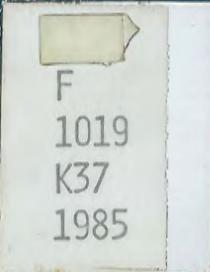


GLASS BEADS

The 19th Century Levin Catalogue and Venetian Bead Book
and Guide to Description of Glass Beads



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GUIDE TO THE DESCRIPTION AND CLASSIFICATION OF GLASS BEADS

Abstract

This guide provides information relevant to the classification of glass beads recovered from archaeological sites in Canada. It is partly based on and intended to be used with "A Classification System for Glass Beads for the use of Field Archaeologists," by Kenneth and Martha Kidd. Material presented includes a critical evaluation of several bead classification schemes, an overview of bead-manufacturing techniques, a descriptive listing of the various classes and types of beads that have been recorded to date, an explication of the physical attributes of a bead and some interpretative material. Information relevant to entering glass beads in the Parks Canada artifact data base system is also provided.

Introduction

During the past six decades, several systems have been proposed for the classification of glass beads. Although the majority are elementary in nature and have limited application, four are noteworthy.

The first classificatory scheme for beads was published in 1928 by Horace C. Beck. Comprehensive though it was, his "Classification and Nomenclature of Beads and Pendants" was aimed primarily at Old World researchers and never achieved popularity in North America. Nevertheless, Beck's work remains a valuable research tool and is a classic in its own right.

Little progress was made during the next two decades. Then, in the 1950s, Kenneth E. Kidd formulated a scheme which, with modifications and the collaboration of his wife Martha, was published in 1970 as "A Classification System for Glass Beads for the Use of Field Archaeologists." Utilizing primarily the process of manufacture to sort beads and secondarily the physical attributes, the system is most notable for its extensive colour plates illustrating each recorded bead type. Also noteworthy is the extremely well-developed typological flow chart for drawn beads (Kidd and Kidd 1970: 51). Unfortunately, the wound-bead chart (Kidd and Kidd 1970: 52) is not nearly as detailed, and wound-on-drawn, mould-pressed, blown and moulded beads are not dealt with at all. Furthermore, many of the bead classes and some of the terms are not adequately defined, making the system difficult to use at times. Another drawback centres on the fact that the system, developed using beads derived from early historical period sites in the Northeast, has been found to be of little utility by several researchers in the Pacific Northwest (Ross 1976: 671-73; Sprague 1971: 128-29). In its favour is the fact that it is an open-ended system so that new categories, classes, types and varieties can be added as they are required.

In the same year that the previous report was published, Lyle M. Stone completed his treatise on Fort Michilimackinac. Published four years later, it contains a section on beads wherein the primary sorting is based on function as revealed by relative size. The two pertinent functional categories (necklace beads and seed beads) are each further subdivided into Class (method of manufacture), Series (structure or form), Type (shape), and Variety (colour and diaphaneity). All of the varieties are illustrated in colour photographs.

The main drawback to Stone's approach is that relative size and function do not always equate; not all "large" beads found their use in necklaces and not all "small" beads are seed beads (the latter should have been designated "embroidery beads" as the term "seed bead" is a size designation). There is also the problematic "medium" size group which overlaps both categories. Secondarily, this system, like the previous one, deals only with drawn and wound beads and has not found acceptance on the West Coast.

The final classification system to be dealt with herein appeared in 1976. In that year, Lester A. Ross completed his monograph "Fort Vancouver, 1829-1860: A Historical Archeological Investigation of the Goods Imported and Manufactured by the Hudson's Bay Company" which

contains a lengthy and well-illustrated section on glass beads. The specimens are classified using a typological scheme reminiscent of and apparently lightly influenced by that of Kenneth and Martha Kidd (1970). However, the Fort Vancouver typology is much more comprehensive, covering all the major manufacturing types. It is also not as rigid a system as that of the Kidds and there is no coding of the various bead types. Although this allows every minor variant to be recorded, it does little to facilitate the inter-site comparison of bead assemblages. Notwithstanding, Ross's scheme is a milestone for a part of the continent where the typical classification "system" has for so long consisted of a loosely ordered list of inadequately described bead types.

Although each of the foregoing systems has its drawbacks, the one that seems to offer the most potential and appears to have found the most universal acceptance is the one devised by Kenneth and Martha Kidd (1970). Consequently, it has been chosen to form the basis for this guide.

The typology for drawn and wound beads that follows is a corrected and expanded version of that proposed by the Kidds (1970). The other manufacturing types are classified using a similar coding system and attribute hierarchy, with the classes and types being defined on the basis of archaeological specimens and several 19th century bead sample cards and books. Although every attempt has been made to make the typology as comprehensive as possible, it is inevitable that new categories will be encountered as more bead assemblages are analysed. Should you record a new class or type, please inform me so that it can be added to the inventory. Although instructions for defining varieties are presented for each manufacturing type, no varieties are listed because they are far too numerous. Furthermore, the practicability of recording varieties in a comprehensive classification system becomes doubtful when one considers that well over 100,000 varieties of glass beads have been produced in the world to date (Liu 1975b: 31).

Glass Bead Classification

The primary criterion for sorting glass beads into typological categories is the technique of manufacture. Six major types are pertinent to North American researchers: drawn, wound, wound on drawn, mould pressed, blown and Prosser moulded.

DRAWN BEADS

Also called tube, cane and hollow-cane beads, the appellation "drawn" is preferred because it refers to the production process rather than the form of the finished product. As the process has been described in detail by Kidd and Kidd (1970: 48-49), only a brief survey will be presented here.

In the manufacture of drawn beads, a tube up to 300 yd long was drawn out from a hollow globe of molten glass by two men (Carroll 1917: 7). Depending on what stylistic variation was required, the globe may have been (1) composed of several differently coloured layers, (2) adorned with rods or lumps of coloured glass to form stripes, (3) marvered to create a specific shape, and/or (4) twisted during the drawing process to impart a spiral effect. Starting in the early 20th century, monochrome tubes were also produced using a process wherein molten glass flowing over an iron mandrel was mechanically drawn out into a long tube. If the mandrel (which formed the perforation) was polyhedral, the perforation of the resultant tube would be the same shape. This is the only characteristic that distinguishes "mandrel-drawn" beads from those made using the older method.

When the tubes produced by either method were sufficiently cool, they were broken into manageable sections which were then sorted according to their diameter. These were subsequently cut into bead lengths by placing them on a sharp iron in the shape of a broad chisel and striking them with a blunt-edged, nearly triangular plate of steel (Anonymous 1825: 120; 1835: 79).

The resultant beads were either left unaltered, except for the possible grinding of facets, or their broken ends were rounded. Before 1817, the latter was accomplished by putting the 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 round end (Anonymous 1825: 120). Another, much more efficient method came into use in Venice in 1817 (Francis 1979b: 10). It consisted of intermixing the rough beads with plaster and graphite or clay and charcoal dust, and then placing the mixture in an iron drum which was heated and rotated in an oven, a technique commonly referred to as "tumbling" (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 the beads were treated in this manner, they might range from practically unaltered tube fragments to almost perfect spheroids. After being allowed to cool, the beads were polished and sorted according to size by passing them through a series of graduated 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.

In the Kidds' system, drawn beads are divided into four classes according to their structure (simple or compound) and manufacturing sub-type (tubular or non-tubular). Each class is segregated into types on the basis of the general form of the beads and their decorative elements. Varieties are based on bead shape and the number, colour and diaphaneity of the structural elements.

The various classes and types recorded to date are listed below and illustrated in Figure 1a-d. Types marked with an asterisk (*) were encountered after the Kidds' classification system was published. The varieties are too diversified to be listed; see Kidd and Kidd (1970: 67-83) for these.

Class I

Tubular beads with simple (monochrome) bodies which may exhibit adventitious surface decoration. Cross-sections are round unless otherwise noted.

- Ia Undecorated
- Ib Decorated with straight, simple stripes
- Ib' Decorated with spiral, simple stripes
- Ibb Decorated with straight, compound stripes
- Ibb' Decorated with spiral, compound stripes
- Ic Beads with straight, polyhedral bodies
- Ic' Beads with twisted, polyhedral bodies
- Id Beads with straight, polyhedral bodies decorated with straight, simple stripes
- Id' Beads with twisted polyhedral bodies decorated with spiral, simple stripes

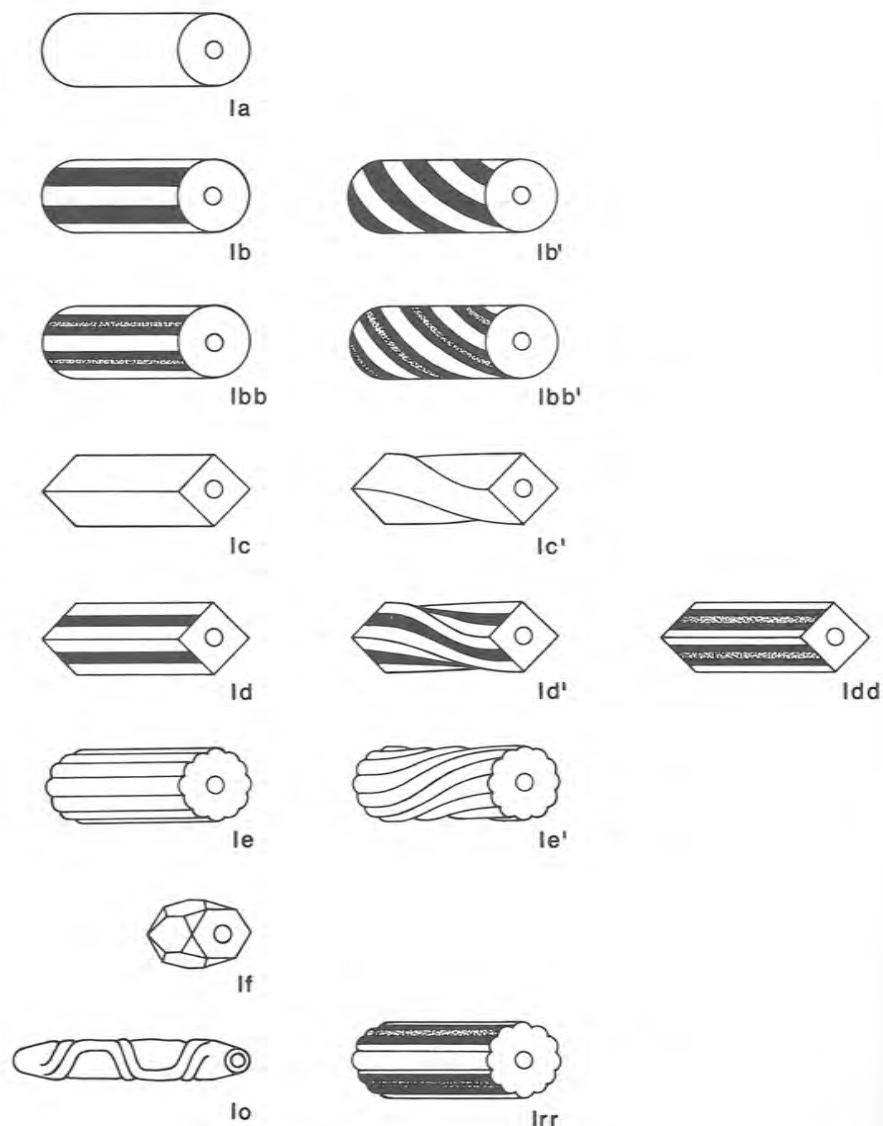


Figure 1a. Recorded types of class I drawn beads.
(Drawing by D. Kappler)

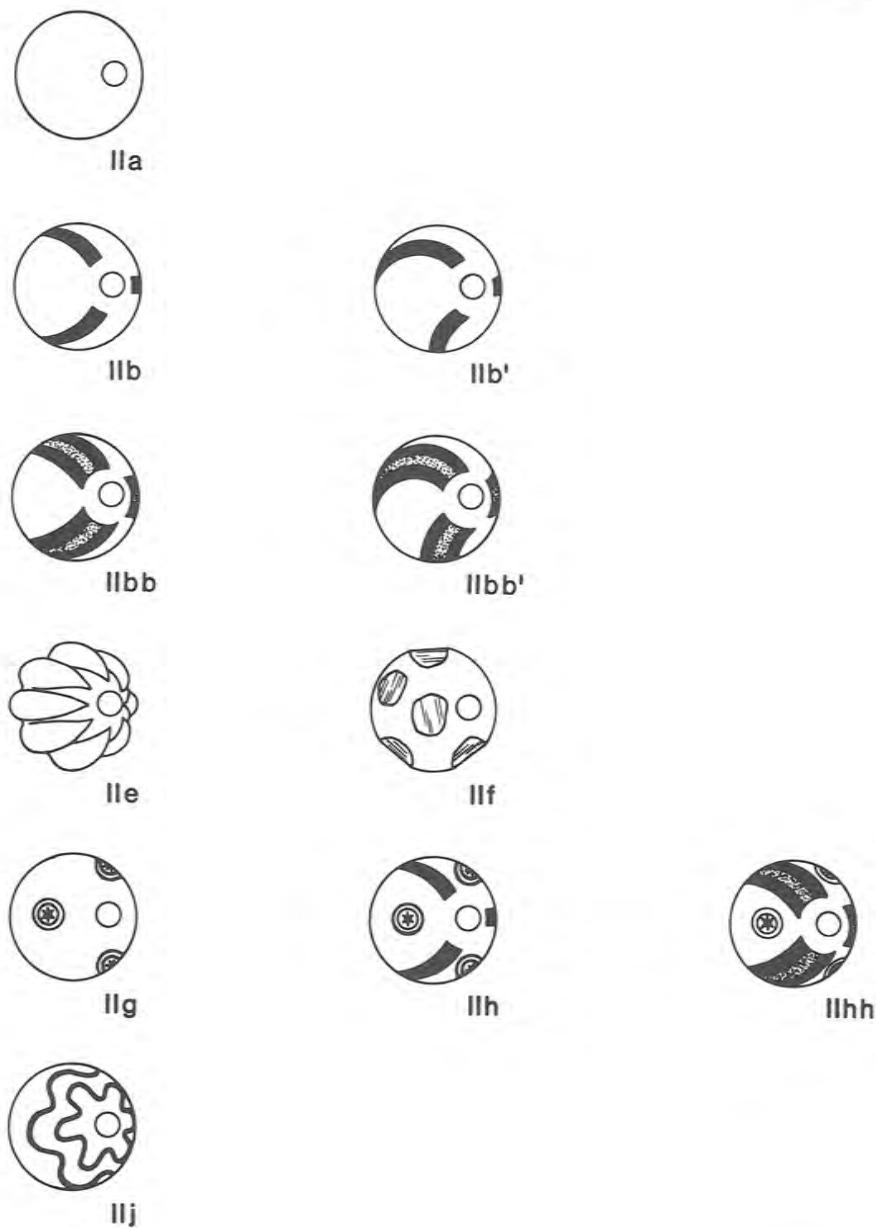


Figure 1b. Recorded types of class II drawn beads.
(Drawing by D. Kappler)

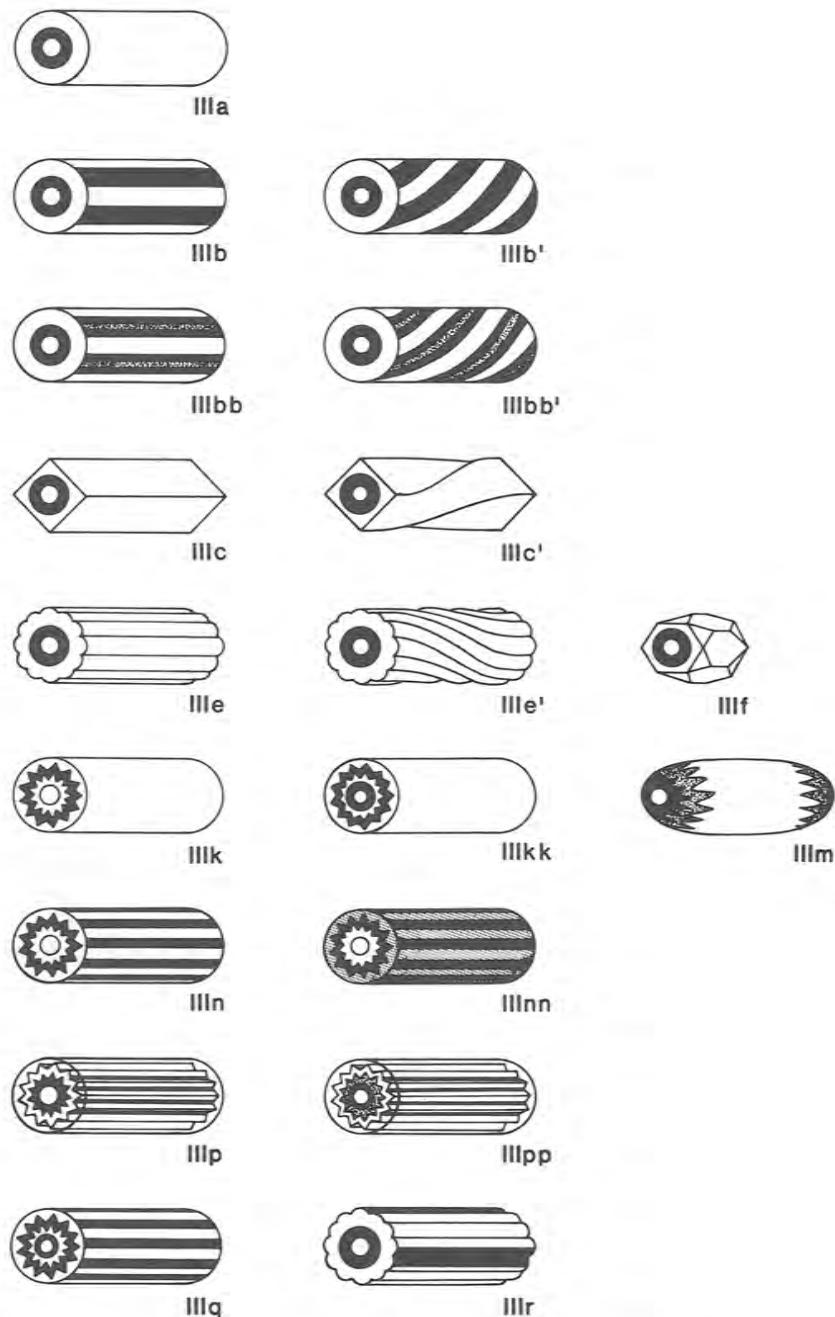


Figure 1c. Recorded types of class III drawn beads.
(Drawing by D. Kappler)

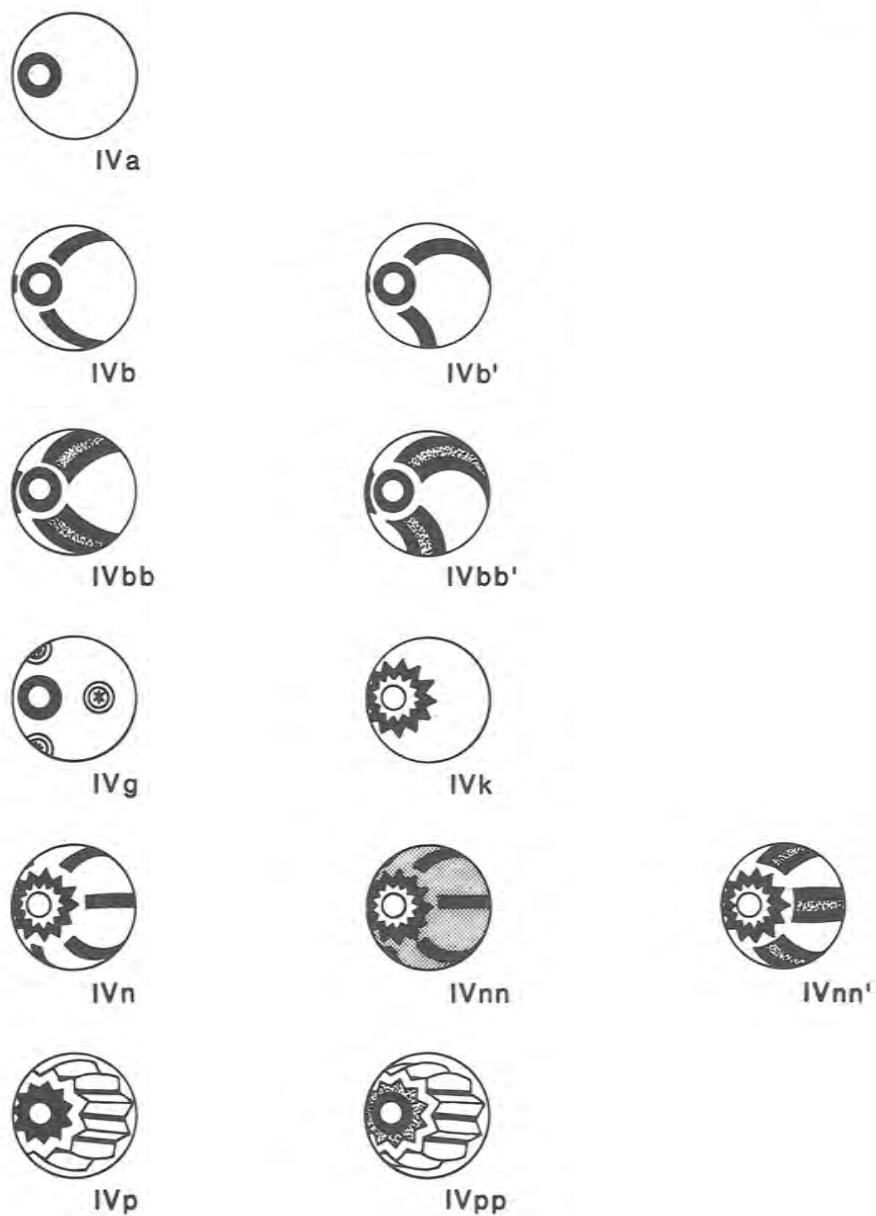


Figure 1d. Recorded types of class IV drawn beads.
(Drawing by D. Kappler)

94 KARKLINS

- *Idd Beads with straight, polyhedral bodies decorated with straight, compound stripes
- Ie Beads with straight, ribbed or ridged bodies
- Ie' Beads with twisted, ribbed or ridged bodies
- If Beads whose surfaces have been modified by grinding
- *Io Hexagonal beads exhibiting an "alternating twist" pattern apparently produced by alternatingly twisting a heated hexagonal tube one way and then the other until a series of undulations have been formed in the body facets
- *Irr Beads with straight, ribbed or ridged bodies decorated with straight, compound stripes

Class II

Non-tubular beads with simple (monochrome) bodies which may exhibit adventitious surface decoration.

- IIa Undecorated
- IIb Decorated with straight, simple stripes
- IIb' Decorated with spiral, simple stripes
- IIbb Decorated with straight, compound stripes
- IIbb' Decorated with spiral, compound stripes
- IIe "Melon" beads (ridged bodies)
- *IIf Beads whose surfaces have been modified by the application of ground facets
- IIg "Flush eye" beads (decorated with insets)
- IIh Decorated with insets and straight, simple stripes
- *IIhh Decorated with insets and straight, compound stripes
- IIj Beads encircled by two or more wavy lines

Class III

Tubular beads with compound (multi-layered) bodies which may exhibit adventitious surface decoration. Cross-sections are round unless otherwise noted.

- IIIa Undecorated
- IIIb Decorated with straight, simple stripes
- *IIIb' Decorated with spiral, simple stripes
- IIIbb Decorated with straight, compound stripes
- *IIIbb' Decorated with spiral, compound stripes
- IIIc Beads with straight, polyhedral bodies
- IIIc' Beads with twisted, polyhedral bodies
- IIIe Beads with straight, ribbed or ridged bodies
- IIIe' Beads with twisted, ribbed or ridged bodies
- IIIf Beads whose surfaces have been modified by grinding
- IIIk "Chevron" beads with plain outer layers
- *IIIkk "Semi-chevron" beads (all layers except the core are "starry") with plain outer layers
- IIIm "Chevron" beads made by grinding large, multi-layered tubes into round or oval forms to show the ridges of the second layer and the end design of the various layers.
- IIIin "Chevron" beads decorated with straight, simple stripes on the outer layer
- *IIIin "Chevron" beads decorated with straight, simple stripes on the outer layer. These beads resemble porcelain imitations of type IIIin beads and are the tubular counterparts of type IVnn beads
- *IIIp "Chevron" beads decorated with straight, simple stripes on the surface of the second layer
- *IIIpp "Semi-chevron" beads (all layers except the core are "starry") decorated with straight, simple stripes on the surface of the second layer

- *IIIq "Semi-chevron" beads (all layers except the core are "starry") decorated with straight, simple stripes on the outer layer
- *IIIr Beads with straight, ribbed or ridged bodies decorated with straight, simple stripes

Class IV

Non-tubular beads with compound (multi-layered) bodies which may exhibit adventitious surface decoration.

- IVa** Undecorated
- IVb** Decorated with straight, simple stripes
- IVb'** Decorated with spiral, simple stripes
- IVbb** Decorated with straight, compound stripes
- IVbb'** Decorated with spiral, compound stripes
- IVg** "Flush eye" beads (decorated with insets)
- IVk** "Chevron" beads with plain outer layers
- IVn** "Chevron" beads decorated with straight, simple stripes on the outer layer
- IVnn** "Chevron" beads decorated with straight, simple stripes on the outer layer. These beads resemble porcelain imitations of type IVn beads
- *IVnn'** "Chevron" beads decorated with straight, compound stripes on the outer layer
- *IVp** "Chevron" beads decorated with straight, simple stripes on the surface of the second layer
- *IVpp** "Semi-chevron" beads (all layers except the core are "starry") decorated with straight, simple stripes on the surface of the second layer

WOUND BEADS

Wound beads, also termed wire wound and mandrel wound, were produced by winding a viscid rod or a strand drawn therefrom around a rotating metal mandrel one or more times until the desired size and shape were achieved. While still soft, the beads might be decorated with any of a myriad of inlays or appliqués. They might also be pressed with small metal paddles or clamped in tong-like moulds to impart a design or a uniform shape (the latter should not be confused with the "mould-pressed" process [cf.]). When cool, the beads were stripped from the mandrel which is sometimes tapered or covered with chalk, graphite or clay to facilitate this step (Kidd and Kidd 1970: 49; Sprague 1979: 8).

The surfaces of wound beads usually exhibit swirl marks that encircle the axis. Bubbles are either round, or elongate and oriented like the swirl marks. The perforation may taper slightly and have an uneven surface.

The Kidds segregate wound beads into three classes according to their structure (simple or compound) and the relative complexity of their shape. Types are determined according to the shape and general configuration of the decoration, if any, whereas varieties are based on the colour and diaphaneity of the structural elements.

A listing of the various classes and types recorded to date follows (Fig. 2). Types marked with an asterisk (*) were encountered after the Kidds' classification system was printed. The diversity of the varieties precludes their being listed; see Kidd and Kidd (1970: 86-86) for these.

Class VI

Simple (single-layered), monochrome and polychrome beads with simple shapes.

- VIa** Cylindrical
- VIb** Round
- VIc** Oval
- VID** Doughnut-shaped
- *VIe** Conical
- *VIf** "Raised spiral" (shaped like a compressed cylindrical spring, this type consists of a glass rod wound in a spiral fashion)

Class VII

Simple (single-layered), monochrome and polychrome beads with relatively elaborate shapes formed by pressing, pinching, moulding, grinding or some other form of manipulation.

- VIIa** "Corn" beads (tabular beads in the shape of corn kernels)
- VIIb** Flat "disc" beads (tabular beads with circular outlines)
- VIIc** Faceted "five sided" beads (each bead has eight or ten, pentagonal, pressed facets)
- VIID** "Raspberry" beads (these exhibit several rows of prominent nodes)

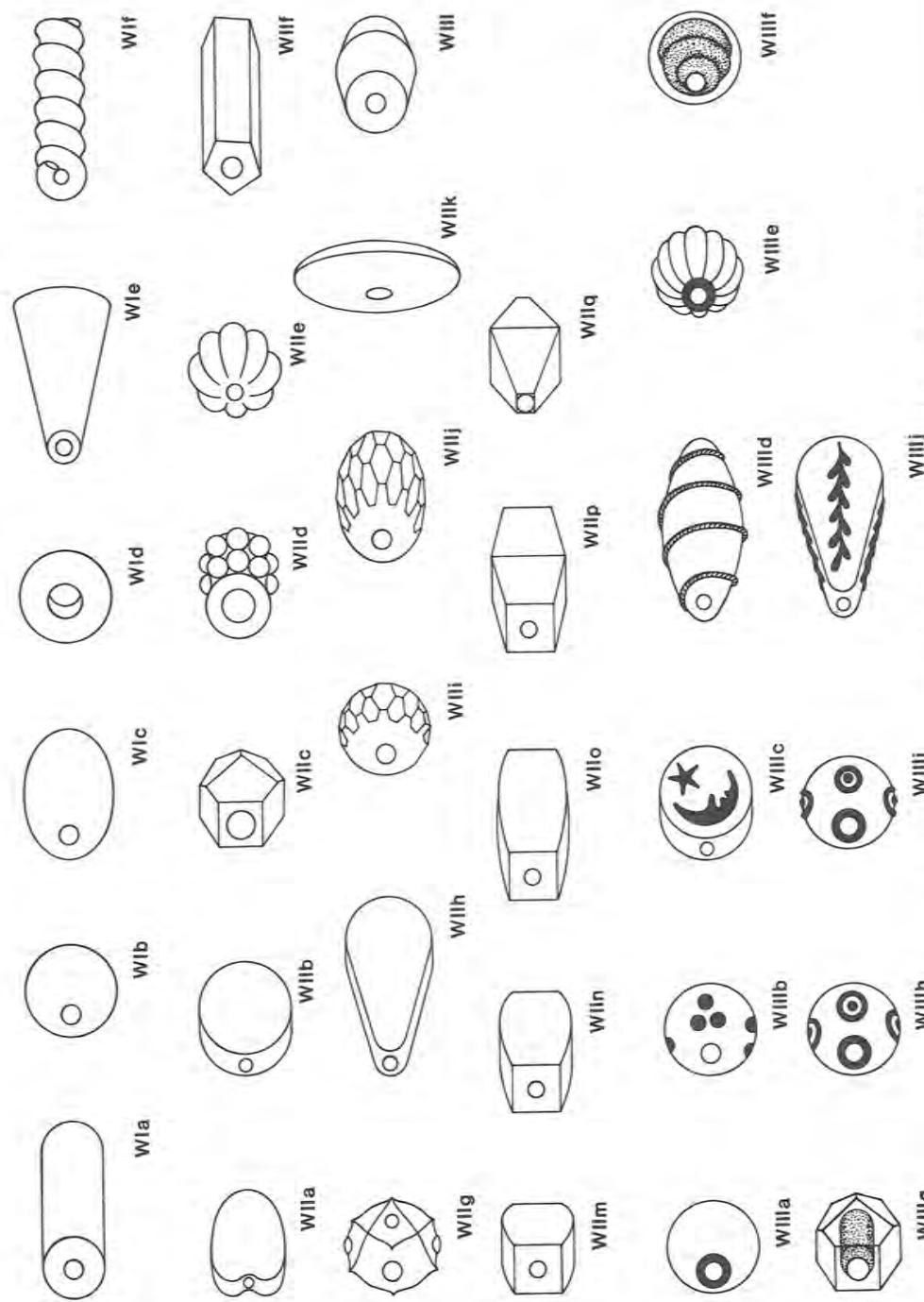


Figure 2. Recorded types of wound beads. (Note: Class VIII beads may exhibit shapes and design elements other than those shown.) (Drawing by D. Kappeler)

- WIIe** "Melon" beads (lobed beads resembling melons)
- WIIf** "Ridged tube" beads (tubular beads with rectangular pressed facets that extend their entire length)
- WIIg** Beads with complex pressed designs
- *WIIh** Flattened "teardrop" beads (teardrop-shaped beads pressed flat)
- *WIIi** Round-faceted beads (round beads whose surfaces have been modified into facets by grinding)
- *WIIj** Ovate-faceted beads (oval beads whose surfaces have been modified into facets by grinding)
- *WIIk** Circular convex bicone beads (Beck's [1928] type I.A.1.e. — I.B.1.e.)
- *WIIl** Standard circular truncated convex bicone beads (type I.C.1.f.)
- *WIIm** Short square barrel beads (type IX.B.1.b.)
- *WIn** Standard square barrel beads (type IX.C.1.b.)
- *WIIo** Long square barrel beads (type IX.D.1.b.)
- *WIIp** Long square truncated convex bicone beads (type IX.D.1.f.)
- *WIIq** Standard square bicone beads (type IX.C.2.e.)

Class VIII

Compound (multi-layered) beads with or without adventitious decoration, and simple (single-layered), monochrome and polychrome beads with adventitious decoration.

- VIIIa** Class WI beads with a surface coating of a different colour or material
- VIIIb** Class WI beads with inlaid decoration (incorrectly described in Kidd and Kidd 1970: 86)
- VIIIc** Class VII beads with inlaid decoration
- VIIId** Class VI beads with overlaid decoration
- VIIIE** Class VII beads with a surface coating of a different

colour or material (incorrectly described in Kidd and Kidd 1970: 86)

- *WIII^f Class WII beads with internal decorative elements
- *WIII^g Class WII beads with internal decorative elements
- *WIII^h Type WIIa (multi-layered) beads with inlaid decoration
- *WIIIⁱ Type WIIa (multi-layered) beads with overlaid decoration
- *WIII^j Class WII beads with overlaid decoration

WOUND-ON-DRAWN BEADS

This is a rare type recorded only at one site in the Pacific Northwest (Sprague 1979: 9). It consists of a short section of drawn tubing about which has been wound a layer of contrastingly coloured glass. Having a red exterior and white core, the only variety observed to date is practically indistinguishable from its more common, all-wound counterpart. The only difference is that the cores of the former contain linear bubbles that parallel the axis.

As only one variety has been observed, it is impossible to do more than make a few suggestions concerning a classifactory scheme for wound-on-drawn beads. Using the wound-bead system as a basis, it is proposed that the wound-on-drawn category (designated WD) be divided into two structural classes:

Class WDI. Compound (undecorated, multi-layered)

Class WDII. Composite (decorated, multi-layered)

Types within each class would be designated according to the shape of the beads, and the general configuration of the decoration, if any. Varieties would be based on the colour and diaphaneity of the structural components.

MOULD-PRESSED BEADS

Variously cited in the literature as moulded, pressed, mandrel pressed, and mould pressed, the latter designation is adopted here as it seems to best describe the process of manufacture. Two basic methods were employed to produce the mould-pressed beads found on Canadian sites. In the first, the end of a glass rod was heated over an oil flame until it melted. A piece was then pinched from it and pressed in a tong-like two-piece mould. As the glass was compressed, any excess was forced out at the seam while a moveable pin pierced the glass and formed the perforation.

In the second method, two pieces of viscid glass, one in either half of a two-piece mould, were pressed together to fuse them. This permitted the production of beads with complex coloured patterns that would have been distorted or destroyed in the previous process. The movable pin that formed the perforation usually extended from one half of the mould to the other in the case of round and oblate beads and across the open face of the mould for flattened and elongated specimens. Consequently, the beads in the former group have seams about their equators, whereas those in the latter have seams along their sides and ends.

After the beads were removed from their respective moulds, their mould seams, as well as any facets that might have been present, were frequently ground smooth. If the perforation remained sealed off at one end as in the case of the "mandrel pressed" beads described by Ross (1976: 759), it was punched through.

Mould-pressed beads are usually symmetrical though they may display tiny flattened areas. They may also have pebbled ("orange peel") surfaces, or exhibit mould marks in the form of slight to bold ridges and linear bulges, seams in coloured patterns, or slightly differently coloured linear zones caused by differential light refraction. The perforations sometimes taper distinctly and frequently have crackled surfaces.

Although the manufacturing sub-type might seem to be the ideal criterion for identifying classes within the mould-pressed category, the difficulty in distinguishing the two, unless there are coloured patterns in the glass, precludes this. Instead, the category (designated MP) is divided into four classes based on structure (monochrome and polychrome) and the presence or absence of surface decoration and faceting. Shape determines the type, whereas varieties are defined according to the colour and diaphaneity of the structural elements, the configuration of the decoration, and the number, shape and type (mould imparted or cut) of facets.

The classes and types recorded to date are listed below and illustrated in Figure 3.

Class MPI

Plain monochrome beads.

MPIa**** Round

MPIb**** Oval

Class MPII

Monochrome beads exhibiting faceting and/or surface decoration.

MPIIa**** Round-faceted

MPIIb**** Long hexagonal barrel (Beck's [1928] type XIII.D.I.b.)

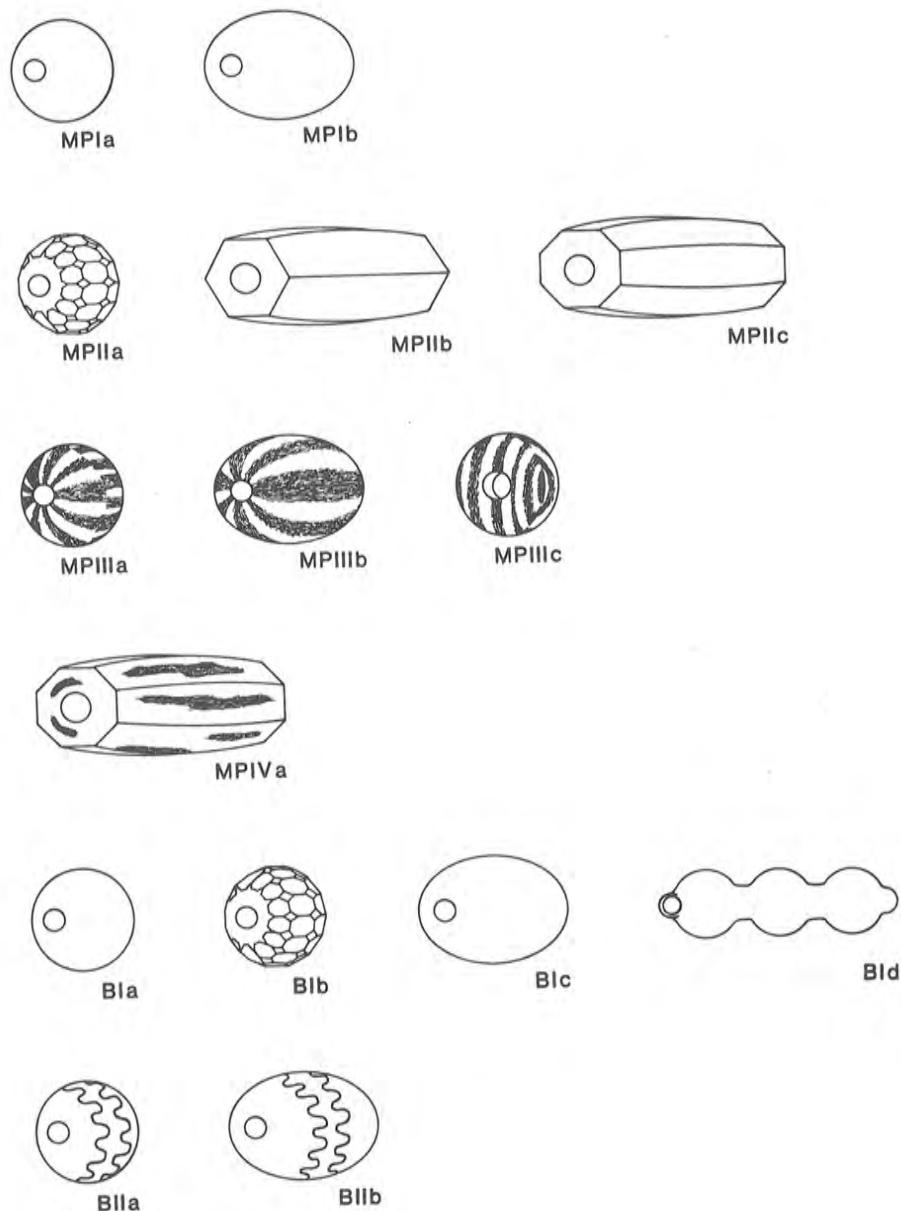


Figure 3. Recorded types of mould-pressed and blown beads.
(Drawing by D. Kappler)

MPIIc Long octagonal barrel (Beck's type XIV.D.1.b.)

Class MPIII

Plain polychrome beads.

MPIIIa Round

MPIIIb Oval

MPIIIc Doughnut-shaped

Class MPIV

Polychrome beads exhibiting faceting and/or surface decoration.

MPIVa Long octagonal barrel (Beck's type XIV.D.1.b.)

BLOWN BEADS

Three methods have been noted for the manufacture of blown beads. The first entailed fixing a small gather of molten glass on the end of a blowpipe and blowing it into a bubble with a slight hollow projection at either end. When the bubble had cooled, the projections were broken off, creating the perforation, and the jagged edges were usually fire-polished. The second method is essentially the same except that the bubble was blown in a two-piece mould, to impart either a design or a special or uniform shape. In the third method, a series of bubbles was blown in a heated glass tube. The latter was then broken into individual or segmented beads whose ends may or may not have been firepolished.

The beads produced by any of the aforementioned methods could be coloured by painting their surfaces or introducing paint, coloured wax, powdered fish scales or metal dust into their interiors (Pazaurek 1911: 2). They were often filled with white wax to render them less fragile (Lardner 1972: 236).

Although the ideal criterion for the primary sorting of blown beads would be the manufacturing sub-type, the difficulty in determining the latter in archaeological specimens makes its use impractical. Rather, the category (designated B) is segregated into two classes based on the presence or absence of decorative elements. Types are distinguished according to shape, with the manufacturing sub-type being indicated if determinable. Varieties are defined by the colour and diaphaneity of the structural elements; the nature of the colouration (external, internal, or in the glass itself); and where applicable, the number, shape and type (mould imparted or cut) of facets; the configuration of the decoration; and the number of segments.

The known classes and types of blown beads are listed below and illustrated in Figure 3.

Class BI

Simple (undecorated) beads.

BIa Round

BIb Round-faceted

BIc Oval

BId Segmented

Class BII

Complex (decorated) beads.

BIIa Round

BIIb Oval

PROSSER MOULDED BEADS

This manufacturing type was defined by Sprague (1973; 1983) and Ross (1974: 18) who termed it "Prosser molded" because of its similarity to the moulding technique for ceramic buttons that was patented by Richard Prosser in 1840. Although Ross (1974: 22; 1976: 767-70) hypothesizes that the beads were made of molten glass in essentially the same manner as mould-pressed beads, a present-day producer — the Jablonex Foreign Trade Corporation in Jablonec nad Nisou, Czechoslovakia — informs us (1977, pers. com.) that "tile beads" (as they are generically called in the manufacturer's parlance) are "made of glass powder which is moulded and melted." As they would not elucidate, the technological aspects remain a mystery.

Two types of Prosser moulded beads have been recorded to date. One is spherical with a broad, raised band about the equator; the other is in the form of a short cylinder. On both, one end is rounded and smooth, while the other is flat and rough or pebbled. The perforation tapers toward the rounded end. Exterior surfaces range from glazed to dull, the latter resembling unglazed porcelain.

As the data base is so limited, it is presently impossible to formulate a classificatory scheme for Prosser moulded beads (designated PM).

Glass Bead Attributes

The following attributes are listed in descending order of their relative importance in the classification of glass beads.

STRUCTURE

Structure refers to the physical composition of a bead. There are four structural categories (Stone 1974: 88-89):

Simple — beads composed of a single, undecorated layer of glass.

Compound — beads composed of two or more, undecorated layers of glass.

Complex — simple specimens with adventitious decoration.

Composite — compound specimens with adventitious decoration.

SHAPE

Although the shape nomenclature utilized by the Kidds is basically self-explanatory, a few comments will help elucidate some of the terms.

All **tubular** beads are assumed to have round cross-sections unless otherwise noted. As they often grade imperceptibly into the circular group, tubular specimens may be segregated using the following criteria. A bead of any length is classified as tubular if it has broken or cut ends that have not been altered by "tumbling." If the ends have been rounded, a bead is tubular if its length exceeds its diameter.

Circular specimens, shaped like little rings, have diameters equal to or greater than their lengths.

The **round** category includes beads not only spheroidal, but also oblate and barrel-shaped. The latter should be designated round (oblate) and round (barrel-shaped), respectively.

Some **oval** beads are also barrel-shaped and should be recorded as oval (barrel-shaped).

The term **doughnut-shaped** refers to those beads in the wound category that have extremely oblate bodies and very large perforations (the configuration is much like that of a Life Saver candy). Similarly shaped beads in the drawn category would be termed "circular."

The Kidds use the term **flat** to define those drawn beads that have been pressed flat parallel to the perforation while the glass was still viscid. As this does not reveal anything about the bead's pre-flattened shape, it is recommended that the term be modified to include this information. For example, a flattened round bead would be recorded as "flat-round."

Other shapes are defined in the Glass Bead Classification chapter

of this guide. Should new shapes be encountered, the use of Beck's (1928) system and terminology to designate them is recommended. The hierarchical charts for "regular-rounded" and "regular-faceted" beads are presented in Figures 4 and 5. For beads with specialized and irregular shapes see Beck (1928). However, as multi-faceted specimens are not adequately covered in the latter, a few comments may be appropriate.

Tubular beads of types If and IIIf that have hexagonal- and heptagonal-sectioned bodies whose corners have been removed by grinding are termed **tubular, cornerless hexagonal** and **tubular, cornerless heptagonal**, respectively. These are the so-called "Russian" beads.

As for beads with more than 21 facets, if the exact shape cannot be determined using Beck, it is suggested that the general form of the bead be given followed by the qualifier "faceted" (for example, round-faceted or elongate-faceted). To this should be appended a description of the type (cut or mould imparted), shape, number and location of the various facets.

DECORATION

The adornment encountered on North American beads falls into three major categories:

Overlaid — appliqués of glass or another material that either rest on or protrude noticeably from the surface of the bead (this includes painted decoration).

Inlaid — embedded elements whose surfaces are either flush with or only slightly above the surface of the bead.

Internal — decorative elements, such as coloured cylinders, spiral bands and metal foil, located within the body of the bead.

Beads may be decorated using multifarious techniques and decorative elements, the most common of which are the following:

Stripes — the most common design element on drawn beads, stripes may be simple (monochrome) or compound (polychrome), and straight or spiral (Fig. 6a-b).

Wavy lines — undulating lines that may be either simple or compound (Fig. 6c-d).

Interwoven lines — also called "double wave," this design consists of two crossed wavy lines (Fig. 6e).

Rings — stripes in the form of circles that extend about a bead perpendicular to the perforation; beads decorated with rings are termed "zone" or "zoned" beads (Fig. 6f).

Combed designs — rings or spiral stripes applied to the surface of a bead are heated until viscid and then have a wire drawn through them to produce a series of scallops, ogees, zigzags or feather-like patterns (Fig. 6g-j).

Eyes — specimens adorned with simple or compound dots are called "eye beads" (Fig. 6k-m).

Floral designs — included in this group are various designs in the form of simple or compound wreaths, flowers, blossoms and plants whose

SUBDIVISION I. ROUNDED BEADS. Groups V, VI and VII have one flat surface.					SUBDIVISION II. FACETED BEADS.				
Longitudinal Section					Longitudinal Section				
Transverse Section					Transverse Section				
Group I Circular.					Group VIII Triangular.				
Group II Elliptical.					Group IX Square.				
Group III Ovoid.					Group X Rectangular.				
Group IV Lenticular.					Group XI Diamond.				
Group V Plano-convex.					Group XII Pentagonal.				
Group VI Semicircular.					Group XIII Hexagonal.				
Group VII Circle and Flat.					Group XIV Octagonal.				
					Group XV Polygonal.				
					Group XVI Tabular.				

Figure 4. Groups of regular-rounded and regular-faceted beads
(Beck 1928: Plate 1).

appearance ranges from highly stylized to realistic (Fig. 6n-o).

Crumbs — "crumb beads" are made by embedding small pieces of contrastingly coloured glass in the plastic body of a bead; the crumbs may protrude from the surface or be flush with it (Fig. 6p-q).

Swirls — two or more coloured glasses may be swirled together to ornament the surface of a bead or to form the body thereof (Fig. 6r).

Other forms of decoration that may be encountered are described and illustrated in Beck (1928), van der Sleen (1967) and Francis (1979a).

1. Curve x		2. Straight		3. Convex	
Type	Design	Type	Design	Type	Design
Longitudinal beads	Long Curve Dome	Long Curve Dome	Long Curve Dome	Long Convex Dome	Long Convex Dome
DISC BEADS	A 1. a	A 1. e	A 2. b	A 2. f	A 3. b
Circular beads	A 1. b	A 1. c	A 2. c	A 2. d	A 3. c
Length less than 1/2 diameter	A 1. m	A 1. n	A 1. p	A 2. e	A 3. d
Length more than 1/2 diameter	I A 1. e	I A 1. f	I A 2. b	I A 2. d	I A 3. f
Irregular Shapes	I X A 1. b	I X A 1. c	I X A 1. f	I X A 2. b	I X A 3. f
Clay	Spiral Cord	Spiral Cord	Spiral Cord	Spiral Convex	Spiral Convex
Longitudinal beads	B 1. a	B 1. c	B 2. b	B 2. e	B 3. c
Short beads	B 1. d	B 1. e	B 2. c	B 2. f	B 3. d
Longitudinal Circular beads	B 1. f	B 1. g	B 2. d	B 2. g	B 3. e
Length more than 1/2 and less than 1/4 diameter	B 1. h	B 1. i	B 2. e	B 2. h	B 3. f
Length less than 1/4 diameter	B 1. j	B 1. k	B 2. f	B 2. i	B 3. g
Irregular Shapes	B 1. l	B 1. m	B 2. g	B 2. j	B 3. h
Longitudinal beads	C 1. a	C 1. b	C 2. b	C 2. d	C 3. b
Short beads	C 1. c	C 1. d	C 2. c	C 2. e	C 3. c
Longitudinal Circular beads	C 1. e	C 1. f	C 2. b	C 2. d	C 3. e
Length more than 1/2 and less than 1/4 diameter	C 1. g	C 1. h	C 2. c	C 2. e	C 3. g
Length less than 1/4 diameter	C 1. i	C 1. j	C 2. b	C 2. d	C 3. i
Irregular Shapes	C 1. k	C 1. l	C 2. c	C 2. e	C 3. k
Longitudinal beads	D 1. a	D 1. b	D 2. b	D 2. c	D 3. b
Short beads	D 1. c	D 1. d	D 2. b	D 2. d	D 3. c
Longitudinal Circular beads	D 1. e	D 1. f	D 2. c	D 2. e	D 3. e
Length more than 1/2 and less than 1/4 diameter	D 1. g	D 1. h	D 2. b	D 2. d	D 3. g
Length less than 1/4 diameter	D 1. i	D 1. j	D 2. c	D 2. e	D 3. i
Irregular Shapes	D 1. k	D 1. l	D 2. c	D 2. e	D 3. k
LONG BEADS	E 1. a	E 1. b	E 1. c	E 1. d	E 1. e
Length more than 1/2 diameter	E 1. f	E 1. g	E 1. h	E 1. i	E 1. j
Irregular Shapes	E 1. k	E 1. l	E 1. m	E 1. n	E 1. o

Figure 5. Sub-groups, families and classes of regular-rounded and regular-faceted beads (Beck 1928: Plates 2 and 3).

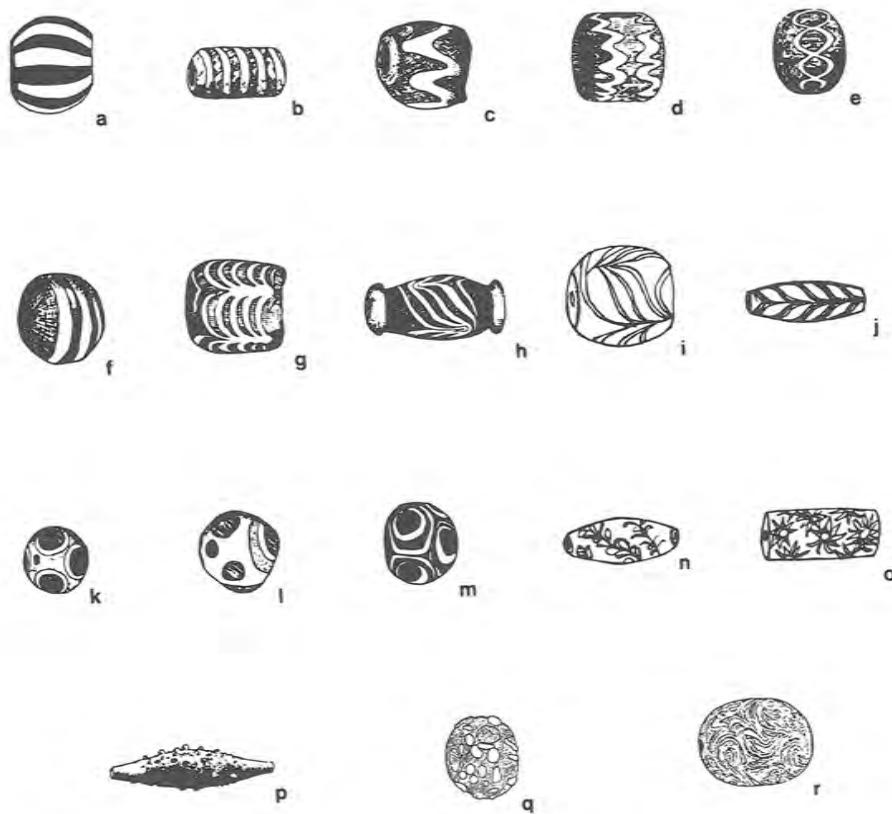


Figure 6. Some common forms of decoration: a-b, stripes; c-d, wavy lines; e, interwoven lines; f, rings; g-j, combed designs; k-m, eyes; n-o, floral designs; p-q, crumbs; r, swirls (Beck 1928; van der Sleen 1967).

COLOUR

In the Kidds' system, colours are designated using the names and codes proposed in the *Color Harmony Manual* (Container Corporation of America 1958). However, as the latter is rather obscure and may not be available to other researchers, the equivalent codes in the better known Munsell colour notation system should also be provided. The relevant Color Harmony colours and their Munsell equivalents are listed in Table 1. The latter also presents the Bustanoby (1947: 28) colour system colours used by Harris and Harris (1967) and Sudbury (1976) in their useful chronologies.

Table 1. Munsell/Color Harmony/Bustanoby Colour System equivalents.
 *Colours recorded by the Kidds.

		Color Harmony		Bustanoby name and Code
Munsell	Code	Code	Name	
10.0Y	8.5/10	1 la	Lemon Yellow*	
10.0Y	7/5	1 gc	Citron*	Chartreuse (C3)
10.0Y	5/6	1 le	Olive Yellow	
10.0Y	4/4	1 ni	Olive	
7.5Y	7/7	1-1/2 ic	Light Antique Gold	Brass (A9)
7.5Y	7/5	1-1/2 gc	Dusty Yellow	Colonial Yellow (A7)
5.0Y	9/2	2 ba	Pearl	
5.0Y	8.5/8	1-1/2 ga	Sunlight Yellow	
5.0Y	8/12	1-1/2 na	Dandelion	Dandelion (B6)
5.0Y	8/10	1-1/2 ia	Daffodil	Sunflower (A3)
5.0Y	4/4	2 lg	Mustard Tan*	
2.5Y	9/3	2 ca	Light Ivory*	Caen Stone (G2)
2.5Y	7/8	2 ic	Light Gold*	Honey (A8)
2.5Y	6/8	2 ne	Mustard Gold	
2.5Y	4/6	2 pi	Mustard Brown	
2.5Y	2/2	2 pn	Dark Brown*	
10.0YR	7/12	3 la	Marigold	Pumpkin (D11)
10.0YR	7/8	3 lc	Amber*	
10.0YR	5/6	3 le	Cinnamon*	
10.0YR	4/1	5 ih	Lead Gray	
7.5YR	4/4	4 ng	Maple*	
5.0YR	6/12	4 nc	Russet Orange	Tomato (F12)
5.0YR	5/1	5 fe	Ashes	
2.5YR	5/10	5 lc	Copper	
2.5YR	4/10	5 pe	Terra Cotta	
2.5YR	2/2	7 pn	Dark Rose Brown*	
10.0R	5/10	6 lc	Coral*	Pimento (H11)
10.0R	4/8	6 ne	Redwood*	Harvard Crimson (H12)
10.0R	3/8	6 pg	Barn Red	
10.0R	3/2	6 ni	Taupe Brown	
10.0R	2/4	6-1/2 pl	Deep Red Brown	
7.5R	4/14	7 pa	Scarlet*	
7.5R	3/8	6-1/2 ne	Brick Red	
5.0R	8/4	7 ca	Baby Pink	Baby Pink (D4)
5.0R	7/8	7 ga	Light Cherry Rose*	
5.0R	5/12	7-1/2 la	Light Red	
5.0R	3/6	7 ng	Old Wine	
2.5R	3/10	8 pc	Ruby*	
10.0RP	8/4	8 ca	Pale Pink	Peachblossom (H4)
10.0RP	4/6	8 le	Rose Wine*	
2.5RP	7/4	9 ec	Orchid Mist	Wild Rose (H5)
10.0P	4/6	10 le	Heather	Magenta (H6)
7.5P	4/8	11 lc	Amethyst*	Heliotrope (D3)
5.0P	5/4	11 ge	Lilac	
7.5PB	4/11	13 la	Bright Dutch Blue*	
7.5PB	2/10	12-1/2 pc	Royal Blue	
7.5PB	2/7	13 pg	Bright Navy*	Independence Blue (H9)
7.5PB	2/5	12-1/2 ng	Dark Blue	Wedgewood Blue Dark (A12)
6.25PB	3/12	13 pa	Ultramarine*	
5.0PB	5/7	13-1/2 ic	Copen Blue	Cornflower Blue (A11)
5.0PB	4/4	13-1/2 lg	Medium Shadow Blue	Grape (F9)
5.0PB	3/6	13-1/2 ng	Medium Blue	Delft & Yale Blue (B8,H8)

Table 1. (Continued)

Munsell	Code	Color Harmony		Bustanoby name and Code
		Code	Name	
2.5PB	6/9	14 ia	Bright Copen Blue*	
2.5PB	5/4	14 ie	Shadow Blue*	Sky Blue (H7)
2.5PB	4/6	14 le	Medium Blue	Copenhagen Blue (F8)
2.5PB	3/8	14 pc	Deep Blue	
10.0B	6/3	15 ge	Mist Blue	Brittany Blue (F7)
10.0B	2/4	14 pi	Dark Navy*	
7.5B	8/2	15 ca	Pale Blue*	
7.5B	6/6	15 ic	Sky Blue	
7.5B	6/2	16 ge	Light Gray Blue	
7.5B	4/8	15 nc	Cerulean Blue*	Bluebird (B7)
7.5B	4/4	16 lg	Medium Shadow Blue	
7.5B	3/3	15 ni	Dark Shadow Blue*	
5.0B	8/4	16 ea	Light Aqua Blue*	
5.0B	6/6	16 ic	Robin's Egg Blue*	
5.0B	5/7	16 lc	Bright Blue*	
5.0B	4/6	16 ne	Peacock Blue	Peacock Blue (D9)
5.0B	4/5	16 le	Pale Medium Blue	Gobelin Blue (C11)
5.0B	3/3	16 ni	Dark Gray Blue	Navy Blue (B9)
2.5B	7/2	17 ec	Dusty Aqua Blue	
2.5B	6/7	17 ia	Bright Aqua Blue	
2.5B	6/4	18 gc	Aqua Blue*	Turquoise (D8)
2.5B	5/5	17 le	Med. Turquoise Blue	
10.0BG	4/8	17 pa	Turquoise*	
7.5BG	8/4	19 ea	Light Aqua Green	
7.5BG	6/8	18 la	Bright Turquoise	
7.5BG	6/6	19 ic	Aqua Green	
7.5BG	6/3	19 ge	Dusty Aqua Green	
5.0BG	8/2	19 ba	Ice Blue	
5.0BG	6/3	20 ge	Light Blue Spruce	
5.0BG	4/8	20 nc	Turquoise Green	
5.0BG	3/6	20 ng	Teal Green*	
10.0G	6/6	21 ic	Light Jade Green	
10.0G	5/10	21 nc	Emerald Green*	
10.0G	4/5	21 ng	Dark Jade Green	Emerald Green (F3)
5.0G	5/4	22 ie	Surf Green*	
2.5G	9/2	22 ca	Pale Green	
2.5G	7/8	22 ia	Bright Mint Green*	
2.5G	5/10	22 nc	Bright Green	
2.5G	3/6	22 pi	Dark Green	
2.5G	2/5	22 pl	Bottle Green	Bottle Green (A6)
10.0GY	6/6	23 ic	Apple Green*	
10.0GY	5/10	23 pe	Grass Green	
10.0GY	4/4	23 ni	Dark Palm Green*	
10.0GY	3/5	23 pi	Dark Grass Green	Mint Green (C6)
7.5GY	8/2	24 cb	Celadon Tint	Surf Green (F1)
7.5GY	6/6	24 le	Leaf Green	Jade Green (F2)
7.5GY	4/3	24 li	Sage Green	
5.0GY	5/6	24 ng	Leaf Green	Fern Green (C5)
2.5GY	4/4	24-1/2 ni	Olive Green	Olive Green (E5)
N	9/0	a	White*	
N	8/0	b	Oyster White*	Oyster White (E10)
N	7/0	c	Light Gray*	
N	1/0	p	Lamp Black*	

Although some researchers have used the coloured plates in Kidd and Kidd (1970) to identify the colours of their specimens, this practice is not endorsed. For one thing, the colour rendition in the plates, especially that in the French edition, is not true enough to permit proper identification. For another, the list of recorded colours (Table 1) has practically quadrupled since 1970 so that the plates provide far from adequate coverage. The proper procedure is to compare the beads, fixed on the tip of a teasing needle, to the glossy finish chips in the *Color Harmony Manual* or the *Munsell Book of Color* (Munsell Color 1976). Should the high cost of these references preclude their procurement, it may be possible to obtain them on Inter-library Loan, or the chips for all of the Munsell colours listed in Table 1 can be purchased from Munsell Color, 2441 No. Calvert St., Baltimore, Maryland, 21218, for about \$240.00.

To properly determine the colour of a bead, it must first be cleaned of all dirt and patination. If the surface is eroded, dull or lightly patinated, the specimen should be wet to bring out the true colour. The comparison with the colour chips should be made against a neutral background in natural daylight or daylight-approximating fluorescent light. Incandescent lighting should be avoided as it imparts an orange hue to the glass. The colours of opaque beads must obviously be ascertained using reflected light. However, those of transparent and translucent specimens should be observed using transmitted light with the reflected colour being noted if it varies significantly (for example, transparent rose wine beads which appear black unless held up to a strong light). If the glass has a distinctive golden or opalescent cast such as often noted in pale blue specimens, this should also be recorded.

DIAPHANEITY

The diaphaneity of beads is described using the terms opaque (op.) translucent (tsl.) and transparent (tsp.). Although the Kidds use "clear" in lieu of "transparent," the latter term is preferred as it is more descriptive. Simply defined, beads that are opaque are impenetrable to light except on the thinnest edges. Translucent specimens transmit light, yet diffuse it so that objects viewed through them are indistinct; for example, a pin inserted in the perforation appears only as a shadow when viewed through the body of the bead. Objects viewed through transparent beads are clearly visible. As bubbles can effect the diaphaneity of a bead, their presence in large numbers should be noted.

LUSTRE

The appearance of the surface of a bead in reflected light is known as its lustre. The two most common kinds are shiny (smooth and bright) and dull (not shiny). Others that may be encountered are metallic

(having a metallic sheen), greasy (the appearance of an oiled surface) and satiny (characterized by a fibrous structure).

SIZE

Although the five arbitrary size categories (very small, under 2 mm; small, 2-4 mm; medium, 4-6 mm; large, 6-10 mm; and very large, over 10 mm) proffered by the Kidds are useful in relating relative size, research conducted by Ross (1976: 684-766) and Karklins (1979: 160-61) has revealed that they are too broad to be of any use in establishing historical size groups where the inter-size interval can be as little as 0.2 mm. Measurements are to be made to the nearest tenth of a millimetre using vernier calipers. The pertinent dimensions for most beads are length (parallel to the perforation) and diameter (perpendicular to the perforation). However, in the case of flattened specimens, they are length (parallel to the perforation), width (perpendicular to the perforation) and thickness (perpendicular to the width). The size of the perforation has not been found to be significant. Where there is more than one specimen per variety, ranges, means and modes should be computed for the sample.

Historical Archaeological Interpretations

ORIGINS

Although Venice/Murano, Bohemia and The Netherlands produced the bulk of the glass beads that were exported to the New World, Germany, Austria, England, France and China also appear to have contributed their share (Kidd 1979; Liu 1975a). Unfortunately, there is no routine method to determine the country of origin for any given bead type. Although van der Sleen (1967: 108) has proposed that Dutch beads can be distinguished from those of Venetian origin on the basis of chemical composition (Dutch beads supposedly having a high potassium content compared with a high sodium content in Venetian specimens), this supposition seems to have been based on limited evidence and is not supported by more recent findings (Karklins 1983: 116). It also totally ignores the chemical make-up of beads manufactured in other countries which must also be high in either potassium or sodium, these being the two standard fluxes utilized in the production of glass.

The problem is further heightened by the notable scarcity of comparative material. Aside from the van der Sleen and van der Made collections of 17th-18th century Dutch beads in Amsterdam (Karklins 1974; van der Made 1978), there are no recorded assemblages of pre-19th century beads whose manufacture can be attributed with any certainty to a specific country. There is better coverage for the 19th and 20th centuries, but no one has as yet synthesized the data. Clearly much more research is necessary to resolve the question of origins.

CHRONOLOGY

As is the case with most classes of artifacts, no one has as yet worked out a comprehensive chronology for Canadian beads. Fortunately, there are several regional chronologies that will help archaeologists and analysts to date their problematical specimens. Although nothing has been formulated for the Yukon and Northwest Territories, researchers in the Atlantic provinces and Quebec may find some comparative material in James W. Bradley's (1983) summary of the beads of 16th-17th century New England. Ontario lacks a comprehensive chronology, but for those working on 17th century sites in the southeastern part of the province, the chronology prepared by Ian and Thomas Kenyon (1983) is a must. Other works relevant to Ontario and Quebec include Bennett (1983), Pratt (1961), Quimby (1966) and Wray (1973, 1983). Several of the volumes in Fenstermaker's *Archaeological Research Booklet* series may also be useful (Fenstermaker 1974a, b, 1977), as well as Kent (1983). These references deal with the period from 1550 to 1820. A sequence for post-1820 beads has yet to be devised.

Researchers in the Prairie provinces should consult Davis (1972), an abbreviated version of which appears in Davis (1973). The reports by Harris and Harris (1967) and Sudbury (1976) are also recommended. They cover 1700 to 1885.

As for the West Coast, Quimby (1978) presents an overview of the state of the knowledge of beads in the Northwest, and Woodward (1965, 1970) provides generalized dates for some of the more common bead types. For comparative purposes, Ross' (1976) treatise on Fort Vancouver (1829-60) is essential. More comparative information for this and the other regions may be found by checking the index in Karklins and Sprague (1980).

FUNCTION

Unless a bead is found in an archaeologically diagnostic context (for example, sewn to clothing, situated at the neck of a burial, or strung on a rosary), it is extremely difficult to assign it a specific function. Although "little" beads (those under about 6 mm in diameter) were commonly used in embroidery, they were frequently also employed in the formation of necklaces, earrings, nose and hair ornaments, mats and as decorative inlays in aboriginal pottery and other items. Similarly, "big" beads (those over about 6 mm in diameter) are commonly thought of as necklace components but also served to adorn fringes, baskets, mats, vases and other items. Thus to arrive at the real function of a bead, not only must its size be considered but also the archaeological and ethnohistorical evidence.

USE/WEAR MARKS

Beads occasionally exhibit use/wear marks that may be useful in establishing their function. Medium to very large specimens are sometimes abraded or battered on the ends, intimating use in necklaces. Abraded surfaces on the same size beads may indicate use in such domestic items as mats and table covers. Severe battering or abrasion may denote heirloom pieces utilized over a long period.

POPULAR AND HISTORICAL NAMES

Over the years, certain beads have acquired names that are used by dealers, collectors and, to some degree, archaeologists. Although some of them are vague or have lost their significance (for example, "pony" and "pound"), others such as "chevron" or "star," "Russian" and "Cornaline d'Aleppo" immediately bring to mind specific bead types. This being the case, popular or historical names should be recorded when known.

Appendix A. Instructions for Completing Parks Canada Artifact Data Base Input Forms for Glass Beads

The forms are to be filled out using the terminology set forth in the preceding guide and the field-specific instructions presented below. A completed sample form is appended.

Category

Enter PERSONAL/DOMESTIC.

Subcategory

Enter ORNAMENT.

Article

Enter BEAD.

Model

If known, enter the popular or historical name for the specimen.

Type

Enter the appropriate manufacturing category, class and type designation proffered in the preceding guide, and the Kidd and Kidd (1970) variety number if applicable. If there is no variety number, append an asterisk (*) to the code.

Date

If known, enter the temporal range as indicated by the archaeological context or a regional chronology. The latter should be referenced.

Material

Enter GLASS, and any non-glass elements that may be present as overlays, inlays or internal decoration.

Manufacture

Enter the appropriate technique of manufacture including the sub-type, if applicable. Record any marks resulting from manufacture.

Dimensions

Record the measurement as outlined under Size in the attached guide. Where large quantities of beads are involved, tally the measurements on the back of the form and enter the range, mean and mode(s) on the front.

Description

Record the following attributes:

Structure (simple, compound, complex, or composite).

Shape of body (e.g. tubular, circular or round).

Shape of perforation if other than cylindrical (e.g. square-sectioned, Y-shaped or tapered).

Colour and diaphaneity of body using the Color Harmony name and code or the Munsell code; also note the lustre.

Facets — list their number, shape and location, and how produced (cut, paddle pressed or mould imparted).

Miscellaneous attributes, such as bubbles, patination, striae or swirl marks on or in the glass.

Decoration

Enter the major decorative category (overlaid, inlaid or internal) followed by a detailed description of the various decorative elements including their quantity, colour and diaphaneity, physical appearance, location and orientation.

Condition

Enter COMPLETE or INCOMPLETE, and note if burned, crizzled, solarized, etc.

Comments

Enter use/wear or archaeological data that might help establish function.

Parks Canada	Parcs Canada	OBJECT CATALOGUE CATALOGUE D'OBJET	2. 0,0,8Z0,9,9A0,2,3 - 0,0,0,4
3. LOCATION ENDROIT HEADQUARTERS		4. REFERENCE N° N° DE RÉFÉRENCE	
5. GROUP GROUPE GLASS		6. CATEGORY CATÉGORIE PERSONAL / DOMESTIC	
7. SUB CATEGORY SOUS CATÉGORIE ORNAMENT			
8. ARTICLE BEAD		9. MODEL MODÈLE CORNALINE D'ALEPPO	
10. TYPE GENRE W III b *			
11. PATENT NO. N° DE BREVET		12. SERIAL NO. N° DE SÉRIE	13. QUANT. 2
14. ASSCRIPTION ATTRIBUTION			
15. MAKER FABRICANT			
16. PERIOD FROM PÉRIODE DU		TO AU	17. DATE 1852 - 1886 (site date)
18. MATERIAL MATERIEL GLASS			
19. MANUFACTURE FABRICATION WOUND			
20. DIMENSIONS L: 9.3 mm , 8.7 mm D: 4.6 mm , 4.2 mm			
21. DESCRIPTION COMPOSÉE ; CYLINDRICAL BODY : t.p., scarlet (7 pa) outer layer, op. white (a) core; perforation tapers slightly; shiny surface; distinct wind marks in both layers of glass.			
22. DECORATION DÉCORATION Inlaid: a floral wreath of op. bright blue (16 lc) on op. white (a) about the middle, and a ring of op. light gold (2 ic) around either end.			
23. MARKS MARQUES			
24. CONDITION ÉTAT COMPLETE			
25. CONSERVATION			
26. MENDS COLLAGES			
27. PHOTOS PHOTOGRAPHIES RA-98 W		28. DRAWINGS DESSINS	
29. PUBLICATIONS			
30. COMMENTS OBSERVATIONS Ends battered			
31. CATALOGUER PRÉPOSÉ AU CATALOGUE T.E. LAWRENCE		32. DATE 25.03.80	
PC 693 (7-78)			

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REFERENCES 123

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