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Glass Trade Beads from a Salvaged Pit in Peter Pond National Historic Site, Saskatchewan

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Preface

Located three miles to the west of Prince Albert, Saskatchewan, Peter Pond National Historic Site encompasses the remains of Sturgeon Fort, a fur trade post occupied intermittently from 1776 to 1780 by several "free traders." Among the latter was the illustrious Peter Pond who used the post as a base for his famous push into what would become the El Dorado of the Canadian fur trade: the Athabasca country.

Deemed to be of historical and archaeological significance, the site was investigated during the summer of 1962 by Norman F. Barka under contract to the National Historic Parks and Sites Branch, Parks Canada, Ottawa. In addition to the poorly preserved remains of several structures, this work revealed that much of the site had eroded into the North Saskatchewan River (Barka 1976: 91). The river continued to nibble away at the site for the next few years with the result that a small pit was exposed in the river bank, roughly 10 ft. to the east of feature 10, the remains of a building, in area B (Fig. 1). Salvage excavated in August of 1966 by Terrence W. Foster (1966) for Parks Canada, the feature was found to have a somewhat squarish outline with slightly incurvate walls and a rounded bottom. It was up to 4.1 ft. across and had a maximum depth of 2.15 ft. No structural remains were found in association, suggesting that the depression may have served as an exterior storage facility.

The fill of the pit was divided into two stratigraphic units on the basis of a slight colour change in the soil. However, it does not appear that there is any temporal difference between the two levels (Foster 1966: 3). Aside from the beads discussed in this report, the pit yielded lead shot and musket balls, finger rings, buckles, thimbles,

mirror (?) glass, seeds, various animal bones, and a lead seal bearing the name FRANCIS MAUDE.

Introduction

The salvaged pit at Peter Pond National Historic Site yielded a total of 2,854 glass beads. Of these, 12 are wound and 2,842 are drawn. 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 are not listed 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 be familiar with the manual. The diaphaneity of the specimens is defined using the terms opaque, translucent, and transparent (equivalent to "clear" in the Kidds' system). Simply defined, opaque beads are impenetrable to light except on the thinnest edges. Translucent specimens transmit light, but diffuse it so that objects viewed through them are indistinct. Objects viewed through transparent beads are clearly visible.

A brief survey of the methods employed to manufacture drawn and wound beads is presented herewith to indicate the differences between the beads in the two categories.

In the manufacture of drawn beads, a long tube was drawn out from a hollow globe of molten glass by two men. After cooling, the tube was broken into manageable sections which were then sized on the basis of their 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, trianguloid plate of steel (Anonymous 1825: 120; 1835: 79).

The resultant beads were either left unaltered or their broken ends were rounded. At the time that Sturgeon Fort was occupied, the latter process was apparently accomplished by placing the rough beads in a large iron 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 round end (Anonymous 1825: 120). The heat and agitation rounded the broken ends of the beads while the various "packing" mixtures kept them 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 perforation is parallel-sided and usually has a smooth surface.

Wound beads were produced in a totally different manner. In this process, a thin filament of glass was drawn from a molten rod and repeatedly wound around a rotating metal mandrel until the desired size and shape were achieved (Murray 1964: 16). While in a plastic state the beads could be decorated or pressed with small metal paddles to impart facets. Each bead was then usually firepolished to smooth its surface. When cool the beads 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 frequently exhibit swirl marks that are at right angles to the axis. Bubbles in the glass are either round, or elongate and perpendicular to the axis. The perforation may taper and have an uneven surface.

Drawn Beads

Ia2. Tubular; opaque, black (p; N 1/0); 81 specimens (Fig. 2,a). The ends are broken in most cases but range to well rounded.

	Length	Diameter	Perforation
Range:	3 - 6.5 mm.	2 - 3.5 mm.	0.5 - 1.25 mm.
Mean:	4.5 mm.	2.9 mm.	1.0 mm.

Ia4. Tubular; translucent, oyster white (b; N 8/0); 209 specimens (Fig. 2,b). A very thin layer of clear glass covers the surface of the beads. Their ends are broken in most cases but range to well rounded.

This variety grades imperceptibly into its circular group counterpart (variety IIa12). The arbitrary criterion used to separate the two shape categories was that tubular beads have a length that is greater than their diameter. Specimens with a diameter equal to or greater than their length were classed as circular.

	Length	Diameter	Perforation
Range:	3 - 5 mm.	2 - 3.5 mm.	0.5 - 1.5 mm.
Mean:	4.25 mm.	3 mm.	0.9 mm.

Ia19. Tubular; transparent, bright navy (13 pg; 7.5PB 2/7); 195 specimens (Fig. 2,c). Ends range from broken to well rounded. Several specimens contain numerous linear bubbles.

This variety grades imperceptibly into its circular group counterpart (variety IIa56). The two were separated arbitrarily using the same criterion that was outlined for the previous variety.

	Length	Diameter	Perforation
Range:	3 - 6 mm.	2 - 3.5 mm.	0.5 - 1.25 mm.
Mean:	4.5 mm.	2.8 mm.	1.0 mm.

Ia*(a). Tubular; translucent, cinnamon (3 le; 10YR 5/6); 84 specimens (Fig. 2,d). A chalky-white patina is present on most specimens. Although eroded, most bead ends appear to consist of unaltered breaks, while some seem to have been rounded. The glass contains numerous linear bubbles.

	Length	Diameter	Perforation
Range:	3 - 4.5 mm.	2 - 3 mm.	0.5 - 1.0 mm.
Mean:	3.75 mm.	2.5 mm.	0.75 mm.

Ia*(b). Tubular; translucent, pale blue (15 ca; 7.5B 8/2); 1 specimen (Fig. 2,e). Ends consist of unaltered, rough breaks.

Length	Diameter	Perforation
5.5 mm.	4 mm.	1.75 mm.

Ia*(c). Tubular; translucent, dark palm green (23 ni; 10GY 4/4); 5 specimens (Fig. 2,f). The ends are eroded slightly but appear to consist of unaltered breaks. Numerous linear bubbles are present in the glass.

	Length	Diameter	Perforation
Range:	3 - 4 mm.	2.5 mm.	0.5 - 1.0 mm.
Mean:	3.3 mm.	2.5 mm.	0.75 mm.

IIa7. Circular; opaque, black (p; N 1/0); 10 specimens (Fig. 2,g). These beads range from oblate spheroidal specimens to very short tube sections with rounded ends.

	Length	Diameter	Perforation
Range:	1.5 - 2.5 mm.	2 - 2.5 mm.	0.5 - 0.75 mm.
Mean:	2 mm.	2.25 mm.	0.6 mm.

IIa12. Circular; translucent, oyster white (b; N 8/0); 1,169 specimens (Fig. 2,h). A very thin layer of clear glass covers the outside of each bead. Shape ranges from oblate spheroidal to very short tube sections with rounded ends. One bead has what appears to be a fine strand of gut or sinew in the perforation.

This variety grades imperceptibly into its tubular group counterpart (variety Ia4). The two varieties were separated arbitrarily using the criterion that circular beads have a diameter that is greater than or equal to the length. Specimens with a length greater than the diameter were classed as tubular.

	Length	Diameter	Perforation
Range:	1.5 - 3.75 mm.	2 - 4 mm.	0.25 - 1.25 mm.
Mean:	2.4 mm.	3 mm.	0.75 mm.

IIa56. Circular; transparent, bright navy (13 pg; 7.5PB 2/7); 120 specimens (Fig. 2,i). Shape ranges from oblate spheroidal to short tube sections with rounded ends.

This variety grades imperceptibly into its tubular group couterpart (variety Ia19). The two were separated using the same criterion that was used for the previous variety.

	Length	Diameter	Perforation
Range:	1.25 - 3 mm.	2.25 - 3.25 mm.	0.25 - 0.9 mm.
Mean:	2 mm.	2.75 mm.	0.75 mm.

IIa59. Circular; transparent, rose wine (8 le; 10RP 4/6); 1 specimen (Fig. 2,j). The shape is oblate spheroidal.

Length	Diameter	Perforation
1.0 mm.	1.25 mm.	0.25 mm.

IIa*(a). Circular; transparent, sunlight yellow (1½ ga; 5Y 8.5/8); 21 specimens (Fig. 2,k). Surfaces are very lightly eroded. The beads range from oblate spheroidal to very short tube sections with well rounded ends.

	Length	Diameter	Perforation
Range:	1.1 - 2.25 mm.	2 - 2.75 mm.	0.5 - 1.0 mm.
Mean:	1.75 mm.	2.25 mm.	0.75 mm.

IIa*(b). Circular; translucent, sunlight yellow (1½ ga; 5Y 8.5/8); 38 specimens (Fig. 2,l). Shape ranges from oblate spheroidal to very short tube fragments with rounded ends.

Numerous fine, linear bubbles are present in the glass. Surfaces are slightly eroded.

	Length	Diameter	Perforation
Range:	1.1 - 2.5 mm.	2 - 2.75 mm.	0.3 - 1.0 mm.
Mean:	1.9 mm.	2.3 mm.	0.9 mm.

IIa*(c). Circular; translucent, light gold (2 ic; 2.5Y 7/8); 214 specimens (Fig. 2,m). Shape ranges from oblate spheroidal to very short tube sections with rounded ends. The glass contains numerous linear bubbles.

	Length	Diameter	Perforation
Range:	1.5 - 3 mm.	2 - 2.75 mm.	0.5 - 1.25 mm.
Mean:	2 mm.	2.5 mm.	0.9 mm.

IIa*(d). Circular; translucent, copen blue (13½ ic; 5PB 5/7); 1 specimen (Fig. 2,n). This bead consists of a very short tube fragment with rounded ends.

Length	Diameter	Perforation
2 mm.	2 mm.	0.5 mm.

IIa*(e). Circular; transparent, bright blue (16 lc; 5B 5/7); 519 specimens (Fig. 2,o). Shape ranges from oblate spheroidal to very short tube sections with rounded ends. Numerous tiny bubbles are present in the glass of most specimens.

	Length	Diameter	Perforation
Range:	1.5 - 4 mm.	2 - 4 mm.	0.3 - 1.0 mm.
Mean:	2 mm.	3 mm.	0.6 mm.

IIa*(f). Circular; transparent, bright green (22 nc; 2.5G 5/10); 165 specimens (Fig. 2,p). Shape ranges from oblate spheroidal to very short tube sections with rounded ends. Surfaces are slightly eroded.

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

IIa*(g). Circular; translucent, dark palm green (23 ni; 10GY 4/4); 9 specimens (Fig. 2,q). Numerous fine, linear bubbles are present in the glass. The beads range in shape

from oblate spheroidal to very short tube fragments with well rounded ends.

	Length	Diameter	Perforation
Range:	1.25 - 2 mm.	1.25 - 2.75 mm.	0.25 - 1.0 mm.
Mean:	1.5 mm.	2 mm.	0.5 mm.

Wound Beads

WIc1. Oval; opaque, white (a; N 9/0); 2 specimens (Fig. 2,r). The glass is swirled perpendicular to the axis.

Length	Diameter	Perforation
6 mm.	3 mm.	1.25 - 1.5 mm.

WIc*(a). Oval; opaque, black (p; N 1/0); 6 specimens (Fig. 2,s). Faint swirl marks are visible on the surface. The glass of two specimens is badly decomposed.

	Length	Diameter	Perforation
Range:	5 - 8 mm.	3 - 4 mm.	1.0 - 1.5 mm.
Mean:	6.75 mm.	3.5 mm.	1.0 mm.

WIc*(b). Oval; transparent, light red (7½ 1a; 5R 5/12); 3 specimens (Fig. 2,t). The glass is poorly preserved and the specimens are very thin and fragile. Small bubbles are present in the glass.

	Length	Diameter	Perforation
Range:	5 - 5.5 mm.	2.75 - 3 mm.	1.5 mm.
Mean:	5.25 mm.	2.9 mm.	1.5 mm.

WIIn*(a). Standard square barrel; transparent, light red (7½ 1a; 5R 5/12); 1 specimen (Fig. 2,u). Equivalent to Beck's (1928) type IX.C.1.b., this bead is square in cross-section due to the presence of four, irregular "soft" facets which were applied with a paddle while the glass was still viscid. The specimen is very thin walled and fragile. Tiny bubbles are present in the glass. There are very fine swirl marks on the surface.

Length	Diameter	Perforation
2.5 mm.	2.75 mm.	1.75 mm.

Discussion and Conclusions

The beads salvaged from the small pit at Peter Pond National Historic Site are all monochrome and of a size that suggests that they found their primary use in the embroidery of clothing and other items, rather than in the manufacture of necklaces. They do not vary significantly from those recovered from the rest of the site. The majority of the beads excavated by Barka (1976: 122-135) are also of the circular and tubular variety. Colour predominance is the same for both collections. White specimens greatly outnumber those of other colours. Blue beads are the next most common, followed by the yellows and greens.

Interestingly enough, the pit produced more beads than the rest of the excavations combined. Barka (1976: 75) recorded 2,338 specimens representing 80 varieties. The pit yielded 2,854 beads of 21 varieties. This concentration may mean that the pit served as a primary storage facility.

The presence of what appears to be a thin strand of gut or sinew in the perforation of one circular embroidery bead may mean that some of the beads were sewn to an article of clothing which has subsequently decomposed.

The vast majority of the beads are useless for establishing a date for the pit. The circular drawn beads are not diagnostic of any specific time period due to an extensive temporal range. The tubular specimens fall into much the same category. The oval wound beads are not very distinctive either but are almost identical to three types (nos. 101, 103 and 108) from various sites in Texas, Oklahoma, and Louisiana (Harris and Harris 1967: 148-149). Two other oval wound bead types (nos. 102 and 104) from the same area have four pressed facets on their surfaces (Harris and Harris 1967: 148), a treatment similar to that of the standard square barrel bead, WIIn*(a), from the Peter Pond Site. These five types are attributed to the period from 1767 to 1820 (Harris and Harris 1967: 157). This date range agrees with the recorded occupation of Sturgeon Fort: 1776-80 (Barka 1976: 91).

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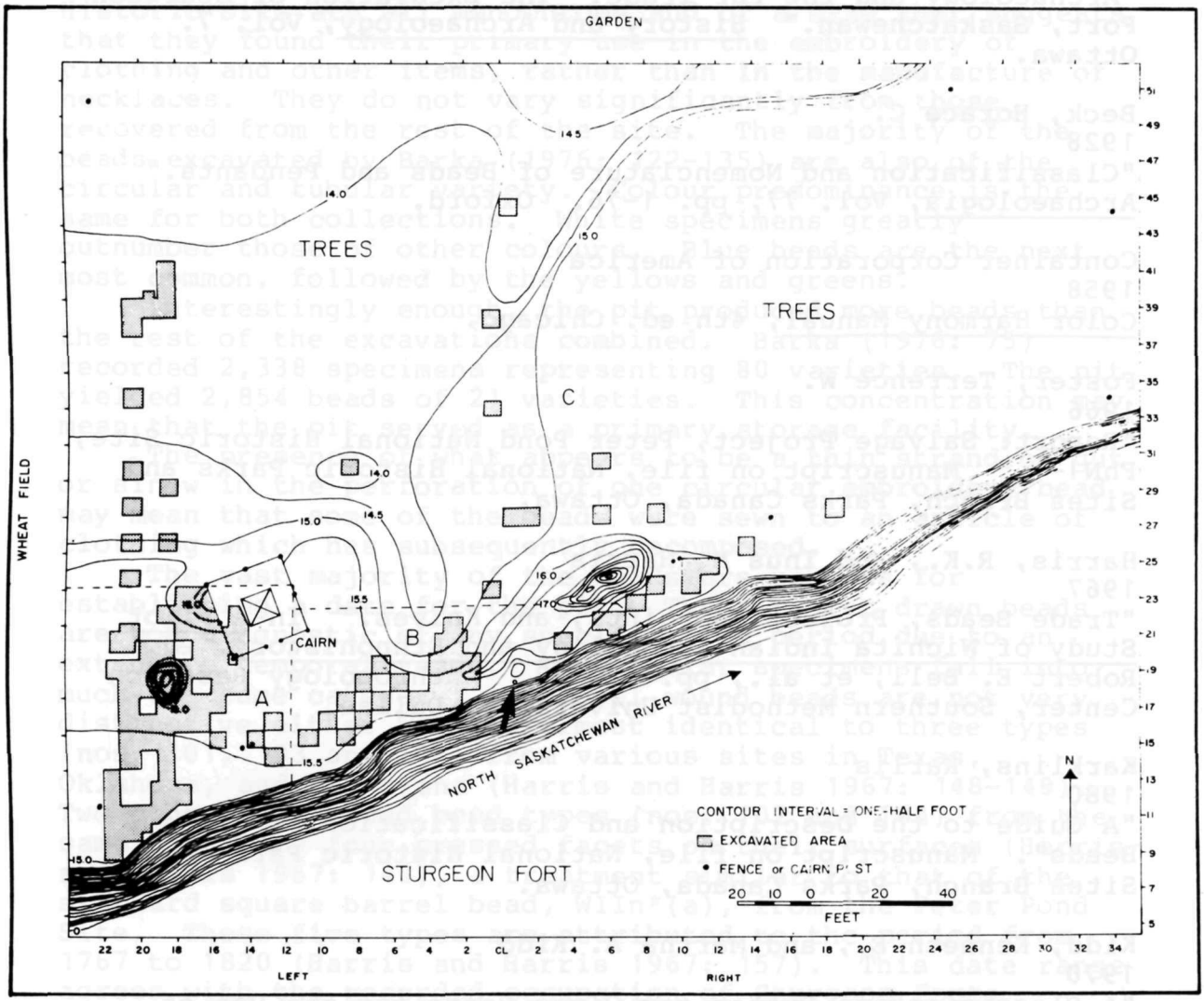

Fig. 1 Topographic map of Peter Pond National Historic Site and vicinity showing the location of the salvaged pit (arrow). (Barka 1976: Fig. 21.)

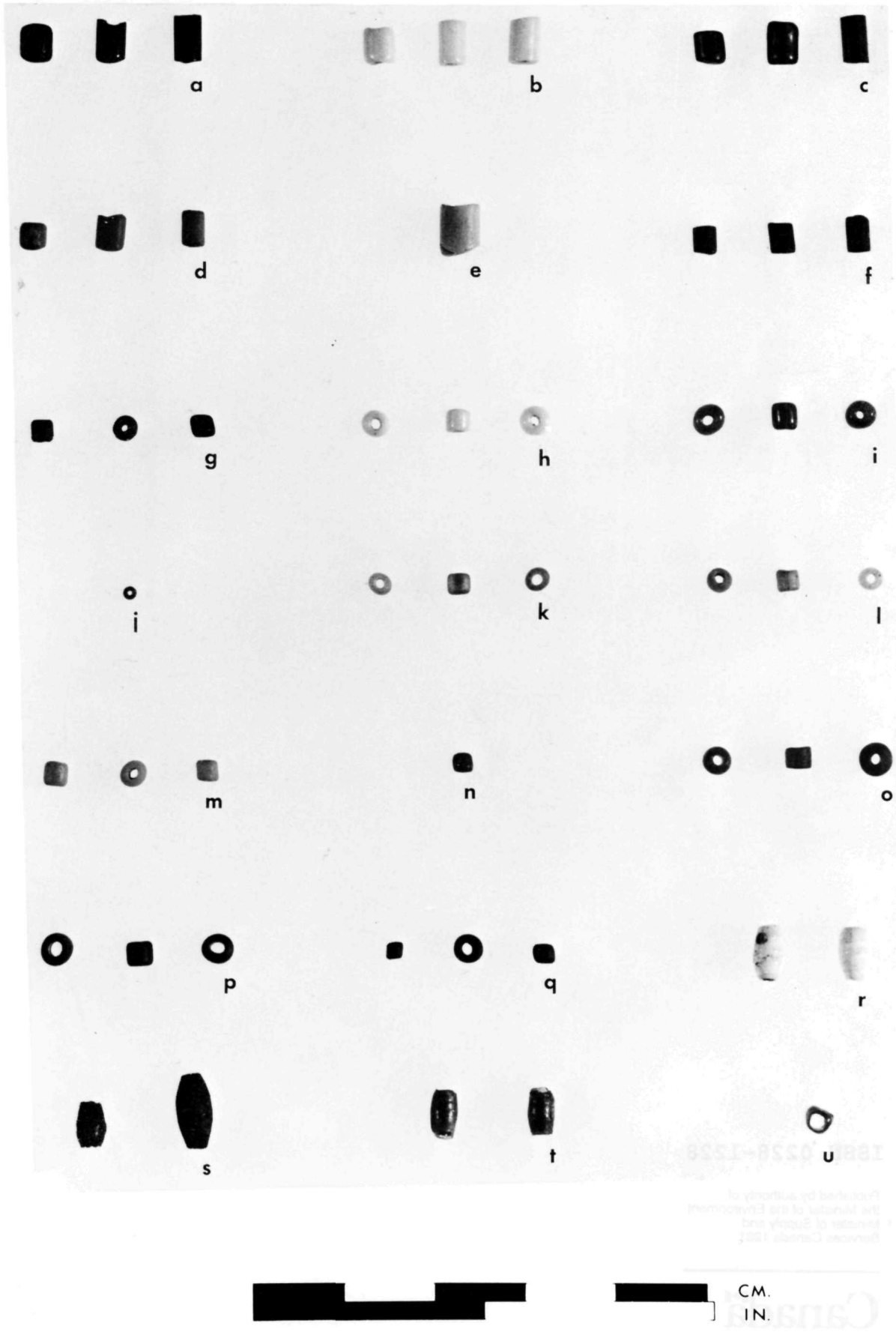

Fig. 2 Glass beads from the salvaged pit at Peter Pond N.H.S. Drawn tubular beads: a, Ia2; b, Ia4; c, Ia19; d, Ia*(a); e, Ia* (b); f, Ia* (c); drawn circular beads: g, IIa7; h, IIa12; i, IIa56; j, IIa59; k, IIa* (a); l, IIa* (b); m, IIa* (c); n, IIa* (d); o, IIa* (e); p, IIa* (f); q, IIa* (g); wound beads: r, WIc1; s, WIc" (a); t, WIc* (b); u, WIIn* (a). (Photo by G. Taudien.)

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