

1976 ARCHEOLOGICAL INVESTIGATIONS

Trash Dump Excavations,
Area Surveys,
and Monitoring of Fort Construction and Landscaping

BENT'S OLD FORT NATIONAL HISTORIC SITE
Colorado

by
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June 1985

THE PERSONAL ATTIRE COMPONENT

INTRODUCTION

The personal attire component of the artifact assemblage consists of those items that were part of articles of clothing and footwear. Included within this grouping are beads, buckles, buttons, grommets, hooks and eyes, and shoes.

BEADS

Description

Sixteen styles of beads were defined in terms of six criteria. These criteria were material, methods of construction, shape, size, color, and decorative elements. The first fifteen styles were composed of glass, the last of shell.

Style One are small glass beads commonly referred to as "seed beads." These were made by the hollow cane method. The shape of these beads varies from a stubby, barrel-type to tubular to a short, donut-type. The transverse cross section is circular. The diameter varies from 0.20 cm to 0.40 cm. The length varies from 0.10 to 0.30 cm. The hole varies from 0.95 to 0.10 cm. These beads come in a number of colors; the color of the glass is uniform throughout the bead. The white beads are opaque. The light blue, silvery blue, green, and red beads are translucent. Style One beads are illustrated in figure 48 a, b, c).

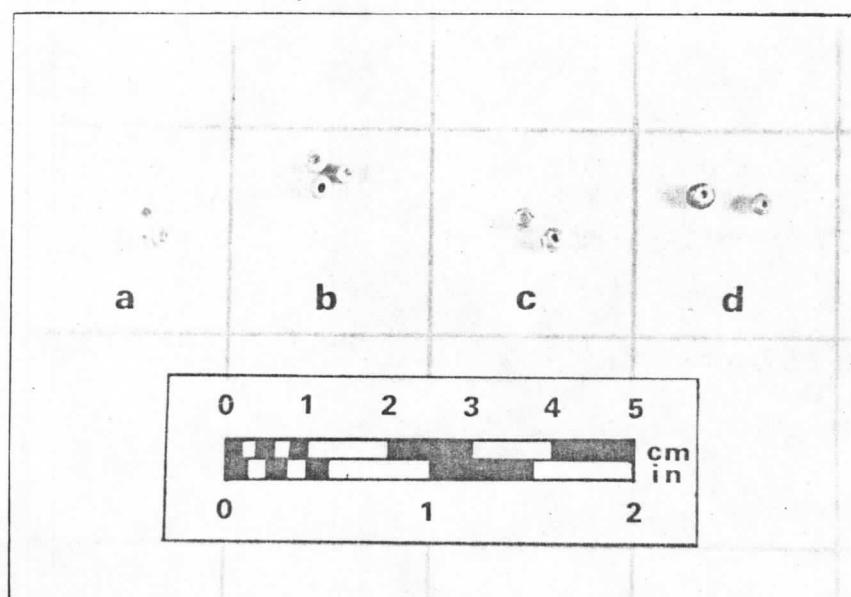


Figure 48. Glass "Seed Beads" (a, b, c, Style One; d, Style Two).

Style Two are small glass beads of the "seed bead" category. These were made by the hollow cane method. The shape varies from a stubby, barrel-type to a short, donut-type. The transverse cross section is circular. The diameter varies from 0.12 cm to 0.41 cm. The length varies from 0.21 to 0.29 cm. The hole varies from 0.06 to 0.10 cm. Only one color of these beads was recovered. These are opaque, red beads that had been formed by rolling a white glass bead in a molten red glass. Style Two beads are shown in figure 48 d.

Style Three beads are represented by a single tubular glass bead. This bead was made by the hollow cane method. The ends of the tube have been fire polished; however, the irregular ends characteristic of beads made by breaking sections from a longer tube remain. The transverse cross section is circular. The diameter is 0.37 cm. The length is 0.86 cm. The hole is 0.10 cm. The bead is an opaque white. These are shown in figure 49 a.

Style Four beads are represented by a single tubular glass bead. This bead was made by the hollow cane method. The ends were cut and later fire polished to produce a roughly rounded contour. The transverse cross section is circular. The diameter is 0.47 cm. The length is 1.25 cm. The hole is 0.13 cm. The bead is an opaque white. Style Four beads are shown in figure 49 b.

Style Five beads are spherical glass beads made by the mandrel wound method. The transverse cross section is circular. The longitudinal cross section varies from nearly circular to slightly oval. The shoulders around the ends are rounded while the section around the hole is flat. Style Five beads are shown in figure 49 c to f.

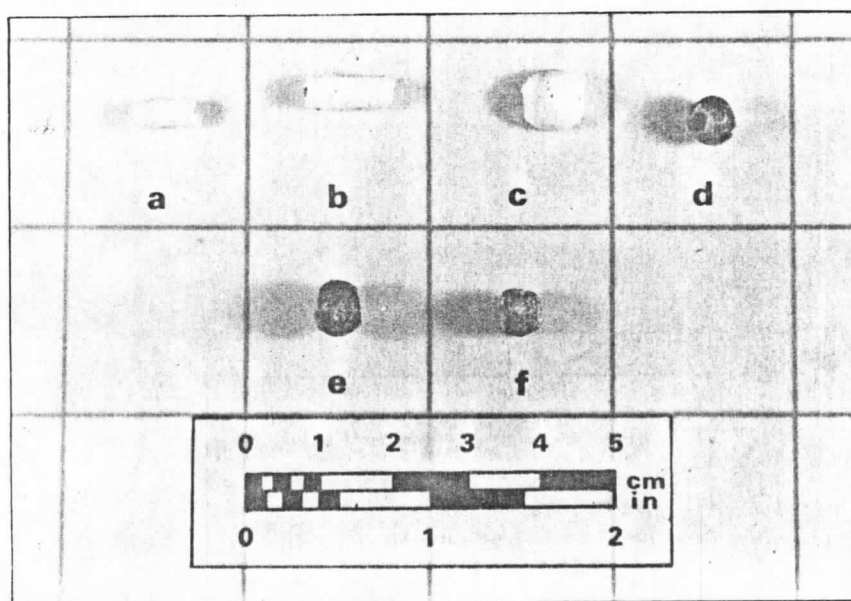


Figure 49. Glass "Necklace Beads" (a, Style Three; b, Style Four; c to f, Style Five).

Traces of the strands of wound glass are evident. The diameter is about 0.81 cm. The length varies around 0.75 cm. The hole is about 0.21 cm. Most of the examples of this style have been split lengthwise into nearly perfect half sections. Style Five beads come in a number of colors. The white beads are opaque. The amber, dark blue, and cobalt blue beads are translucent. These beads are illustrated in figure 49 c to f.

Style Six beads are spherical glass beads. These have been made by the mandrel wound method. Two colors of glass have been combined during the winding process. The transverse cross section is circular; the longitudinal cross section is nearly circular. The ends are rounded. The diameter is about 0.78 cm. The length is about 0.82 cm. The hole is about 0.13 cm. The only example of this style is a mixture of green and brown glass. The bead is heavily decomposed and, while at present is opaque, may originally have been translucent. This bead is illustrated in figure 50 a.

Style Seven beads are spherical glass beads. These have been made by the mandrel wound method. The bead is composed of a core of one color of glass and a surface gloss of a second color. The transverse cross section is circular. The longitudinal cross section is nearly circular. The diameter, length, and hole measurements vary around 0.81 cm, 0.75 cm, and 0.21 cm, respectively--that is, within the same general range as Style Five beads. The only examples of this style are beads with a white glass core and a light blue glass surface. These beads are opaque. Style Seven beads are illustrated in figure 50 b.

Style Eight beads are spherical glass beads. These have been made by the mandrel wound method. The transverse cross section is circular. The longitudinal cross section is nearly circular. The ends are rounded. Oval-shaped pockets or cavities have been formed on the surface of the

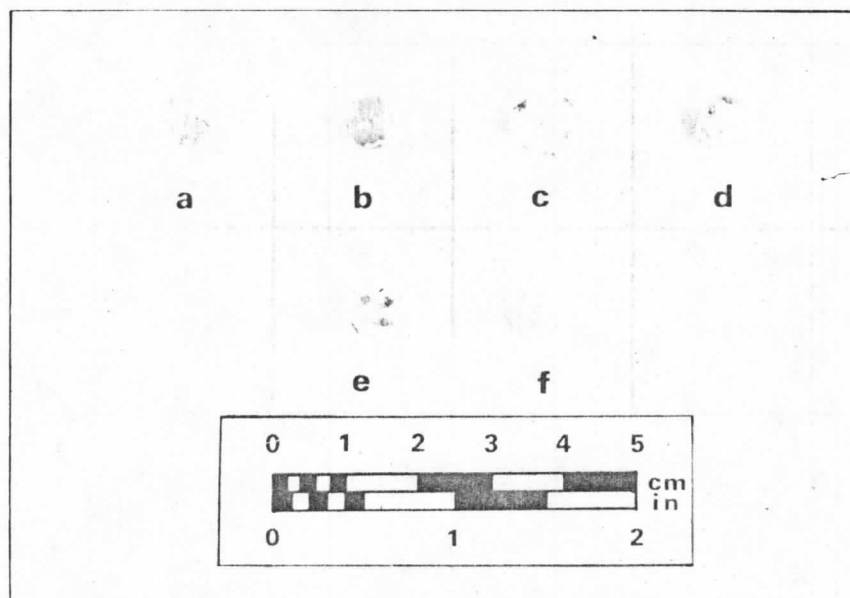


Figure 50. Glass "Necklace Beads" (a, Style Six; b, Style Seven; c, Style Eight; d, Style Nine; e, f, Style Ten).

bead. These pockets have been filled with glass of a different color than the main body of the bead. The "eyes" are flush with the surface. The single example of this style had a diameter of 0.94 cm. The length was 0.93 cm. The hole was not determinable since only a fragmentary half section was recovered. The main body was an opaque white. The glass insets that filled the eyes could not be classified accurately as to color due to heavy patination. Style Eight beads are shown in figure 50 c.

Style Nine beads are spherical glass beads. These have been made by the mandrel wound method. The transverse cross section is circular. The longitudinal cross section is nearly circular. The shoulders of the ends are rounded. The area adjacent to the hole is flat. Circular cavities or pockets have been formed on the surface. These pockets have been filled with glass of a color different from that which forms the main body. The eyes are flush with the surface. Only a single half section was found. The diameter is 0.74 cm. The length is 0.76 cm. The hole was not measurable due to the fragmentary nature of the bead. The body is an opaque white. The eye color appears to be a red or brown but is not distinct due to heavy patination of the glass. Style Nine is shown in figure 50 d.

Style Ten beads are spherical glass beads. These beads have been made by the mandrel wound method. The transverse cross section is circular. The longitudinal cross section is nearly circular. The shoulders of the ends are rounded and the section adjacent to the hole is flat. A finely incised floral design occurs along the circumference. Glass of a color different from that of the main body has been set into this design. Two of the three fragments that represent this style were measurable. The first had a diameter, length, and hole of 0.82 cm, 0.75 cm, and 0.24 cm, respectively. The second had dimensions of 0.90 cm, 0.81 cm, and 0.18 cm, respectively. The body was an opaque white. The glass inset could not be accurately defined as to color due to heavy patination of the sections of glass that had not popped out. Style Ten is illustrated in figure 50 e & f.

Style Eleven beads are glass beads that are oval in longitudinal cross section. In transverse cross section, they are circular. These beads have been made by the mandrel wound method. The shoulders taper towards the end holes. The dimensions of these beads varies somewhat by color. The white beads are opaque. Their diameter varies from about 0.54 cm to 0.65 cm. Their length varies from around 0.85 cm to 0.93 cm. Their hole varies from about 0.17 cm to 0.27 cm. Opaque light blue beads have dimensions of roughly 0.60 cm, 0.84 cm, and 0.12 cm, respectively, for diameter, length, and hole. The translucent red beads have a diameter of about 0.91 cm. Their length is about 1.19 cm. Their hole is around 0.17 cm. Style Eleven beads are illustrated in figure 51 a, b, & c.

Style Twelve beads are glass beads that are oval in longitudinal cross section. In transverse cross section, they are circular. These beads have been made by the mandrel wound method. The shoulders taper towards the end holes. The diameter is 0.44 cm. The core of the bead is made of one type of glass. The surface has been covered with a second type of glass. The length is 0.78 cm. The hole is 0.07 cm. The

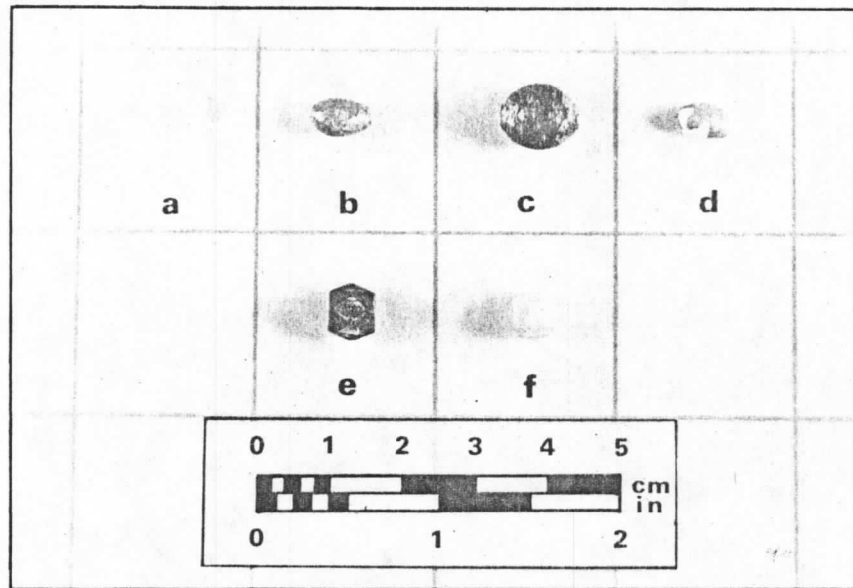


Figure 51. Glass "Necklace Beads."

core is an opaque white. The surface is a light brown. Style Twelve is shown in figure 51 d.

Style Thirteen beads are faceted glass beads. Facets have been pressed or molded on the surface. The body of the beads has been formed around a tubular core made by the hollow cane method. The ends are flat and hexagonal. The circumferential facets are diamond shaped. Two colors of beads are included within this style. A single milky white, translucent bead was found. Its diameter is 0.62 cm. Its length is 0.55 cm. Its hole is 0.23 cm. Two examples of a dark blue, translucent color were noted. The dimensions of the first were 0.70 cm, 0.65 cm, and 0.28 cm, respectively, for diameter, length, and hole. The second had a diameter of 0.58 cm, a length of 0.49 cm, and a hole of 0.27 cm. The core is an opaque white. Style Thirteen beads are shown in figure 51 e & f. A closeup of the end face of these beads is shown in figure 52.

Style Fourteen beads are faceted glass beads. Facets have been pressed or molded on the surface. The original form was probably made by the hollow cane method. The ends are flat and hexagonal. The circumferential facets are diamond shaped. There is no separate core section. Examples of two translucent colors were noted. The lime green bead had dimensions of 0.62 cm, 0.50 cm, and 0.27 cm, respectively, for diameter, length, and hole. The dark blue bead had a diameter of 0.67 cm. Its length was 0.71 cm. Its hole measured 0.22 cm. Style Fourteen is illustrated in figure 53 a & b.

Style Fifteen beads are faceted glass beads. Facets have been pressed or molded on the surface. The body has been formed around a tubular core made by the hollow cane method. The ends are hexagonal. The facets are roughly flat single panels. The ends are flat. The diameter

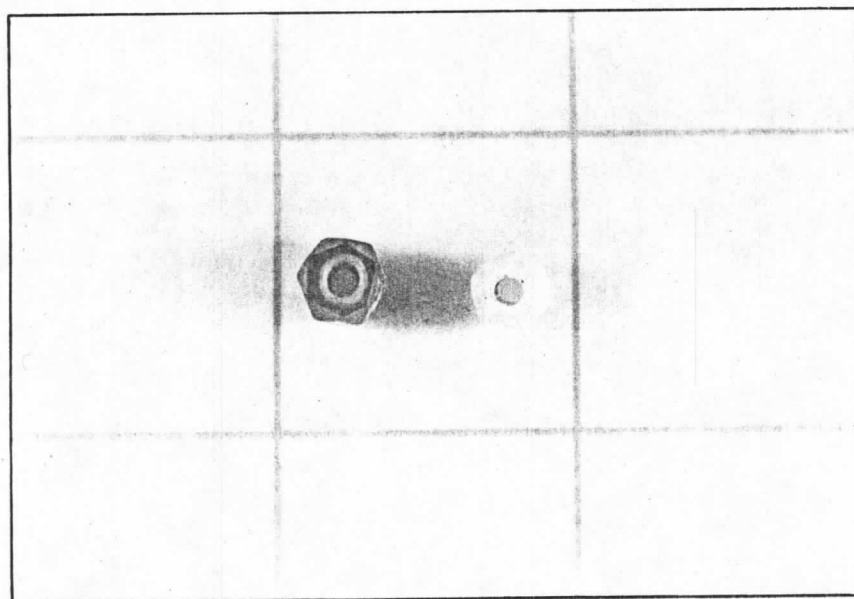


Figure 52. Close-up of Style Thirteen Glass Beads Illustrating Drawn Glass Tubular Core.

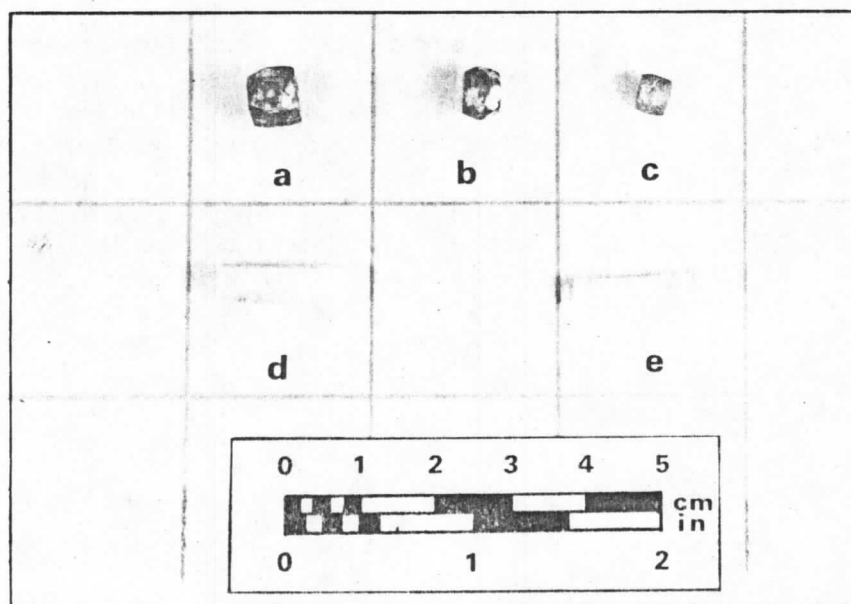


Figure 53. Glass and Shell "Necklace Beads."

is 0.43 cm. The length is 0.41 cm. The hole is 0.13 cm. The core is an opaque white. The body is a translucent, dark blue. Style Fifteen is shown in figure 53 c.

Style Sixteen beads (figure 53 d & c) are natural shell beads. These shells are roughly tubular in form. Two examples were noted. The first has a length of 1.82 cm. Its diameter tapers from 0.5 cm to 0.43 cm. Its hole varies from 0.28 cm. to 0.33 cm. The second bead has a length of 1.95 cm. Its diameter tapers from 0.5 cm to 0.37 cm. Its hole measurement ranges from 0.23 cm to 0.33 cm.

In addition to the beads that could be classified, a number of glass bead fragments were collected. These were heavily deteriorated fragments of light green and light blue glass.

Distribution

The spatial distribution of beads for combined strata is shown in figure 54 for the material from the West Dump and in figure 55 for the artifacts from the Main Dump. Provenience data by bead style, count, dump, unit type, and stratum are listed in tables 19 to 24.

Comments

Several comments may be made about the general bead terminology utilized in this discussion, the basic methods of bead production, the comparative nature of Moore's interior fort bead collection and of Comer's exterior trash dump assemblage, and other aspects. For the most part, the terminology employed to describe the various features of each bead style derive from Horace C. Beck's (1973) Classification and Nomenclature of Beads and Pendants. The "diameter" (1973:2) refers to the maximum width of the transverse cross section. The "length" (1973:3) is the distance between the two ends of a bead. The "end" (1973:2) is defined as the surface that includes the perforation. The "transverse section" and the "longitudinal section" (1973:2) have been used in a slightly different form than originally defined by Beck. The "transverse section" has been defined in this study as that cross section that is perpendicular to the axis of the perforation rather than as "that section at right angles to the axis which has the largest area." The "longitudinal section" has been defined as that cross section that is parallel to the axis of the perforation rather than as "that section along the axis that includes the major radius."

The general bead categories of "seed" and "necklace" beads have been adopted after Lyle Stone's usage (1974:88) in Fort Michilimackinac, 1715-1781 to distinguish between two relatively distinct clusters of beads according to size. The "seed" bead category has a diameter below 4.0 mm and a length below 3.0 mm. The "necklace" bead category has a diameter above 6.0 mm and a length above 6.0 mm. Beads with dimensions between these have proven to be somewhat problematic (Stone

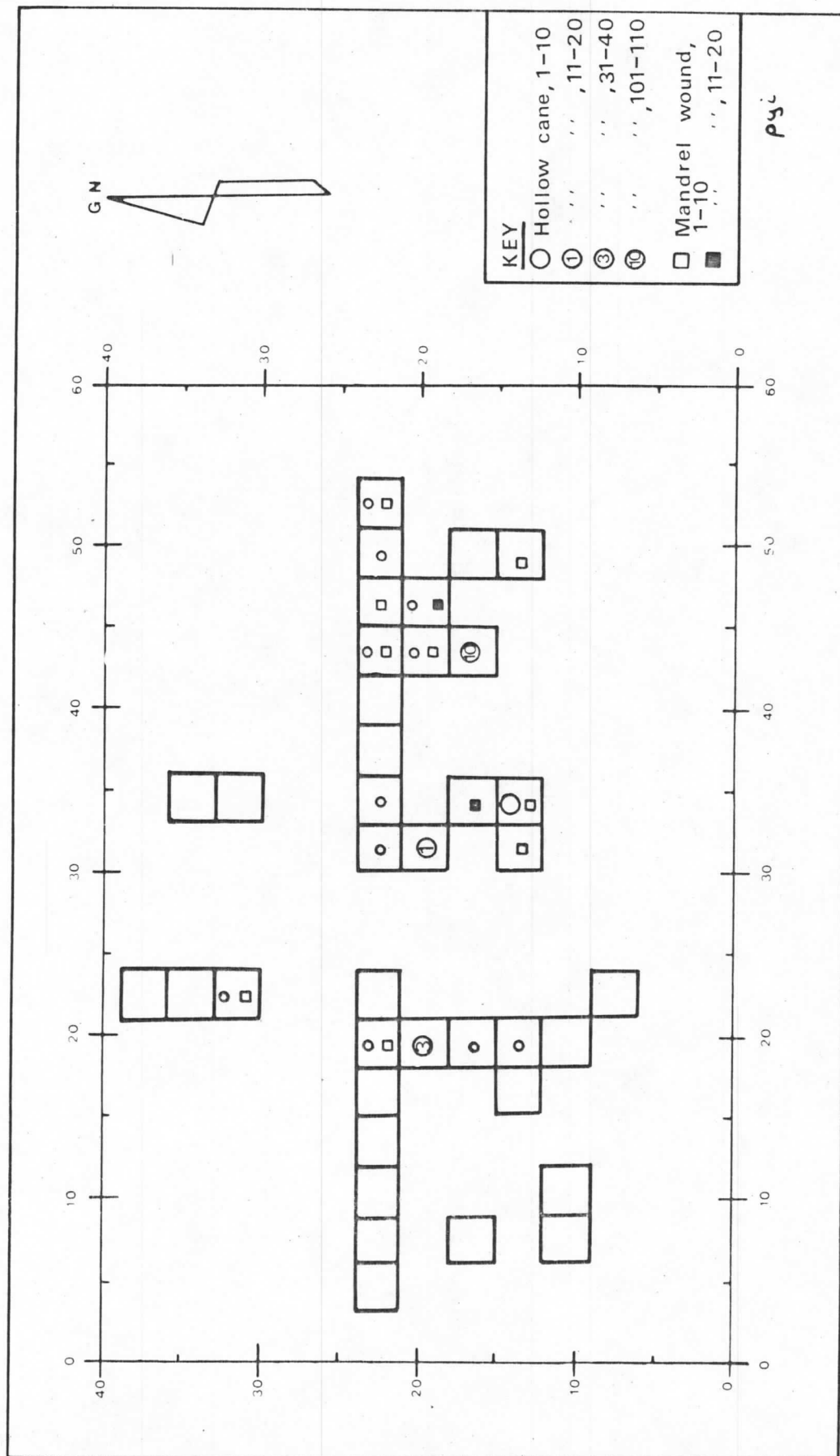


Figure 54. Distribution of Bead Styles within the West Dump.

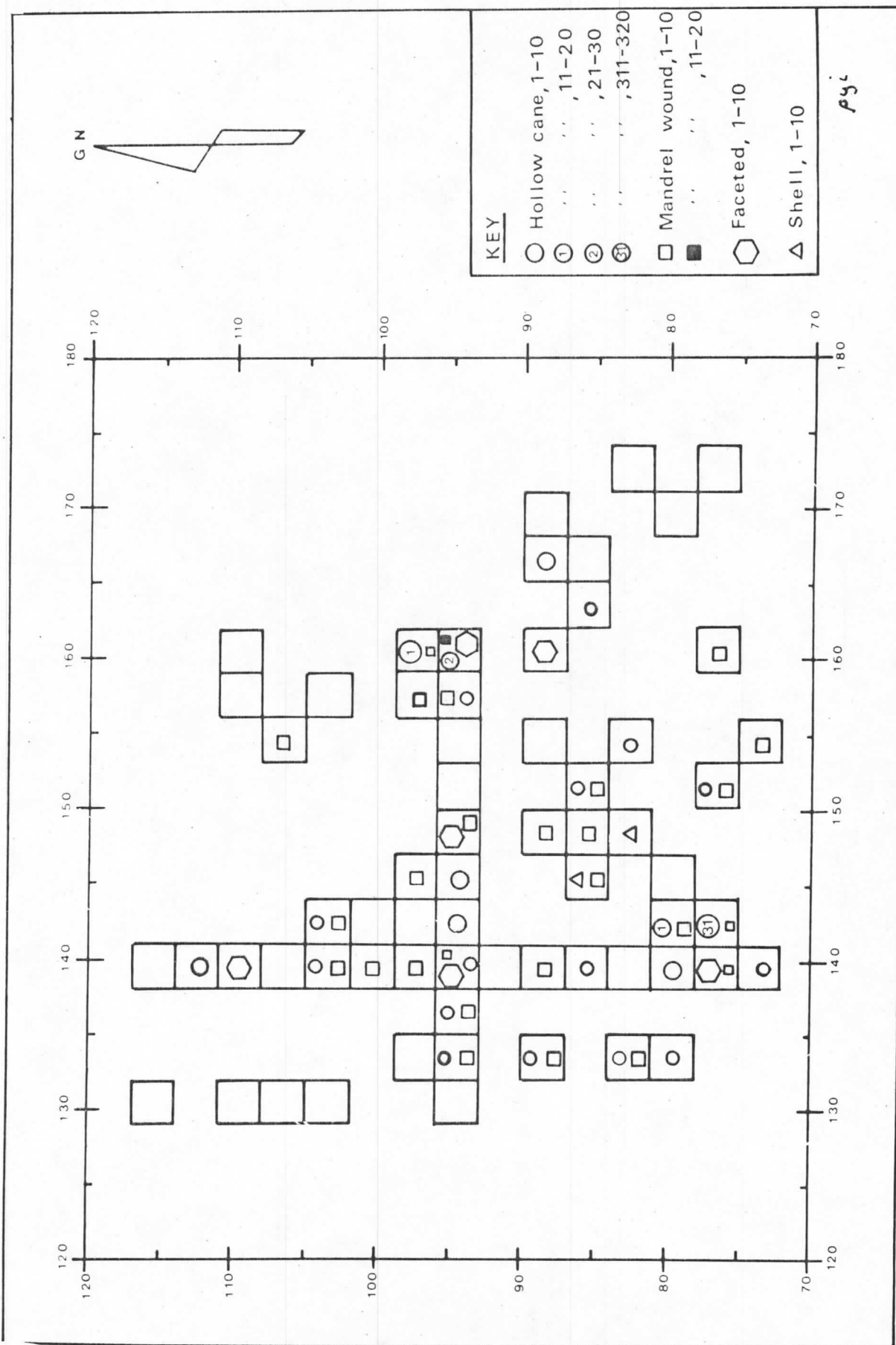


Figure 55. Distribution of Bead Styles within the Main Dump.

Table 19. Distribution of Style One Beads by Dump, Unit Type, and Strata

<u>Style</u>	<u>Sub-Style</u>	<u>Color</u>	<u>Raw Frequency</u>	<u>Comments</u>	<u>Dump</u>	<u>Unit Type</u>	<u>Stratum</u>
1	a	white	3		West	Random	A
1	a	white	4		West	Nonrandom	C
1	a	white	66		West	Random	C
1	a	white	13		West	Random	D
1	a	white	2		Main	Random	B
1	a	white	4		Main	Nonrandom	C
1	a	white	25		Main	Random	C
1	a	white	21		Main	Random	D
1	a	white	1		Main	Random	E
1	a	white	1		Main	Random	F
1	a	white	2	fragmentary	West	Random	C
1	b	light blue	2		West	Nonrandom	A
1	b	light blue	1		West	Nonrandom	B
1	b	light blue	17		West	Nonrandom	C
1	b	light blue	27		West	Random	C
1	b	light blue	3		West	Nonrandom	D
1	b	light blue	1		West	Random	D
1	b	light blue	4		Main	Nonrandom	B
1	b	light blue	3		Main	Random	B
1	b	light blue	6		Main	Nonrandom	C
1	b	light blue	200		Main	Random	C
1	b	light blue	32		Main	Random	D
1	b	light blue	43	fragmentary	West	Nonrandom	C
1	b	light blue	3	fragmentary	West	Random	D
1	b	light blue	1	fragmentary	Main	Nonrandom	C
1	b	light blue	59	fragmentary	Main	Random	C
1	b	light blue	3	fragmentary	Main	Random	D
1	c	silver blue	1		West	Random	C
1	c	silver blue	2		Main	Random	C
1	d	green	1		Main	Nonrandom	D
1	d	green	5		Main	Random	D
1	d	green	4	fragmentary	Main	Nonrandom	B
1	d	green	1	fragmentary	Main	Nonrandom	C
1	d	green	2	fragmentary	Main	Random	C
1	d	green	1	fragmentary	Main	Nonrandom	D
1	e	red	1	fragmentary	West	Random	C
					West Dump Subtotal		187
					Main Dump Subtotal		377
					Total		546

Table 20. Distribution of Style Two, Three, and Four Beads by Dump, Unit Type, and Strata

<u>Style</u>	<u>Sub-Style</u>	<u>Color</u>	<u>Raw Frequency</u>	<u>Comments</u>	<u>Dump</u>	<u>Unit Type</u>	<u>Stratum</u>
2		red	2		Main	Nonrandom	C
2		red	36		Main	Random	C
2		red	1		Main	Nonrandom	D
2		red	1		Main	Random	D
2		red	1		Main	Random	E
3		white	1		West	Random	C
3		white	1		Main	Random	H
Style Two Total							41
Style Three Total							1
Style Four Total							1

Table 21. Distribution of Style Five Beads by Dump, Unit Type, and Strata

Style	Sub-Style	Color	Raw Frequency	Comments	Dump	Unit Type	Stratum
5	a	white	3		Main	Random	C
5	a	white	2		Main	Random	D
5	a	white	3	fragmentary	West	Random	A
5	a	white	1	fragmentary	West	Nonrandom	B
5	a	white	4	fragmentary	West	Nonrandom	C
5	a	white	11	fragmentary	West	Random	C
5	a	white	2	fragmentary	West	Random	D
5	a	white	1	fragmentary	Main	Nonrandom	B
5	a	white	2	fragmentary	Main	Random	B
5	a	white	3	fragmentary	Main	Nonrandom	C
5	a	white	5	fragmentary	Main	Random	C
5	a	white	4	fragmentary	Main	Nonrandom	D
5	a	white	13	fragmentary	Main	Random	D
5	a	white		2fragmentary	Main	Random	E
5	b	amber	1		West	Random	OB
5	b	amber	1		West	Random	C
5	b	amber	1		Main	Random	B
5	b	amber	2	fragmentary	Main	Random	D
5	c	dark blue	1		West	Random	C
5	d	cobalt blue	1		Main	Random	B
5	d	cobalt blue	3		Main	Nonrandom	C
					West Dump Subtotal		25
					Main Dump Subtotal		<u>42</u>
					Total		67

Table 22. Distribution of Styles Six, Seven, Eight, Nine, and Ten Beads
by Dump, Unit Type, and Strata

<u>Style</u>	<u>Sub-Style</u>	<u>Color</u>	<u>Raw Frequency</u>	<u>Comments</u>	<u>Dump</u>	<u>Unit Type</u>	<u>Stratum</u>
6		light blue	1		Main	Random	C
6		light blue	2		Main	Random	D
6		light blue	1	fragmentary	Main	Random	D
7		brown & green	1		Main	Random	C
7		brown & green	2	fragmentary	Main	Random	C
8		white	1	fragmentary	Main	Random	D
9		white	1	fragmentary	Main	Random	A
10		white	1	fragmentary	Main	Nonrandom	B
10		white	1	fragmentary	Main	Random	C
10		white	1	fragmentary	Main	Random	D
Style Six Total							4
Style Seven Total							3
Style Eight Total							1
Style Nine Total							1
Style Ten Total							3

Table 23. Distribution of Style Eleven Beads by Dump, Unit Type, and Strata

<u>Style</u>	<u>Sub-Style</u>	<u>Color</u>	<u>Raw Frequency</u>	<u>Comments</u>	<u>Dump</u>	<u>Unit Type</u>	<u>Stratum</u>
11	a	white	3		Main	Random	C
11	a	white	2		Main	Random	D
11	a	white	2	fragmentary	West	Random	C
11	a	white	1	fragmentary	Main	Nonrandom	B
11	a	white	1	fragmentary	Main	Nonrandom	D
11	a	white	4	fragmentary	Main	Random	D
11	b	light blue	1		West	Random	D
11	b	light blue	1		Main	Random	E
11	c	red	2		Main	Random	C
					West Dump	Subtotal	3
					Main Dump	Subtotal	14
					Total		17

Table 24. Distribution of Styles Twelve, Thirteen, Fourteen, Fifteen, and Sixteen Beads and Unspecified Fragments by Dump, Unit Type, and Strata

<u>Style</u>	<u>Sub-Style</u>	<u>Color</u>	<u>Raw Frequency</u>	<u>Comments</u>	<u>Dump</u>	<u>Unit Type</u>	<u>Stratum</u>
12		light brown	1		Main	Random	D
13	a	milky white	1		Main	Nonrandom	D
13	b	dark blue	1		Main	Nonrandom	B
13	b	dark blue	1		Main	Random	B
14	a	lime green	1		Main	Nonrandom	C
14	b	dark blue	1		Main	Random	D
15		dark blue	1		Main	Random	F
16		white	1-	natural shell	Main	Random	D
16		white	1	natural shell	Main	Random	E
NA		light green	6	fragmentary	West	Nonrandom	D
NA		light green	10	fragmentary	West	Random	D
NA		light green	4	fragmentary	Main	Random	B
NA		light blue	1	fragmentary	Main	Random	B
Style Twelve Total							1
Style Thirteen Total							3
Style Fourteen Total							2
Style Fifteen Total							1
Style Sixteen Total							2
Unspecified Fragment Total							21

1974:88). In this study, only styles One and Two fall within the "seed" bead category. The rest of the styles fall for the most part within the dimensional range of the "necklace" beads.

Two basic methods of manufacture are reflected in the glass bead collection. These methods are the hollow cane or drawn glass method and the mandrel wound method. In the hollow cane method, a glob of molten glass is either folded over or blown to create a large bubble (Kidd and Kidd 1970:47-49; van der Sleen 1967:22-26). A second iron rod is attached to one end by an assistant. The bubble is pulled apart from the two ends into a long rod of glass. The rod is allowed to cool and, then, is either broken or cut into lengths suitable for further work. Figure 56 depicts glass workers making beads of these shortened lengths of tube. The final bead sections are finished by reheating in a mixture of sand and ash to smooth the rough edges of their cut ends.



Figure 56. Craftsmen Manufacturing Beads by the Hollow Cane Method. (An oil painting by Jacob van Loo, presumably of a 17th century Amsterdam scene, reproduced from a plate in Kidd 1979:101.)

In the mandrel wound method, a glob of molten glass is prepared as in the hollow cane method except that no bubble is formed. An assistant attaches a second iron rod to the glob and the two workers stretch the glass by running in opposite directions. This forms a thin solid rod of glass that is allowed to cool. This rod is then either cut or broken into shorter sections for use in making beads. These sections are reheated and wound around a wire to form beads. These beads are then tumbled in a mixture of sand and ash and heated to smooth out the rough edges of their contours.

In comparing the trash dumps' bead assemblage with that of the interior fort, only a relatively general level of comparison could be made since the interior fort collection's comprehensive inventory was not available for study. Based upon data reported in Moore (1973:102-107), a presence-absence comparison of bead categories could be made and a more specific, quantitative comparison of the "seed" bead subset could be presented.

The presence-absence comparison listed in table 25 suggests two conclusions about the relative availability of the various bead styles. The styles that occur at all three of the locations were probably the most common at the fort. For the most part, these same styles are also the most technologically simple and, hence, cheapest to produce. The styles, on the other hand, that occur at only a restricted number of locations were probably the rarest at the fort. In general, these styles are the most technologically complex and, hence, costliest to produce.

Table 25. Presence-Absence Comparison of Comer's and Moore's Bead Assemblages

Style	Moore's Category	West Dump	Main Dump	Interior Fort
1 & 2	common bead, white	X	X	X
	common bead, blue	X	X	X
	common bead, green		X	X
	common bead, red	X	X	X
	common bead, black			X
	common bead, pearlescent	X	X	X
	common bead, yellow			X
3	NA	X		
4	NA		X	
5	round beads, white	X	X	X
	round beads, blue	X	X	X
	round beads, green			X
	round beads, black (amber)	X	X	X
6	NA		X	

Table 25. (cont.)

<u>Style</u>	<u>Moore's Category</u>	<u>West Dump</u>	<u>Main Dump</u>	<u>Interior Fort</u>
7	NA		X	
8, 9, 10	polychrome		X	
NA	cylindrical, white			X
	cylindrical, lavender			X
	cylindrical, yellow			X
	cylindrical, blue			X
NA	large egg beads, white			X
	large egg beads, blue			X
	large egg beads, green			X
11 & 12	small egg beads, white	X	X	X
	small egg beads, blue	X	X	X
	small egg beads, green			X
	small egg beads, red		X	X
	small egg beads, lavender			X
	small egg beads, yellow (light brown)		X	X
13,14,15	barrel tubular faceted beads, clear			X
	barrel tubular faceted beads, blue		X	X
	barrel tubular faceted beads, red (lime green) (milky white)		X X	X
16	NA		X	
NA	long tubular faceted beads, clear			X
NA	long tubular faceted beads, blue			X
	long tubular faceted beads, red			X

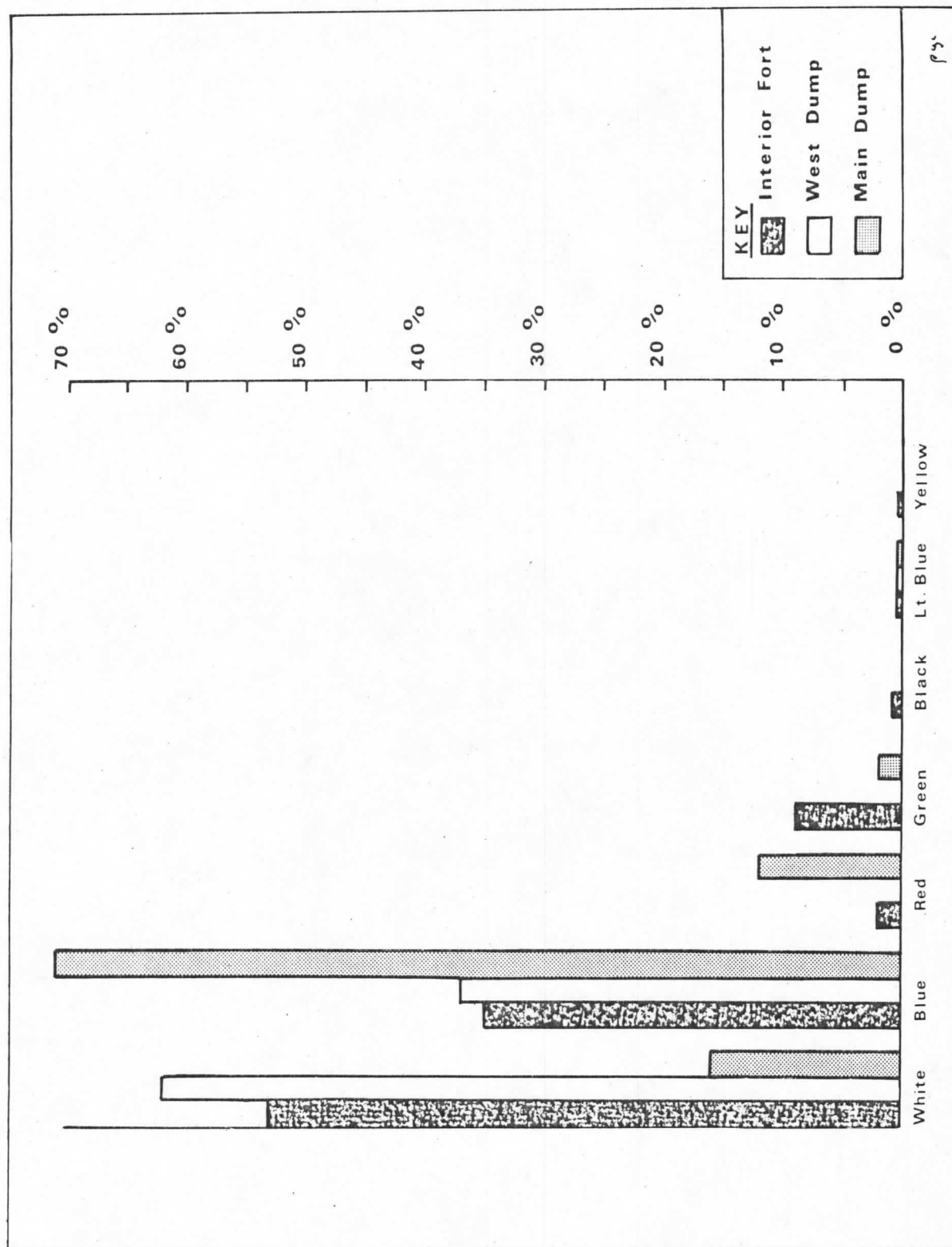


Figure 57. Bar Graph Comparison of Raw Frequency Distributions of "Seed" Beads by Color and by Location.

The quantitative comparison of "seed" beads illustrated in figure 57 suggests a relatively similar pattern of distribution of bead colors within the West Dump and the interior fort collections. The Main Dump assemblage appears to be distinct from that of the other two localities. Examination, however, of the intra-dump distribution indicates high spot densities of blue and red beads within the Main Dump. These localized clusters heavily skew the composition of the dump. Compensating for the spot densities would also bring the Main Dump into the distribution range of the interior fort assemblage.

Two final comments can be made. First, any quantitative comparison of the bead assemblage will have to accommodate the biasing factors present within the assemblage. As noted by Moore (1973:106-107), green glass beads have tended to deteriorate more rapidly than have other categories of beads. Also, in regards to the present assemblage, the differential fine mesh/quarter inch mesh technique used during the excavations skews the collection away from a full representation of beads of small size. Second, while Moore's evidence (1973:107) tended to indicate the deposition of beads primarily through random dispersal, the occurrence of bead clustering within the dumps and the presence of patterned trace depositions such as that shown in figure 58 suggest that discarding of beaded material had occurred and may, possibly, have been an important element in the discard process outside the fort.

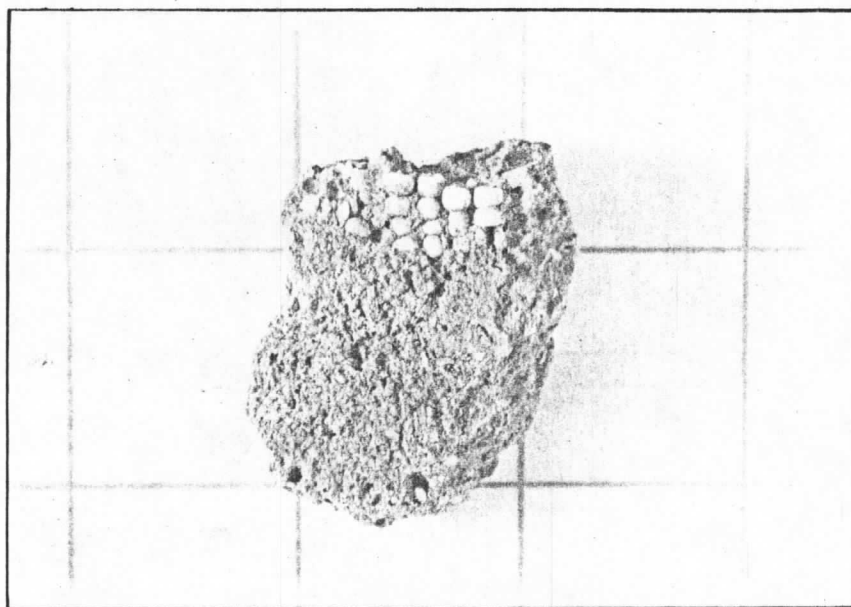


Figure 58. Remnant of an Article of Beadwork.