

## Identification: Mold-made(?) glass beads from Ecuador/Peru

In recent years there has been considerable importation of beads into the U.S. from Peru, and to a much lesser degree, from Ecuador. Among these are a number of types of glass beads, notably *Nueva Cadiz* and small chevrons, and small numbers of glass beads of a type which has not been described before. They may be manufactured in molds, a method of glass bead making which has not previously been known from this area of the New World. While there is no archaeological data which could confirm this method of manufacture, experiments have been conducted which strongly point to the use of molds in the making of these beads.

The beads under consideration are from 2 burial sites in Peru, near Trujillo and Chiclayo, as well from areas previously inhabited by the Manteno culture in Ecuador, also along the coast. They are light blue-green to dark blue-green in color; old bottle-glass approximates this color. These beads vary considerably in shape, but most are either roughly doughnut-shaped or a very imprecise short truncated convex cone, although we also have 2 short, well-formed cylindrical beads (Fig. 1; cylindrical beads not illustrated). While a few of the better-formed doughnut-shaped beads would not be readily distinguishable from mandrel-wound beads, most have characteristics which defy classification among the common methods of bead manufacture. The glass in many of the beads do not appear to be properly fused, the large air bubbles present in the glass do not show any signs of stretching as in mandrel-wound beads, the perforations are usually larger at one end (where there often can be found lines radiating from the perforation), and in the truncated convex cones, the convex surfaces frequently show signs of having cooled while in contact with another surface. Such indications suggested to Cay Dickey, an artist-craftsperson in glass, that these beads may have been made by melting glass in a mold, which was then pierced by a rod to make the perforation. Van der Sleen (1974: 74) described a similar method for the manufacture of Indian beads, in which "globular balls of molten glass (were) dropped on an earthenware disc or plate and then perforated with an iron nail. Where the nail penetrates the ball there is a wide funnel-shaped opening, while on the other side the opening is small and round."

A number of experiments were made by Ms. Dickey; the closest approximation to the Ecuadorian specimens were with mandrel-wound beads (Nichrome wire mandrel, *Mold*

*Coat separator*), which were flame melted or smoothed, then pushed down into a heated clay mold coated with separator. Molds of fully-, partially-fired clay and charcoal were tried, with the latter working best, probably due to its better heat-retention. Usually she was unable to ream the mandrel wire entirely through the bead, in order to make the perforation (Fig. 2). Then one of us (EJH) tried placing broken glass in a charcoal or steatite mold, heating with a propane torch until the glass melted and coalesced, then piercing with a steel needle coated with talc as separator and heated cherry-red immediately before use. This method did succeed in producing beads with perforations (Fig. 3). While these are just preliminary results, it leads us to believe that the beads from Peru and Ecuador could have been made in a similar way, by natives using remelted European glass. The more well-formed doughnut beads may have been flame-polished after reaming, and the cylinder beads may have been formed in cylindrical molds.

We hypothesize that these beads were native-made, since they are so crude in comparison to other glass beads found in that region which date to c. 1500 (the time when the Manteno culture ceased to exist, Wilbert, 1974). Whether these beads were made in Peru or Ecuador, the methods used would be logical for peoples experienced in melting precious metals but with no knowledge of conventional glass bead-making methods. Since only about 350 air miles separate the Guayas coast of Ecuador and Chiclayo, Peru, this distance would certainly be no barrier to trade, if the beads were made by only one of these peoples.

As to their original use, the Peruvian specimens are imported strung with other beads; it is possible they were so used in the past. However, according to Alexander Hirtz of Quito, Ecuador, these beads in that country have been used only as ornaments on gold nose rings, and that these are the only glass beads ever found in Manteno culture burials. Gold and turquoise beads have also been used on Manteno gold nose rings, and it would be interesting to know if these were used simultaneously or if there were some temporal sequence (Figs. 3-6).

We thank Cay Dickey for doing those very informative experiments, and Alexander Hirtz for generously providing specimens, slides and information about these beads.

### References:

- Van der Sleen, W.G.N., 1973, A handbook on beads. Liege, Librairie Halbart: 142 p.  
 Wilbert, J., 1974, The thread of life. Symbolism of miniature art from Ecuador. *Studies in Pre-Col. Art & Arch.* (12): 112 p.

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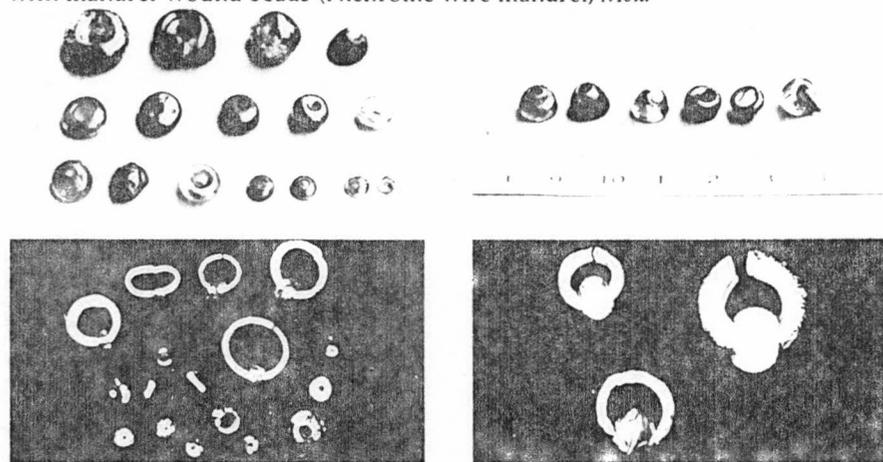


Fig. 1. Mold-made (?) glass beads from Peru and Ecuador. Note improperly fused glass (3rd row, 2nd from left), air-bubbles, signs of surface cooling while beads were being formed in mold (2nd row, 2nd & 3rd from left). Specimens from Ecuador (2nd & 3rd rows) courtesy of Alexander Hirtz.

Fig. 2. Comparison of specimens from Ecuador (from left to right: 1, 2, 4) with those made by Cay Dickey in clay or charcoal molds (3, 5, 6). Note similarity of 3 to truncated convex cones 1, 2, white mold separator from mandrel coating perforation of 5. Last specimen made by dropping glob of molten glass into mold, partially pierced with wetted bamboo stick.

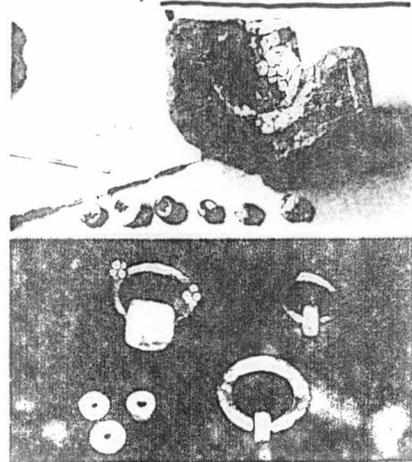


Fig. 3. Crushed glass bead on white cloth, to be used as raw material for making bead, charcoal mold with bead, partial bead made in steatite mold, steatite mold and 4 specimens made in charcoal mold by EJH.

Fig. 4. Gold nose rings with glass bead ornaments, and loose glass beads, Manteno culture, Ecuador. Made from color slide by Alexander Hirtz.

Fig. 5. Gold nose rings decorated with hollow gold beads, Manteno culture, Ecuador. Made from color slide by Alexander Hirtz.

Fig. 6. Gold nose rings decorated with turquoise beads, and loose turquoise beads, Manteno culture, Ecuador. Made from color slide by Alexander Hirtz.