FORT VANCOUVER EXCAVATIONS - XII

OAS SALE SHOP EXCAVATION

by

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in cooperation with

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Stemmed Glassware

Only 21 fragments of stemmed glassware were recovered, and the only variety which could be identified was an 8-sided, ground faceted wine glass (Fig. 19c). This 8-sided, ground faceted wine glass (FOVA Variety #1001) was freeblown with a one-piece bowl-stem draw from the base. There were 8 horizontally ground facets forming the 8 sides; and the base had its pontil mark removed by grinding, thus leaving a small concave depression.

As with tumblers, stemmed glassware from Fort Vancouver was probably manufactured in Great Britain, and was used for the consumption of wines and fortified wines. These wines and fortified wines included clarets (French Bordeaux red wines including Chateau Margaux and Chateau Cantenac-Brown), Spanish red wine, Spanish teneriffe (a fortified red wine), Spanish sherry (a fortified white wine), Portuguese port and Madeira (fortified red wines), and French brandy (both Cognac and Bordeaux) (Ross 1975).

Decanters

Only 6 fragments of decanters were recovered, and no specific varieties could be identified. One rim fragment had a number of horizontally ground facets terminating just below the rim (Fig. 19d). The style of this decanter was undoubtedly identical to the styles of the previously discussed faceted tumbler and wine glass. As with these other faceted glasswares, the decanters from Fort Vancouver were probably manufactured in Great Britain, and they were used to decant and dispense alcoholic beverages within the dining areas.

GLASS OBJECTS

There was a total of 37,005 complete or fragmented glass objects recovered, with the majority comprised of whole beads and fragments of window glass. Other identified items recovered included mirror glass, a button, a ring setting, a watch lens and fragments of an automobile headlight (see Table 8).

Beads

The most frequently recovered artifacts from the OAS Sale Shop excavation were glass beads, with 18,691 having been found. Beads recovered from Fort Vancouver have been classified within a four-level hierarchic classification system (Table 13), and lists of the bead types, subtypes, classes and varieties identified, together with their percentages from the OAS Sale Shop excavation appear as Tables 14-15. Illustrations of a few of the many varieties identified appear in Figs. 20a-o, and the graphic-descripitive identification of bead shapes for tube and wire wound beads appears as Tables 16-17.

Table 13 -- Hierarchic classification system used for glass beads recovered during the 1970-1974 Fort Vancouver archaeological excavation.

Level	Category -- Description
Level I	Bead Manufacturing Type -- Beads classified according to their general method of manufacture (Further divisions based upon manufacturing methods are referenced as subtypes).
Level II	Bead Stylistic Class -- Bead types classified according to their specific method of manufacture including the general method of decoration.
Level III	Bead Descriptive Variety -- Bead classes classified according to their specific morphological attributes including: 1. Coloration, reflectance and frequency of bead layers. 2. Bead shape. 3. Coloration, reflectance, frequency and location of stripes, spirals and bands. 4. Type, frequency and location of facets.
Level IV	Bead Size Population -- All, or a statistically valid sample of, individual beads from a single variety were measured for least diameter and length. Based upon the correlation of all measured specimens from each variety, sizes were hypothesized and statistically defined on the basis of least diameter.

Table 14 -- Glass bead types, subtypes, classes and varieties (FOVA Variety numbers) recovered from the OAS Sale Shop excavation.

Bead Type, Subtype, Class and Variety	Total
TUBE BEADS	
Cane Tube Beads	
Plain single-layer cane beads	
Opaque	
Black (#1007)	1
Single faceted, single-layer extruded cane beads	
Transparent	
Bluish green (#1021)	2
Purple (#1002)	2
Opaque-translucent	
Black-dk. reddish purple (#1057)	2
Single faceted, multi-layer extruded cane beads	
Clear on translucent	
Clear on white (#1036)	1
Transparent on translucent	
Purple on lt. purple (#1077)	2
Dk. purple on lt. purple (#1035)	3
Dk. purple on lt. purple (#1078)	2
Grayish purple on lt. grayish purple (#1079)	1
Opaque on opaque	
Lt. blue on lt. blue (#1030)	1
Bluish purple on lt. bluish purple (#1031)	2
Purple on lt. purple (#1032)	1
Dk. purple on lt. purple (#1034)	1
Hot Tumbled Tube Beads	
Plain single-layer hot tumbled beads	
Clear	
Clear (#1060)	2
Transparent	
Red (#1071)	3
Greenish blue (#1074)	40
Bluish purple (#1047)	295
Purple (#1025)	73
Translucent	
Red (#1027)	4
Yellowish green (#1061)	123
Green (#1016)	325
Grayish blue (#1063)	3799
Dk. purple (#1026)	25
Opaque-translucent	
Black-dk. reddish purple (#1050)	44
Opaque	
White (#1003)	10231
Red (#1008)	1
Brownish red (#1051)	85
Lt. brownish yellow (#1084)	1
Lt. green (#1076)	1
Lt. purplish blue (#1054)	3
Dk. bluish purple (#1012)	457
Lt. pink (#1015)	9

Table 14 (Cont.)

Bead Type, Subtype, Class and Variety	Total
Plain double-layer hot tumbled beads	
Transparent on opaque	
Red on white (#1037)	6
Translucent on opaque	
Red on lt. purplish red (#1088)	51
Opaque on transparent	
Red on lt. green (#1038)	7
Opaque on opaque	
White on white (#1040)	2830
White on brown (#1080)	1
Faceted single-layer hot tumbled beads	
Opaque	
Black (#1005)	2
WIRE WOUND BEADS	
Plain single-layer beads	
Oblate	
Translucent	
Lt. blue (#2027)	1
Spherical	
Transparent	
Greenish blue (#2005)	33
Blue (#2056)	1
Opaque-translucent	
Blue (#2018)	164
Opaque	
Blue (#2002)	4
Ellipsoidal	
Opaque	
White (#2009)	5
MANDREL PRESSED BEADS	
Faceted beads	
Clear	
Clear (#3009)	1
Transparent	
White (#3006)	2
Lt. purple (#3013)	2
Purple (#3011)	1
Translucent	
Red (#3007)	3
Opaque	
Black (#3001)	3
Lt. greenish blue (#3002)	16
Lt. bluish purple (#3003)	3
Dk. bluish purple (#3005)	1
"PROSSER" MOLDED BEADS	
Banded barrel beads	
Opaque	
White (#5001)	1
UNKNOWN	11
GRAND TOTAL	18691

Fig. 20 -- Selected varieties of glass beads recovered from the OAS Sale Shop.

a. Brownish red, opaque, plain single-layer, hot tumbled tube bead (FOVA Variety #1051).

b. Purple, transparent, plain, single-layer, hot tumbled tube beads (FOVA Variety #1025).

c. Dark bluish purple, opaque, plain, single-layer, hot tumbled tube beads (FOVA Variety #1012).

d. Bluish green, transparent, single faceted, single-layer, extruded cane tube bead (FOVA Variety #1021).

e. Purple, transparent, single faceted, single-layer, extruded cane tube beads (FOVA Variety #1002).

f. Black, opaque, plain, single-layer, cane tube bead (FOVA Variety #1007).

g. Red on light purplish red, translucent on opaque, plain, double-layer hot tumbled tube beads (FOVA Variety #1088).

h. Black, opaque, faceted, single-layer, hot tumbled tube beads (FOVA Variety #1005).

i. Purple on light purple, opaque on opaque, single faceted, multi-layer, extruded cane tube bead (FOVA Variety #1032).

j. Blue, opaque-translucent, spherical, plain, single-layer wire wound beads (FOVA Variety #2018).

k. Greenish blue, transparent, spherical, plain, single-layer wire wound beads (FOVA Variety #2005).

l. Blue, opaque, spherical, plain, single-layer wire wound beads (FOVA Variety #2002).

m. Light bluish purple, opaque, faceted mandrel pressed bead (FOVA Variety #3003).

n. Red, translucent, faceted mandrel pressed bead (FOVA Variety #3007).

o. Purple, transparent, faceted mandrel pressed bead (FOVA Variety #3011).

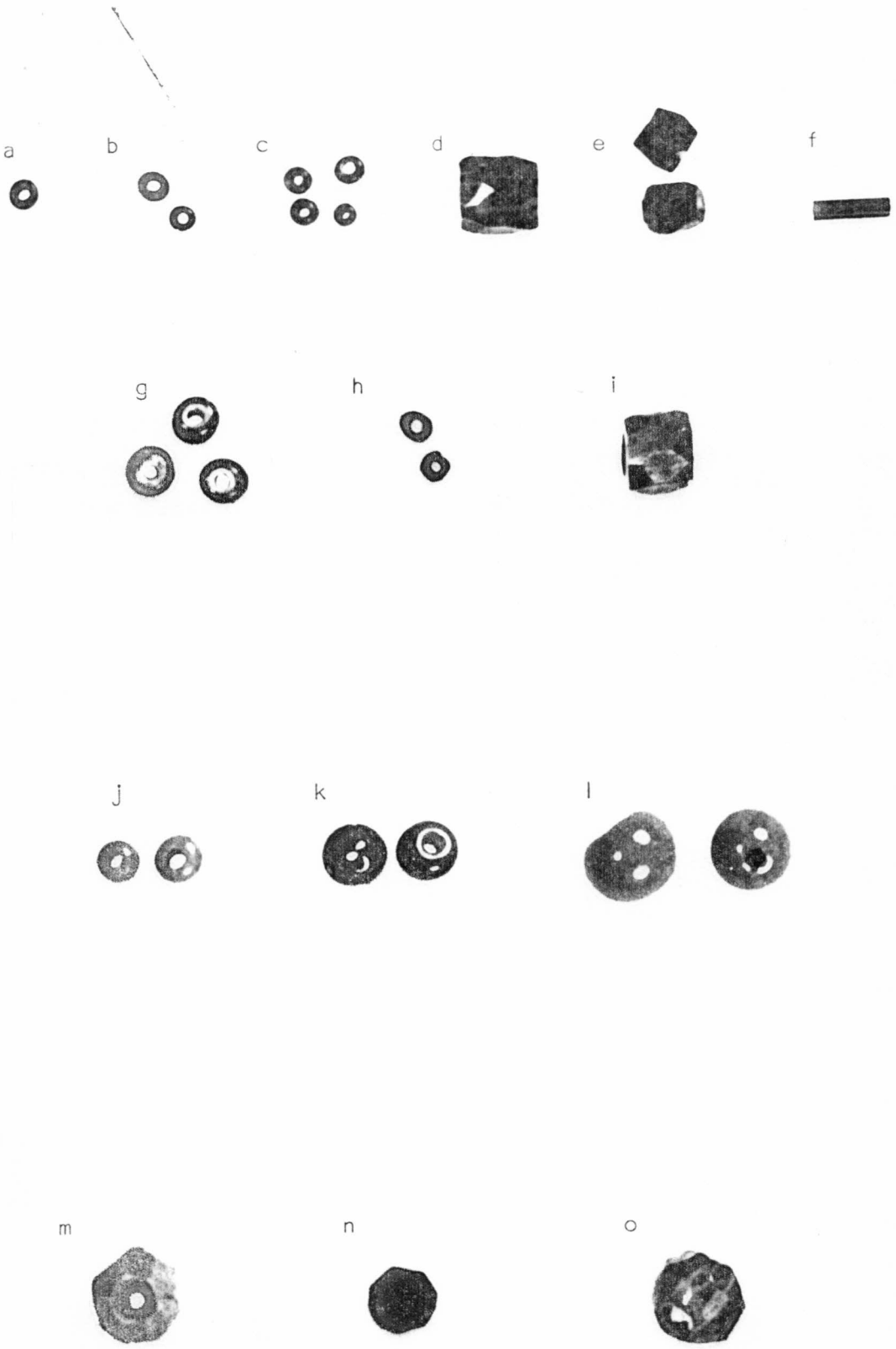
a
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Table 15 -- Class percentages of the glass beads recovered from the OAS Sale Shop excavation.

Bead Type, Subtype and Class (Number of Varieties)	% of Beads Recovered
TUBE BEADS	
Cane Tube Beads	
Plain single-layer cane beads (1)	0.005%
Single faceted, single-layer extruded cane beads (3)	0.032%
Single faceted, multi-layer extruded cane beads (9)	0.075%
Hot Tumbled Tube Beads	
Plain single-layer hot tumbled beads (19)	83.089%
Plain double-layer hot tumbled beads (5)	15.498%
Faceted single-layer hot tumbled beads (1)	0.011%
WIRE WOUND BEADS	
Plain single-layer beads (6)	1.114%
MANDREL PRESSED BEADS	
Faceted beads (9)	0.171%
"PROSSER" MOLDED BEADS	
Banded barrel bead (1)	0.005%
TOTAL	100.000%

Table 16 - Wire wound and mandrel pressed bead shapes.

Term	Illustration	Definition
Oblate		Diameter always greater than length.
Spherical		Diameter equal to length with radii tending to be equal in all dimensions.
Bi-spherical		Central diameter less than two greatest diameters with length greater than any diameter.
Barrel		Central diameter generally equal to length with both ends smaller in diameter than the central diameter.
Ellipsoidal		Central diameter always less than length with both ends smaller in diameter than the central diameter.
Cylindrical		Diameter always less than length with end diameters generally equal to central diameter.
Conical		Diameter at one end smaller than diameter at opposite end with a continuous straight side inbetween.
Asymmetrical Truncated Bi-conical		Central diameter less than length and greater than diameter of ends with one end larger in diameter than opposite end.

Table 17 - Tube bead shapes.

Term	Illustration	Definition
Short Tubular		Diameter generally greater than length.
Long Tubular		Diameter generally less than length.

The Euroamerican Sale Shop at Fort Vancouver could have been in use for the entire period of this fort's occupation by the Hudson's Bay Company (i.e. 1829-1860), and the assemblage of beads recovered by the OAS excavation reflects this 30-year period. Elsewhere within the Fort, bead assemblages have been identified for an early (ca. 1836-1844) Indian Trade Store (Hoffman & Ross 1974b) and a late (ca. 1844-1853) Indian Trade Store (Hoffman & Ross 1975).

At Fort Vancouver, glass beads appear to have been imported primarily to satisfy the trading demads of Native Americans, but the stylistic demands for Euroamericans were also met. Not surprisingly, the bead style imported for both cultural groups was generally identical. The most popular types were tube, followed by wire wound and mandrel pressed; and the most popular colors were white, blue, green and purple. Secondary colors included red, black, pink, yellow, amber and orange. The three most popular bead varieties recovered from the Sale Shop were the white (51.4%) and blue (21.7%) plain single-layer hot tumbled tube beads and the white-on-white (16.2%) plain double-layer hot tumbled tube beads (percentage obtained from the combined totals of the NPS and OAS excavations).

The manufacturing techniques used to produce glass beads during the mid-19th Century varied considerably from country to country. Beads imported to Fort Vancouver have been attributed to at least two countries--Italy and China; and the techniques used to produce the beads recovered from the OAS Sale Shop excavations are discussed below.

Tube Beads

Manufacturing Techniques

Tube beads consisted of, or were produced from, bead-length sections which had been cut from glass tubes. Previous definitions for tube beads (van der Sleen 1973; Kidd & Kidd 1970) have emphasized the existence of one technique for manufacturing glass tubes--the simple stretching of a glass bubble into a tube. The present definition ignores the method by which the glass tube could have been produced, thereby allowing discussions of tube beads to include all beads produced from glass tubes. Knowledge relating to specific techniques for manufacturing glass tubes remains limited (at lest within the archaeological community), and presently only two techniques are known.

The first technique involved the simple drawing (or stretching) of a plastic glass bubble into a tube (van der Sleen 1973:23-26; Kidd & Kidd 1970:47-49). Molten glass was gathered on a blowpipe, a bubble was formed by blowing air into the glass, an iron rod was attached to the bubble opposite the blowpipe, and the bubble was rapidly drawn into a tube (Figs. 21a-d). One variation of this method required that two identical open-ended bubbles be welded together and then drawn into a tube (B.1856: 315). Stylistic variations of the bubble drawn technique involved the addition of multiple layers of glass, the application of glass rods, marvering of the bubble or tube, twisting of the tube, and the drawing of the tube through a multi-sided orifice (this last variation was hypothesized from observations of manufacturing attributes retained by "extruded" tube beads found at Fort Vancouver). Characteristic manufacturing attributes of bubble drawn tubes include small longitudinal, parallel air bubbles found within the glass, and a central hole with an irregular circular cross section.

The second technique for producing glass tubes consisted of wrapping molten glass onto a rotating, sloping, conical mandrel resulting in the formation of a sleeve of continuous glass which was removed as a tube at the tip of the mandrel (Ross 1974:16). Hypothetically, characteristic manufacturing attributes of mandrel wound tubes should include small diagonal, spiral air bubbles found within the glass, and a central hole with a uniform cross section. To date, examples of beads positively produced by this technique have not been extensively examined, and those that have been examined did not contain observable air bubbles. Unique varieties of beads hypothesized as having been manufactued by this technique are the small single-layer, hot tumbled beads which have either square or hexagonal holes. These square and hexagonal hole beads are identical in appearance to single-layer, hot tumbled beads with circular holes, and they have been found in at least one late-19th Century archaeological site (not Fort Vancouver). Presently, square hole beads are available through bead companies in Japan.

Other techniques for manufacturing glass tubes probably existed, and intensive examinations of the manufacturing attributes retained by tube beads should result in the expansion of our knowledge regarding these techniques. The tube beads recovered from Fort Vancouver appear to have been manufactured only from bubble drawn tubes, and the detailed examination of these beads has resulted in the definition of many specific variations associated with the general technique. Each variation has been defined as a tube bead class, but before turning to a discussion of these classes, attention should first be drawn to the remaining manufacturing activities which can be hypothesized for all tube beads.

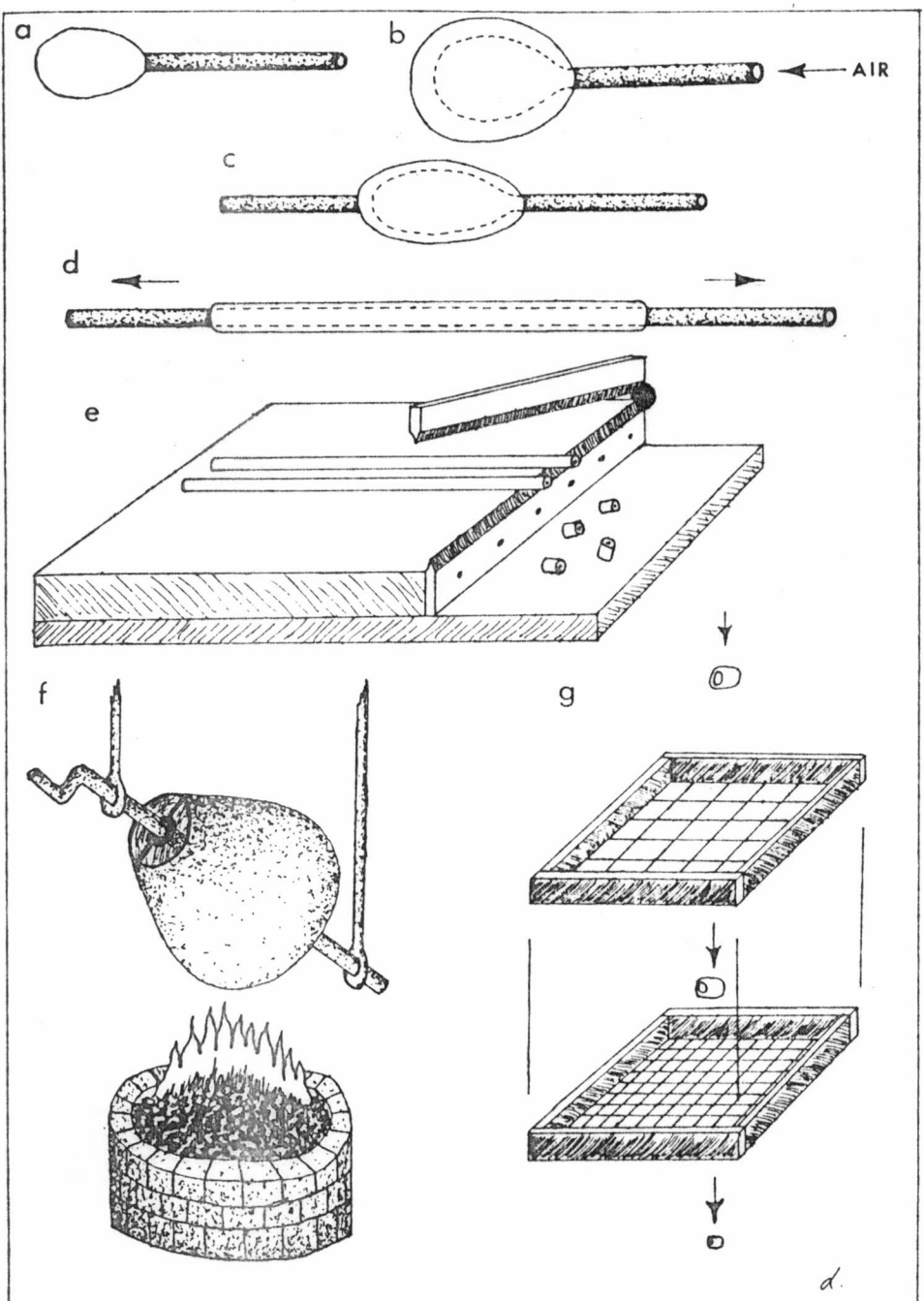

Fig. 21 - Manufacturing sequence for tube beads: a. Glass on blowpipe, b. Bubble formation, c. Attachment of rod, d. Tube formation, e. Cutting, f. Hot tumbling, g. Sieving.

from sample bead cards from the Venetian suppliers--Society Veneziane Conterie and Melloni & Moretti--and the Japanese suppliers--Sanyo and Hiroshima). Until historical documentation of past bead sizing systems can be obtained from sample bead cards (e.g. Casady and Casady 1974), the specific country of origin for an archaeological bead variety cannot be determined. However, based upon early to mid-19th Century factory descriptions (e.g. B. 1856) and early 19th Century fur trading company inventories (e.g. Coues 1897; Hussey 1972, 1974), at least two countries can be hypothesized as utilizing bead sizing systems-- Italy and China.

After sizing, tube beads were culled and strung or bagged for distribution to major suppliers. As with the bundles of tubes awaiting cutting, strands or bags of beads awaiting distribution might have been stored for decades. Once distributed, many years could have passed before any beads found their way into an archaeological context. Thus, the time lag between original manufacture and final deposition could be great; and it must be kept in mind that "dated" collections of beads from archaeological sites primarily refer to the date of actual usage or more specifically, the date of disposal. Likewise, ethnographic specimens suffer a similar time lag.

Cane Tube Beads

Cane beads represented cut sections of glass tubes which normally retained all or part of the unmodified cut surfaces at each end of the bead.

Three classes, representing 13 varieties, have presently been observed (Table 14) with all but one variety consisting of relatively large beads (historically referred to as "necklace" beads).

Plain Single-Layer Cane Beads -- Beads from this class represented the bead-length sections cut from glass tubes composed of a single layer of glass. Longer varieties of this class have generally been referred to as "bugles".

Single Faceted, Single-Layer Extruded Cane Beads -- These beads were cut from single layer, multi-sided glass tubes; and, after cutting, a single facet was ground at the juncture of each side at each end. Beads of this class normally had a total number of facets equal to 3 times the number of sides present on the original glass tube. For example, beads cut from 6-sided tubes had 18 facets consisting of 6 central facets representing the original sides of the tube and 12 ground facets (6 at each end). The central facets differed in appearance from the end facets in that they had longitudinal grooves on the surface. These grooves appeared to have been formed as the surface of the original glass tube was pulled through a multi-sided orifice. The grooves did not appear to be the result of air bubbles exposed on the surface; and to further support the hypothesis that they were produced by extrusion, cross sections of these beads showed that the sides were not perfectly flat, nor did their sides form sharp angles at their junctures (Fig. 22). Rather, the sides were wavy with rounded

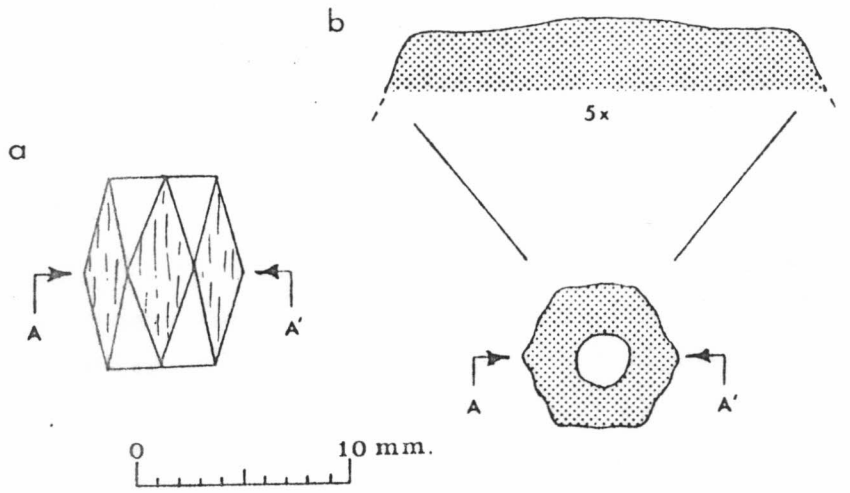

Fig. 22 Single Faceted Extruded Cane Bead: a. Side view showing both central extruded and end ground facets, and b. Crossectional view showing an enlarged view of an extruded surface.

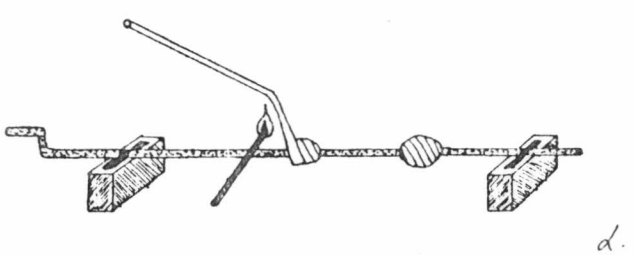

Fig. 23- Wire wound bead manufacture.

junctures. It is hypothesized that such attributes would have resulted from differential reexpansion of the glass tube as it passed through the multi-sided orifice. In order for the hole to be retained in a bubble-drawn tube passing through an orifice, air pressure must have been maintained, thus preventing the hole from collapsing. Extruded cane beads from Fort Vancouver appeared to have been definitely formed from bubble-drawn tubes, and neither striations nor metal staining were observed in the holes of these beads, thus eliminating the possibility of hole formation with the aid of wires or rods.

In the Pacific Northwest, this bead class (together with the other extruded cane bead classes) has been incorrectly identified as "Russian" faceted beads due to its late 18th and early 19th Century introduction in the Alaskan region by Russian fur traders. However, in the northwestern region of the continental United States, this bead class was primarily associated with post-1820 fur trade and Native American sites, none of which were associated with the Russian trade.

Single-Faceted, Multi-layer Extruded Cane Beads -- Beads from this class were identical to single faceted, single layer extruded beads except that multi-layer (rather than single-layer) tubes were used. All layers of glass within each multi-layer bead had the same hue and a similar chroma, but each layer alternated in color value--i.e. layers were alternately light, dark, light, dark. The specific technique utilized to produce the multi-layer tubes consisted of at least two possibilities:

1. The alternate dipping of a glass bubble into two or more color batches.
2. The differential coloration of a single-color glass bubble caused by the cooling process.

Alternate dipping of the glass bubble is the most commonly accepted technique for producing multi-layer tubes; but as a glass tube cools, the minerals within the glass can migrate to warmer areas and thus produce differing concentrations within the glass. Whether differential cooling could produce the alternate layering present in beads of this class has yet to be determined, but it remains a viable possibility.

Hot Tumbled Tube Beads

Hot tumbled beads represented those cut sections of glass tubes which had been tumbled over a fire to round the cut edges. Three classes representing 25 varieties have presently been observed (Table 14). The majority of hot tumbled beads were relatively small in size, and historically, they were referred to as "pound" beads.

Plain Single-Layer Hot Tumbled Beads -- Beads from this class represented the bead-length sections which were cut from glass tubes composed of a single layer of glass and subsequently hot tumbled.

Plain Double-Layer Hot Tumbled Beads -- These beads were cut from glass tubes composed of a double layer of glass. As with the multi-layer extruded beads discussed previously, there were at least two manufacturing techniques utilized--dipping and differential cooling; and examples of both techniques can be demonstrated among the varieties observed at Fort Vancouver.

Faceted Single-Layer Hot Tumbled Beads -- These beads were cut from glass tubes composed of a single layer of glass, next they were hot tumbled, and finally random facets were ground on the circumference of each bead.

Wire Wound Beads

Manufacturing Techniques

Wire wound beads were produced by winding molten (or at least plastic) glass onto a rotating wire (Fig. 23). This technique specifically identifies those beads produced in a freeform manner and does not include beads subsequently pressed in a mold (such beads have been termed "wire wound pressed beads").

In contrast to tube beads, wire wound beads were manufactured on an individual basis; and it is hypothesized that each beadmaker had a mental template for the "exact' shape and size of each style or variety of wire wound bead which was produced. Consequently, there was no need to cut, sieve or sort wire wound beads into finer populations; and at Fort Vancouver, all populations identified support the hypothesis that multiple, mechanically sorted sizes did not exist for wire wound beads.

Occasionally, as wire wound beads were formed on a wire, they touched one another; and after cooling they had to be snapped apart. Subsequently, these broken ends sometimes had to be smoothed,and two techniques utilized were the application of direct heat (i.e. fire polishing) and indirect heat (i.e. hot tumbling). Also, wire wound bead styles with applied surface decorations had to be smoothed, and this was accomplished by hot tumbling (or perhaps even cold tumbling) and subsequent polishing.

From the OAS Sale Shop excavation, only 1.1% of all beads recovered were wire wound, with one class representing 6 varieties having been identified (Table 14). The ratio of wire wound bead varieties to tube bead varieties equaled 1:6.3, whereas the ratio of absolute bead frequencies equaled 1:89. These comparisons indicate that the Hudson's Bay Company had a strong preference for stocking relatively inexpensive small tube beads, while at the same time maintaining a wide selection of relatively unique large wire wound beads.

Plain Single-Layer Beads

This was the most common class of wire wound beads recovered, and beads of this class were manufactured by winding a single layer of glass on a wire. Common shapes included spherical, barrel, ellipsoidal, cylindrical and oblate; with unique shapes including conical, bi-spherical, bi-ellipsoidal, bi-barrel and bi-oblate. The double beads were the result of two beads adhering to one another on the wire and subsequently not having been separated. Double beads at Fort Vancouver are considered to have been accidental rather than intentional manufactures.

Mandrel Pressed Beads

Mandrel pressed beads were produced by pressing two pieces of molten (or at least plastic) glass together in a special mold with a conical intrusion, and after removal from the mold, the final hole had to be punched through the bead. As with wire wound beads, mandrel pressed beads were individually manufactured; and subsequent cutting, polishing or sorting was not required.

As far as can be determined from available publications (e.g. Beck 1973; van der Sleen 1973; Kidd & Kidd 1970), this type of bead had not been described outside the context of Fort Vancouver research (Ross 1974). From the specimens recovered at Fort Vancouver, a complete manufacturing sequence has been hypothesized for this bead type and its only known class--faceted mandrel pressed beads (Fig. 24).

Nine varieties of this class have been identified from the OAS Sale Shop excavation, and their total numerical frequency equaled less than 0.2% of all beads recovered from the Sale Shop area. Faceted mandrel pressed beads were produced by first grinding random facets on the entire surface of the spherical bead, and then the final hole was punched (Figs. 24b-c).

Prosser Molded Bead

"Prosser" molded beads were produced by molding either dry ceramic or molten glass in a two-piece mold. In 1973, DiAnn Herst (Head of Artifact Research, Canadian National Historic Sites Service) described the "Prosser Process" for dry molding ceramic buttons, and Dr. Roderick Sprague hypothesized that a similar (if not identical) process was used to produce a variety of ceramic beads found at the Palouse Indian Burial Site in southeastern Washington (Sprague 1973). Subsequently, through discussions between Dr. Sprague and Lester Ross, it became apparent that a manufacturing technique similar to Richard Prosser's 1841 dry molding technique had been applied to the manufacture of glass beads; and it was suggested that both ceramic and glass beads produced by this technique be classified as "Prosser" molded beads (Ross 1974). The manufacturing process for "Prosser" molded beads consisted of molding either dry ceramic or molten glass in a two-piece mold, removing the bead from the mold and placing it upon a flat surface, thus flattening one end, as well as creating an "orange peel" surface on the flattened end (Fig. 25).

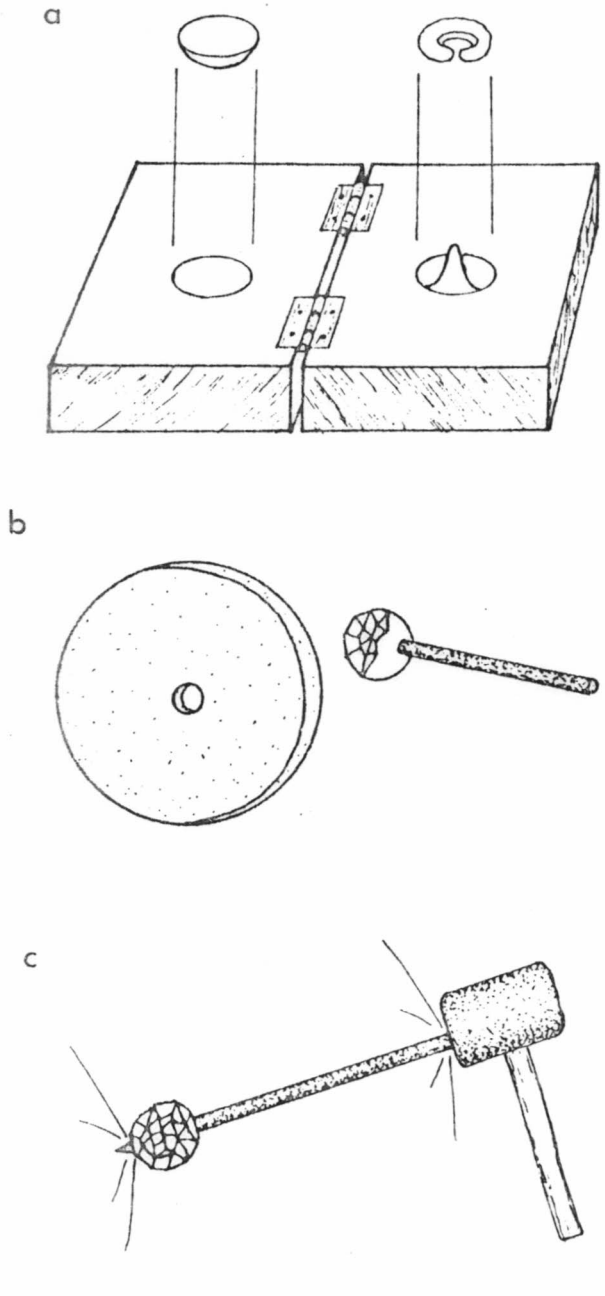

Fig.24 - Manufacturing sequence for mandrel pressed beads: a. Formation of bead "blank", b. Grinding of facets, c. Final hole punching.

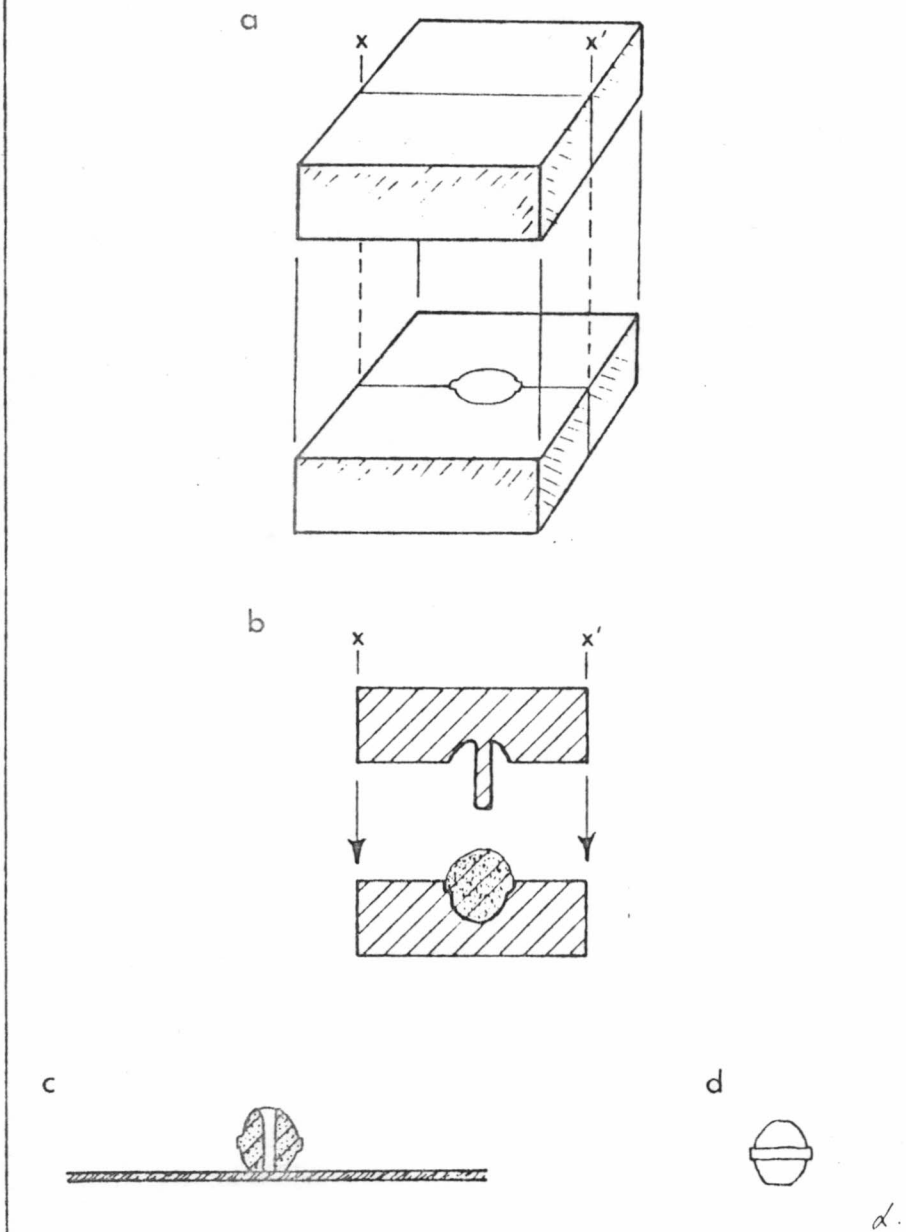

Fig.25 - Manufacturing sequence for "Prosser" molded beads: a. Two-piece mold, b. Cross-sectional view of molding process, c. Molded bead removed from mold and placed on flat surface, d. Finished bead.

At Fort Vancouver, only one "Prosser" molded bead was recovered, and its shape is best described as a banded barrel (Fig. 25d).

Window Glass

Second only to the number of glass beads recovered were the number of window glass fragments. Of the 17,925 recovered, all but 10 were measured for glass thickness (Fig. 26); and from these measurements it is possible to demonstrate the presence of one population of window glass with a mean thickness of 1.47 mm. From Hudson's Bay Company inventories of goods on hand at Fort Vancouver during the mid-1840's (see Hussey 1972; 1974), at least 3 pane sizes were available--7x9, 7½x8½ and 8x9 inches. From recent archaeological excavations by the National Park Service, it has been determined that 3 distinct populations of window glass thickness existed for the windowed structures within the Fort--1.2, 1.4-1.5 and 1.6-1.7mm. (see Hoffman and Ross 1972; 1973a; 1973b; 1974a; 1974b and 1975). These 3 thickness populations may correspond to the 3 known pane sizes, but there presently is no way to test this hypothesis.

The window glass recovered from Fort Vancouver was probably manufactured in Great Britain, and would be classified as "crown" glass. It was a clear, non-wavy glass with few or no air bubbles; and its surfaces were ground and polished smooth. This was a high quality glass which surpassed later American glass imported into the Pacific Northwest.

Mirror Glass

Of the 276 fragments of mirror glass recovered, 3 populations were defined on the basis of glass thickness--1.2, 2.1 and 2.8 mm. (Fig. 27). From the Hudson's Bay Company inventories of goods on hand at Fort Vancouver during the mid-1840's (Hussey 1972; 1974), it is known that 3 types of mirrors ("Looking Glasses") were available--Paper Cased, Metal Framed and Large Mahogany Framed. Paper cased looking glasses were the most common and least expensive, followed by metal and finally mahogany framed looking glasses. The sizes of these mirrors presently remain unknown, but undoubtedly the large mahogany looking glasses were intended to be hung from walls within dining or sitting rooms, whereas the paper and metal cased mirrors may have been dresser sized or smaller (perhaps even pocket sized).