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The Interpretive Potential of Glass Trade Beads in Historic Archæology

ABSTRACT

Glass trade beads, because of their frequency of occurrence at historic sites, and because of the culturally prescribed manner in which they were utilized by Indian groups, should be an artifact type with considerable temporal and cultural interpretive potential in historic archæology. Two approaches, ethnohistoric and archæological, are advocated here as means of maximizing the interpretive potential of beads. Both approaches can contribute to the formalization of descriptive methods as an initial step in the analysis of beads, rendering bead samples from different sites comparable. In the following pages an exploration of both the ethnohistoric and archæological approaches is presented in an effort to demonstrate the potential of trade beads in historic sites archæology and to stimulate more intensive and extensive trade bead research.

Glass trade beads are perhaps one of the most common classes of artifacts found at historic Indian sites in the United States. Given their frequency of occurrence as well as the variability of bead types traded to the Indians through time, it would be desirable for historic archæologists to begin to maximize the potential of this artifact type for interpretive purposes in the analysis of historic sites. In this effort, two different, yet complementary approaches might be taken, ethnohistoric and archæological. In the first case, historic documents, particularly traders' journals, inventories and other trade records, might be examined in an attempt to discover the nomenclature and classification systems used by traders and their Indian constituents, through time and across geographical space. With proper research, temporal and cultural dynamics in terms of bead trading patterns might be revealed, establishing a means of dating sites as well as identifying sites culturally. The second approach, archæological, would involve establishment of proper classification procedures for archæologically recovered bead samples, followed by comparative study of beads from sites controlled chronologically by means of artifacts or historic data other than beads. Again, once having accomplished these preliminary goals, glass trade beads could presumably become a reliable dating index for historic sites as well as a potential indicator of cultural affiliation.

In the following pages an exploration of both of these approaches is presented in an effort to demonstrate the potential of trade beads in historic sites archæology and in hopes of stimulating more intensive research on this particular class of artifacts. Clearly, more extensive study is needed before trade beads can be used with confidence for either temporal or cultural interpretation. Nonetheless, the potential is readily apparent and hopefully will be expanded in the near future.

Glass Beads as Trade Items

Arthur Woodward in his discussion of trade beads makes several points which indicate both the potentials and the complexities of using trade beads for interpretive purposes at historic sites (Woodward 1965:17–18). First of all, Woodward notes that preferences for particular bead types by different tribal groups were "based upon some fundamental beliefs of the people themselves" (Woodward 1965: 18). He suggests, for example, that "the colors and sizes of beads were usually dictated by the aboriginal color schemes prevalent in these regions as well as the modes of decorating either the person or garments in aboriginal times" (Woodward 1965:17). Secondly, based on reports of traders and explorers, Woodward indicates that an item in demand one year might be rejected by the same group the next year. In other words, style preferences changed rather quickly through time. Therefore, we could expect that the bead inventories at different sites within a restricted geographical region might differ either because of temporal factors or because of the cultural affiliation of

the groups occupying the sites. With proper documentary and archæological research, the problem of distinguishing the differences between the sites in terms of cultural or temporal factors should be possible.

The Ethnographic Approach: A Preliminary Investigation

In an attempt to investigate the potential of ethnohistorical research with reference to trade beads, a brief survey of the American Fur Company papers available on microfilm at the Wisconsin State Historical Society was undertaken (see Table 1). The results of this superficial study indicate that a great deal of information with respect to bead nomenclature and classification, as well as temporal and cultural dynamics is contained in this one major documentary resource. The records presented below cover the years 1834–1840. It will be noted that in these papers, information is presented pertaining to the inventories remaining on hand or furnished to *individual* trading outfits of the American Fur Company. Since the outfits usually traded with specific tribal groups residing in a particular locale, the differences in bead inventories should have cultural significance when the time factor is held constant. Conversely, if one investigates the yearly records of an individual outfit, changes in the inventories should be reflecting temporal shifts with respect to bead style preferences. The information presented here is meant only to indicate the kind of data available in the records. Much more intensive study would be necessary to critically evaluate the potentials and the weaknesses of this kind of resource.

The fur company inventories presented offer several interesting areas for further study, at least for the later years of the historic period (post-1800). First, it is possible from the records to establish the criteria upon which the traders differentiated between various bead types. These distinctions presumably had meaning for their Indian constituents since traders would have been ordering those types preferred by the Indians. This kind of information could be used very effectively when working with an archæological collection.

In the records covering a rather limited time period of six years, there was considerable consistency with regard to bead nomenclature from year to year and from one outfit to the next. This is to be expected in the American Fur Company or any of the other larger trading companies and may not be the case in records kept by individual, independent traders who may have each had their own, idiosyncratic system of categorizing beads. Nonetheless, in these records, bead types were identified in part according to physical properties such as size, color and form; the same criteria used by historic archæologists in classifying beads from archæological sites. Broader categories such as wampum, fancy beads, garnets, agates, barley corns, etc. referred to a combination of physical properties, particularly shape. Many of these terms continue to be used at the present time. In spite of the fact that the terms are ambiguous most of the common names used by the traders can be understood today.

A second interesting point of significance to the historic archæologist is the relative frequencies of bead types in the yearly inventories of the outfits. It is clear that certain types such as wampum and seed beads were being traded to Indians in great quantities through time and across a fairly broad geographic area. Such types would appear to have little significance in interpreting sites in terms of culture or time. On the other hand the presence or absence of black beads, fancy beads, certain types of garnets, blue beads, etc. may prove to be more useful for temporal and cultural identification. The differential values of certain types of beads, as indicated by the price information in the records, is also of significance when analyzing a bead collection from an archæological site. The relative frequency of different types will in part depend on the cost of each type. If the connection between trade records and beads found archæologically can be established, potentials for understanding dynamics such as social status of individuals (e.g., study of beads found with burials) may be greatly clarified.

TABLE 1
TRADE BEADS LISTED IN AMERICAN FUR COMPANY INVENTORIES 1834–1840

Bead Types	Mackinac Outfit 1834	Furnished Sioux Outfit 1836	Remaining at Sioux Outfit 1837	Western Outfit 1835 (Prairie du Chien)	Western Outfit 1840 (Prairie du Chien)
Wampum					
Moons	3 sets				
Hair Pipes			313 (3½)		
Black	40,050	81,750 black	18 lbs.	66,500 (2.8¼)	16,000 (3)
White	30,000	and white	23½ lbs.	63,259 (2.25)	12,450 (2.3)
Blue Beads					
Sky bl.	130 lbs.				2 lbs. (25)
Large bl.					5 masses (25)
Fancy Beads	149 doz.			150 (10)	
Garnets			18 masses		
Mock	70 bunches	52 bunches			
Ruby				(60) 6 bunches	
Br ?				(50) 10 bunches	
Uncut					10 strings (1½)
Agates					
Blue	22 bunches				
White	35 bunches	84 masses (25)	13 masses (25)		
Oval/wh.		17 masses (23)	2 masses (23)		
Cornaline		4 bunches			
Barley Corns					
White	12 bunches; 330 masses	400 masses (10)			
Colored		50 masses (13½)			
Seed Beads	11 bunches	10 masses (13)	7 masses		14 masses (18¾) assorted
Black Beads	10½ lbs.			30 lbs. (25)	20 lbs. (20)
White Beads					
Coarse				25 lbs. (20)	20 lbs. (12½)
Chalk		49 lbs. (37½)	8½ masses	29 lbs. (37½)	40 lbs. (33); 4 lbs. (35)
Large Glass		79½ doz. (75)			
Cut Glass			11½ doz. (75)	5 doz. (20)	150 masses (6¼)
Gold Beads					6 masses (25)
Blue & White			9 lbs.		
Spotted Sea Shell Beads	32				

Since there is consistency in bead nomenclature in the trade records, and since the terms used to distinguish different types of beads are fairly precise, it should be possible with thorough investigation to make excellent use of this kind of documentary evidence. There do seem to be significant differences in the bead type frequencies between the various outfits and within individual outfits there are differences through time. A major breakthrough in max-

imizing the potential of trade beads for historic archæology would be a study of records from broadly separated geographic areas. A major problem in comparing sites from different regions is the fact that each area may have experienced the introduction of the same type of bead at different points in time. Thus, coincidence of archæologically recovered types, does not necessarily indicate contemporaneity between widely separated sites. This kind of problem could be solved with the proper kind of documentary research.

The Archæological Approach

Approaching the topic of trade beads from an archæological perspective and particularly noting the absence of extensive documentary research, it is clear that a necessary initial step toward increasing the potential of this artifact type is establishing a classificatory system whereby beads from sites can be compared with some degree of precision. Until very recently, describing beads has proven to be frustrating for most archæologists and to date no satisfactory scheme for classification has been offered which has found wide acceptance (Kidd and Kidd 1970:46). Even the terms used by people in describing beads from various sites have been vague, imprecise and usually ambiguous. Furthermore, when beads are described in most site reports, the methods used in presenting the information often displays a lack of organization and logical order. The combination of poor terminology and lack of a systematic method of presenting data makes comparisons most difficult.

In the past few years the studies of Lyle Stone (1970) and Kenneth and Martha Kidd (1970) have attempted to standardize trade bead description and classification. While the two schemes developed differ in several respects, the fundamental principle used is the same. Basic to the classification procedures outlined by Stone and Kidd and Kidd is analysis according to formal, physical properties of glass beads which reflect manufacturing processes. These properties are empirical, verifiable entities by which any specimen can be subjected to examination and compared to any other specimen (Kidd and Kidd 1970:47). Neither of these systems attempts to represent past reality through classificatory taxonomy. Stone's classification scheme is meant to be an analytical tool useful in evaluating the significance of variation within the spatial, temporal and formal dimensions of a site (Stone 1970:42). He notes that the differences distinguished in this type of "formal classification" may not have been recognized through time and in different social and cultural contexts. In spite of this fact, the formal classification system does allow for the isolation of differences which do have analytical significance at the present time (Stone 1970:42). Kenneth and Martha Kidd view their classification system primarily as a means of permitting exact descriptions of all beads found in archæological excavations (Kidd and Kidd 1970:49). Implicit in their system, however, is the aim that once beads are so described, comparison of various assemblages will reveal cultural and/or temporal dynamics.

Since the bead classification systems are so intimately related to manufacturing processes, it is necessary to briefly review some of the major features of the seventeenth-nineteenth century glass bead industry (see Kidd and Kidd 1970; Stone 1970; Good 1972) before continuing the discussion of classification.

Most of the trade beads found in North America during the historic period were manufactured in glass factories of Murano, Venice (Woodward 1965:4). Generally, the beads were manufactured by one of two major methods: Hollow-cane (drawn) or Wire- (Mandrel) wound. Each method resulted in beads which had certain distinguishable characteristics. In both methods the initial step is to heat a mass of glass ingredients to a molten state and, when desired, add coloring pigments to the mixture. In the *Hollow-cane method,* the next step in manufacture is to introduce a bubble into the mass either by stretching and folding or by blowing air into the mass through a hollow blowing rod. The bubble is then re-immersed into molten glass which may be of the same or

a different color (in which case the process is called layering). Next a second rod is attached to the mass and the two are pulled apart or drawn until the glass becomes cool and will not pull out further, forming a hollow cane of glass which may be 250 or over 300 feet long. The perforation and width of the rod is relatively constant the entire length of the rod. The rigid tube or glass is laid down on slabs of wood to cool and then broken into short lengths which are finally chopped into sizes which will serve as beads.

Although beads may be left in the basically simple state with no further modifications, there are a number of other steps which can be followed to decorate or shape beads. Inlays of canes or rods of colored glass may be introduced to form striped beads. In this process rods of the desired color are arranged around the inside of a pail-like container. The bubble, prior to drawing, is introduced into the center of the bucket and expanded so that the rods adhere to it. Then the mass is reheated just long enough to cause the rods to coalesce with the surface of the bubble and still maintain their form. The mass is drawn as described above and will produce striped beads. Each stripe may be composed of just a single rod or several rods of different colors. During the drawing process, the rod may be twisted. In striped beads the twisting will produce a spiral effect much like a barber pole. Another method of shaping the bead is to lay the bubble (whether layered, striped, etc.) on a marble board or "marver" and either flatten the bubble or paddle it to create a rod which is triangular, square or polyhedral in cross section. When the bubble is drawn, the finished tube will retain the shape given it on the marver.

Beads may also be shaped and/or finished by tumbling the glass segments cut from the drawn rod. These segments are tumbled in a metal container with a mixture of ground charcoal and fine sand which fills the orifices of the beads and prevents the collapse of the rod when the container is re-heated. The container is constantly agitated on an eccentric axle so that the beads do not fuse together. This action, in conjunction with heating, reduces beads to various globular or rounded shapes. Finally, when cool, the beads are separated from the charcoal and sand mixture and then washed and sometimes agitated in bags of bran to produce a polished surface. Whether left in the simple tube form or tumbled into various shapes, the finished products are sorted by size in sets of graded sieves and defective specimens are removed.

In the wire or *Mandrel-wound* method of manufacturing glass beads, no air bubble is introduced into the original mass of glass. Instead, a mass is drawn to form a long rod without a perforation. The cane is broken into smaller segments and then a segment is reheated with a glass blowing lamp. A thread is started from the segment which is wound around an iron or copper mandrel (wire) which has also been heated and covered with chalk or some similar substance to facilitate removal of the finished product. The thread or strand of molten glass is wound around the wire until a bead of the desired size and shape is built up. Several different colored threads might be added to produce multicolored beads or glass insets may be placed in various designs in the still molten glass on the mandrel. In this sense, as compared to the hollow-cane beads, each specimen is individually handicrafted though several beads could be made on a single mandrel. After the molten glass has cooled, the bead or beads are removed from the wire and may be tumbled in the usual manner. Beads manufactured by this method usually display circular striations where the strands have been wound around the wire. This is one certain indicator of the manufacturing technique, for such a feature will not occur on beads made by the drawn or hollow-cane method. On the latter type of beads, a characteristic feature is longitudinal striations created from air bubbles in the glass which get drawn out when the rod is formed. Generally, air bubbles in the mandrel wound beads are circular rather than elongated.

In discussing manufacturing techniques it should be mentioned that control of ingredients

was somewhat haphazard (Kidd and Kidd 1970:50). This results in considerable variation in the quality of the glass itself and perhaps more importantly, considerable variability in color. The craftsmen knew what chemicals would produce various colors but the purity of the coloring chemicals was not well controlled. Therefore, consistency in color can not be expected. Shapes of beads may also be quite irregular due to the tumbling procedures used. So shape, like color, may be a physical property of beads which is quite variable. Finally, certain surface characteristics of glass beads such as air bubbles, longitudinal and concentric striations, scratches, pits, small cracks and so on are adventitious rather than intentional products of the manufacturing processes. These comments have particular relevance when beads are classified according to physical properties. That is, when noting the physical characteristics of beads and attaching significance to them for purposes of classification, it is important to distinguish between those features which reflect intentionality of the glass-makers and those which are, instead, reflections of the imperfection of certain manufacturing procedures. One aspect of bead manufacture which apparently was fairly well controlled has to do with creating beads of different sizes. Arthur Woodward, quoting an article in *Scientific American* published in 1856 reports (Woodward 1965:7):

> This operation is performed by men, women and boys—who have before them an iron guage into which with one hand they thrust fifteen or twenty tubes at the same time, and with an iron instrument (resembling a hatchet head) in the other hand, they rapidly chop off the ends of the tubes, according to the size adjusted to the guage. The cuttings are then taken below where they are put into an iron barrel along with some sand and placed in a furnace over a pretty hot fire . . . until the sharp edges are properly shaped . . .

This information suggests that in classifying beads size clustering may have considerable significance. Intensive study of the documentary sources might determine if this precision in sizing beads was typical in earlier time periods or only a feature of bead manufacture in the latter part of the nineteenth century. Such data could be very helpful to the archæologist working with excavated bead samples.

A Blueprint for the Classification of Archæologically Recovered Trade Beads

In analyzing the trade beads recovered at an historic Winnebago Indian site located in Jefferson County, Wisconsin the problems of trade bead classification and comparisons to other historic site samples became very apparent (Spector 1974:118–174). As a part of the analysis, a system of description and classification of beads, implementing some of the principles used by Lyle Stone and some of those advocated by the Kidds, was devised. This synthesis leads to a third system which has the simple, yet systematic organization of the Kidds' scheme as well as the clarity and precision of Stone's work. As already mentioned, both classificatory devices call for the sorting of beads according to physical properties. The two different systems are briefly outlined here so that the logic of the scheme presented later can be better understood.

Lyle Stone, working with a bead assemblage from Fort Michilimackinac in Emmett County, Michigan, uses a formal classification system which has four levels of taxonomic differentiation, ranked hierarchically on the basis of the relative importance of physical properties (see Stone 1970:291–294). Beads would initially be separated into 2 *Classes* (I & II) on the basis of the technique of manufacturing—either hollow-cane or mandrel-wound. Next they would be sorted into one of 4 *Series* (A–D) on the basis of structure:

A. Simple—composed of beads manufactured from canes made of one layer of glass.
B. Compound—beads made from canes of two or more layers of glass.
C. Complex—specimens which display applique or inset designs.
D. Composite—specimens which are both compound and complex.

Once placed into a series, beads are next grouped into *Types* (i–n) on the basis of a combination

of shape and surface characteristics. Finally, within each type, *Varieties* are defined on the basis of differences in glass color, number, color and form of glass applique, degree of translucency and so on.

The Kidd system differs significantly from Stone's in terms of the organization of the taxonomic system. Based on a large collection of beads from throughout the eastern United States, their scheme attempts to reflect the logical progression of manufacturing techniques. In the Kidd Classification, beads are initially divided into two broad groups depending on the method of manufacture: hollow-cane or mandrel-wound. Next, they are placed into one of four classes (I–IV), if hollow-cane, and three classes (WI–WIII), if they are mandrel-wound. The 7 classes in the system can be outlined and defined as follows:

Class I —The simplest form of monochromatic, tubular beads which may or may not have adventitious surface decoration (e.g. applique or insets). The forms may have been twisted or shaped on a marver prior to drawing the rod. (This class would include Stone's Class I, Series A or C.)

Class II —Beads derived from Class I but have been shaped by re-heating and tumbling (Stone's Class I, Series A or C).

Class III —Beads derived from Class I but which have been made from canes composed of two or more layers of glass (Stone's Class I, Series B or D).

Class IV —Beads derived from Class III forms but, as in the case with Class II have been shaped by retumbling (Stone's Class I, Series B or D).

Class WI —Mandrel-wound beads of simple shapes (e.g. round, oval, donut) and monochrome color (Stone's Class II).

Class WII —Mandrel-wound beads of more elaborate shapes (pinched or molded) and monochromatic (Stone's Class II).

Class WIII—Mandrel-wound beads of any shape but which have adventitious surface decoration of contrasting colors (Stone's Class II).

It is at the point of sorting beads into types and varieties that the Kidd system, while logical, becomes somewhat clumsy and difficult to follow compared to the formal classification system of Lyle Stone. Once sorted into classes, wire-wound beads of classes WI and WII are placed into types on the basis of shape. WI types are monochrome beads of various shapes (e.g. WIa is oval). WII beads of more complex shapes are again placed into different types on the basis of shape variability. WIII beads are typed according to the nature of the decorative elements present. Typing beads of the hollow-cane classes according to the Kidd system proceeds according to a systematic, developmental order which is most clearly understood by examining the bead charts included in their report. Types are essentially ordered from simple to complex within each class. Furthermore, bead types which are directly derived from a preceding type can be designated in such a manner that this relationship is clear (e.g. Ib, Ibb. Ib^{1}). This allows the system itself to reflect the degree of similarity and difference between various types.

Varieties of the types within the system are defined on the basis of differences in size, glass color, and when relevant stripe color, number of rods per stripe, etc. Varieties are given numbers such as Ia1, Ia2, Ibb^{1}1, etc.

The major weakness of the Kidd system is that they are advocating the use of their system for every collection studied. That is, they would have all investigators fit bead specimens directly into their system, using their numbering scheme and simply adding to it when new types are discovered. This would, of course, mean that in every report, the Kidd bead charts and tables would have to be included. Obviously, without such an inclusion, readers would

never understand the significance of designations such as IIIbb'39. It is unlikely that in any one collection the developmental order presented in the Kidd report would be present. Without samples of each type-variety presented by the Kidds the logic of the system is not obvious. Furthermore, the similarity of types within a single assemblage would be obscured by using their numbering system.

An example of the difficulty in using the Kidd system is the Matthews Site report (Clinton County, Michigan), by Charles Cleland (1972). In his discussion of 4 historic burials and the accompanying grave goods, Cleland mentions that the beads with one burial resemble Kidd and Kidd's type If3. Other beads with the same burial, he comments, are referable to the Kidds' type 11a36 and 11a61 respectively (182–184). One can only assume that an editorial or typographical error occurred in designating these last two types since in the system a designation such as 11a36 would be impossible. Presumably the proper numbering would be IIa36. The point, however, is that without having the Kidds' work available, Cleland's references have very little meaning, especially since the beads are not well described in the report ("light blue and rose amber seed beads"). This kind of mis-use of the Kidds' system will surely not facilitate comparison between sites.

In summary, the two classification systems outlined have certain deficiencies and certain strengths. Stone's system, when compared to the Kidds' presents a very precise scheme for defining taxonomic units and for placing beads into those units. The system, however, suffers from a lack of organizational logic such as that presented in the Kidd scheme, which allows for the ordering of taxonomic units in a manner which, in and of itself reflects degrees of similarity and the relationships between various classes and types. The Kidds have also diminished the judgmental problem inherent in Stone's work of having to weigh the relative significance of various physical properties. The major difficulty with the Kidd taxonomy aside from their own inadequate explication, is the suggestion that their system, as is, be used in classifying all bead assemblages. This seems to be an unnecessary and cumbersome procedure. If the purpose of a system is to facilitate comparison between bead samples, what is needed is to standardize the methods of bead description. Once this is done, a classification device can be employed which accurately describes the taxonomic relationships within a single collection. Utilizing the principles of the Kidds' system, while at the same time establishing a separate numbering scheme for each collection, as Stone has done, seems to be a basically sound approach, assuming that basic descriptive procedures have been followed.

The following outline is suggested in an effort to establish some kind of standard form for bead description. Once the beads have been described, classification can proceed in a manner which will permit comparisons, hopefully establishing the foundation upon which the potential of trade beads can be broadened in analysis of historic sites.

1. *Metric Dimensions*

Length:—Maximum distance between the ends.

Width:—Maximum distance across the center of the bead, perpendicular to the length.

Bore:—The diameter of the bore can be measured with a graduated set of Singer sewing machine needles sizes 9, 11, 14, 16, 18, and 21 and then converted to millimeters, 0.4—1.4. When larger than 1.4mm bore size can be measured directly through the use of a microscopic micrometer.

2. *Color*

In most studies the Munsell Color Chart designations are used in describing bead color.

3. *Shape*

In all reports examined, describing bead shape was one of the most difficult tasks in analysis. Part of the problem is in describing and illustrating essentially three-dimensional forms. Most reports fail to even attempt definition of shape categories used. Shape categories which might be used fairly frequently are presented in Figure 1.

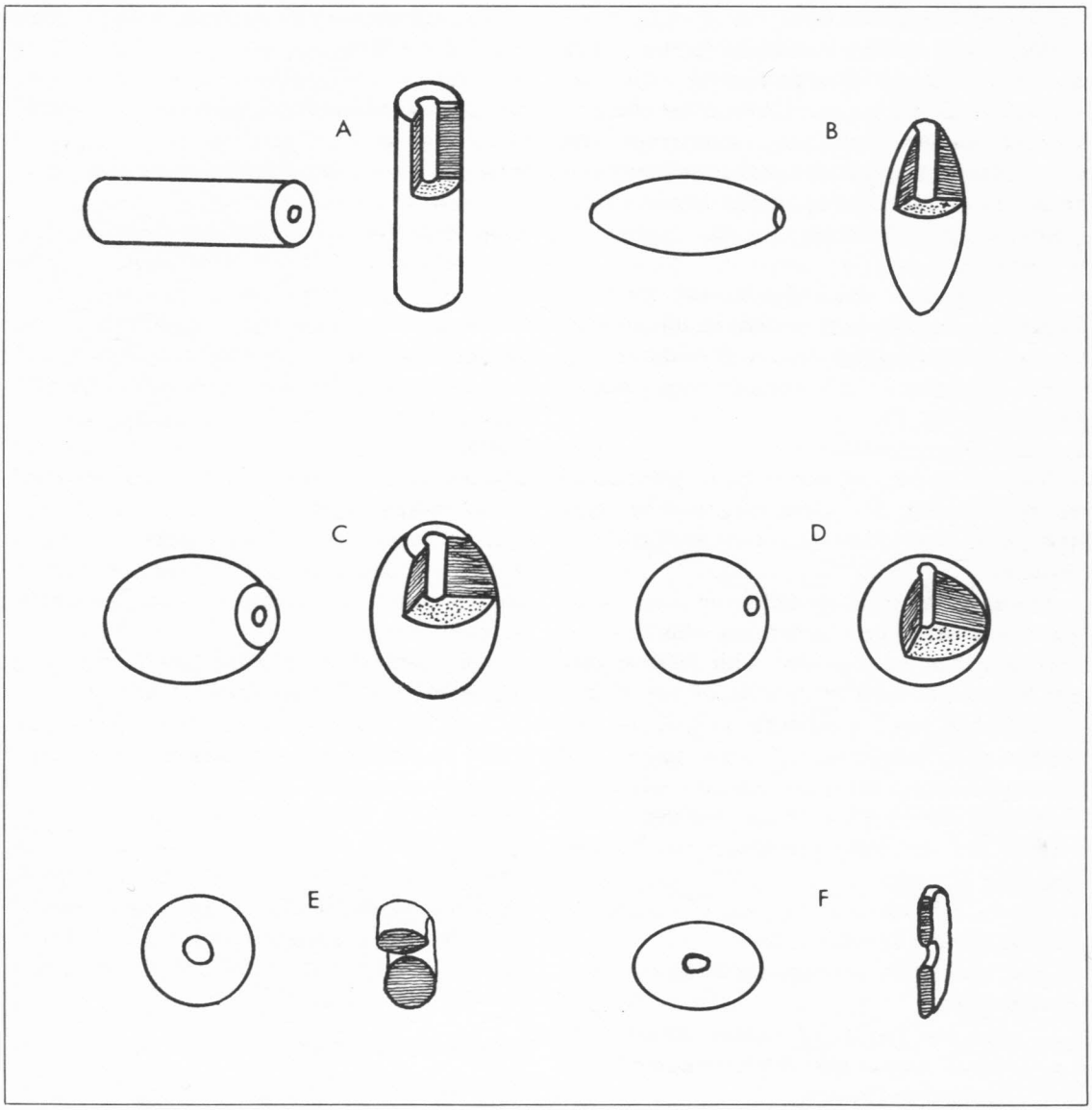

FIGURE 1. BEAD SHAPES

A. Tubular: Cylindrical beads where the width measurement is constant, regardless of the point along the length at which the bead is measured.

B. Oval: The width is greatest in the center of the bead, tapering equally toward each end.

C. Barrel: Intermediate between tubular and oval beads. The widest point of the bead is in the center, tapering slightly toward each end. The ends tend to be flattened.

D. Round: The length and the width are approximately equal. The specimens are spherical with every point on the circumference equidistant from the center.

E. Donut: Beads which are wider than long. In cross section the beads appear donut-shaped. The bore of the bead is slightly depressed into the body of the bead.

F. Circular: Thin, flat beads which are circular in outline.

4. *Surface Characteristics*

The presence or absence of features such as longitudinal striations, circular striations, air bubbles, cracks, scratches, glass decomposition due to weathering, patina, or pits. All of these features are either adventitious results of manufacturing or the results of exposure to soil conditions, fire, etc.

5. *Tumbling*

The degree to which beads were tumbled. In tubular beads this is evident in the appearance of the ends which are rough and irregular when untumbled and smooth and regular when tumbled.

6. *Glass Characteristics*

The colors can appear in clear, translucent or opaque glass. The glass may also be shiny and polished or somewhat dull and gritty in texture.

Once beads from a collection have been accurately described, following this outline, they can then be classified with relative ease employing the basic principles of the Kidds' scheme, but using a separate numbering system for each collection so that similarities and differences within the collection can be isolated. Reviewing the steps of such a classification system, the following procedure can be suggested:

1. Separate beads into two broad categories, Hollow-cane or wire-wound.
2. Sort beads into Classes for each category.

Hollow-Cane

I. tubular beads of simple construction which may or may not have adventitious surface decoration.

II. beads of simple construction derived from Class I, but shaped through re-heating and tumbling. They may or may not have adventitious surface decoration.

III. tubular beads of compound (2 or more layers of glass on the initial rod) construction which may or may not have adventitious surface decoration.

IV. beads of compound construction derived from Class II but shaped through re-heating and tumbling. They may or may not have adventitious surface decoration.

Wire-wound

WI. beads of simple shape and monochrome color.

WII. beads of more elaborate shape and monochromatic color.

WIII. beads of any shape but which have adventitious surface decoration of contrasting colors.

3. Sort beads of each Class into *Types* (a–n). The criteria used for establishing types will vary from one collection to the next and perhaps between Classes within the sample. Characteristics such as size, adventitious surface decoration, shape, and color can be used in establishing types.

In differentiating between types, the classification should follow a logical progression from simple to more complex in terms of manufacturing processes.

The numbering system should show the degree of relatedness between the types. For example, in beads of Class I, types Ia and Iaa would be more similar to each other than they would be to type Ib.

4. Sort beads of each type in *Varieties* (1–n), again based on criteria of size, shape, color or details of surface decoration. As in establishing types the beads should be ordered according to the level of complexity and designated in a manner which reveals the degree of relatedness between the varieties.

Summary and Conclusion

In the preceding pages two approaches to the study and analysis of glass trade beads, ethnohistoric and archæological, have been presented. Trade beads, because of their frequency of occurrence at historic sites, and because of the variety of forms traded to the Indians at different points in time and through geographical space, provide the historic sites archæologist a particularly useful tool for dating sites and for establishing the cultural identity of the site occupants. The potential of trade beads, however, is at present time still to be realized. Ethnohistorically, a great deal

of research still remains to be done. A preliminary study of trade records presented in this paper suggests that intensive research of the documentary evidence can produce significant data in terms of the different varieties of glass beads traded to various Indian groups through time. Careful analysis of this evidence should reveal group preferences; likely frequency distributions; and changes through time in buying patterns, all information of considerable value to the historic archæologist.

Approaching the subject of trade beads archæologically, it has been suggested here that before the potential of bead analysis can be recognized, careful procedures for description and a logical classification system must be established and utilized in analysis. General procedural outlines have been provided in an attempt to initiate and advocate proper description and classification schemes. Once established, these methods should lay the groundwork for comparative research on beads recovered archæologically, research which should help to increase our understanding of cultural dynamics and relationships in the historic period.

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