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Beads from Fort Beauséjour, New Brunswick

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Preface

Fort Beauséjour, situated 8 km. east of Sackville, New Brunswick, was established by the French in 1751 to counter the British presence at Fort Lawrence on the strategic Isthmus of Chignecto. Work was still in progress on the fort in 1755 when it was attacked and captured by a force of British regulars and Massachusetts volunteers. Renamed Fort Cumberland, the installation was subsequently enlarged and strengthened but soon lost its military importance, the garrison being withdrawn in 1768. Although the fort was again manned during the American Revolutionary War and the War of 1812, it never regained its initial importance and was officially abandoned in 1833. The site became a National Historic Park in 1926, and was extensively excavated between 1962 and 1968 by the National Historic Parks and Sites Branch, Parks Canada, Ottawa (Herst and Swannack 1970).

Introduction

A total of 4,053 beads was recovered from Fort Beauséjour during the period from 1962 to 1968. All but two of these are made of glass. Of the glass beads, 4,038 are drawn, eight are wound and five are mould pressed. The specimens are classified using an expanded version of the system developed by Kenneth and Martha Kidd (1970) as presented in Karklins (1980). Beads which do not appear in the Kidds' type lists are marked by an asterisk (*) followed by a sequential letter for ease of reference.

Colours are designated using the names and codes in the Color Harmony Manual (Container Corporation of America 1958). The equivalent colour code in the Munsell colour notation system (Munsell Color 1976) is also provided for the benefit of those who may not have access to the manual.

Diaphaneity is described using the terms opaque, translucent, and transparent (equivalent to "clear" in the Kidds' system). Opaque beads are impenetrable to light except on the thinnest edges, specimens that are translucent transmit light yet diffuse it so that objects viewed through them are indistinct. Objects viewed through transparent beads are clearly visible.

A brief survey of the relevant methods of glass bead manufacture is presented here to indicate the differences between the beads in the three categories mentioned above.

In the manufacture of drawn beads, a long tube was drawn out from a hollow globe of molten glass by two workers. If multi-layered or striped beads were desired, the globe was composed of several differently coloured layers or adorned with rods or lumps of contrastingly coloured glass. After cooling, the tube was broken into convenient sections which were then sorted as to diameter. The tubes were subsequently broken into bead-lengths by placing them on a sharp, broad, chisel-like iron set in a block of wood and striking them with a blunt-edged, nearly triangular plate of steel (Anonymous 1825: 120; 1835: 79).

The resultant beads were either left unaltered, or their broken ends were rounded. Prior to 1817, the latter process was accomplished by placing the rough beads in a large pan with sand and wood ash, or plaster and graphite. The pan was then heated over a charcoal fire and the contents stirred continually with a spatula resembling a hatchet with a rounded end (Anonymous 1825: 120). A much more efficient method was invented in Venice in 1817 (Francis 1979: 10). It involved admixing the beads with plaster and graphite or clay and charcoal dust, and then heating the mixture in a rotating iron drum (Orchard 1929: 85). In both processes the heat and agitation rounded the broken ends while the various "packing" mixtures kept the beads from sticking together and prevented their perforations from collapsing as the glass became viscid. Depending on the length of time that the beads were treated in this manner, they could range from practically unaltered tube fragments to almost perfect spheroids. When cool, the beads were polished, and sorted as to size by passing them through a series of sieves.

Drawn beads have certain characteristics due to their method of manufacture. Beads may consist of unaltered tube sections with uneven, broken ends, commonly referred to as "bugle" beads. Bubbles in the glass and striations on the surface, if present, are oriented parallel to the axis, an imaginary line passing through the centre of the perforation. The latter is parallel-sided and usually has a smooth surface.

Wound beads were produced in a totally different manner. In this process, a viscid rod or a filament drawn therefrom was wound around a rotating metal mandrel until the desired size and shape were achieved (Murray 1964: 16). The bead was then usually firepolished to smooth its

surface. This procedure was continued until several beads had been formed. After cooling, they were removed from the mandrel which was sometimes tapered or covered with chalk, graphite or clay to facilitate this step.

The surfaces of wound beads usually exhibit swirl marks that are perpendicular to the axis. Bubbles in the glass are either round, or elongate and at right angles to the axis. The perforation may taper and have an uneven surface.

Mould pressed beads were produced by one of two basic methods. In the first, a glob of viscid glass was pinched from the end of a rod and pressed in a two-piece mould. Any excess glass was thereby forced out at the seam while a moveable pin protruding from one half of the mould pierced the glass to form the perforation. In the second method, two pieces of molten glass, one in either half of a two-piece mould, were pressed together to fuse them. A moveable pin produced the perforation.

Due to the method of manufacture, mould pressed beads usually have a visible mould seam encircling either their equator or their length.

Drawn Glass Beads

Ia4. Tubular; translucent, oyster white (b; N 8/0); 5 specimens (Fig. 1b). The ends are formed by unaltered breaks. A very thin layer of clear glass covers the outside of each bead. Surfaces are shiny and smooth except for two specimens which appear to have been in a fire. Their surfaces are crizzled, or pitted and warped.

	Length	Diameter	Perforation
Range:	11.5 - 29 mm.	4 - 5 mm.	1.0 - 2 mm.
Mean:	18.3 mm.	4.2 mm.	1.5 mm.

Ia19. Tubular; transparent, bright navy (13 pg; 7.5PB 2/7); 10 specimens (Fig. 1d). The ends consist of unaltered breaks or are slightly rounded. Most of the beads with rounded ends are also slightly bent. One specimen exhibits a fairly heavy, iridescent patina.

	Length	Diameter	Perforation
Range:	10.5 - 13.5 mm.	3 - 4 mm.	1.0 - 2 mm.
Mean:	11.9 mm.	3.4 mm.	1.4 mm.

Ia*(a). Tubular; translucent, shadow blue (14 ie; 2.5PB 5/4); 1 specimen (Fig. 1c). The ends are rounded and the surface is shiny.

	Length	Diameter	Perforation
	5 mm.	2.5 mm.	0.75 mm.

Ia*(b). Tubular; translucent, light gray blue (16 ge; 7.5B 6/2); 3 specimens (Fig. 1e). The ends are formed by unaltered breaks. Each of the specimens exhibits numerous fine striations that are parallel to the perforation. Two specimens have a light iridescent patina.

	Length	Diameter	Perforation
Range:	17 - 18 mm.	3.5 - 4 mm.	1.0 - 2 mm.
Mean:	17.3 mm.	3.8 mm.	1.5 mm.

Ib*(a). Tubular; translucent, oyster white (b; N 8/0) core decorated with six evenly spaced straight stripes of which two are apple green (23 ic; 10GY 6/6), two are bright copen blue (14 ia; 2.5PB 6/9), and two are redwood (6 ne; 10R 4/8) in colour; 2 specimens (Fig. 1g). Each colour appears alternately so that stripes of the same colour are directly opposite each other when the beads are viewed on end. The stripes are in a very thin layer of clear glass which coats the outside of each bead. The ends exhibit unaltered breaks.

	Length	Diameter	Perforation
	18 - 18.5 mm.	4 - 4.5 mm.	1.0 mm.

Ib*(b). Tubular; opaque, black (p; N 1/0) core decorated with four narrow, straight white (a; N 9/0) stripes; 2 specimens (Fig. 1f). The ends are formed by unaltered breaks. Both beads are covered with a light patina.

	Length	Diameter	Perforation
	18 mm.	4 mm.	2 mm.

IIa2. Circular; opaque, redwood (6 ne; 10R 4/8); 41 specimens. These beads are oblate spheroidal in shape. Their surfaces range from shiny to dull.

	Length	Diameter	Perforation
Range:	1.0 - 2 mm.	2 - 2.5 mm.	0.25 - 0.75 mm.
Mean:	1.5 mm.	2 mm.	0.5 mm.

IIa6. Round (barrel-shaped); opaque, black (p; N 1/0); 1 specimen (Fig. 1a). This bead consists of a short tube segment with well rounded ends. The surface is dull and lightly pitted.

	Length	Diameter	Perforation
	10 mm.	10 mm.	4 mm.

IIa12. Circular; translucent, oyster white (b; N 8/0); 136 specimens. The beads range in shape form oblate spheroidal to short tube sections with rounded ends. Their surfaces are shiny to dull.

	Length	Diameter	Perforation
Range:	1.5 - 3 mm.	2 - 3.5 mm.	0.25 - 1.0 mm.
Mean:	2 mm.	3 mm.	0.75 mm.

IIa47. Circular; opaque, shadow blue (14 ie; 2.5PB 5/4); 1,128 specimens. The beads range from oblate spheroidal to very short tube sections with rounded ends. Their surfaces are shiny to dull.

	Length	Diameter	Perforation
Range:	1.0 - 3 mm.	2 - 3.5 mm.	0.5 - 1.0 mm.
Mean:	2 mm.	2.7 mm.	0.75 mm.

IIa56. Circular; transparent, bright navy (13 pg; 7.5PB 2/7); 2,185 specimens. The specimens range from oblate spheroidal to very short tube fragments with rounded ends. While several beads exhibit an iridescent patina, most have shiny surfaces.

	Length	Diameter	Perforation
Range:	1.0 - 3.5 mm.	2 - 5 mm.	0.5 - 1.5 mm.
Mean:	2 mm.	3 mm.	0.75 mm.

IIa59. Circular; transparent, rose wine (8 le; 10RP 4/6); 228 specimens. The beads appear black unless held up to a strong light. They range from oblate spheroidal to very short tube sections with rounded ends. Their surfaces are shiny.

	Length	Diameter	Perforation
Range:	1.25 - 3 mm.	2 - 4 mm.	0.5 - 1.5 mm.
Mean:	2.1 mm.	3 mm.	0.8 mm.

IIa*(a). Circular; transparent, light gray (c; N 7/0); 30 specimens. These beads range from oblate spheroidal to very short tube segments with rounded ends. Surfaces are shiny.

	Length	Diameter	Perforation
Range:	1.5 - 2.5 mm.	2 - 3 mm.	0.25 - 1.0 mm.
Mean:	2 mm.	2.5 mm.	0.75 mm.

IIa*(b). Circular; translucent, robin's egg blue (16 ic; 5B 6/6); 1 specimen. The bead consists of a very short tube fragment with rounded ends. Its surface is dull.

Length	Diameter	Perforation
2.5 mm.	3 mm.	0.75 mm.

IIa*(c). Circular; transparent, bright green (22 nc; 2.5G 5/10); 6 specimens. The surface of each bead is slightly to heavily eroded. They range from oblate spheroidal to very short tube sections with rounded ends.

	Length	Diameter	Perforation
Range:	1.5 - 2 mm.	2.5 - 3.5 mm.	1.0 - 2 mm.
Mean:	1.5 mm.	3 mm.	1.5 mm.

IIa*(d). Circular; translucent, apple green (23 ic; 10GY 6/6); 12 specimens. Having dull surfaces, the beads range from oblate spheroidal to very short tube segments with rounded ends.

	Length	Diameter	Perforation
Range:	1.5 - 2 mm.	2 - 2.5 mm.	0.5 - 1.0 mm.
Mean:	1.9 mm.	2.2 mm.	0.8 mm.

IIIa3. Tubular; thin, opaque, redwood (6 ne; 10R 4/8) outer layer; transparent, apple green (23 ie; 10GY 6/6) core; 16 specimens. Beads of this style are commonly referred to as "Cornaline d'Aleppo." Their ends range from jagged to slightly rounded. Some of the beads with rounded ends are slightly bent. Two specimens exhibit a slight iridescent patina.

	Length	Diameter	Perforation
Range:	11 - 15.5 mm.	3.5 - 5 mm.	1.0 - 2 mm.
Mean:	13.1 mm.	4.1 mm.	1.7 mm.

IVa6. Circular; thin, opaque, redwood (6 ne; 10R 4/8) outer layer; transparent, apple green (23 ic; 10GY 6/6) core; 231 specimens. These are also generally referred to as "Cornaline d'Aleppo" beads. On numerous specimens the core appears to be almost colourless due to a lack of sufficient

pigmentation. They range from oblate spheroidal to very short tube segments with rounded ends.

	Length	Diameter	Perforation
Range:	1.0 - 2.5 mm.	2 - 3.5 mm.	0.25 - 1.0 mm.
Mean:	1.6 mm.	2.5 mm.	0.6 mm.

Wound Glass Beads

WIb5. Round; translucent, pale blue (15 ca; 7.5B 8/2); 1 specimen (Fig. 1h). The glass exhibits a slight amber cast when held up to a light. Bubbles are present in the glass. The surface is dull.

Length	Diameter	Perforation
15 mm.	17 mm.	5.5 mm.

WIb*(a). Round; translucent, copen blue (13½ ic; 5PB 5/7); 4 specimens (Fig. 1j). These beads are oblate spheroidal and are practically identical to those designated WId*(a). The only difference between the two varieties is that the round beads are not as thin and their perforations are not large enough to class them as donut-shaped (compare figs. 1j and 1k). All of the specimens are lightly patinated.

	Length	Diameter	Perforation
Range:	4.5 - 6 mm.	8 - 9 mm.	2 - 2.5 mm.
Mean:	5 mm.	9 mm.	2.5 mm.

WIb*(b). Round; transparent, light aqua green (19 ea; 7.5BG 8/4); 1 specimen (Fig. 1i). The bead is covered with a light iridescent patina.

Length	Diameter	Perforation
5 mm.	6 mm.	1.0 mm.

WId*(a). Donut-shaped; translucent, copen blue (13½ ic; 5PB 5/7); 1 specimen (Fig. 1k). The shape is a very flattened oblate spheroidal and the perforation is quite large in proporation to the diameter. The specimen is covered with a light, whitish patina.

Length	Diameter	Perforation
3 mm.	7 mm.	2.75 mm.

WIf*(a). Raised spiral; transparent, bright navy (13 pg; 7.5PB 2/7); 1 specimen (Fig. 1l). The shape of this bead resembles a compressed cylindrical spring. Unlike the other

wound beads in the collection, this variety was made by spirally winding an entire glass rod around a mandrel nine times, thereby producing an elongate bead with a sunken, screwlike thread at the junction of adjacent coils. The seam is also clearly visible on the perforation surface. The coils range in width from 1.5 to 3 mm. They lean from left to right along the length of the bead. The diameter of the bead fluctuates slightly due to the application of varying thicknesses of rod to the mandrel.

Length	Diameter	Perforation
21 mm.	4 - 5 mm.	1.5 mm.

Mould Pressed Glass Beads

MPIa*(a). Round; translucent, white (a; N 9/0); 2 specimens (Fig. 1n). A faint seam encircles the equator of the bead. This mark is smooth but visible since it is slightly lighter in colour than the surrounding glass. The surface of either bead is shiny and displays several tiny flattened areas.

Length	Diameter	Perforation
5.5 mm.	5.7 mm.	0.75 mm.

MPIb*(a). Oval; transparent, amber (3 1c; 10YR 7/8); 3 specimens (Fig. 1m). A smooth but noticeable seam encircles either bead along its long axis. Swirls in the glass are at right angles to the axis up to the seam where they suddenly become parallel to the axis. This suggests that the beads were produced by pressing two pieces of glass together in a mould. The beads have very dull surfaces, and their ends are slightly flattened. Two size groups are represented.

Length	Diameter	Perforation
13 mm., 16 mm.	8.5 mm., 10 mm.	1.5 mm.

Non-Glass Beads

Resin Bead (Fig. 1o). This bead appears to be made of some type of resin, possibly amber. The material is very dark brown, almost black in colour. It is opaque, although under high magnification very thin edges are translucent. The substance is relatively soft with a hardness of about 3.0 on the Mohs scale. It also has a very low specific gravity. The material is combustible, yielding an arcid smell. Chipped areas exhibit a finely granular surface.

The bead is round with a slight equatorial bulge. The surface is dull and smooth. The perforation is large and has sharp edges. It is not parallel-sided, but tapers slightly from one end to the other.

How this bead was made is not clear. However, the tapering perforation implies that the hole was not drilled into a solid piece of resin. This would have produced a parallel sided perforation if a regular drill bit were used. The tapering and the equatorial bulge suggest that the specimen was manufactured by placing plastic resin in a two-piece mould with a tapering pin in it, and then letting it harden. The taper would permit the easy removal of the bead from the pin which produced the perforation.

Length	Diameter	Perforation
5 mm.	5.75 mm.	2 - 2.5 mm.

Jet Bead (Fig. 1p). This specimen is made of jet, a compact form of coal that holds a high polish. It is black, very light, and relatively soft. The bead has a circular outline and a plano-convex cross-section; type V.C.1.a. in Beck's (1928: Pl. 1) system.

The top of the bead is convex and 14 mm. in diameter. It displays 25 cut facets. The central design is a six-pointed star composed of a large hexagonal facet with a triangular facet at each of its sides. A diamond-shaped facet occupies the area between each pair of triangles. Twelve irregular triangles and quadrilaterals extend along the edge.

The basal portion of the bead is 4 mm. high. It has flat sides that are bevelled toward the base. Although the sides have been polished, numerous grinding planes are still evident. The bottom face is flat and circular, with a diameter of 10 mm. The bead has an over-all thickness of 7 mm.

This bead has a multiple perforation (a "rectangular cross;" Beck 1928: Pl. IV) which consists of two perforations in the same plane that cross at right angles. The openings are located in the bevelled sides of the bead, directly below the top. Each perforation has been drilled from either end to ensure even spacing with the result that the sections do not line up perfectly at the centre of the bead. Each perforation segment is parallel sided and 2 mm. in diameter.

Discussion and Conclusion

The majority of the beads recovered from Fort Beauséjour are not diagnostic of any specific time period and, therefore, cannot be used to establish or corroborate dates for the archaeological strata in which they were found. The circular beads are useless for dating purposes because of their long temporal range. They were among the earliest beads brought to the New World and are still being made. They comprise 98.6 per cent of the total bead assemblage. Undecorated tubular beads, including the "Cornaline

d'Aleppo" specimens, fall into much the same category. The remaining beads, 12 varieties represented by 20 specimens, are more distinctive but a chronological sequence has not, to the author's knowledge, been established for most of them as yet. Thus, an attempt is made here to assign dates to the beads in this group which come from archaeological strata that have been dated using more diagnostic artifacts or by historical documentation. This is done so that with future work they may become useful as chronological indicators.

The round pale blue specimen, WIb5, was recovered from a test trench outside Prince Frederick Bastion. It may be equivalent to the Harris' (1967: 144) type 53: large, milk-glass, translucent, round necklace bead of mandrel-wound construction. They state that this type was most popular during the period 1700-1740, although it persisted until about 1820 (Harris and Harris 1967: 156-7).

The raised spiral bead, WIf*(a), cannot be dated since it came from a surface collection. The round copen blue specimens, WIb*(a), came from the southwest corner of the British Officers' Quarters. In this context they can be assigned to the last quarter of the 18th century as the earliest date of deposition. The round light aqua green bead, WIb*(b), was also found in the same structure. However, it came from a level that appears to date to the early 19th century.

The copen blue donut-shaped bead, WId*(a), was recovered from an area at the British masonary curtain wall which served as the collection point for all of the material carried along in the drainage system which serviced a number of the fort's structures. It is, therefore, difficult to assign this bead to a specific occupation although the material with which it was associated suggests a temporal range from about 1755 to 1780.

The amber coloured mould pressed beads, MPIb*(a), came from the southern portion of the ravelin to the south of the British main gate, and from the southern end of the barracks located just east of the stone curtain wall. They are associated with the British occupation. A probable date for them is 1776-1833.

The white mould pressed beads, MPIa*(a), were retrieved from Prince Frederick Bastion fill material. Their cultural affiliation is uncertain. They appear to date to the period from about 1751 to 1793.

The two decorated tubular bead types, Ib*(a) and (b), were also found in the fill of Prince Frederick Bastion. These appear to be associated with the French occupation and date circa 1751-1755.

The barrel-shaped black bead, IIa6, is rather distinctive due to its size. It was recovered from beneath the floor of the barracks at the west edge of the parade square. It is associated with the British occupation of the fort (1755-1833).

The jet bead was recovered from Prince Frederick Bastion but lacks a definite provenience. Thus, it cannot be attributed to any specific period.

Although beads were recovered from 12 operations at the site, 95.5 per cent of the total were obtained from the casemate in Prince Henry Bastion. This structure was in use from about 1752 to possibly as late as 1776. It apparently served as a warehouse and the concentration of beads suggests that they may have been stored there. The inventory consists of a predominance of circular beads with a minor quantity of tubular specimens. The resin bead was also found here. Seventy-seven beads were directly associated with the remains of four barrels on the floor of the casemate. Although barrels were used for shipping and storing beads (Woodward 1965: 9), it seems unlikely that this was the case here due to the very small quantity of beads involved. The association of beads and barrels is probably purely accidental.

Beads under about 6 mm. in diameter, especially circular and short tubular specimens, were most commonly used by both whites and Indians to embroider clothing and other items. However, they were often also utilized in the production of such things as mats, necklaces, earrings and hair ornaments. Larger beads primarily served as necklace components but were also used to adorn fringes, baskets, vases and other objects (Karklins 1980: 41).

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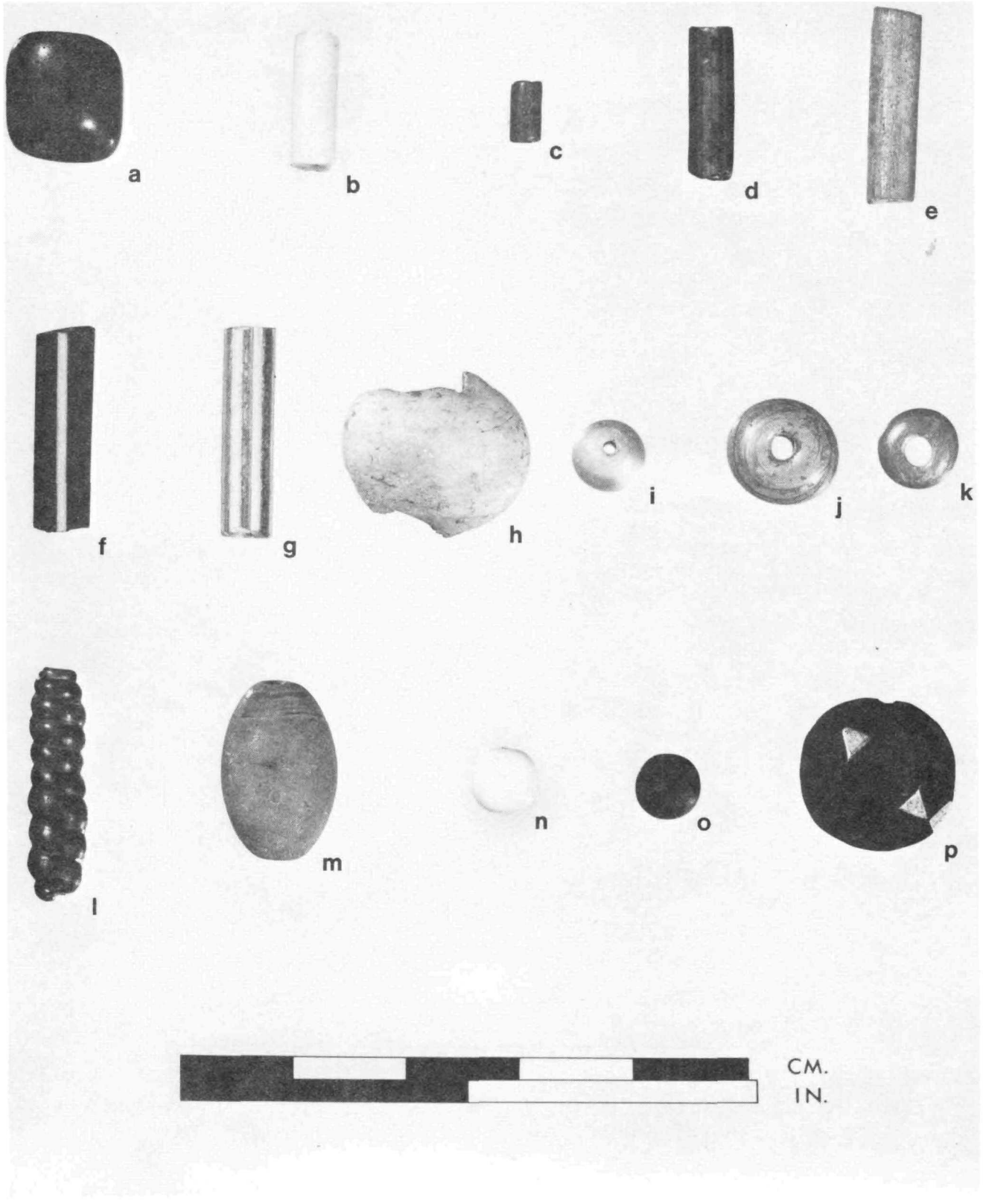

Fig. 1 The distinctive beads from Fort Beausejour are: a, IIa6; b, Ia4; c, Ia*(a); d, Ial9; e, Ia*(b); f, Ib*(b); g, Ib*(a); h, WIb5; i, WIb*(b); j, WIb*(a); k, WId*(a); l, WIf*(a); m, MPIb*(a); n, MPIa*(a); k, WId*(a); l, WIf*(a); m, MPIb*(a); n, MPIa*(a); o, resin bead; p, faceted jet bead.

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