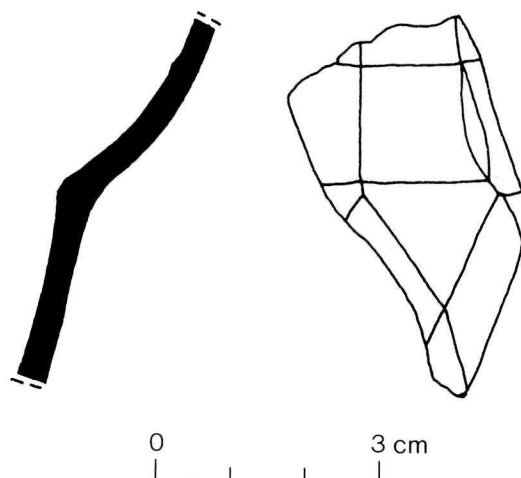


Figure 58. Cruet fragment, facet cut
 Lead metal, colourless
 English, 1750s
 Maximum length 49 mm
 Fort Beauséjour (2E17N18-76)

This is a shoulder fragment from a cruet, or perhaps a castor, but unfortunately too small to indicate the form of the vessel. In any case, it is from a vessel similar to those shown in Thorpe (1969: Pl. CXXXVII) and in Buckley (1925: Pl. XLI). The date offered for the illustrated fragment is based on the dates of these cruets and is commensurate with occupation at Fort Beauséjour. A similar fragment at Fort Amherst was deposited up to a decade later than the dating offered by Thorpe and Buckley. (Drawing by Jane Moussette.)



Figure 59. Salt, gargoyle-printed foot from tripodal salt
Lead metal, colourless
English, ca. 1740-60
Height 34 mm
Fortress of Louisbourg (1L.130D1.4)

The tripodal salt in glass, which is a cup-shaped bowl standing on three feet, was a direct copy of silver pieces in the period. Thorpe (1969: 329) dates the silver prototype between 1720 and 1760, and other writers agree that the glass tripodal salt may be dated ca. 1740-60. Complete vessels may be compared in Elville 1961 (Pl. 233) and Figure 60. (Photo by Danny Crawford.)

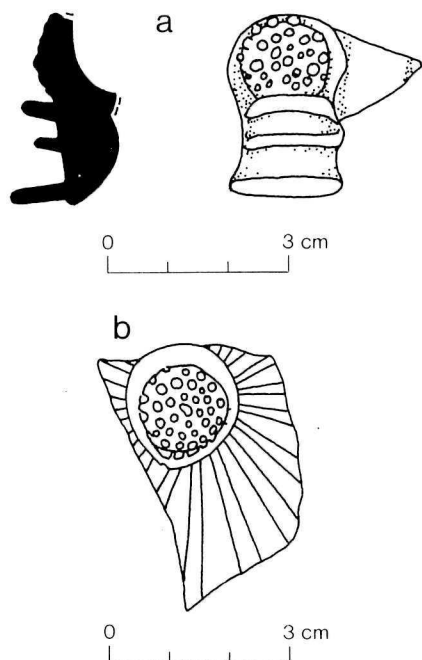


Figure 60. Salt, raspberry prunts from two tripodal salts
Lead metal, colourless
English, 1740-60
Height of (a) 29 mm, length of (b) 43 mm
Fort Beauséjour (2E17G8-10, 2E17N3-96)

The foot (a), shown in face view and cross section, and the prunted body fragment (b) are from very similar salts. The prunt in (b) disguised the pontil scar on the bottom of the bowl, which is pattern moulded with ribbing. These raspberry prunts are more common than the gargoyle prunt in Fig. 59; and other examples were found at Louisbourg. (Drawings by Jane Moussette.)

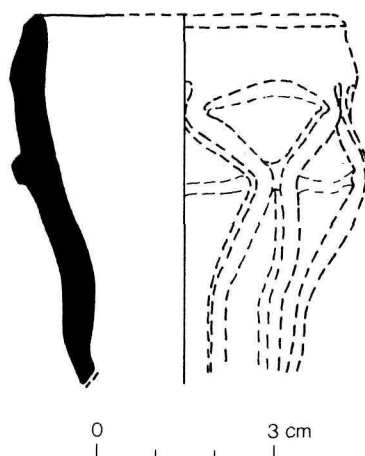
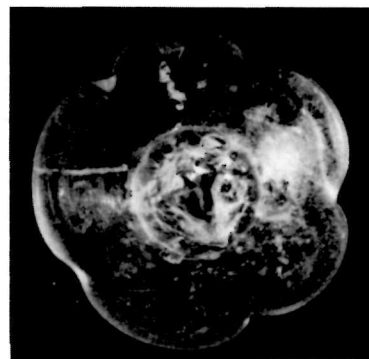


Figure 61. Bonnet glass bowl fragment, nupt diamond waies
Lead metal, colourless
British or American, 1760-1800 or later
Rim diameter 53 mm
Fort Beauséjour (2E16N4-8)

Nomenclature for these small glasses is varied: they are sometimes called monteiths or salts (McKearin and McKearin 1950: 236). They were probably used for a variety of condiments and desserts. The intrinsic decoration is called nupt diamond waies (Appendix B). The bowl shape is double ogee, a typical shape for bonnet glasses. Dating (1760-1800) is based on Haynes (1964: 291); Westropp (1920: Pl. XXVII, 5) gives an Irish example. The McKearins' examples, though all in coloured glass, raise the possibility of American manufacture after 1800. Other bonnet glasses were found at Fort George and at the Dauphine Barracks, Quebec. (Drawing by Jane Moussette.)

Figure 62. Bonnet glass foot, top view
Lead metal, colourless
British or American, 1760-1800 or later
Foot diameter 60 mm
Fort George (12H15G4-7)

Petal-like indentations were a fairly common treatment on bonnet glass feet (Davis and Middlemas 1968: 50; and McKearin and McKearin 1950: plate 58). The ribbed knop/stem is visible in outline. (Photo by G. Lupien.)



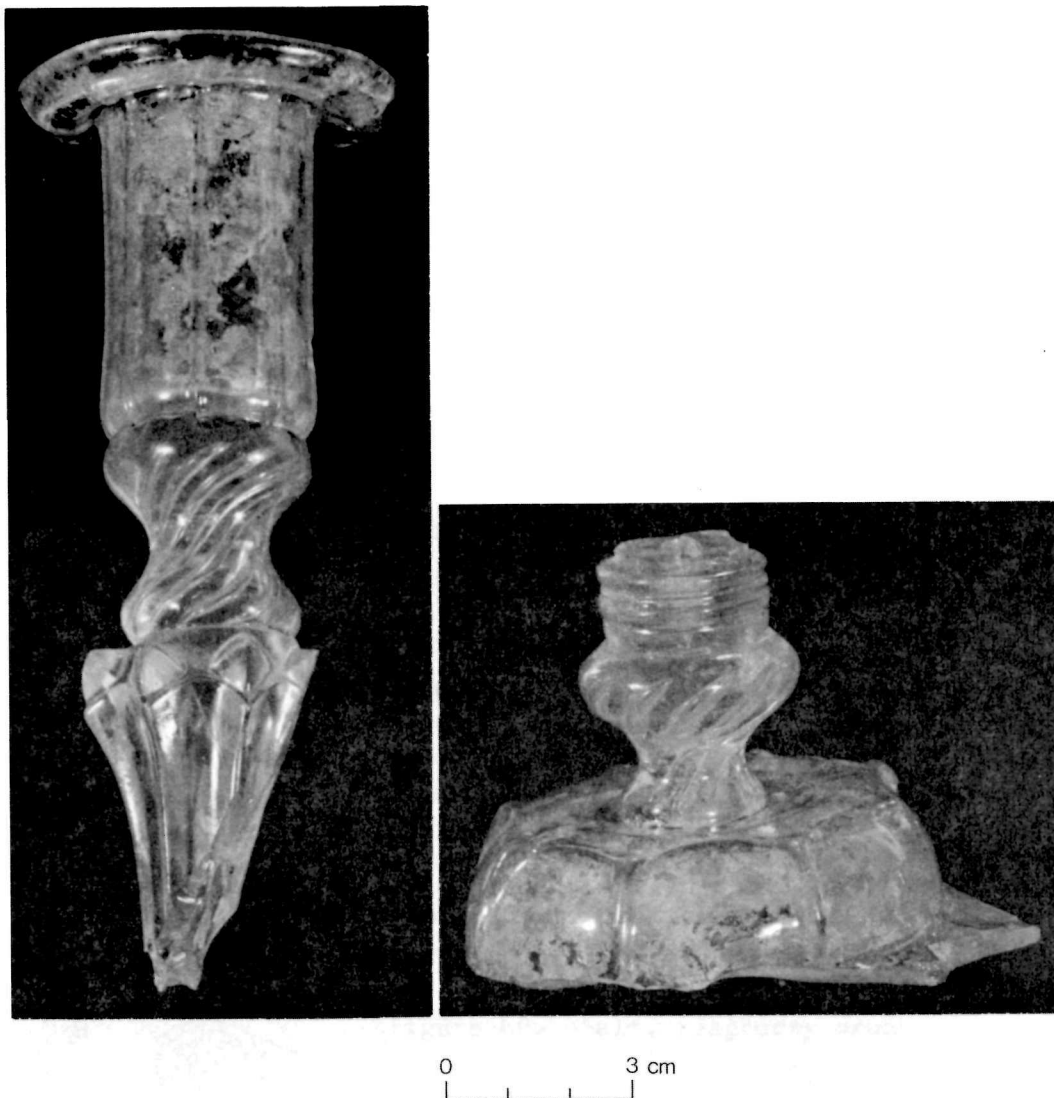


Figure 63. Candlestick
 Lead metal, colourless
 English, ca. 1735-50
 Height of left fragment 136 mm
 Fortress of Louisbourg (2L.18D2.36, 2L.18D2.36A)

This is the only positively identified glass candlestick in the collection. It combines two styles in English stemware, the moulded pedestal (so-called Silesian) stem and the air twist. Thorpe (1969: 313) states that in candlesticks, Silesian stems began about 1715 and continued until the middle of the century, but that air twists enjoyed only a brief period of vogue, around 1740, before they gave way to facet-cut candlestick stems. The domed, ribbed foot is characteristic also of the later part of the first half of the century. The Silesian stem has the same Bohemian antecedent as French *bouton carré* stems (Fig. 28) (Barrelet 1957: 114). (Photo by P. Jeddrie.)

The Anglo-Irish Period, 1780-1825

The English excise tax on glass did not apply to Ireland, but the exportation of any kind of glass from Ireland was forbidden. When this restriction on export was removed in 1780, a rapid expansion of the Irish glass industry followed immediately, and glassmakers working in Ireland operated free of excise duties until 1825 (Westropp 1920: 137-38). Thus 1780-1825 were the vigorous years of Irish glassmaking, and even though many of the entrepreneurs and the workers in Ireland were English, and glassmaking of course did not cease in England, the British glass of this period is popularly associated with Ireland, probably more on account of the influential Irish style than the actual quantity of glass made there (Warren 1970: 19-20).

The most distinctive and well-known Irish glass is "exuberantly" cut (Warren 1970: 19), and cutting is found to the near exclusion of any other decoration on glass of the period in Parks Canada's archaeological collections. But there is also more plain glass, and it is necessary to seek out the other stylistic attributes of the glass of the period. The most important new feature to be found in glass forms of the late 18th and early 19th centuries is a noticeable accent on the horizontal elements of design proportion (Thorpe 1961: 232-33; Hughes 1958: 106). On stemware, bucket bowls became common, knops reappeared, usually bladed or annular, centred on the stem, collars at the base of the bowl and steps at the foot all became common stemware elements at about the turn of the century; the foot became very low and flat, disc-shaped rather than conical, and sometimes moulded in a heavy square, and on the drawn plain stems of the period, folded foot rims reappeared about 1780, adding yet another horizontal focal point as well as strengthening the rather lightly made glasses. The most influential stemware form in this period is the rummer (Ash 1962: 132-39), a glass with a short stem and a relatively large, predominating bowl. The earliest rummers, beginning in the 1770s, had ovoid bowls, but after 1780 more and more had the bucket bowls and other horizontal elements of the smaller stemware forms. In decanter shapes, bodies became squatter, with the shoulder diameter as great or greater than the base, and neck rings, usually in a series of three, were introduced along with widely everted lips, all commencing about 1780 and becoming typical by 1800. Some of these developments, like the bucket bowl on stemmed vessels, provided good fields for cutting (Thorpe 1961: 232-33), but the forms were mainly the same even on plain wares. The most common cut motif was vertical fluting of various widths around the bottom of stemware bowls, tumblers and decanters.

During the same period, an increasing use of moulds gradually began to replace the labourious cutting of some shapes. An early development (by ca. 1770) was the application of simple dies affixed to the ends of pincers, for forming stopper finials and square feet for stemmed vessels (Hughes 1958: 109, 151; Fig. 77). By the late 18th century (Westropp 1928: 541), basal fluting on decanters and other vessels was more likely to be imparted by contact moulding in dip moulds rather than by cutting. The few examples of contact-moulded Irish or English glass vessels found on Canadian sites are fully moulded in multi-piece moulds and date to

the 19th century (Fig. 88). Some early contact-moulded salts, their rims finished by cutting (Westropp 1928: 543) have been found, although they may be American since American moulded glass developed only slightly later and to a greater extent than Anglo-Irish (McKearin and McKearin 1948: 240ff.).

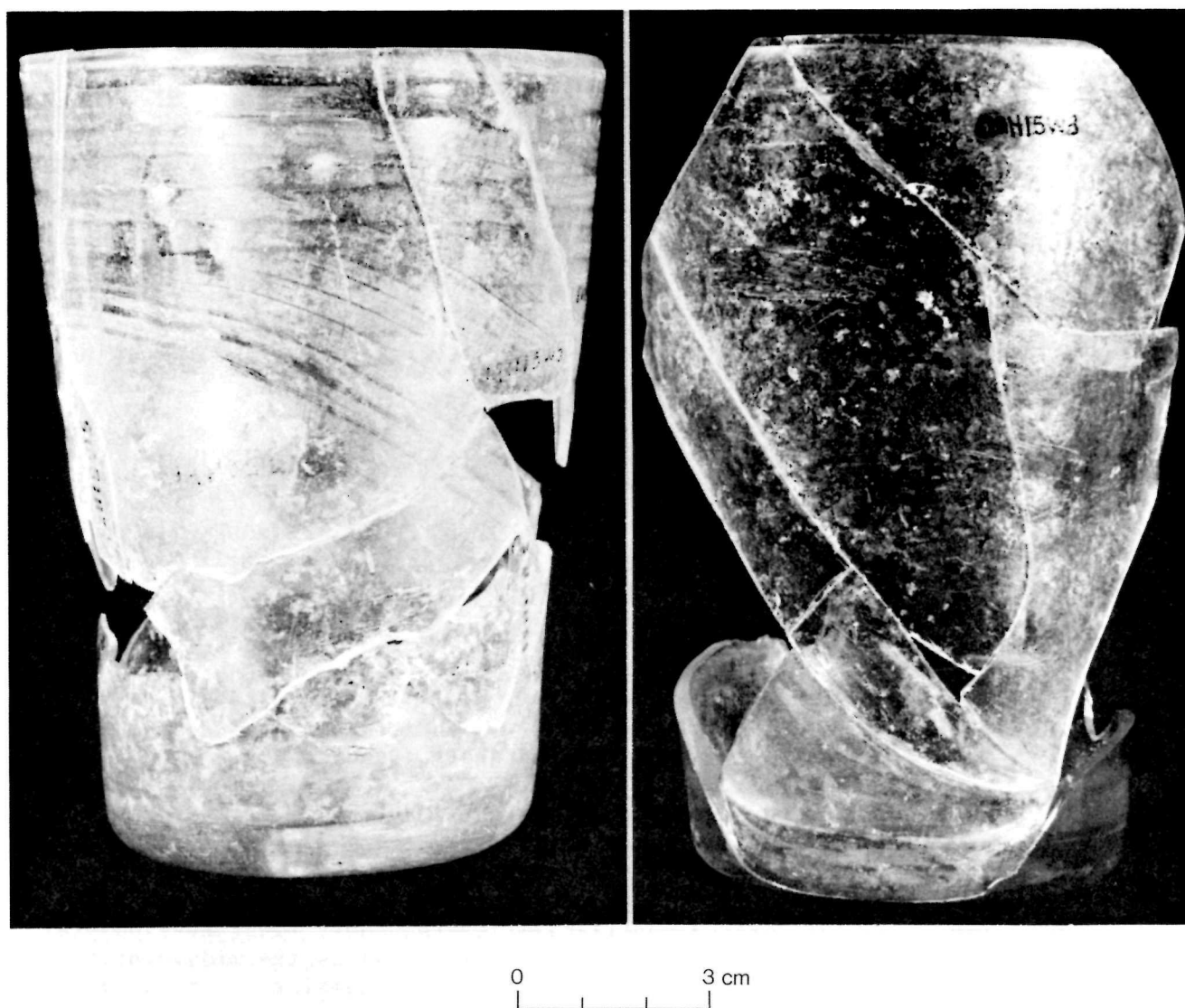


Figure 64. Two large tumblers, "Lynn" glasses
 Lead metal, colourless
 British, after 1770
 Height of left tumbler 125 mm
 Fort George (12H15W5-1, 12H15W3-5)

The distinguishing characteristic, though it does not show up well in the photograph, is horizontal ribbing on the upper half of the tumbler body. Glasses bearing this decoration are called Lynn glasses by authorities on English glass. The motif is presumed to identify pieces from the Lynn or Norwich areas in the 18th century (Elville 1961: 125-26), but few writers suggest dates of any precision. Hughes (1956: 334) says ribbed tumblers were made "from about 1770" but gives no terminal date. These tumblers, and fragments from Coteau-du-Lac and La vieille maison des Jésuites, are all from later contexts archaeologically, roughly the turn of the century. They were also found at Michilimackinac (Brown 1971: 121-22). (Photo by G. Lupien.)



Figure 65. Tumbler, plain
Lead metal, colourless
British, late 18th or first half 19th century
Height 81 mm

Underwater survey of the Richilieu River (6G21L1-1)

The very common plain lead metal tumbler, by the end of the 18th century, had become rather less conical than previously, lower and larger in diameter (cf. Fig. 35). The pontil mark on this example is unfinished, but a finished pontil mark is frequently found even on plain tumblers after the end of the 18th century. Towards the middle of the 19th century the role of the common undecorated tumbler is probably taken over by pressed panelled tumblers (Fig. 100).

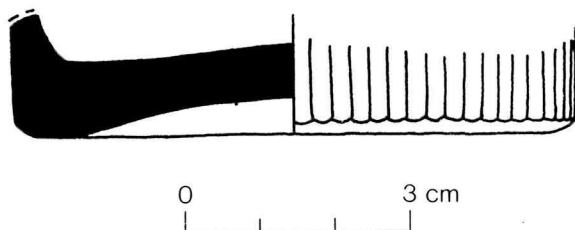


Figure 66. Tumbler, cut flutes
Lead metal, colourless
British, late 18th or first
third 19th century
Base diameter 74 mm
Fort Beauséjour (2E16A8-5)

This is a characteristic British cut motif, called fringe or finger cutting, which frequently surrounded bases in the manner illustrated or could be used in a band elsewhere on the vessel body (Figs. 79 and 87). The pontil mark is ground, leaving a smooth hollow on the base. (Drawing by Jane Moussette.)

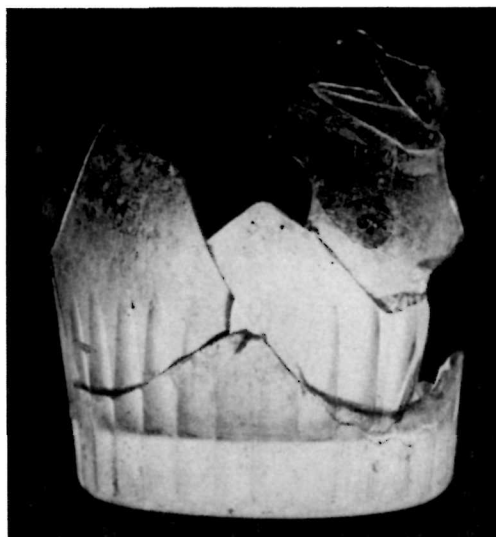


Figure 67. Tumbler, cut flutes
Lead metal, colourless
Probably British, late 18th and first half of 19th century
Base diameter 61 mm
Fort George (12H15F5-7)

Dating for a tumbler such as this one is never absolute - the English were decoratively cutting their lead glass objects by 1750 and are still doing so, and the basal flute, which in this case is narrow and concave but is more frequently broad and almost flat, is a fundamental motif. Cut flutes are most characteristic of Irish glass in the 1780-1825 period of prosperity, and glassware decorated in this way found on Canadian sites invariably seems to suit such a date range. The archaeological context for the illustrated example suggests, in all likelihood, the early 19th century, but tumblers with the same cut motif inevitably continue through the 19th century, although their occurrence after pressed glass captured the popular market is sharply diminished. Tumblers with cut flutes have also been found at Forts Beauséjour, Coteau-du-Lac, Lennox, George, and at Artillery Park and La vieille maison des Jésuites.

Taller tumblers, with only eight or nine very flat flutes, thicker bases and made in clear, hard-looking metal, are certainly 19th century, and probably second quarter or later (Fig. 97). In the 19th century, American manufacture for tumblers with cut basal flutes found on Canadian sites becomes an increasingly strong possibility, and the flutes might have been moulded and lightly overcut as a labour-saving technique (Sandilands 1931: 243). When this is the case, evidence of moulding can sometimes be discovered at the tops of the flutes where they join one another, or especially at the base; examples were found at Fort Beauséjour. (Photo by G. Lupien.)

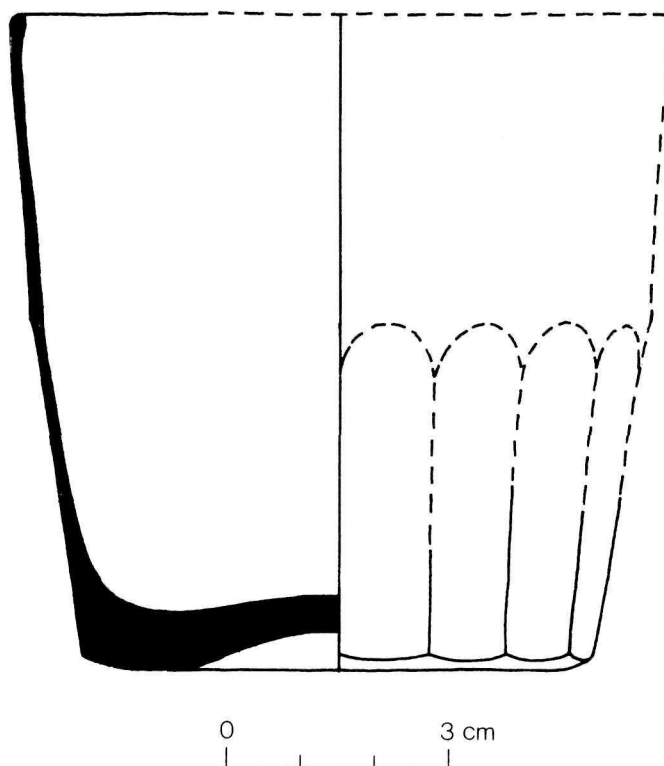


Figure 68. Tumbler, cut flutes
 Lead metal, colourless
 British, late 18th or first third 19th century
 Height 86 mm
 Fort Coteau-du-Lac (9G32J2-192)

Note once again the nearly vertical sides and low, wide profile (as on Fig. 65); date and attribution as Figures 66 and 67. The pontil mark is finished. (Drawing by Jane Moussette.)

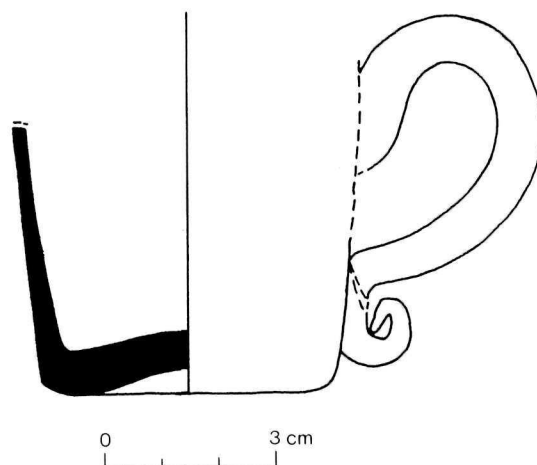


Figure 69. Punch cup fragments
Lead metal, colourless
British, second half 18th or first half 19th century
Base diameter 50 mm
Fort Beauséjour (body 2E16R30-22, handle 2E22J5-14)

The body, which is a small plain unfinished lead glass tumbler with a handle attached, does not with certainty mend with the handle shown, but its handle would have been similar in any case. No precise dating is possible, but the fact that the initial application of the glass forming the handle was at the higher point on the body of the vessel may indicate that it was made before 1830 (Wilkinson 1968: 21). Brown (1971: 123) reports similar handle fragments from Michilimackinac. (Drawing by Jane Moussette.)

Figure 70. Punch cup, handled and footed, cut flutes
Lead metal, colourless
British, late 18th or first half 19th century
Foot diameter 46 mm
Artillery Park, Quebec City (18G2B3-2)



In Georgian England, male drinkers normally consumed their spirits in the form of punch (Francis 1972: 156), a drink named after the Hindustani word for five because there were five standard constituents: rum, citrus juices, sugar, water and spices (Hale 1968: 304). In the cartoons of Cruikshank and Rowlandson, groups of men gathered around punch bowls usually imbibe from rummers (Figs. 74-79), but there were apparently special punch glasses as well. The cutting on this example suggests that it dates to the Anglo-Irish period. (Photo by G. Lupien.)

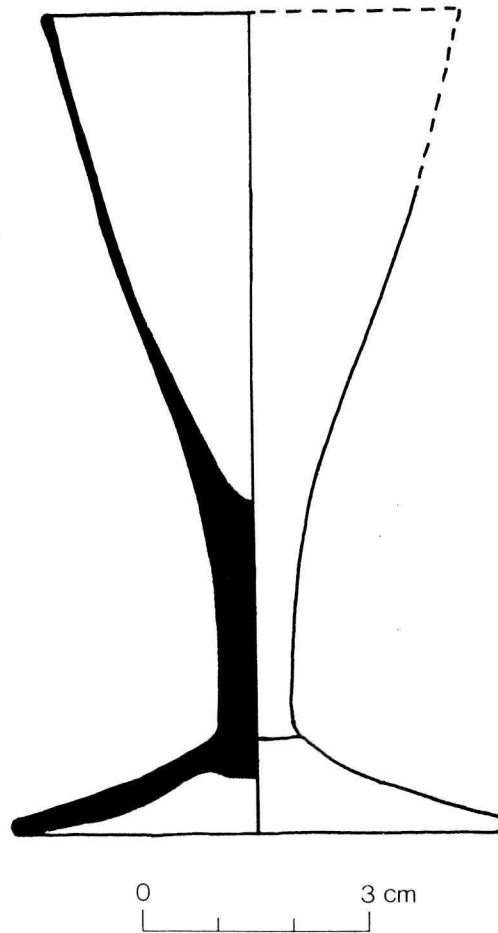


Figure 71. Stemware, common plain stem glass
 Lead metal, colourless
 British, ca. 1775 through early 19th century
 Height 108 mm
 Fort Beauséjour (2E19M6-21)

This glass must be distinguished from its elegant predecessor (Fig. 40); it is shorter and lighter. The glass is two-piece (the stem drawn out from the bowl and the foot formed from a separate gather of glass) and of very elementary manufacture, and the pontil mark is unfinished, which is virtually always the case on these glasses. This is the typical stemware glass of common usage for the last quarter of the 18th century to such a degree that Noël Hume dates it 1780-1805 (1970: 191). That is perhaps overly prescriptive but not very much so, since the form is certainly supplanted in common usage in the early 19th century by simpler examples of the centrally knopped stem and bucket bowl glass (Figs. 80-83). Note that the foot is still high, loosely indicative of 18th-century manufacture. This example is from Fort Beauséjour, where there were several examples of similar artifacts; they were also very common at Coteau-du-Lac, Fort George, Fort Lennox, 19th-century Roma and La vieille maison des Jésuites. (Drawing by Jane Moussette.)

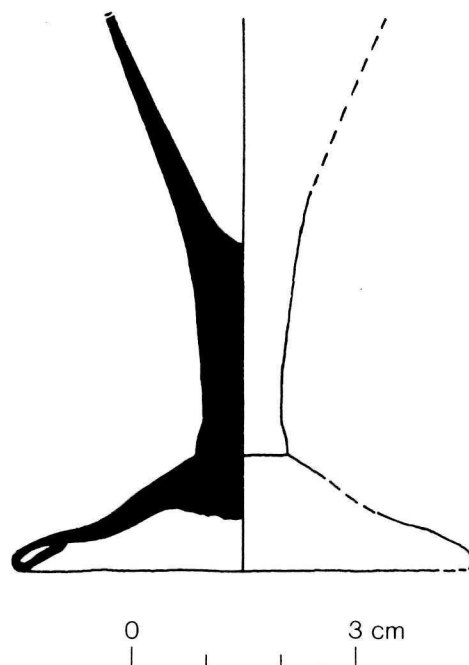


Figure 72. Stemware, common plain stem glass with folded foot
 Lead metal, colourless
 British, ca. 1780 to 1810
 Foot diameter 62 mm
 Fort Coteau-du-Lac (9G9C2-65)

According to Elville (1951: 89), the folded foot rim reappears, after some 30 years' absence, in about 1780. Although this claim finds no other support in the literature on English glass, it has consistently held true in contextual archaeological dating of the glassware in Parks Canada's collections. The reason can only be conjectured, but there are two possibilities. First is the growing emphasis on horizontal elements of form, after the general trend of Anglo-Irish design of wine glasses and decanters - bucket bowls, collars, bladed and annual knops on stemware and everted lips and squat bodies on decanters (Figs. 80-83, 87, 88); a fold on the foot rim does accentuate horizontality. Second, this sort of glass became the common tavern style and had to be sturdy but cheaply made. A folded foot rim strengthened the glass without using a great deal of extra material. At any rate, in the Parks Canada collection, plain drawn stemmed glasses with folded feet are at least as common as drawn stems with plain feet, during the late 18th and early 19th centuries. (Drawing by Jane Moussette.)

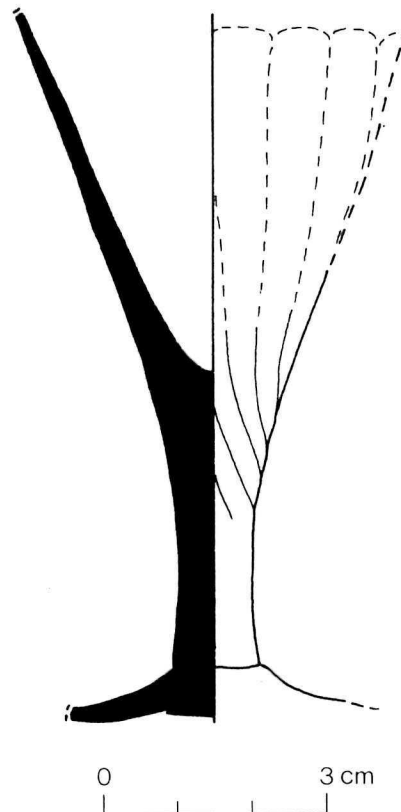


Figure 73. Stemware, common plain glass with pattern-moulded bowl
 Lead metal, colourless
 British, late 18th or early 19th century
 Extant height 100 mm
 Fort Coteau-du-Lac (9G6H4-2)

This plain stem glass, from Coteau-du-Lac, bears simple pattern-moulded ribbing on the bowl. Since it is a two-piece glass, the ribbing extends part way down the stem. In comparison with the rummer in Figure 76, it may be seen that common, cheaper wares often show a kind of debased kinship to more stylish and expensive glass. (Drawing by Jane Moussette.)

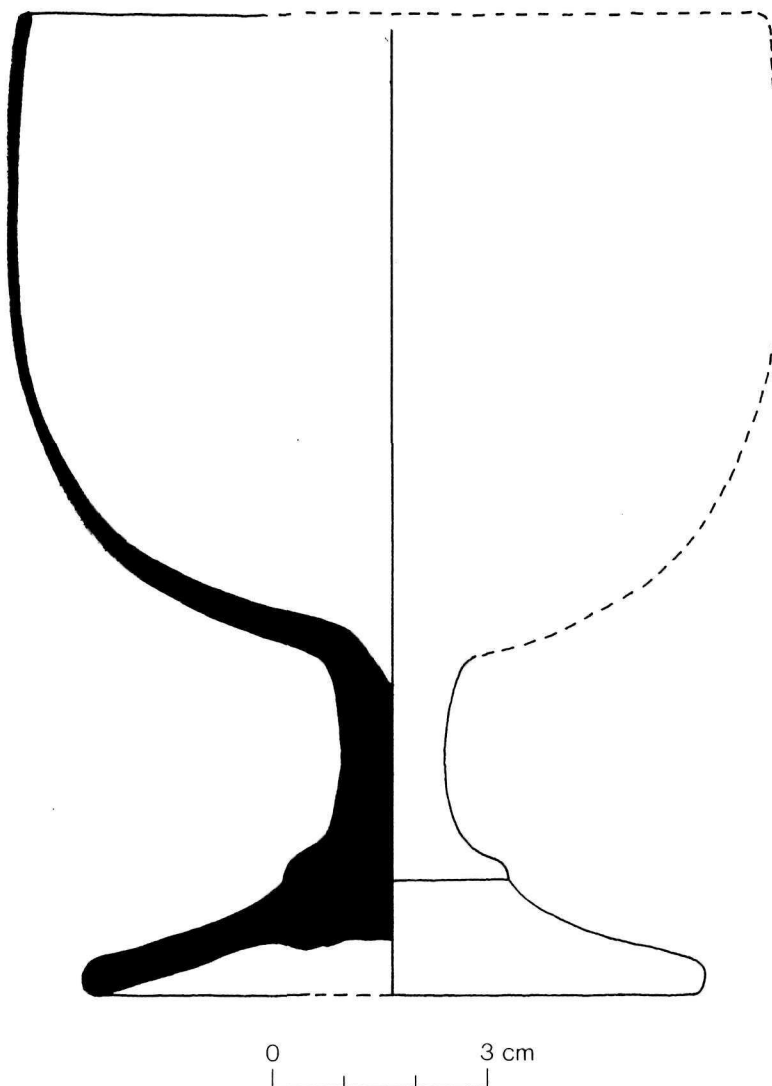


Figure 74. Rummer goblet, rounded bowl type

Lead metal, colourless

English, 1770-1800

Height 135 mm

Fort Coteau-du-Lac (9G32J2)

The rummer, which dates to 1770 at the earliest (Elville 1961: 159; Haynes 1964: 200), is an extremely important departure for English glass styles in general. Its generic attribute is the predominance, in size and shape, of the bowl over the foot and the comparatively short stem. The bowls usually held four ounces or more, but serious drinkers of the period might claim to consume six bottles of wine after dinner (Vizetelly 1882: 106; Francis 1972: 240). Note that the foot is still fairly high on this probably early prototype, but also that the spreading step at the join between stem and foot, along with the very large bowl, begins to emphasize horizontal lines (McNally 1971a: 72). (Drawing by Jane Moussette.)

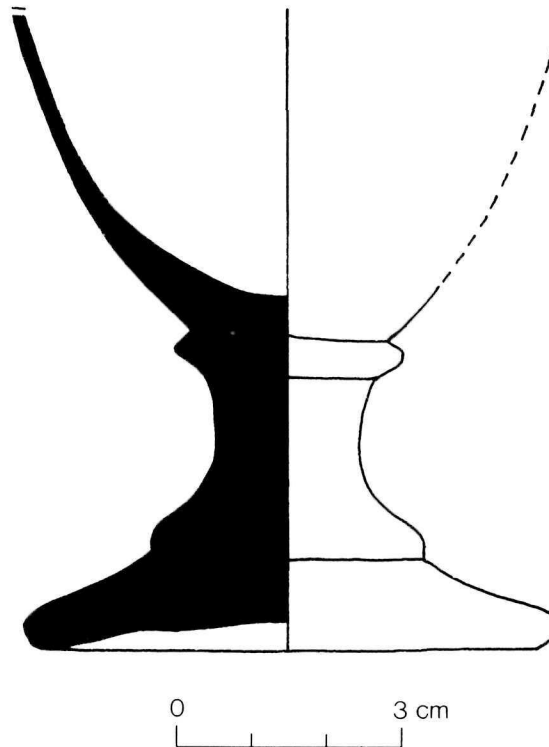


Figure 75. Rummer goblet, rounded bowl type
 Lead metal, colourless
 British, 1790 to 1820
 Foot diameter 70 mm
 Fort Beauséjour (2E20F9-17)

Basically the same style as the rummer in Figure 74, but the introduction of a merese below the bowl, and the smaller, although chunkier and lower foot, indicate that it is later. The merese, or bladed collar, only begins late in the 18th century, according to Ash (1962: 162), a contention borne out by archaeological contexts. This example is from Fort Beauséjour: others were found at Coteau-du-Lac, La vieille maison des Jésuites, Fort Lennox and Fort George. The large bowl surfaces of rummers might be engraved. (Drawing by Jane Moussette.)

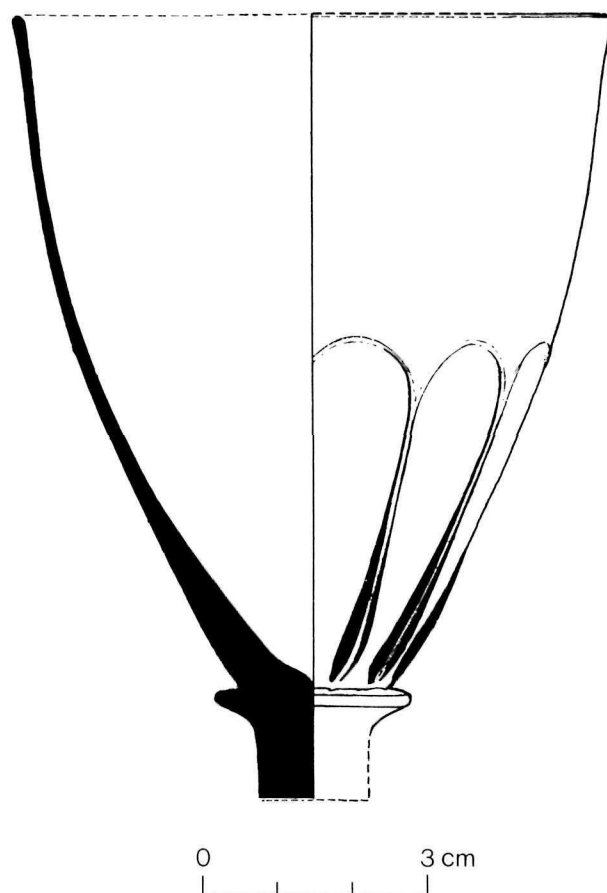


Figure 76. Rummer goblet, rounded bowl type, with pattern-moulded flutes

Lead metal, colourless

British, 1790 to 1820

Extant height 105 mm

Fort George (12H15F5-8)

On more expensive glasses, the bowl flutes imparted here by pattern moulding might be cut. The foot for the illustrated rummer might well have been of the square, pressed "lemon squeezer" type shown in Figure 77. (Drawing by D. Ford.)

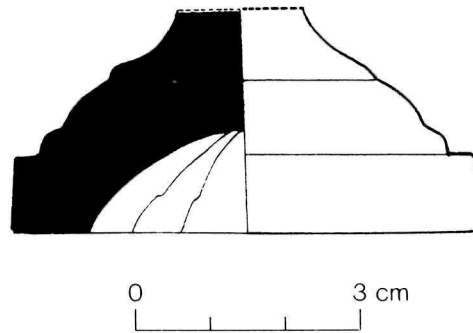


Figure 77. Stemware, square, pressed "lemon squeezer" foot
 Lead metal, colourless
 British, ca. 1780-1825
 Base dimensions 62 mm square
 Fort George (12H15D6-3)

A foot such as this, press moulded between dies on pincers (Hughes 1958: 151), might be applied to a rummer goblet, an urn, or if diamond shaped rather than square, a salt, during the late 18th or early 19th centuries. The term lemon squeezer, used to describe this foot, is derived from the ribbing on the domed underside. Often, as in this instance, the sides and resting surface of the foot might be lightly overcut and polished for sharpness and to restore brilliance to the piece. This is the only known example of a lemon squeezer foot in the archaeological collections. (Drawing by D. Ford.)

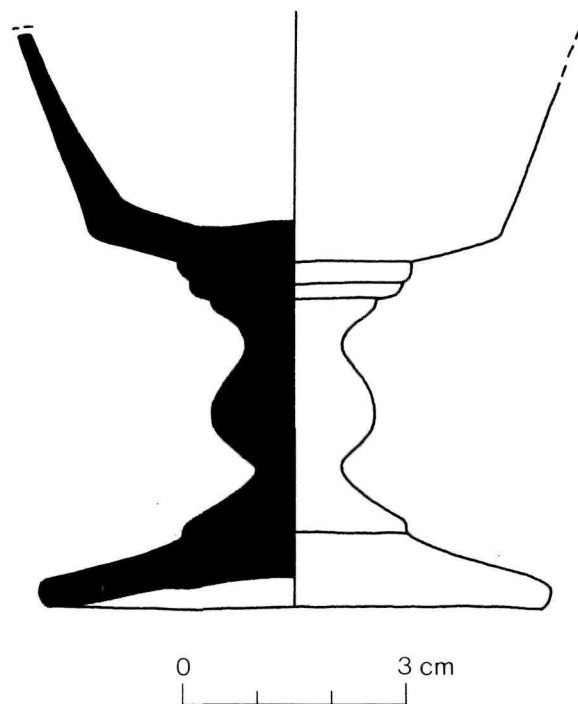


Figure 78. Rummer goblet, bucket bowl type
 Lead metal, colourless
 British, late 18th or early 19th century
 Extant height 75 mm
 Fort Beauséjour (2E16R33-8)

In general, the bucket bowl type of rummer began in the late 1780s and became increasingly popular through the turn of the century (Ash 1962: 136, 162-63). In diminished proportions, the wine glass with centrally knopped stem and bucket bowl (Figs. 80-83) imitated this form and became the standard wine glass of the first half of the 19th century. The pontil mark has been finished on the majority of examples. (Drawing by Jane Moussette.)



Figure 79. Rummer goblet, bucket bowl type, cut

Lead metal, colourless

British, about 1790 through 1820

Height 135 mm

The Dauphine Barracks (18G1A53-2)

The cutting on the bucket bowl of this rummer indicates that it is probably an early 19th-century specimen. The knop is annular: about equally common are bladed and ball knops, virtually always centred on a short stem. Cutting is a common decorative method, but the majority of specimens in the collection are not decorated. While this glass bears only one collar at the base of the bowl, many have up to three (Fig. 78): collars probably do not begin until about 1800 (Haynes 1964: 293). A rummer at Fort George has been broken cleanly between the first and second collars and then glued back together - indicating no doubt that the glass was still a treasured possession in the early 19th century. Other examples were found at Forts Beauséjour, Coteau-du-Lac, Lennox and George, and at La vieille maison des Jésuites. (Photo by G. Lupien.)

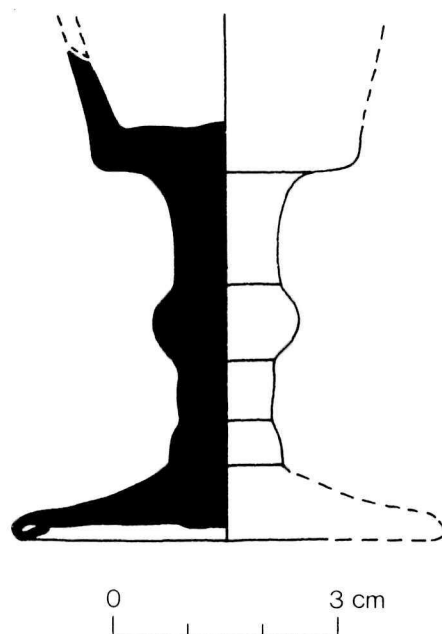


Figure 80. Stemware, centrally knopped stem and bucket bowl
 Lead metal, colourless
 British, about 1790 to 1810
 Extant height 75 mm
 Fort Coteau-du-Lac (9G7B2-255)

The wine glass, generally a smaller stemware form than the rummer, was also produced with bucket bowl and centrally knopped stem. These are common in archaeological contexts dating from the last decade of the 18th century through the first half of the 19th century and were referred to by glassmakers as Prince's button stem wine glasses. The bowl is usually bucket shaped and the knop, which is centred on the stem, may be annular, bladed or ball shaped. Haynes (1964: 293) remarks that the absence of collars below the bowl provides an approximate watershed at about 1800, the collared examples being 19th century. While this is only an approximate guideline, it seems to work. The most common method of decoration on these glasses is cut flutes or panels on the base of the bowl, but the majority of specimens are undecorated. The illustrated example is probably from early in the period of popularity for the style: its folded foot rim, unfinished pontil mark, absence of collars, and the general simplicity of the object suggest that it is an early type. Wine glasses with centrally knopped stem and bucket bowl were also found at Forts George, Beauséjour and Lennox and at La vieille maison des Jésuites and Artillery Park. (Drawing by Jane Moussette.)

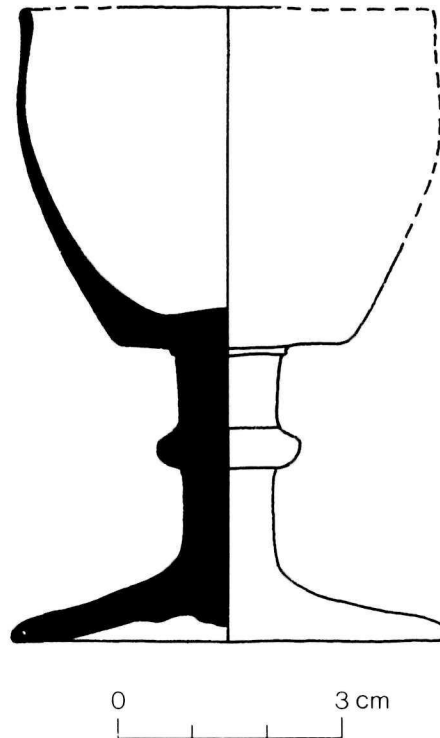


Figure 81. Stemware, centrally knopped stem and incurved bucket bowl
 Lead metal, colourless
 British, late 18th or early 19th century
 Height 93 mm
 Fort Beauséjour (2E16B2-8)

Once again, the simplicity - no collar, no step, pontil unfinished - suggests that the glass is early in the period. An annular knop and the incurved bucket bowl are interesting and attractive variants on the normal plain bucket. (Drawing by Jane Moussette.)

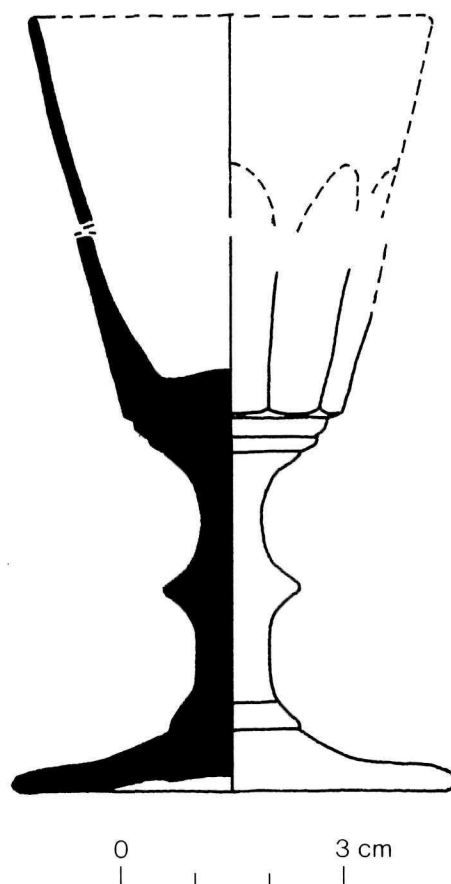


Figure 82. Stemware, centrally knopped stem and flute-cut bucket bowl
 Lead metal, colourless
 British, first half 19th century
 Foot diameter 58 mm
 Fort Beauséjour (2E16Q2-7)

The button stem wine glass was frequently cut with a circuit of flutes on the bowl. The presence of collars suggest this example was made after 1800 (Haynes 1964: 293). The pontil mark is finished, quite normal treatment on the style especially when there is a step at the foot. This style continues without significant change until nearly the middle of the 19th century (Fig. 101). (Drawing by Jane Moussette.)

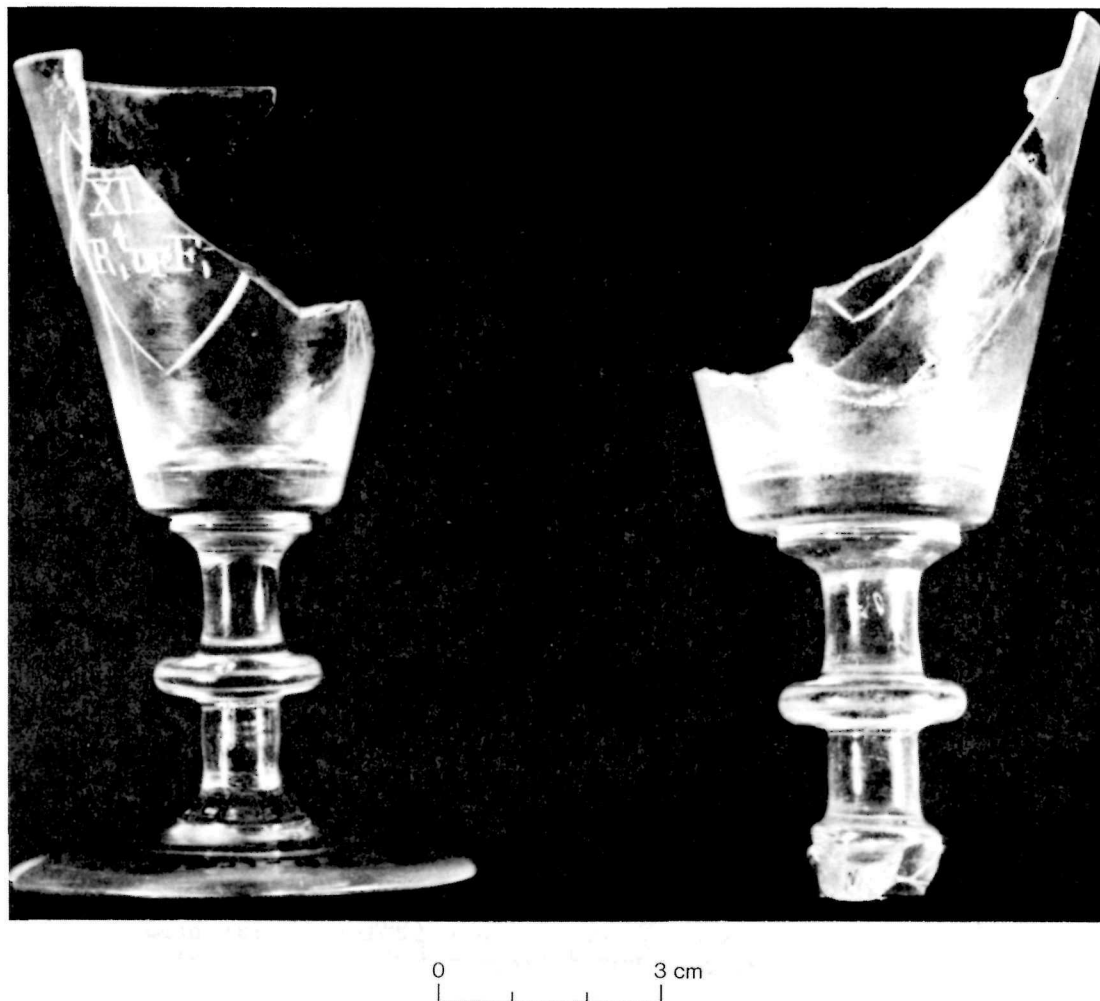


Figure 83. Two stemware, centrally knopped stems and bucket bowls;
regimental engravings

Lead metal, colourless Probably Irish, 1800-13

Height of object on the left 102 mm

Fort Lennox (5G35J7-27, 13)

The glasses are engraved with a simple crest inscribed 'XIIIth R^t of F^t (Thirteenth Regiment of Foot). From the same excavation unit came other fragments from similarly engraved glasses, and several creamware plates with the crest overglaze transfer printed. The regiment was based at Fort Lennox in 1813 and 1814. Colonel A.C.M. Urwick, the regimental secretary in 1966 (pers. com.), suggested the glasses were purchased in Ireland in 1808 when the regiment was stationed there for recruiting. Illustrated are two glasses of similar style but different sizes: on the left a dram (or port) glass, on the right a wine glass. An 1837 advertisement claimed "military services of glass engraved to order" at the Terrace Glass Works, Cork (Warren 1970: 125). This type of engraving - commemorative or armorial and very stylized - characterizes the art of wheel engraving in England after the demise of flowered glasses (Fig. 43) and during the extended period when cutting was the norm for extrinsic decoration (Thorpe 1961: 232). (Photo by G. Lupien.)

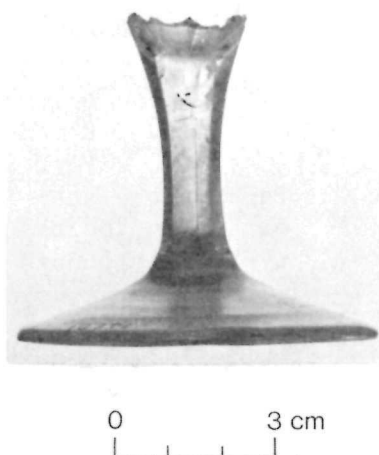


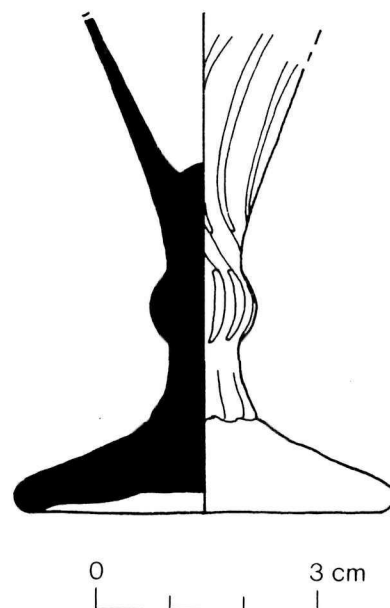
Figure 84. Stemware, flute-cut stem
Lead metal, colourless
British, after 1790
La vieille maison des Jésuites (IG3P6-43)

This is a diminished form of the elegant facet-cut stem (Figs. 47 and 48). The tendency in the late 18th and early 19th centuries to cut vertical flutes wherever possible is responsible for this decoration on what is essentially a common plain stemmed glass (Figs. 71 and 72). This example, with a fairly high foot and unfinished pontil mark, is probably late 18th century, but several others found at Fort George are certainly 19th century. The style probably persisted well into the 19th century and might be elaborated by the 1840s with cut nicks on the angles of the flutes. (Photo by G. Lupien.)

Figure 85. Stemware, pattern-moulded stem and bowl
Lead metal, colourless
British, first quarter 19th century?
Foot diameter 51 mm
Roma Settlement (1F2A18-87)

Haynes (1964: Pl. 94e) illustrates an identical glass merely calling it a Georgian wine and dating it 18th and 19th centuries. The central knop, combined with the small, low, thick foot, suggests a 19th-century origin, and the archaeological context, the 19th-century store at the Roma Settlement site, supports that conjecture at least for this sole example.

(Drawing by Jane Moussette.)



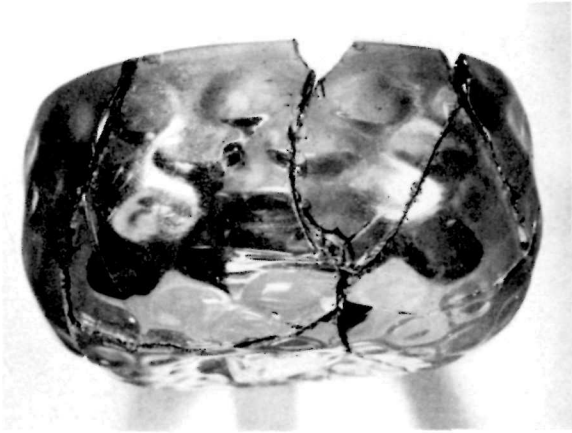


Figure 86. Stemware, pattern-moulded bowl
Lead metal, transparent blue
(5PB) and colourless
British, first quarter 19th century
Rim diameter 70 mm
Fort Coteau-du-Lac (9G32J2-210)

Part of the stem in colourless lead metal is extant on the base. The object is not typical, although another fragment also from Coteau-du-Lac appears to duplicate it. The blue colour is not a definite dating guideline, although on Parks Canada's sites, deliberately coloured English table glass does not appear to pre-date the 19th century. A bowl in Hughes (1958: Pl. 42) and one in Davis and Middlemas (1968: 49) are similar in style and shape, although they are not stemware, and have been used to date this specimen. As well, other glass material in the archaeological context indicates a deposit date during the 1820s (Jones, pers. com.). (Photo by G. Lupien.)

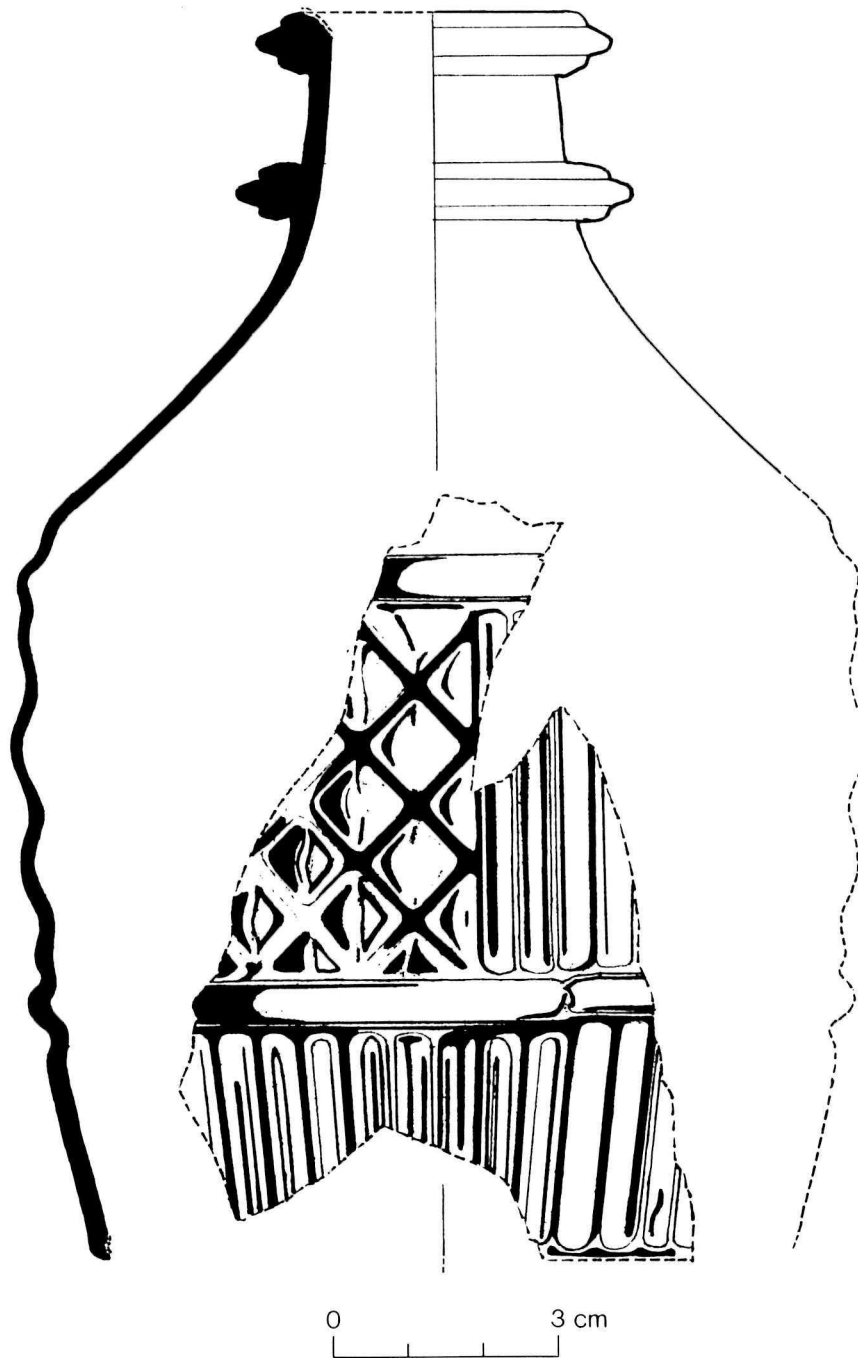
Figure 87. Decanter, "Prussian" body shape, cut
Lead metal, colourless
British, first quarter 19th century
Height 180 mm
Fort George (12H15C3-12)

This decanter, with annulated neck rings, shows typical cutting motifs of British glass in the late 18th century and first quarter of the 19th century (compare the rummer, Fig. 79). More elaborate cut designs, diamonds for instance, are better known on this type of decanter, but are very rarely found on table glass from Canadian sites. This decanter holds 16 American fluid oz. (about 500 ml) filled to the bottom of the lowest ring. The design elements so characteristic of the so-called Anglo-Irish period (1780-1825) are evident here. Most important in this regard is the emphasis on horizontal proportions and elements. The rings and everted lip are typical design features, but both serve useful functions as well - the lip facilitates pouring without dripping, and the rings prevent slipping when the decanter is held by the neck; both features begin about 1780 (Westropp 1920: 179; Powell 1923: 82). The Prussian body shape is more or less like a flower pot in outline, the shoulder wider than the base and quite distinct, the sides straight. Alternatively the same period might produce "barrel"-shaped decanters (Fig. 88). Occupation dates at Fort George sustain an early 19th-century dating for this example. With archaeological artifacts, bases from such decanters are impossible to distinguish from large tumbler bases when, as is usual, only the base or fragments of it are found. Identifiable fragments of related decanters were found at Forts Beauséjour, Coteau-du-Lac, Lennox, at the Roma site, La vieille maison des Jésuites, and the Artillery Park. (Photo by G. Lupien.)



Figure 88. Decanter, "barrel" shape, contact moulded
 Lead metal, colourless
 Irish, early 19th century
 Fort lennox (5G26X3-3)

Dating and ascription are based on similar decanters shown in Westropp (1928: 542) and in McKearin and McKearin (1948: Pl. 124, no. 4). This decanter originally had three annulated neck rings and a broadly everted lip; the stopper would have been of the mushroom type (Fig. 90). At some point in its career, however, the decanter was broken quite cleanly above the middle ring, and was smoothed by abrasion at the broken edge, presumably to allow continued use as a shortened, lipless carafe or serving bottle without stopper. The "barrel" designation of body shape refers to evenly convex sides, with base and shoulder of about the same diameter but the shoulder - as on the Prussian shape - is quite distinct. As such, it should not be confused with a late 18th-century style, illustrated in Hughes (1956: Pl. 220) and called by the same name, which has no distinct shoulder but is cut to actually resemble a barrel - vertical flutes for staves, horizontal mitre cuts for hoops. Figure 94 is an example of the latter, although the shape of this object is that of a cruet suited for a stand, rather than that of the decanter. The moulded motifs on the decanter illustrated imitate much more expensive cut decanters of the period. Geometric moulded designs apparently characterized early Irish "three-mould" glass (Westropp 1928: 542-43), although similar moulded motifs were undoubtedly typical of American manufacture of the 1820s and beyond. However, American glassmakers apparently produced similar wares but with more complex patterns and in more shapes than did the Irish and English (McKearin and McKearin 1950: 102). (Drawing by D. Ford.)



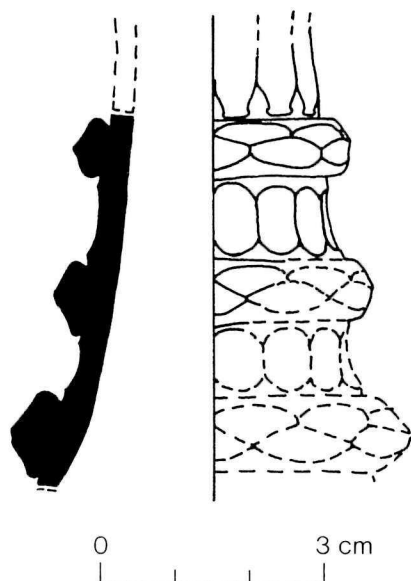


Figure 89. Decanter, three-ringed neck, cut
Lead metal, colourless
British, probably first quarter 19th
century
Height of fragment 63 mm
Fort Coteau-du-Lac (9G7B2-256)

This neck demonstrates a decorative variant on the three-ring decanter. Most neck rings found in the archaeological collection are simply plain applied threads of glass, with the annulated form a distant second numerically. Cutting had become the normal decorative treatment on finer British glass by the beginning of the 19th century and Parks Canada's collection reflects this trend, of course, but the bulk of table glass artifacts continued to be plain until moulded and especially pressed glass - usually imitative of cutting styles - stole the march on expensive hand-cut glass. Compare the cut neck ring on the castor in Figure 95. (Drawing by Jane Moussette.)

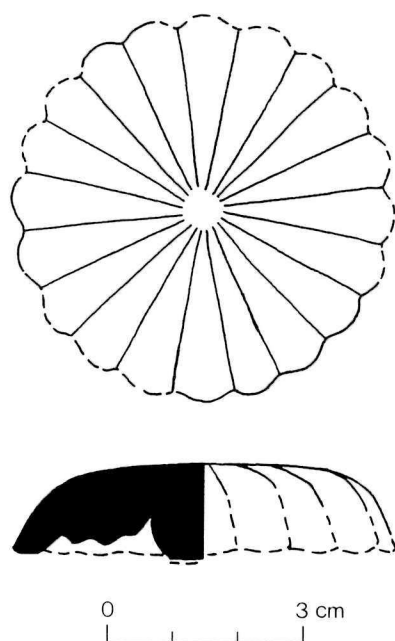


Figure 90. Stopper, mushroom finial
Lead metal, colourless
British, late 18th century to about
1830
Diameter at finial base 58 mm
Fort Coteau-du-Lac (9G1B18-9)

Mushroom stoppers were typical on Irish decanters in the first quarter of the 19th century; examples were also found at Fort George and at Fort Anne. Another mushroom stopper, found at Coteau-du-Lac, is in non-lead metal, and is umbrella shaped, that is, deeply concave, rather than nearly flush with concentric rings on the underside, as the example shown. The non-lead finial may be an American variant (Thorpe 1969: 260). (Drawing by Jane Moussette.)

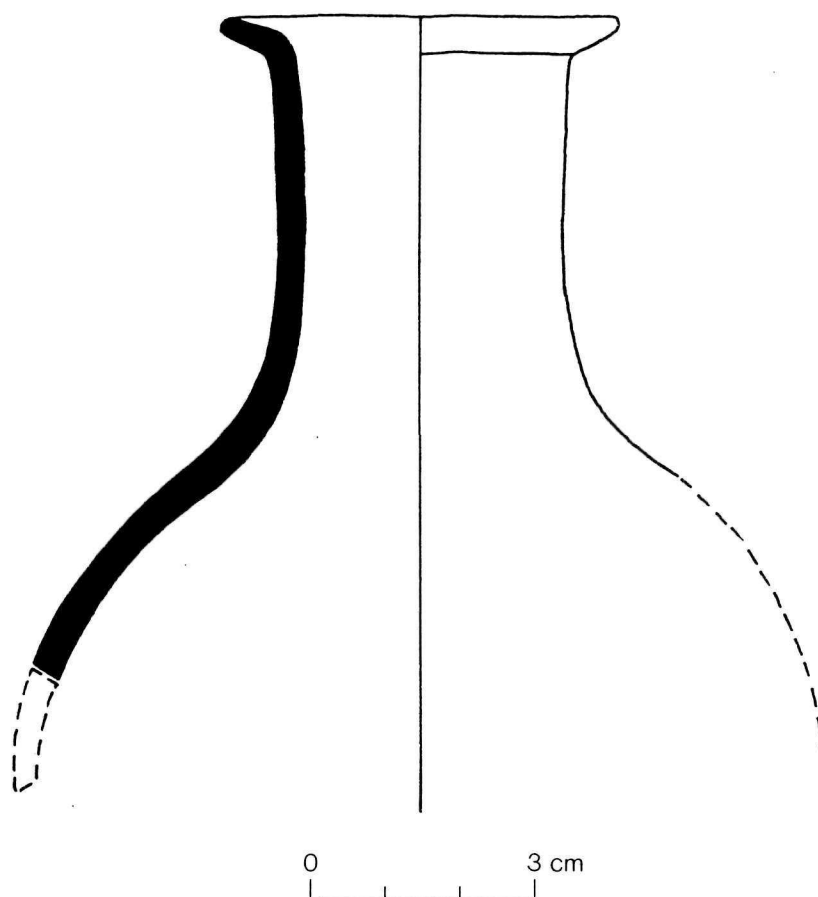


Figure 91. Carafe, neck and shoulder
 Lead metal, colourless
 Probably English, second half 18th century
 Lip diameter 52 mm
 Fort Beauséjour (2E22J6-20)

There is no precise information on carafes in the literature of glass history. However, carafes were apparently used in 18th-century England both as serving bottles in taverns and to hold water at the table, although the latter usage was largely limited to the second half of the century, according to Elville (1961: 40). The illustrated example was evidently globular in shape with a short neck. Its capacity would appear to be less than that of most decanters. (Drawing by Jane Moussette.)

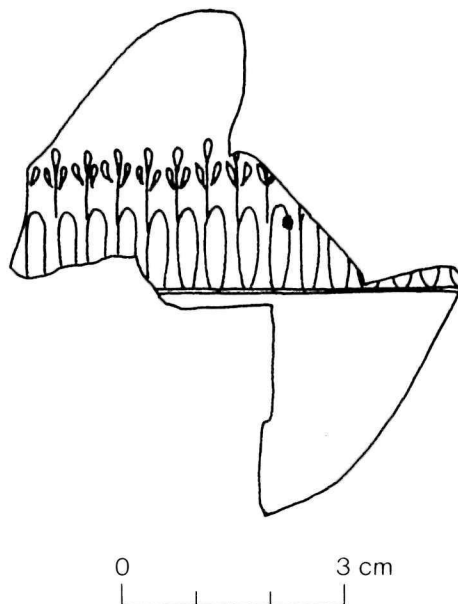


Figure 92. Engraved fragment Lead metal, colourless
 British, late 18th or early 19th century
 Maximum extant height 67 mm Fort Beauséjour (2E19R10-2)

This fragment, which is probably from the bowl of a rummer (cf. Haynes 1964: Pl. 95g), illustrates the rare use of engraving after 1780. Cut glass had become so fashionable that engraving was used only for highly conventional borders like this or for armorial pieces (Thorpe 1961: 232; and Fig. 83). (Drawing by Jane Moussette.)

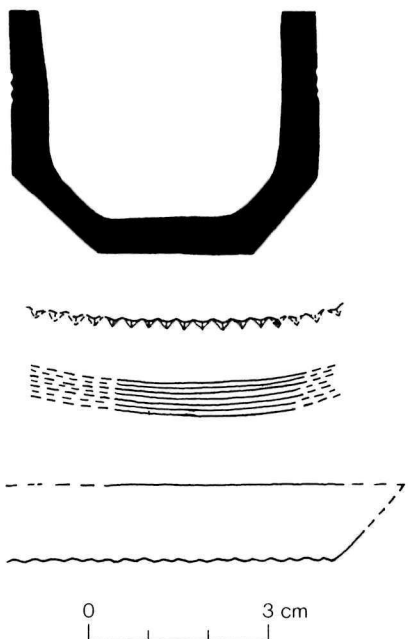


Figure 93. Salt or small dish fragment, cut
 Lead metal, colourless
 British, ca. 1810-30
 Height 41 mm
 Roma Settlement (1F2C21-2)

In Warren (1970: Pl. 65b) a related dish - oblong, flat-sided, rectangular - is dated ca. 1820. As this is in keeping with the context (the Macdonald store area at the Roma site), it is adopted as an approximate indication of the date of this piece. Mitre cuts, narrow and well executed, are used to rib the base, sawtooth the lip, and band the longitudinal sides of the dish, which might be taken as too large for a salt. Warren calls his example, which is 12 in. long, a cucumber dish. (Drawing by Jane Moussette.)

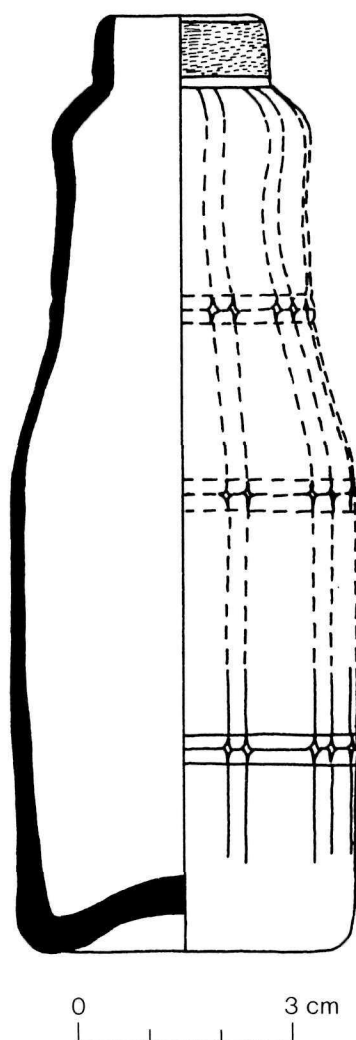


Figure 94. Castor, "barrel" motif, pattern moulded and cut
 Lead metal, colourless English, 1775-1800
 Height 130 mm Fort Beauséjour (2E16B2-9)

The vertical ribs are pattern moulded, and three horizontal double mitre cuts encircle the bottle. The decoration is clearly related to decanters of the fourth quarter of the 18th century which were cut to resemble a barrel with staves and hoops and advertised as "entirely new" in 1775 (Ash 1962: 128). In addition, cruets of this shape are normally dated to the fourth quarter of the century (Elville 1961: 64; Thorpe 1969: Pl. CLIV, 1). The distinction between a "castor" and a "cruet" is made on the basis of lip treatment: cruets were intended to be stoppered and to hold liquids; castors were fitted with perforated metal caps for pepper and other powders. However, a cruet could be fitted with a metal rim, pouring lip and handle. Ground on the exterior of the neck, the condiment bottle illustrated evidently had a metal fitting of some sort. The decoration, incidentally, illustrates an early use of moulding techniques to imitate cut glass types. Compare with a cruet shown by Honey (1946b: 27). (Drawing by Jane Moussette.)

Figure 95. Castor, cut
 Lead metal, colourless
 Irish? early 19th century
 Base diameter 47 mm
 Fort George (12H21A5-104)

Westropp (1920: Pl. XXIX, 4) illustrates a castor with identical body - cut in pillar flutes - and similar form, as probably Waterford, early 19th century. Such a date is earlier than the 1830s or 1840s excavation context at Fort George, but a serving bottle would have a long life. The neck ring configuration does differ from Westropp's piece, but is in keeping with styles of the period on decanters (cf. Fig. 89). This is the only example of cut pillar flutes in the collection, but contact-moulded pillar fluted tumblers were found at Fort Beauséjour and at the Dauphine Barracks (Fig. 98), and probably date to the first half of the 19th century. Thorpe (1969: 254) places the origin of cut pillar flutes after 1780 and considers the last decade of the century the period of greatest popularity. However, the motif must have continued to be popular in some circles, for Pellatt (1968: 105-6) describes an improvement in the process of moulding pillars and touching them up on the cutting wheel as late as 1849. (Photo by G. Lupien.)



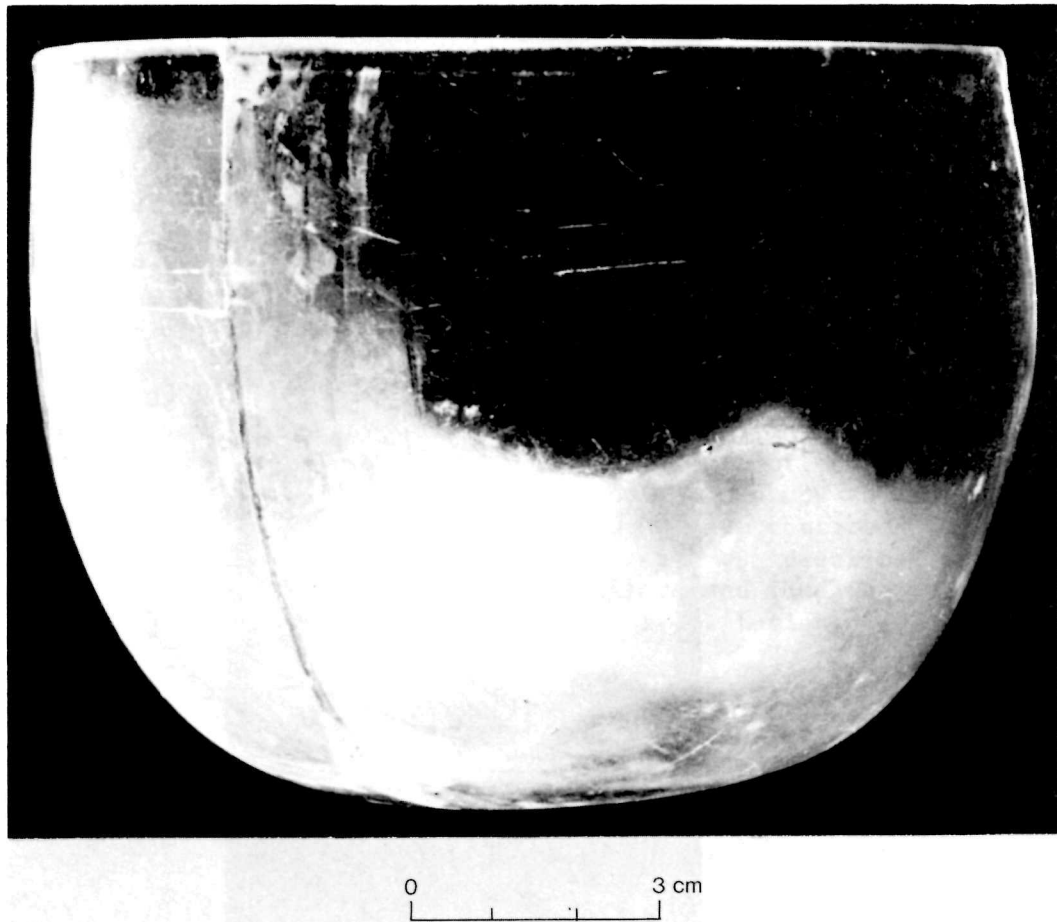


Figure 96. Finger bowl, partially reconstructed
 Lead metal, colourless
 British, first half 19th century
 Height 88 mm
 Fort Lennox (5G35J7-14)

Finger bowls were part of the table setting at genteel dinners during the Regency period, although a French observer is on record as finding the custom of washing hands and rinsing out mouths at the table "extremely unfortunate" (Warren 1970: 139). A painting of the royal coronation banquet of July 19, 1821 shows at each place a bowl similar to this, but gilded, with an extra large one for "Alvaney's fat friend," the newly crowned king (Robert Havell after Charles Wild, the National Portrait Gallery, London: reproduced in Priestley 1969: Pl. XLIV). This bowl is from Fort Lennox: similar colourless bowls were found at the Dauphine Barracks, and examples in blue lead glass were found at Fort Beauséjour and Fort George. The Fort George bowl has sides that are more vertical. Other finger bowls from the Dauphine Barracks are pattern moulded with vertical ribs in high relief, possibly made by the pillar-moulding technique described by Pellatt (1968: 105-6).

English Glass, 1825-50

The 1833 deputations by glassmakers to the commissioners of an excise enquiry (Great Britain 1835) complained repeatedly and sometimes bitterly that the restrictions attendant on collection of the duty effectively stifled technological and commercial initiative in the table glass industry. Pressed glass was too heavy to be profitably made when glass was taxed by weight (Great Britain 1835: 125); experiments with coloured metal were aborted by the officiousness of officers who would not permit the pot to be opened during the melting process (Great Britain 1835: 126); the use of cheap lime metal for tablewares was prohibited (Great Britain 1835: 136), and experimentation of any kind was discouraged because the glassmaker had to pay duty on his batch whether or not it came to be sold. The traditionalism thus enforced on technology was paralleled in styles (Thorpe 1961: 233-34). For example, the stemware with centrally knopped stem and bucket bowl popular during the late 18th and early 19th centuries and called "Prince's button stem wine glasses" were still "the common shaped ware glass" to a glassmaker in his 1833 deputation (Great Britain 1835: 98), and Eastlake's mid-Victorian *Hints on Household Taste* asserted that cut glass, glass moulded to imitate cutting, and the same wineglass ("the reversed and truncated cone") along with decanters with "the rigid outline of a pseudo-crystal pint-pot carved and chopped about in unmeaning grooves and planes" remained the unquestioned models of English table glass until the watershed of the Great Exhibition of 1851 (Eastlake 1872: 245, 251).

Most of the changes in English table glass styles in the second quarter of the 19th century were labour-savers. The tumbler with many basal flutes became a tumbler with few broad flutes, often moulded and then over-cut (Sandilands 1931: 243). By 1840 many such fluted tumblers, heavy and serviceable, were pressed. Although a certain number of apparently English contact-moulded wares are found in this period, the Parks Canada archaeological collections largely support the picture of an industry little changed either technically or stylistically from the preceding decades.

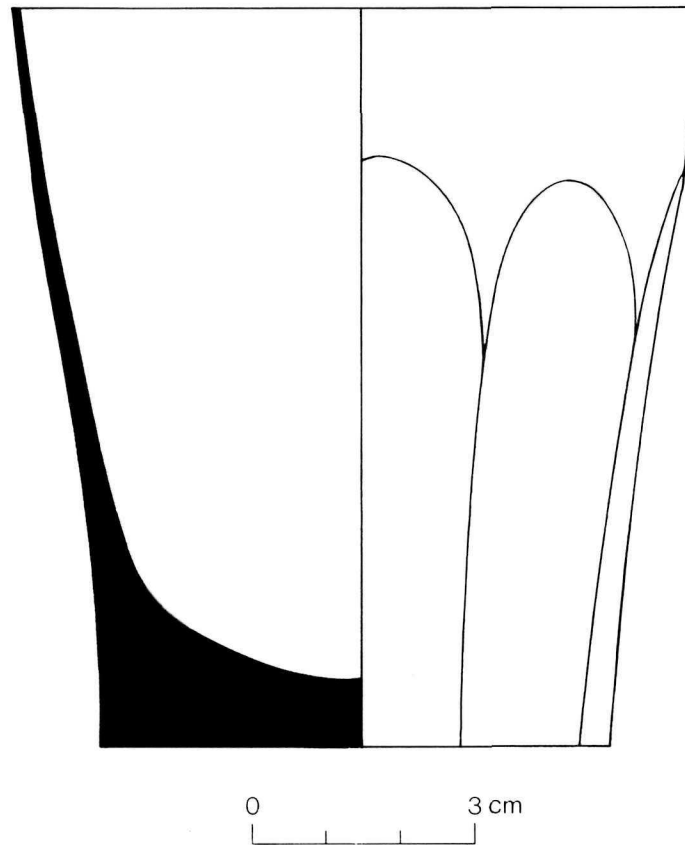


Figure 97. Tumbler, panel cut
 Lead metal, colourless
 British, second quarter 19th century
 Height 96 mm
 Fort George Military Reserve (12H21A5-105)

The flutes familiar on earlier tumblers (Figs. 66-68) have become wide and flat, so that "panels" is a better description, especially since they reach very high on the body. The rounded interior profile in contrast to the very sharp exterior heel and the nearly flat ground base surface seem to be typical of cut tumblers of this period. This tumbler was deposited in a sealed excavation context of the 1830s and 1840s. Hughes (1956: 338) remarked that flutes with gothic arched tops were popular in the 1830s, and such a description could apply to these panels. (Drawing by K. Gillies.)

Figure 98. Tumbler, contact moulded
Lead metal, colourless
Probably British, second quarter
19th century
Height 84 mm
Artillery Park (18G2B3-3)

On this tumbler, contact moulding has been used to imitate a particularly difficult and expensive cut motif (Fig. 95). Similar glasses at Fort Beauséjour were made in a metal that contained only traces of lead. Hughes (1956: 338) implies that tumblers with contact-moulded flutes were made in the second quarter of the 19th century. (Photo by G. Lupien.)



0 3 cm

Figure 99. Tumbler, contact moulded
Lead glass, pale green (2.5G)
English, 1840s or early 1850s
Base diameter 70 mm
Fort Coteau-du-Lac (9G9J5-19)

The pattern is after an Irish cut motif of the first quarter of the 19th century, called the cross-cut diamond. This tumbler is one of a pair recovered at Coteau-du-Lac. The dating and attribution are based on personal communication of Kenneth Wilson (to O. Jones) and Hughes (1956: 338). While the so-called blown three-mould glassware is commonly and rightly associated with American glass of the first half of the 19th century (McKearin and McKearin 1948: 240), objects of this type in the Parks Canada collection are English or Irish in origin. This presumably reflects the predominant trading influence in Canada in the period. (Photo by G. Lupien.)

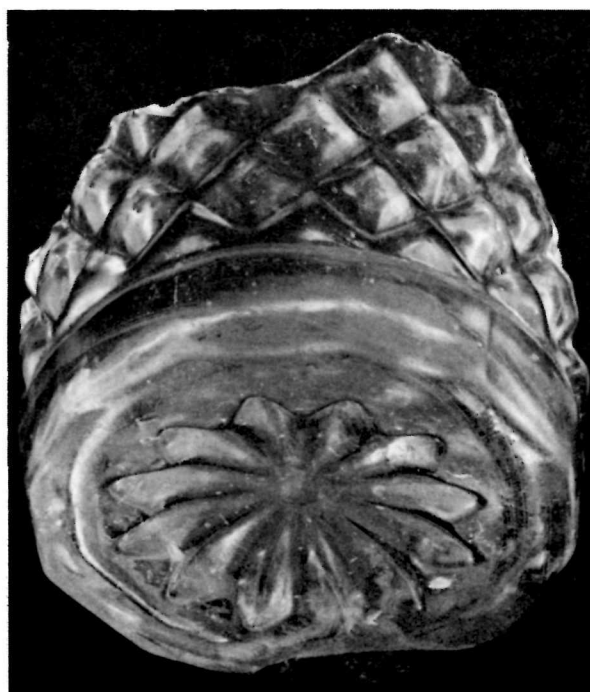


Figure 100. Three tumblers, press moulded with panels
 Lead metal, colourless
 British or American, 1840- ca.1870
 Heights: a, 75 mm; b, 82 mm; c, 113 mm
 a, Roma Settlement (1F2A32-3); b, c, Fort George
 (12H21A5-106, 107)

This is probably the 19th-century version of the common tumbler, free blown and plain in the 18th and early 19th centuries (Fig. 65), but press moulded and decorated with panels in the later period. The dating is based on the archaeological contexts and on the metal. A new formula for lime glass, discovered in 1864 (McKearin and McKearin 1948: 8), quickly superceded the use of more expensive lead metal in common pressed wares. Pressed tumblers, used in taverns and for everyday service, appear to have been very common indeed, and the use of lead glass in pressed tumblers in the U.S. after 1870 is very doubtful. Attribution for the objects illustrated, all else being equal, falls to either Britain or the United States. Although British origin and manufacture is enhanced by trade influences on Canada, the cut motifs on these pressed objects confuse the issue. Whereas the English tended to use press moulding to simulate cut designs from the beginning of their pressed glass production, American production of imitation cut motifs did not begin until the late 1840s (Wakefield 1961: 56-57).

The illustrated tumblers indicate the great range of size and the very limited range of style, although (a) does have narrow incised flutes separating the broad, flat flutes. Tumbler (c) weighs 529 g when empty, and its brimful capacity is under 350 ml, less than 12 American fluid oz. The tops of all three tumblers appear to have been hand finished and they have cut and polished resting points. (Photos by G. Lupien.)



a

0 3 cm



b

0 3 cm



c

0 3 cm



Figure 101. Stemware, centrally knopped stem and bucket bowl, cut decoration

Lead metal, colourless

British, ca. 1825 through the 1840s

Height 110 mm

Fort George (12H21A5-108)

While this shape was typical for British stemware in the first quarter of the 19th century (Figs. 80-83), this glass was deposited in the 1830s or the 1840s. A writer in the second half of the century (Eastlake 1872: 251) records that "the reversed and truncated cone ... served our grandfathers as a model for wineglasses." Pattern books from the Irish Waterford works, dated 1830, demonstrate that the centrally knopped stem with bucket bowl was still dominant in a wide variety of cut motifs at that date (Westropp 1920: Pl. XII; Warren 1970: Pl. 100), but by 1851, in the Great Exhibition catalogue, the only glass object in this shape is a footed butter dish designated "after the antique." One might add that the "antique" fascinated and sold well for the increasingly tradition-conscious British glass industry. The foot on this late glass is very low, almost disc-shaped. (Photo by G. Lupien.)

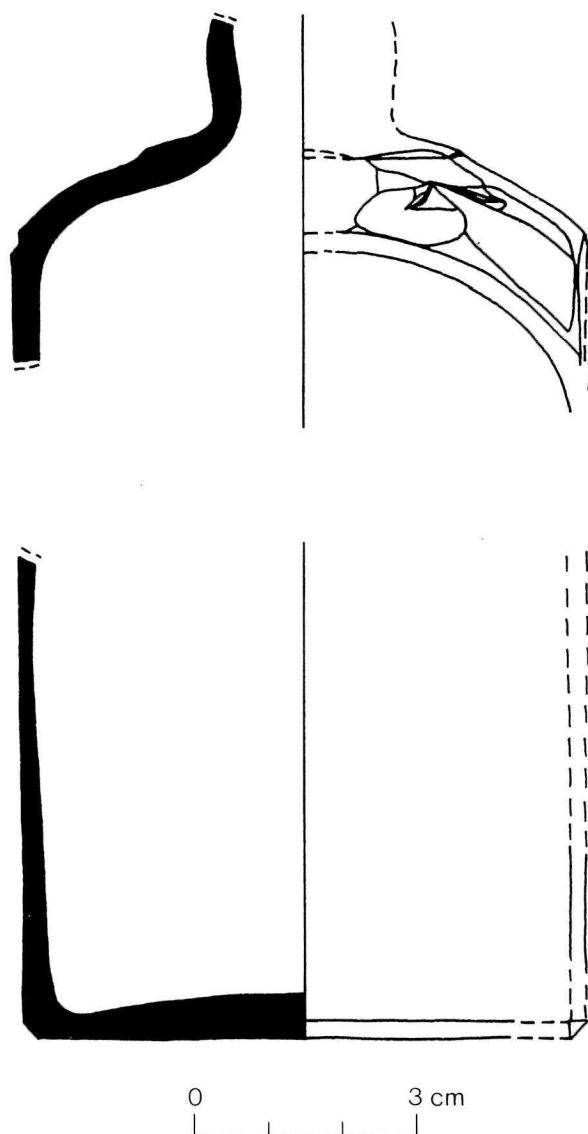


Figure 102. Decanter, square body, cut
 Lime metal, colourless
 British or American, late 18th or 19th century
 Base dimensions 76 mm square
 Fort Beauséjour (2E19Q21-11)

Square decanters, often in sets of two or three in wooden cases, were a staple of Victorian household furnishings (Elville 1951: 122). This example has facet cutting on the shoulder, bevel cut corners all around, cut body surfaces and a base ground flat. Hughes (1956: 266) describes such decanters and dates them after 1780. (Drawing by Jane Moussette.)

AMERICAN GLASS TO 1850

The hesitant beginnings of the American table glass industry date as early as the 1770s, with a brief venture in Pennsylvania, followed by another in the 1780s and 1790s in Maryland, but it has already been remarked that these glassmakers produced wares in the Germanic peasant glass tradition, indistinguishable from Continental pieces (McKearin and McKearin 1948: 48ff.). These ventures were not nearly sufficient to supply the domestic market, and very large quantities of table glass were imported from Britain and the Continent up to and during the first quarter of the 19th century (Lanmon 1969). It is consequently unlikely that any surplus glass would have reached the Canadian colonies, but occasionally objects are found that could be American. Some pieces of peasant engraved glass, which American collectors call Steigel type after the Pennsylvanian glassmaker of the 1770s, have been found in archaeological contexts of the 1760-80 period, at which time it does not seem probable that English glassmakers would have suffered much competition in the North American colonies from Continental glass.

Even with the rapidly expanded glass production of the first half of the 19th century, American glass is not easily identified except for very distinctive moulded pieces of the second quarter of the century. Off-hand manufactured wares, whether cut or not, would merely duplicate European and especially British fashions in large part (McKearin and McKearin 1948: 137). The first distinctive American glass, so-called blown three-mould glass, popular in the 1820s and the 1830s (McKearin and McKearin 1950: 103ff.), has not been exemplified on Canadian sites. What contact-moulded glass of the period is found, is apparently Irish in origin (Fig. 88).

It is only with early pressed glass that certain quantities of American table glass began to appear in Canada. Lacy glass is the name given to the first style of American pressed glass, made possible by the 1827 invention of the glass press. It is called lacy glass because the entire under surface of the shallow vessels was closely patterned, usually with fine stippling. With early pressing technology it was impossible to make the surface bright and smooth, and the stippling decoration broke up transmitted light to overcome this dullness (McKearin and McKearin 1948: 336-37). The moulds for lacy glass were very expensive, and the style was superceded by other, less complicated press-patterned glass during the 1840s (McKearin and McKearin 1948: 394). The early pattern pressed glass imitated cut motifs, which were often fire polished to return lustre to the surface. Some of the many pressed common paneled tumblers found on Canadian sites (Fig. 100) may have been made in the United States in the 1840s.

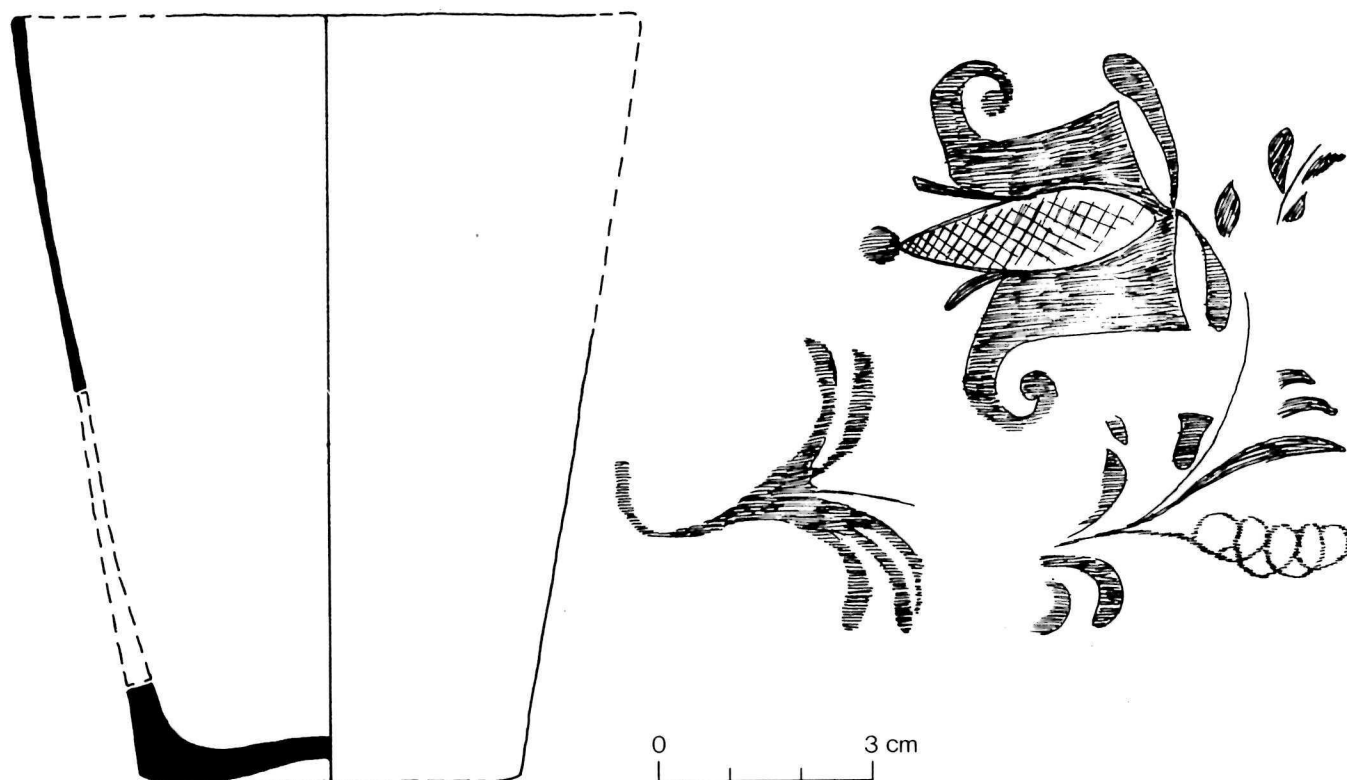


Figure 103. Tumbler, so-called Steigel type, engraved
 Lime metal, colourless
 Possibly American, second half 18th century
 Height 113 mm
 Fort Beauséjour (2E19N4-42)

This tumbler, with a deposit date of 1776 or later, is of a sort produced by German glassmakers in the 1770s in Pennsylvania (cf. Hunter 1950: Figs. 121, 124; Moore 1939: Fig. 129). While the engraving style makes an American attribution possible, it is not possible to distinguish such engraving with any certainty from large quantities of "peasant" engraved glasses made in many countries in continental Europe in the second half of the 18th century (Pazarek 1932). (Drawing by Jane Moussette.)

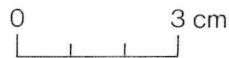
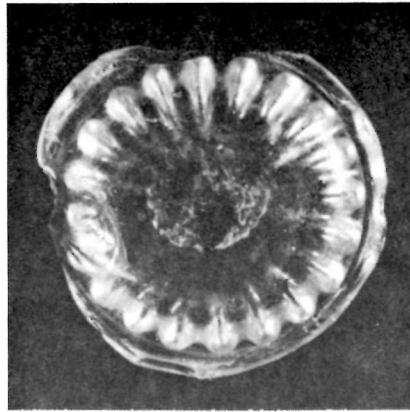


Figure 104. Tumbler base, impressed
 Lead metal, colourless
 American or British, first quarter 19th century
 Diameter of base 66 mm
 Fort Beauséjour (2E17F4-34)

The design on the base of this tumbler has not been moulded in the ordinary sense of blowing the parison into an enclosed mould. Rather, the tumbler base has been rested on or bumped against a die to impress the sunburst motif, and the rest of the tumbler made by normal, off-hand manufacture. A tumbler base from Fort George has the sunburst imprinted at least twice and possibly three times, as indicated by rays that misalign with one another, signifying, presumably, that the parison was bumped inexpertly on the die. An advertisement dated March 1820 of the New England Glass Company, Cambridge, Mass. cites "printed" tumblers and dessert plates (Watkins 1930: Pl. 260). Since moulded tumblers are separately itemized in this advertisement, and since press moulding was a thing of the future in 1820, the description probably applies to imprinted bases similar to this one. Other examples of tumblers with impressed bases were also found at Fort Coteau-du-Lac and Fort Lennox, both of which are consistent with or support the dating suggested. (Photo by G. Lupien.)

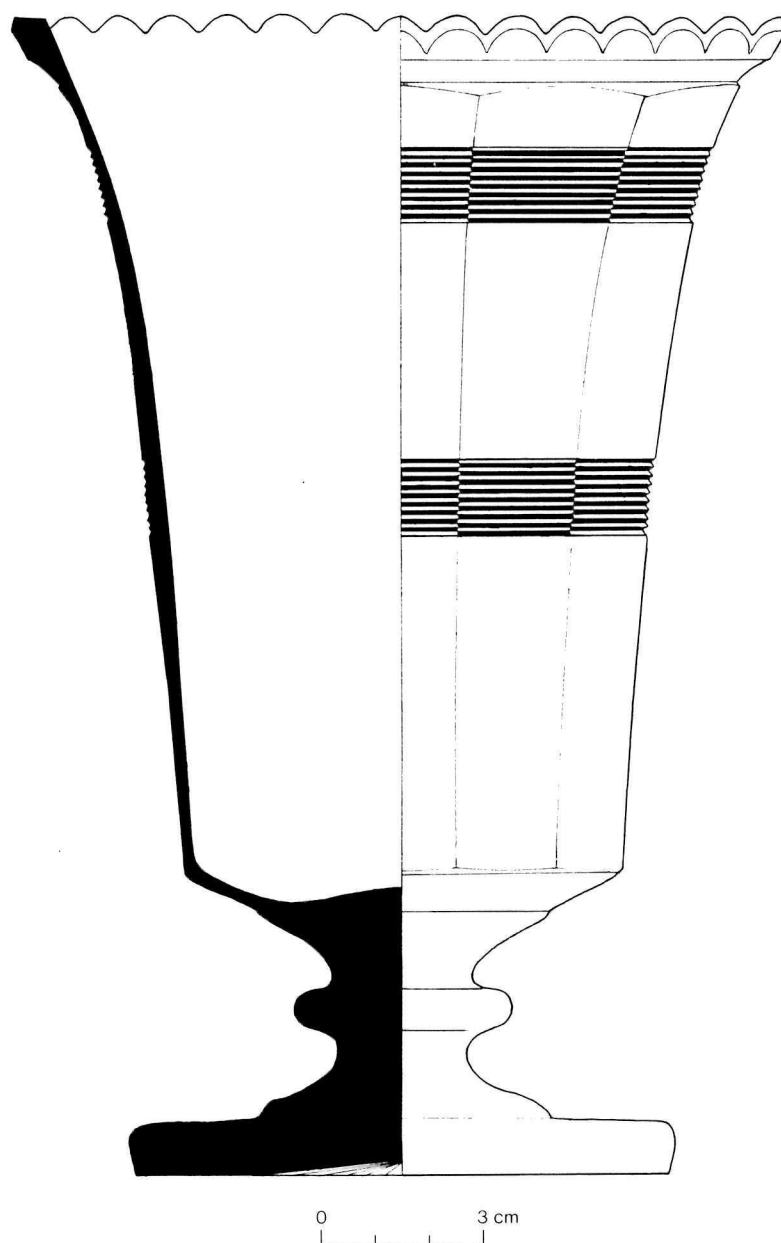


Figure 105. Celery vase, cut Lead metal, colourless
 Possibly American, 1820s or 1830s
 Height 212 mm Fort George (12H21A5-109)

In form, and to some extent in cutting, the illustrated piece bears comparison with American vases in Daniel (1950: Pls. 8, 47) dated 1825 and 1830. Its archaeological context more or less supports the possibility of American origin, for several pieces of American lacy pressed glass were found at Fort George, dating to the same period. Such a piece points out the difficulty of identification of lead metal table glass in the period, for there is nothing in the workmanship or the style of cutting on this object to deny an English or Irish attribution. Celery vases do not seem, however, to represent large outputs of the British industries, and such of their vases as are recorded differ from the illustrated specimen (cf. Warren 1970: Pl. 38; Hughes 1956: Pl. 124, 287; Thorpe 1969: Pl. CLX). (Drawing by D. Ford.)

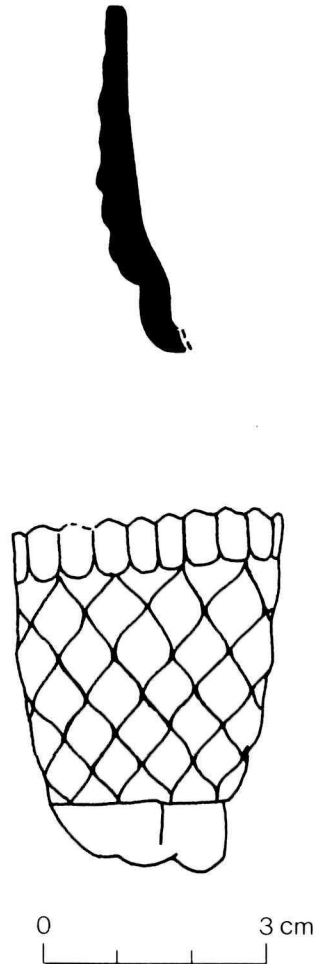


Figure 106. Salt, contact-moulded fragment
 Lead metal, colourless
 Possibly American, 1820-40
 Maximum length of fragment 47 mm
 Fort Coteau-du-Lac (9G4C13-16)

This is a fragment of "blown three-mould," in a form and pattern closely related to American salts during the period 1820-40. Certainly similar pieces were made in Ireland (Westropp 1928) but blown three-mould glassware is normally associated with American manufacture (cf. McKearin and McKearin 1948: Pl. 124, nos. 6-8). This example has its rim sawtoothed on the cutting wheel. Although there are extensive collections of table glass from the first half of the 19th century recovered from Parks Canada's archaeological sites, blown three-mould glassware does not form a large percentage of the table glass from any one site. (Drawing by Jane Moussette.)

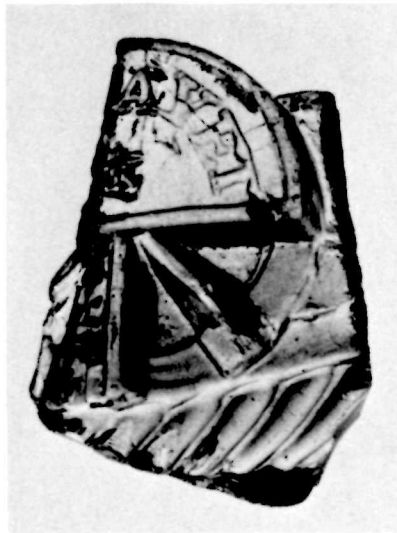


Figure 107. Salt, pressed "Lafayette" boat salt fragment
 Lead metal, colourless
 American, possibly Sandwich glass 1827-40s
 Maximum length of fragment 36 mm
 Fort Coteau-du-Lac (9G32B1-51)

This fragment is part of the paddle wheel and of the bottom of a "Lafayette" boat salt, which is considered to be a lacy pattern. Great quantities of lacy pressed glass were made at the Boston and Sandwich Glass Company and this salt is known to have been among this company's line of production (Lee 1966: 241-49). The salts were boat shaped with a paddle wheel on each side and the word LAFAYET embossed on the upper half of the wheel (Lee 1966: Pl. 72). Lafayette's visit to the United States in the 1820s was very popular and many commemorative pieces were made in honour of the occasion. Most American writers consider Deming Jarves of the Boston and Sandwich Glass Company to have been the inventor of the fixed mould and hinged-plunger mechanism which made the creation of open glass vessels possible for the first time (Lee 1966: Pl. 15, Chapter 4). Another lacy salt in Parks Canada's archaeological collection was one of unidentified pattern also found at Fort Coteau-du-Lac. (Photo by G. Lupien.)

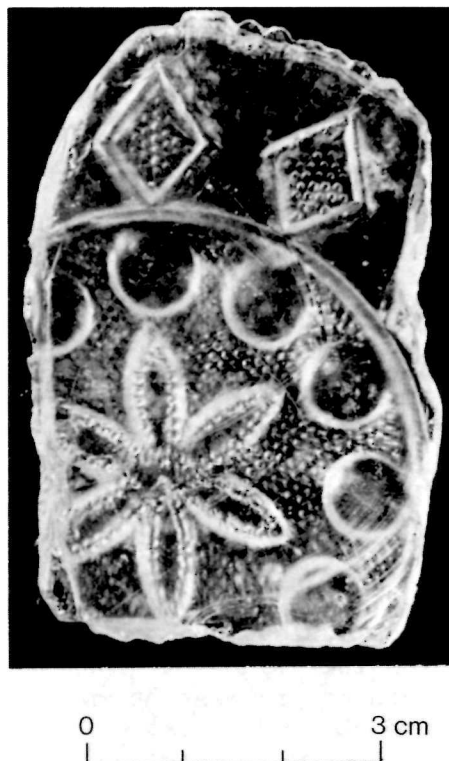


Figure 108. Cup plate, pressed lacy pattern
 Lead metal, colourless
 American, probably Sandwich ca. 1830-40s
 Maximum length of fragment 62 mm
 Fort Coteau-du-Lac (9G5B1-175)

Lee and Rose (1948: Pl. 59) list this as pattern no. 312 and suggest a Sandwich attribution. Cup plates were used to hold the cup while one sipped from one's saucer. The custom, and thus by extraction the plates, is said to be a "provincial" one (Hughes 1958: 167), although American collectors have been known to defend its gentility and social universality. The cup plate was small, between 3 and 4 inches in diameter. One other cup plate fragment also found at Coteau-du-Lac (Lee and Rose pattern no. 285) is probably Sandwich as well (Lee and Rose 1948: 211, Pl. 55). The pattern was impressed on the exterior (i.e. underside) of the plate. Since the glass surface was dulled by contact with the mould, it was necessary to view through the smooth interior surface to the stippled and patterned exterior surface to discover any glitter or brilliance, which would be provided by the high refractive index of the lead metal. The view of the fragment illustrated demonstrates the sparkle thus attained in spite of striations and dullness on the moulded surfaces. (Photo by G. Lupien.)

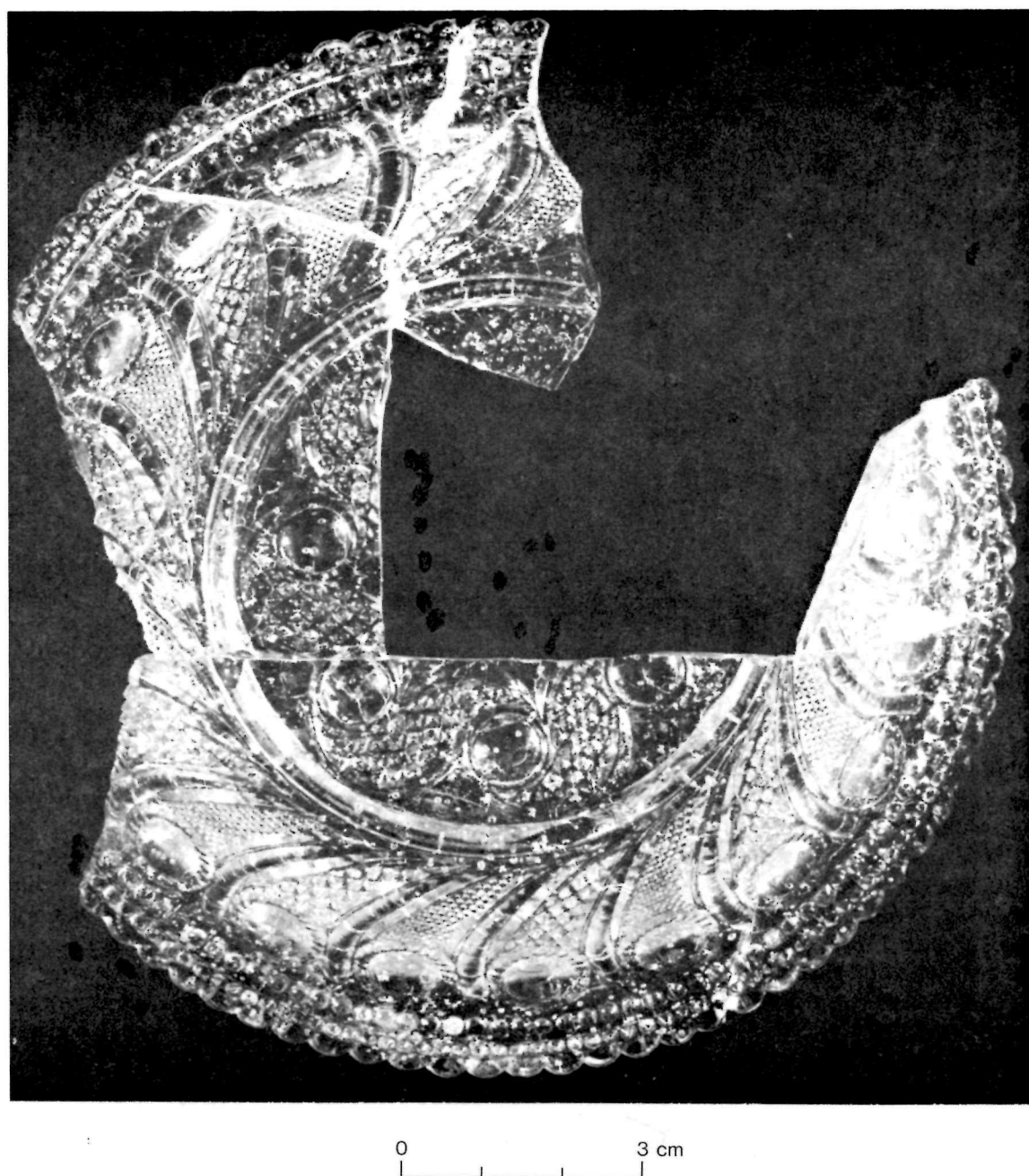


Figure 109. Small dish, pressed lacy peacock eye pattern
 Lead metal, colourless
 American, Sandwich, 1830-40s
 Diameter of dish 132 mm
 Fort George (12H21A5-103)

Lee (1966: 332, Pl. 109) states that this pattern was the most common of the Boston and Sandwich Glass Works' lacy patterns. A similar size lacy dish in a "Midwestern" pattern (Van Tassel 1950: Pl. 28 far right) was also found at Fort George. (Photo by R. Chan.)

Figure 110. Tray, pressed lacy pattern, oblong shape, partially reconstructed

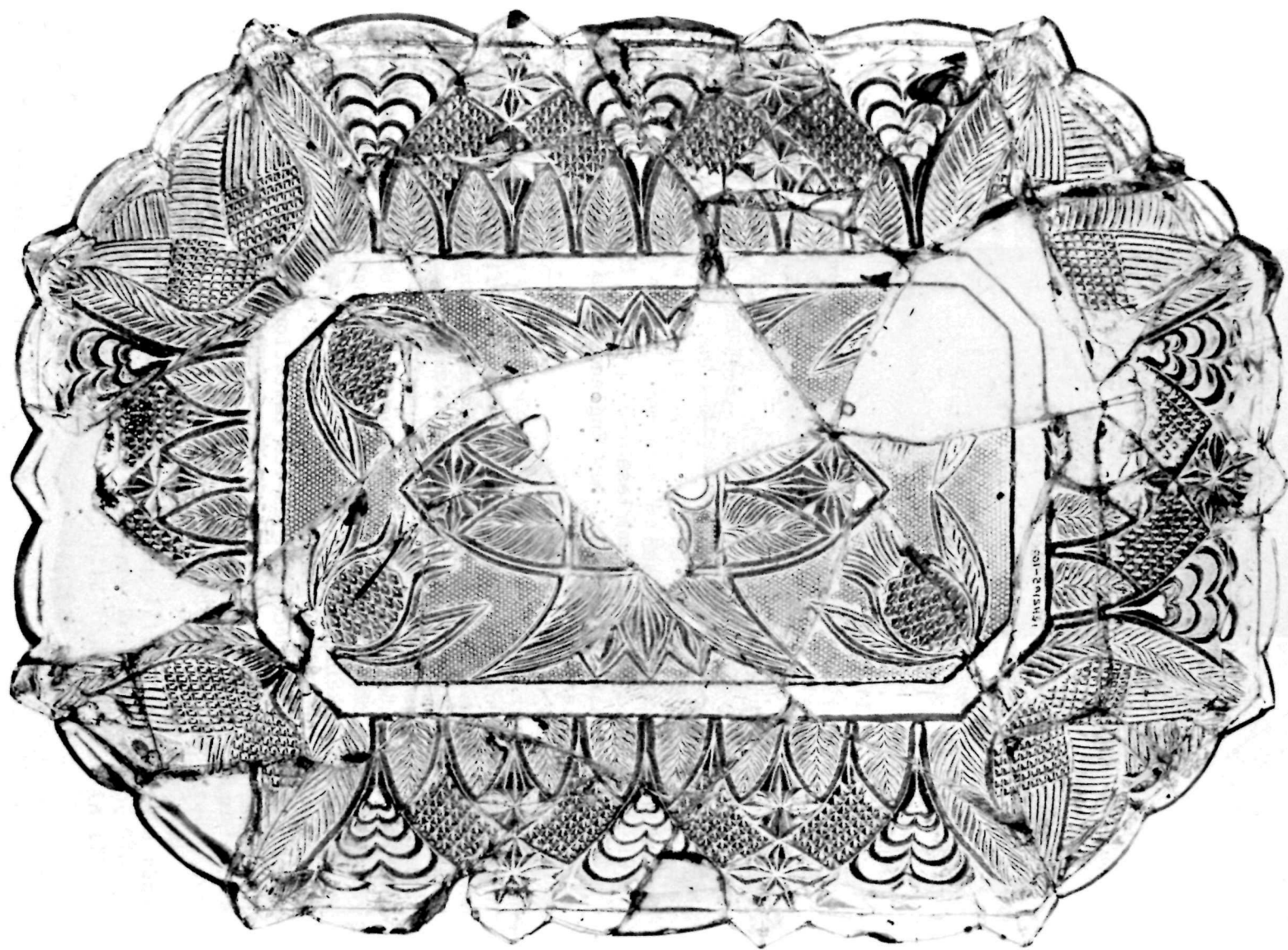
Lead metal, colourless

American, 1830-40s

Length about 230 mm

Fort George (12H21A5-102)

This is apparently a common lacy pattern in large oblong dishes, a pattern called either "thistle" (Lee 1966: 316, Pl. 102, centre right) or "pineapple and gothic arch" (McKearin and McKearin 1948: 356, Pl. 150, no. 4). Table glass in the 19th century occurs in a far broader range of functional forms than in the 18th century. (Photo by R. Chan.)



0 3 cm



Figure 111. Tumbler, pressed
 Lead metal, colourless
 Possibly American, New England Glass Company, mid-19th
 century
 Height 90 mm
 Roma Settlement (1F2E6-2)

This tumbler accords in some respects with the "fine rib" pattern of the New England Glass Company, except that the ribbing is not as close to the rim as it is in the pattern books of the company (Watkins 1970: Fig. 5). This is a good press-moulded imitation of a cut motif known as "finger cutting," which was very common earlier on British cut glass (Figs. 66, 79, 87). Cut motifs on American pressed glass became common in the 1840s (Wakefield 1961: 57) and pressed glass included in the catalogue of the Great Exhibition of 1851 was considered admirable because it was very deceptive in its imitation of cutting (Thorpe 1961: 239). This tumbler is from the 19th-century occupation of the Roma site. It has a hand-finished rim and a cut and ground pontil mark.

APPENDIX A. HISTORICAL CONTEXT: THE SITES REPRESENTED

1 Castle Hill, Newfoundland

A small redoubt, built by the French and occupied by them from 1694 until 1713, when Newfoundland was ceded to Britain by the Treaty of Utrecht. The British used it sporadically after 1713 but it was virtually abandoned by 1805 (Rick 1970: 13; Grange 1971).

2 Fortress of Louisbourg, Nova Scotia

With the loss of Placentia in Newfoundland in 1713, the French transferred their colonists to Cape Breton Island (Ile Royale). Louisbourg was chosen to become the colony's administrative centre and effective construction began there in 1720. The town fell to New England troops in 1745 but was returned to the French by the Treaty of Aix-la-Chapelle, 1748. Louisbourg was again captured in 1757 by the British, who razed her fortifications in 1760 but kept a small garrison in the town until 1768. After that time, there was domestic occupation, but probably a small population. French military garrisons ranged from 1000 to 4000 men in the first French occupation, with civilian population less than 2000 (Larrabee 1971: 8-10; McNally 1974).

3 Fort Anne, Nova Scotia

The French constructed Port Royal, the second fort of that name in the area, in about 1635. The fort fell finally to New England in 1710 and was lost to France, with the rest of Acadia, by the Treaty of Utrecht in 1713. The settlement was renamed Annapolis Royal and continued as the fortified capital of Nova Scotia until the founding of Halifax in 1749. The last garrison was withdrawn from Fort Anne in 1854 and the property was leased for several years beginning in about 1858 (Sutherland 1973).

4 Beaubassin, Nova Scotia

Originally, Beaubassin was the French name given to an area granted as seigneurie in 1676. Beaubassin came to be the third largest settlement in Acadia; its inhabitants farmed, fished and traded for furs with the Indians. In spite of British control of the area after Acadia was turned over to England in 1713, many Acadians chose to remain, trading their goods with the new French colony of Ile Royale. The Acadians were finally expelled from the area in 1755 (Coleman 1968; Harris 1971).

5 Fort Beauséjour, New Brunswick

Construction was commenced by the French in 1751. The fort fell to the British in 1755, and it was enlarged and renamed Fort

Cumberland. British occupation falls into three periods: 1755-68, 1776-93 and 1812-33. In each period, the population was greatest at the beginning, that is, during the war that dictated activity at the fort, and dwindled to abandonment after cessation of hostilities (Herst and Swannack 1970; Rick 1970; McNally 1971a).

6 Fort Gaspereau, New Brunswick

The French built Gaspereau in 1750-51 and used it as a fortified port of entry for supplies arriving from Louisbourg and Canada being shipped across the Isthmus of Chignecto to Fort Beauséjour. Fort Gaspereau was surrendered to the British in 1755 after the fall of Beauséjour and was used by them under the name of Fort Monckton until it was burned and abandoned in 1756 (Ingram 1963).

7 Fort Amherst, Prince Edward Island

This British fort, built in 1758 after the fall of Louisbourg, is situated on or near an earlier settlement named Port la Joye, established by Acadian refugees from Port Royal in 1710. Between 1758 and 1763, the garrison at the fort varied between 110 and 190 men, although with the end of the Seven Years' War the number was reduced to about 100. The fort was abandoned by the military in 1768 but its ruins served as residence for the chief Justice of the Island of St. John (now P.E.I.) during part of 1771 and 1772 (Rick 1970: 23; McNally 1971b).

8 Roma Settlement, Prince Edward Island

A fishing and trading settlement was established in 1732 by the Compagnie de l'Est de l'Île Saint Jean (P.E.I.) under the direction of Jean-Pierre Roma. In 1745 British troops from the expedition that seized Louisbourg completely destroyed the settlement. The site appears to have remained vacant until Angus and Hugh MacDonald acquired lease rights and built a store there in 1823; this building existed on the site until about 1849. In addition, there is evidence of a house and associated well, both dating from the late 19th century (Coleman 1970; McNally 1972b).

9 Restigouche Wreck, Quebec

Le Machault was the flag ship for a 1760 French relief fleet trapped at the mouth of the Restigouche River at the head of Chaleur Bay and scuttled following the Battle of the Restigouche. The fleet was carrying supplies and men to beleaguered Montreal for the spring campaign against Quebec (Beattie 1968; McNally 1972a).

10 La vieille maison des Jésuites, Quebec

The original Jesuit mission house thought to have been situated on this site in a suburb of Quebec city was built in 1637 and destroyed by fire in 1657. Excavations revealed a foundation that may date to the 17th century, but the present structure probably dates later than the rebuilding after the fire of 1657 (Rick 1970: 26).

11 Dauphine Barracks, Quebec

The Dauphine Barracks was constructed in Quebec City by the French between 1712 and 1749. The building is situated on a downward slope and consists of three stories and a garret at one end and one floor and a garret at the other, and was used by the French as a powder magazine on the lower portion and a barracks in the upper until 1759. After the fall of Quebec, the British used the structure as a barracks and officers' mess, demolishing part of the old building and effecting various other modifications, until it was turned over to Canadian military personnel in 1871. The Dauphine Barracks is still standing (Richer 1973).

12 Fort Lennox, Quebec

The present Fort Lennox was constructed on Isle-aux-Noix between 1819 and 1829 by the British to protect the Richelieu River approach to Canada from the south; the earlier fortifications on the island dating ca. 1780 were considered inadequate for the purpose. The area had some military importance during the rebellion of 1837-38 and was repaired in anticipation of trouble after the Trent Affair in 1861-62 and after the American civil war, when the Fenian Brotherhood threatened Canada, 1865-66. Isle-aux-Noix was virtually abandoned in 1870 (Lee 1973: 1-9; Rick 1970: 28-29).

13 Coteau-du-Lac, Quebec

The rapids at Coteau-du-Lac, 30 miles west of Montreal, had impeded traffic on the St. Lawrence River long before the English built a fortified canal to bypass them, between 1779 and 1781. Military activity at the fort was greatest during the American revolutionary war, the War of 1812 and the rebellion of 1837. The military establishment at Coteau-du-Lac was abolished in 1851 and the canal lost its importance with the construction of the Beauharnois Canal and the use of larger steam vessels on the St. Lawrence (Rick 1970: 29; McNally 1972c).

14 Fort George, Ontario

With the loss of their western posts to the Americans in 1794 by the Jay Treaty, the British built three forts to protect the new western boundary. Fort George was constructed between 1796 and 1799 on the Niagara River. The fort was taken by the Americans in 1813 and rebuilt by them, but evacuated late in the same year; the British controlled Fort George for the rest of the war. Although the fort was garrisoned until 1839, no further repairs were made to it (Allen 1974).

15 Yuquot, British Columbia

Intermittent English and Spanish trading began with this Nootkan Indian village in 1774. However, European settlement did not begin until 1788, and the Spanish constructed several buildings in the area. In 1792, sovereignty was transferred from Spain to England. In the early 19th century, several European countries hunted sea otter and used the village as a watering spot on the way between China, Hawaii and British and American ports (Rick 1970: 37; Jones 1970).

GLOSSARY

- ANNEALING. Cooling at a controlled rate to relieve stresses in a glass object
- AIR TWISTS. Tears of glass drawn out to form threads and then twisted
- BLOWPIPE. Hollow iron rod used to gather and insufflate hot glass
- CARAFE. Stopperless serving bottle, commonly used for water but also for wine on the 18th-century table. After about 1800 it was less common on the table, but used on washstands. A carafe might have a handle and pouring lip, but is distinguished from a pitcher by its narrow orifice.
- CASTOR. A small serving bottle with a perforated cap for shaking out pepper, salt, sugar, etc. The exterior surface of the neck of a glass castor may be roughened to accommodate a metal fitting.
- CELERY VASE. In the late 18th and most of the 19th century, celery vases appeared in the form of outsized stemware (Elville 1961: 40). Later in the 19th century the form became a celery boat, unfooted, shallow and oblong.
- COLOURATION. Coloured glasses are achieved by the inclusion of metallic oxides in the batch
- CONTACT MOULD. A full-sized mould in which glass is blown to form at least part of a vessel to finished shape, size and pattern. Off-hand procedures are frequently used afterward, especially on the rim or neck. The contact mould can be a one-piece mould, or a hinged, multi-part mould. The interior-exterior relationship is concave-convex (diagram, Lorrain 1968: 36).
- CRIZZLING. Crazeing of the glass at its surface or deeper. A form of devitrification.
- CRUET. A small stoppered serving bottle used at the table for holding liquid condiments. The bore of the bottle is usually ground to ensure a snug fit with the stopper and there may be a pouring lip and handle. Cruets often come in sets.
- CULLET. Cleaned waste glass added to the batch of raw materials to facilitate fusion
- CUTTING. Abrading of the glass surface on a wheel; the abraded area is then polished for a prismatic effect
- DECANTER. A stoppered serving bottle, although before 1745 (in England) a decanter may be confused with a carafe because the stopper and its seat were not ground before that date (Hughes 1956: 254)
- DECORATION, EXTRINSIC. All decorative procedures carried out after annealing
- DECORATION, INTRINSIC. All decorative procedures carried out before annealing
- DIAMOND POINT ENGRAVING. Surface of the glass is scratched or stippled with a diamond

- FINGER BOWL. An open bowl possibly used for rinsing fingers at the table, but also used for rinsing wine glasses and even cutlery. Sometimes called wine glass coolers, especially if found with one or more small pouring lips which are conjectured to be rests for stems.
- FIRE POLISHING. The finished vessel is reintroduced into the furnace aperture (glory hole) to slightly melt the surface and obliterate dullness and marks caused by moulds and tooling
- GADROONING. A heavy extra gather of glass is taken on the lower part of a vessel, then moulded to form rounded ribs
- GATHER. A blob of glass is rolled onto the blowpipe or pontil from the surface of molten glass in the melting pot
- JELLY GLASS. A small footed vessel with little or no stem, used for jelly or other sweet
- MERESE. A sharply protruding bladed collar at the base of a stemware bowl
- METAL. Sometimes strictly defined as molten glass ready to work or being worked, but the term is widely used to describe the material of a finished vessel, for "glass" could mean either the material or the vessel. Thus, a drinking glass might be made of lead metal.
- MONTEITH. Similar to jelly glass but with a double-ogee bowl and necessarily with a very short stem. Often called a bonnet glass or a salt (McKearin and McKearin 1950: 236).
- MOULDING. The process of shaping glass by air or mechanical pressure against an enclosing form
- NIPT DIAMOND WAIES. Ribs, formed either by moulding or applying threads of glass, are pinched together alternately while in a plastic state to form a diamond pattern
- OFF-HAND. Manufacture of glass vessels without the use of moulds
- OPAQUE TWISTS. Coloured glass rods embedded in a gather of glass, then covered in a second gather, and finally drawn and twisted
- OPTIC MOULDING. The parison is given its initial shape and decoration by being blown into a pattern mould. Then, after the parison is withdrawn, a second full-sized unpatterned mould is used and the pattern is thus transferred entirely to the interior surface of the vessel (diagram, Larsen et al. 1963: 398).
- PARISON. The partly insufflated gather before it takes on the characteristics of a vessel
- PATTERN MOULD. A pattern mould is a part-sized mould, used to form the approximate shape of a vessel and to impress a pattern (usually ribs or diamonds) by blowing the glass into it. The result is identifiable by the relationship between the internal and external glass surface in the pattern area, which is convex-convex, as a result of enlargement of the pattern after withdrawal from the mould (diagram, Lorrain 1968: 36).
- PITCHER. A handled vessel with a wide mouth and pouring lip
- PONTIL. An iron rod used for holding a vessel at the base by means of a small gather of glass, while the upper portion of the vessel is finished. The pontil is attached to the base before the blowpipe is cracked off at the other end. A pontil is also used for gathering additional glass for stems, feet, and applied decoration (prunts, trails, collars, etc.)

PONTIL MARK. The scar left by the removal of the pontil from the base of an object. If it is subsequently ground on a wheel, it is said to be finished, and if not, unfinished.

PRESS MOULD. A full-sized mould in which an object is formed by pressure between two mould parts. Initially these might be matching dies on the ends of pincers (diagram, Hughes 1958: 109), used to form solid objects like finials, stoppers and stemware feet. Hollow vessels require a stationary mould of one or more parts and a plunger (invented about 1827 in America; diagrams, Lee 1966: Pls. 15 and 16). The interior of the vessel bears no necessary relationship to the patterned surface.

PRUNTS. A lump of glass fused to the surface of a vessel, then usually impressed with a tool to form a raspberry or gargoye prunt

PUNCH CUP. As tumbler, but small and with a handle

RIGAREE. A trailed horizontal thread of glass is dented to form tiny vertical ribs

SNAP CASE (or spring pontil). A spring clip that holds a hot glass vessel in lieu of the pontil and without adhering to or marking the glass. Also called, in stemware manufacture, a gadget. Introduced in the 1850s (Wilkinson 1968: Fig. 3).

STEMWARE. A vessel, most commonly for drinking, with three separate elements: bowl, stem, and foot. Terminology used in describing various forms of the elements is based on Haynes (1964: 194-203); more general terminology of parts is diagramed in Figure 2.

TANKARD. A large footed tumbler with a handle

TEARS. Bubbles intentionally enclosed in the glass. A dent is made in the surface of a gather, and more glass gathered over to enclose the air.

TUMBLER. A more or less cylindrical drinking vessel, usually with a flat bottom although in the early 18th century it may be footed

WHEEL ENGRAVING. Abrading of the glass surface on a copper wheel. In wheel engraving, the abraded area is not polished, so that it is whitish and translucent or opaque.

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