# GLASS TRADE BEADS AT FORT LARAMIE

By
Robert A. Murray

The museum collections at Fort Laramie National Historic Site contain somewhere in excess of 25,000 trade beads. Of these, at least 99% are made of glass. Most of these beads were recovered from archeological excavations related to the restoration of the post trader's store.[1] Test trenching on the site of Fort John yielded an additional quantity,[2] and of course numerous surface finds of the more common types have been made.

The trader's store at Fort Laramie served as an active center for Indian trade from its opening in late 1849, until 1869, when treaty terms theoretically confined the neighboring tribes north of the North Platte River.[3] The post commander, however, made provision for small parties to come to the post. Together with Indian scouts and the families of interpreters and other employees, this made for a limited continuation of trade through 1875.[4] Fort John served as the prime Indian trading post of the region from its construction in 1841 until its occupation by the Army in 1849.[5] Its predecessor, Fort William (not yet precisely located), was active from 1834 to 1841.[6] One might say, then, that the beads in the Fort Laramie collections should be a fairly representative selection of the types traded and used in the area, 1834-1875, a relatively narrow time-span in archeological terms.

## IDENTIFICATION AND CLASSIFICATION OF BEADS

Most ethnological works dealing with beads are primarily concerned with beadwork, the utilization of beads. While they give valuable information on Indian beadwork techniques, and detailed information on styles of beadwork, their identification of beads as such is at best imprecise.[7] Modern archeology provides evidence that many of the more common bead types changed little in appearance over periods of several hundred years.[8] During the Fort Laramie period, Venice had been for centuries a leader in bead production, but Britain, Frances and the Czech states were all producers of beads.[9] No really satisfactory criteria for segretating beads of various points of origin are available. It does not seem impossible that the assembly of data from archeologically recovered beads, exhaustive research in historical sources, and chemical analyses of glass types and beads from known sources might one day enable students to identify many bead types much more precisely. Until that time, it does not seem profitable to set up an arbitrary typology. Rather it appears more useful to assemble descriptive data on beads from any given site, using such information as apparent manufacturing technique, size and nature of glass.

Basic glassworking techniques are widely described, and at the same time appear to give distinctive characteristics to the beads produced. On this basis, the beads in the Fort Laramie collections might be divided into:



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those made from drawn glass tubing

those made by winding glass around a mandrel

those made of pressed glass

those made of blown glass

Fort Laramie beads will be discussed under these basic headings, with supplementary observations on modifications of these forms, and on size ranges and colors present.

## TUBULAR BEADS

The making of tubing for glass beads is widely described, and appears to vary little from place to place and from time to time.[10] A mass of fluid glass, picked up on a pipe, had a central cavity formed by blowing. With pressure maintained to keep the cavity from collapsing, the mass could be manipulated with tools to produce the desired cross-section. Then, at a certain heat, it was seized with tongs by two workmen and drawn rapidly to a length of as much as a hundred and fifty feet (figure A, plate I). The resultant tube preserved the interior and exterior cross-sectional shape of the original mass, and tapered gradually from the ends toward the center.[11]

The workmen then broke the long tube into sections from two to two-and-one-half feet long. These sections were sorted by women and children for approximate diameter and broken into bead-lengths by running them against a simple measuring device and breaking them over the edge of a fixed chisel with a blunt tool.[12] These simple sections of tubing served as beads without further alteration. (Number 9098, Plate II) An individual bead of this type appears cylindrical, but actually has a slight taper. Some samples are closely sorted for length and diameter, others vary widely. One specimen of tubular glass beads has been altered by coating them with a white paint (Number 8101, Plate II).

At Fort Laramie, tubular beads with a circular inside cross-section and a hexagonal outside cross-section are much more common than those of cylindrical appearance (Number 8102, Plate II). Alterations of this type tubular bead are common. A single sample (not illustrated) appears to have had the corners rounded by tumbling. A number of others have been ground (as evidenced by striations) with additional facets, usually one or two sets (Numbers 8110, 8109, and 8112, Plate II).

The "common beads" used for beadwork (and most numerous in finds at Fort Laramie and elsewhere) were made from short sections of drawn glass tubing. These sections were mixed with sand and wood-ashes or with graphite and plaster. The glassworkers placed the mixture in a pan, and brought it to sufficient heat to soften the glass. When stirred, the ends of the tubes rounded off through the combined effects of stirring and the surface tension of the near fluid glass.[13] In some factories a rotating vessel of iron in a specially made furnace accomplished in the same result (Figure B, Plate I). In either case, the packing mixture kept the beads from adhering to one another, and kept the center cavities from collapsing.[14] The resultant bead has the shape of a flattened spheriod, with a smooth-edged center perforation. The taper of the tubing from which the basic sections came must have given a rather continuous graduation of diameter within a given batch. Variation in

the accuracy of breaking off the sections results in some variation in length, and much variation in the nearness to parallel of the flattened ends. (Assorted sample, Plate II, and Number 3311, Plate II).

Beadwork investigators make much of two sizes of beads, which they refer to as "seed beads" and "pony beads".[15] The mass of common beads in the Fort Laramie collections does not seem to bear out the existence of two size-ranges as distinct manufacturing products. Taken without regard to color or character of glass, common beads at Fort Laramie progress steadily from .04" diameter to .23" diameter! Considering different individual groups of given color and glass type, found as groups, one finds such size ranges within a group as:

.04'.05"
.05-.06"
.05-.07"
.06" (very uniform)
.06-.07"
.06-.08"
.07-.08"
.08-.09"
.08-.10"
.09-.10"
.10-.16"
.11-.14"
.12-.15"
.12-.18"
.13-.14"
.13-.16"
.14-.16"
.14-.15"
.15-.17"
.20-.24"
.21-.23"

Since a given color and kind of glass may be represented over a number of these brackets, it appears possible that sizing was done by some convenient method, such as screening of the assorted sizes produced from the processed tube sections. Beadwork specialists indicate further sorting for uniformity prior to use by the Indian women doing beadwork.[16] Beads smaller than .06" have such a fine perforation that they are difficult to string on either thread or sinew. Beads larger than about .16" appear to yield undesireable coarseness of design. Within these general limits, though, there are a number of usable. size ranges.

The Fort Laramie collections contain common beads in a wide variety of color, including:

clear, transparent
slightly milky, transparent
uncolored translucent
white translucent
white opaque
light blue translucent
light blue opaque
dark green transparent
dark green opaque
deep green opaque, with iridescent surface
yellow transparent
yellow translucent
deep yellow translucent

| | |
|---|---|
| medium blue translucent | dark yellow opaque |
| dark blue transparent | yellow orange transparent |
| dark blue opaque | bright orange opaque |
| blue gray translucent | pale pink tinted transparent |
| light green transparent | pink opaque |
| medium green transparent | red transparent |
| light green translucent | bronze color opaque, iridescent |
| light green opaque | black opaque |

Common beads further processed by grinding on random facets have been found at Fort Laramie, in both lilac-transparent, and black-opaque glass (Number 8122, Plate II).

An interesting variation of the common bead is drawn from a composite tubing, yielding beads with a white-opaque core and a red-transparent exterior. These are plentiful at Fort Laramie, in all common size ranges (Number 8090, Plate II). In addition, one notable specimen is at hand (Number 8084, Plate II). The writer has examined much Oglala Sioux beadwork of the 1860's to 1880's, in which the small sizes of these red-and white beads were present. Its use as a child's necklace-bead has been noted by Ewers. [17]

A final variant of the common bead at Fort Laramie is one made of opaque-white glass, coated with a pearlescent lacquer. This occurs in three size-ranges, .04"-.05", and .09"-.10",and .13"-.16".

## MANDREL-WOUND BEADS

These beads are also referred to as "wire-wound". The process involves heating a rod of glass to the melting point, and drawing out a thin thread of glass from it, catching the thread and winding it in spiral fashion on a rotating, tapered iron mandrel. [18] After the glass hardens, it can be slipped off the mandrel. This technique facilitates the production of larger, thicker-walled beads of more variable design than those of tubing. The making of each individual bead is under the control of the workman, and such beads are thus subject to more variations in workmanship.

Mandrel wound beads are easily identified by their visable spiral grain-structure. The simplest of these are rather poorly made, consisting of a single turn of a coarse rod around the mandrel (Numbers 8060, 8061, and 8062, Plate III). These may have been made in rapid succession, a whole string of them prepared on the same mandrel, since some samples appear to have been broken off at their small ends, and several beads will occasionally be found attached to one another. A given group will sometimes show evidence of a continuous mandrel taper (Number 8062, Plate III).

Some of these hastily-wound beads were further processed by grinding on facets (Number 8118, Plate III).

One sample of single-turn wound bead is coated with coral-colored lacquer (Number 8137, Plate III). It may be one of the type mentioned by Orchard as having been made before the availability of coral-colored glass. [19]

Many of the small red, white and blue beads of this type are very neatly made of many turns of a fine strand of glass, (Numbers 8068, 8071,8074, and 8078, Plate III).

All of the mandrel-wound beads are of moderate to large size, as will be seen in Plate III. Both their general size range, and observation of these types of ethnological specimens indicates their main use was for necklaces, charms and other specialized decorative items. Mandrel-wound beads with modifications appear in small numbers. One sample, of near-turquoise colored opaque glass, appears to have been wound in conventional fashion, then manipulated while still hot to obtain irregular facets (Number 8097, Plate III). Number 8080, Plate III, is a mandrel-wound bead of very dark red opaque glass, further processed by inlaying a rod of white glass in a spiral for three full turns around it.

The most complex mandrel-wound bead at Fort Laramie is of red transparent glass, with a spiral inlay consisting of a twisted cane of blue and white opaque glass making three full turns (Number 8081, Plate III).

## PRESSED GLASS BEADS

Only a few pressed glass beads are present at Fort Laramie. All have the mold-parting mark characteristic of pressed glass items (Numbers 8125, 8138, 8167, and 8189, Plate IV).

## BLOWN GLASS BEADS

One sample of this method of bead-making has been found at Fort Laramie. These beads (Number 8126, Plate IV) appear to have been blown from a tubing placed in a mold, producing a connected "chain" of beads, broken apart after being removed from the mold. The uniformity of both the pressed glass and blown glass beads suggests machine production, and might place them near the end of the period.

It appears noteworthy that none of the complex inlaid ploychrome beads such as the Crows and Blackfoot tribes favored(20) have been found at Fort Laramie.

It is hoped that this paper will stimulate closer examination and more precise recording of bead finds by both professionals and amateurs.

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NOTES

1. J. W. Hendron, "An Introduction to the Archeology of Fort Laramie", unpublished report, in the files of Fort Laramie National Historic Site. Completed in 1941.

   J. W. Hendron, "Beads from Old Fort Laramie", unpublished manuscript, in the files of Fort Laramie National Historic Site, completed August, 1941.

   Paul L. Beaubein, "Preliminary Report of the Archeological Investigations at Fort Laramie National Monument, 1950", unpublished manuscript in the files of Fort Laramie National Historic Site, completed April, 1951.

2. Beaubien, op. cit.

3. Merrill J. Mattes, "The Sutler's Store at Fort Laramie", Annuals of Wyoming, July, 1946, V. 18, #2.

4. L. G. (Pat) Flannery, commented to the writer in 1962 that John Hunton said 1875 was the last year of significant Indian trade at the post. Numerous orders scattered over the years 1868, 1875 in the general orders and special orders of the post give evidence that a small and controlled amount of Indian trade was permitted. The rapid change in Indian affairs in the years 1876-77 resulted in the removal of all Indians from the Fort Laramie region, and the concentration of trade at the agencies in Dakota and Montana.

5. David L. Hieb, Fort Laramie, National Park Service Historic Handbook series, #20, 1954.

6. ibid.

7. Carrie A. Lyford, Quill and Beadwork of the Western Sioux, Bureau of Indian Appairs, 1954, pp. 56-60.

   William Hildschut Crow Indian Beadwork (John C. Ewers, ed.), Museum of the American Indian, Heye Foundation, N.Y., 1959, pp.45-46.

   John C. Ewers, Blackfeet Crafts, Bureau of Indian Affairs, 1955, pp. 32-35.

8. Peter B. Pratt, Oneida Iroquois Glass Trade Bead Sequence, 1585-1745, Fort Stanwix Museum, Rome, New York, 1961.

9. Andrew Ure, M. D., A Dictionary of Arts, Manufactures,and Mines, D. Appleton and Company, New York, 1835, p. 601.

   Orchard, op. cit., pp. 82, 83.

   Lyford, op. cit., pp. 56-60 and 85-86.

Ewers, op. cit., pp. 32-35.

10. Ure, op. cit., p. 601.

Benjamin Parks (ed.) Appleton's Cyclopedia of Applied Mechanics: A Dictionary of Mechanical Engineering and the Mechanical Arts, D. Appleton & Co., New York, 1883, p. 50.

Charles G. Warnford Lock (ed.) Spon's Encyclopedia of the Industrial Arts, Manufactures and Commercial Products, E. & F. N. Spon, London, 1881, p. 1072.

Edward H. Knight, American Mechanical Dictionary, Houghton Mifflin Co., N. Y. 1881, p. 254..

11. Lock, op. cit., p. 1072.

12. Park, op. cit., p. 50, and Ure, op. cit., p. 601.

13. Knight, op. cit., p. 254.

14. Ibid.

15. Ewers, op. cit., p. 34-35.
Lyford, op. cit., p. 56-58.

16. Lyford, op. cit., p. 57.

17. Ewers, op. cit., p. 33.

18. Orchard, op. cit., p. 82.

19. Orchard, op. cit., p. 86.

20. Orchard, op. cit., p. 89, Ewers, op. cit., p. 33.

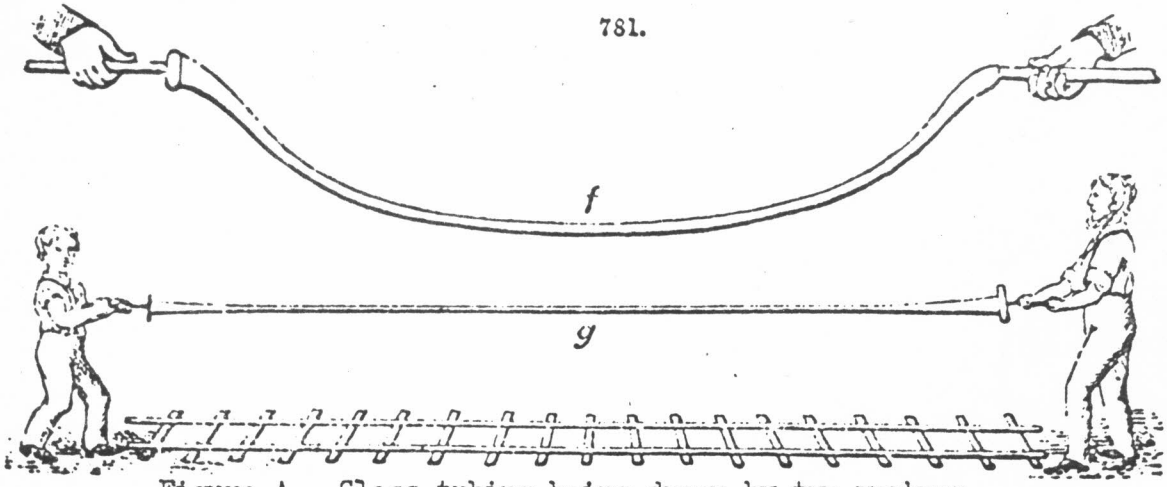


Figure A. Glass tubing being drawn by two workmen (from Spons' Encyclopedia of the Industrial Arts, Manufactures, and Commercial Products, p. 1072)

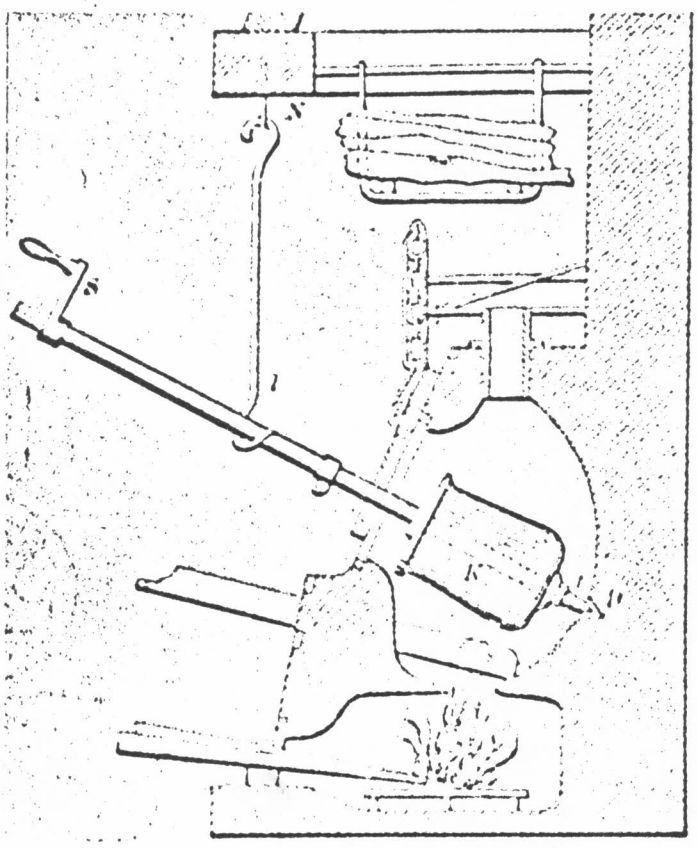

Figure B. A furnace used for finishing common beads. (from Knight's American Mechanical Dictionary, p. 254)

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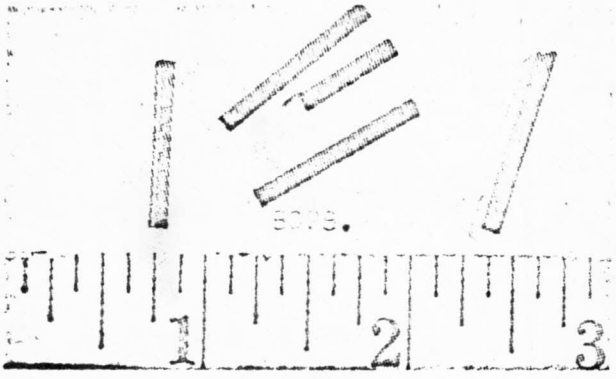
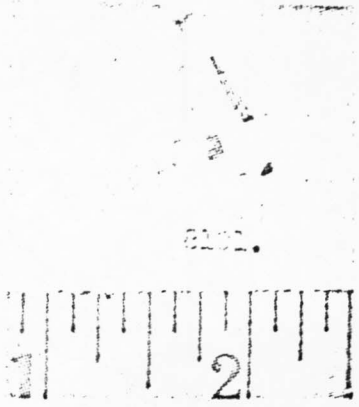
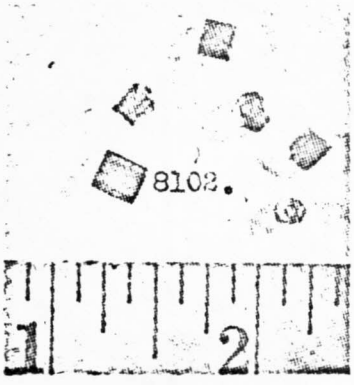



8098 drawn glass tube,
deep red translucent



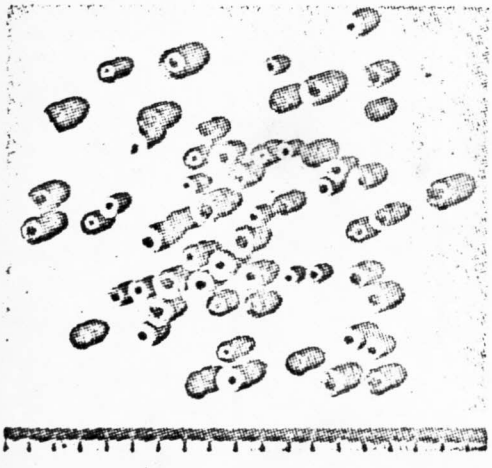

8101 drawn glass tube,
white paint coated



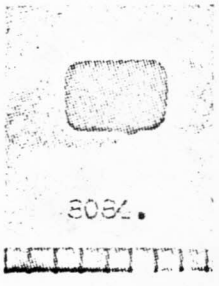

8102 hexagonal
tubing, clear


8110 hex. tube,
ground facets, blue


8109 hex. tube,
ground facets, blue
8112 same, green

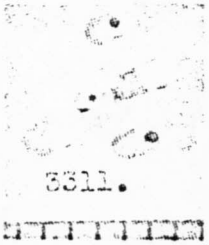


Assorted common beads
3311 irregular, common, white





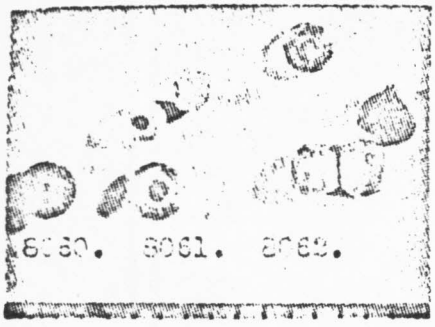

8084 & 8090, red transparent
exterior, white-opaque interior



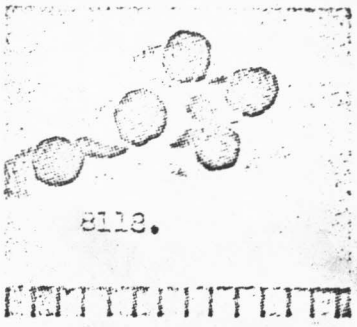


8122 common black opaque
with random-ground facets

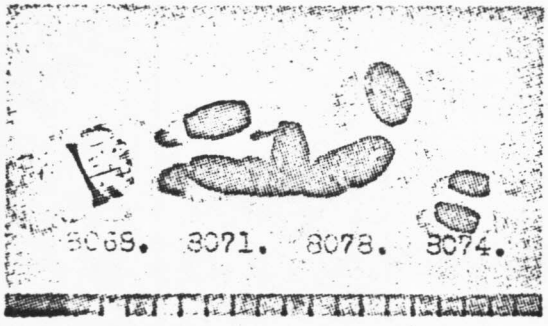
Plate II




8060 green transparent
8061 clear transparent
8062 amber transparent
Crude single-turn beads, some surface-scale from long period underground

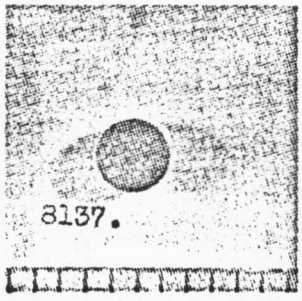



8118 crude single-turn wound beads, deep-green transparent, random facets ground on.




8068 white opaque with some scale
8071 deep red translucent
8078 opaque light blue.
8074 transparent red


8075 light-blue opaque
8077 very light-blue opaque

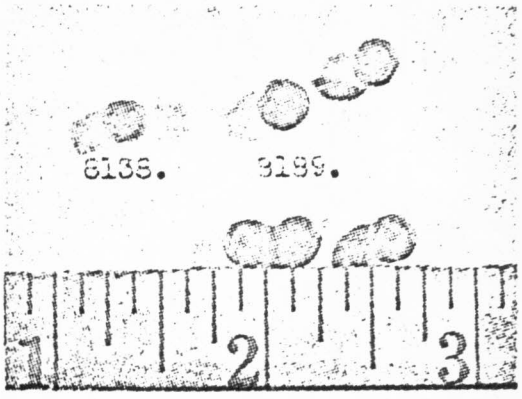



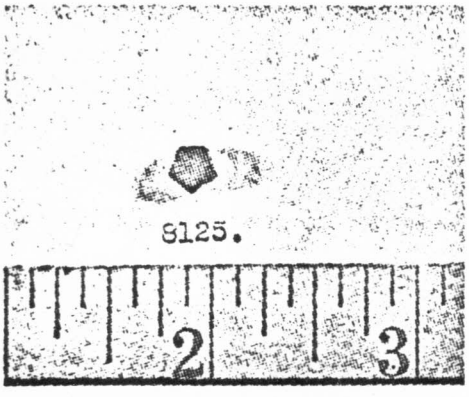


8079 turquoise-green opaque, pressed-facets
8137 single-turn wound, white glass with coral-lacquer
8080 deep red opaque, with white inlay
8081 red transparent, with blue-and-white inlay

Plate III Mandrel-Wound Beads

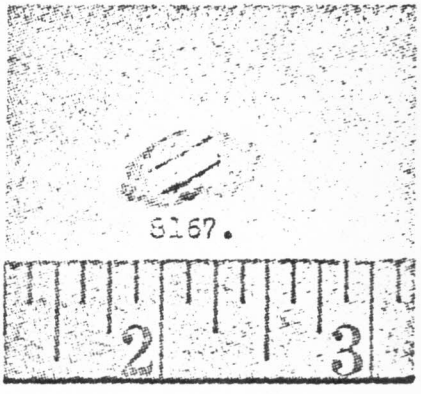
8138 pressed-glass, coral colored
8189 pressed-glass, light-blue opaque

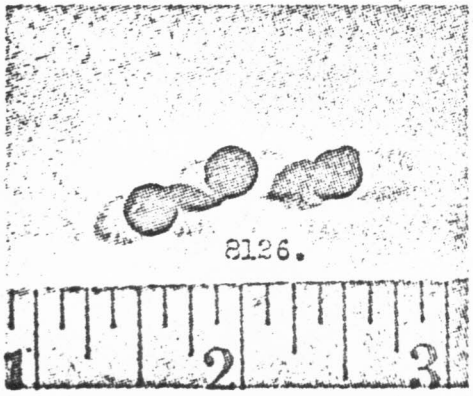



8125 pressed-glass, red opaque

8167 half of a pressed-glass, white-opaque bead, with raised equatorial-belt




8126 blown-glass, black-opaque, regular facets, appears to be blown-in-mold