

# DENVER ART MUSEUM

1300 LOGAN STREET DENVER 3, COLORADO

## *Department of Indian Art*

WILLENA D. CARTWRIGHT, CURATOR

FREDERIC H. DOUGLAS, EDITOR



PUEBLO SHELL AND TURQUOISE BEADS

*Leaflet No. 30 - August, 1931*

3rd Printing, July, 1951

## PUEBLO BEADS AND INLAY MANUFACTURE AND USES

**THE PUEBLO INDIANS** are a sedentary, agricultural people divided into six tribes and now living in 44 pueblos or towns in northern Arizona and New Mexico. Similar peoples have been living in this area for many hundreds of years, a fact which is proven by the great number of ruined towns in the area. In many of these ruins beads of shell, stone and turquoise have been found, showing that the use of these articles is an ancient one. For further information about these tribes see leaflets 4, 6, 8, 9, 11, 13, 14, 17, 18, 35, 43-44, 47, 53-54, 89-97.

**WHOLE SHELLS** were used much more commonly in prehistoric times than now. Thousands of *Olivella* (A) shells strung on yucca and cotton cords have been found in burials and house ruins. *Conus* (B) shells, either whole or cut in bell shapes, together with other varieties, are found extensively. Morris gives the following list as a representative group of shells usually found in prehistoric ruins.

*Olivella volutella*, *Conus*, *Haliotis*, *Pectunculus*, *Turretella*, *Cerithidea sacrata* and *Trivia solandri*. All of these come from the Pacific coast or from the Gulf of Mexico.

**METHODS OF USE.** *Olivella* shells often had the two tapering ends removed, leaving a barrel shaped bead. *Turretella* and *Cerithidea* were worn unbroken, being suspended from a small hole in or near the top. *Pectunculi*, also unbroken, were hung from holes in the valve hinge. Owing to the size of the *Haliotis* or abalone it was possible to cut it into many shapes, such as disk-shaped and oval pendants (C), and oval, triangular and rectangular beads. A bone backing was used in some cases. Irregular pieces of the hinges, or the crinkly, scalloped edges of large clam shells were smoothed and drilled for use as pendants. Odd tusk-shaped pieces were similarly used. Cross sections of large, oval clam and abalone shells were cut for bracelets. Dummy or double beads shaped like a figure 8, with one end solid and the other drilled, were not common, but have been found. Whole shells were used as a backing for the inlaying of turquoise and of a pink stone resembling coral. Effigies of frogs and butterflies also occurred.

**DISK BEADS.** From the earliest times up till very recently these Indians made thousands of small round disk-shaped beads of stone, shell and turquoise. While the art is still kept up in some of the villages, beadmakers are not as common as they were a few years ago. Today the best shell beads are made at Zuñi and at Santo Domingo, both in New Mexico. Turquoise beads are much more common now than in prehistoric times. The gem comes from mines near Kennedy, New Mexico and other native mines in the area. Both beadmaking pueblos also keep up the trade of inlaying turquoise, jet or coral in shell or wood.

**MODERN IMITATIONS.** Pieces of old rubber phonograph records are replacing the old black jet or lignite. Coral imported from Italy has supplanted almost altogether the reddish-pink stone seen in the prehistoric inlay. Within recent years large quantities of Chinese turquoise have been imported and sold to the Indians, who make it into ornaments or sell it in crude lumps. A synthetic turquoise, or an enamel resembling the stone in appearance, is rapidly taking the place of the real article. It is an importation from Europe. Attempts have been made by unscrupulous traders to sell imitation shell beads made at American button factories. But neither these nor enameled wooden fakes have been successfully marketed.

## BEAD MAKING

**ROUGH SHAPING.** *Olivella*, clam or abalone shells are broken up into irregularly shaped bits somewhat larger than the finished bead. Once this was done with a stone hammer, but now pliers and metal hammers are in common use.

**PUMP-DRILL.** (Picture on p. 46, ref. 1.) This apparatus has a central shaft, 10 to 16 inches long, to which is attached a stone or metal point. Because of their hardness the ends of steel files make ideal drills. About two-thirds down the shaft is fixed a circular disk of stone or pottery, through the center of which the shaft passes at right angles. This whorl or flywheel acts as a governor or balance to the shaft. From the top of the shaft run two buckskin thongs, which are attached to the ends of a stick which hangs suspended by them at right angles to the shaft just above the whorl, the shaft passing through a large hole in the cross piece.

**DRILLING PROCESS.** Before the drilling begins the buckskin thongs are wound around the shaft. The point of the drill is then placed in position on the bit of shell, and the point is made to revolve by pressing down on the cross piece, which unwraps the thongs and turns the drill. The flywheel carries on the rotary motion and wraps the thongs up the other way. So by alternately pressing down the cross piece and allowing it to rise again a continuous alternating motion of considerable rapidity is given to the point. Most bulky beads are drilled half way through from each side. Only a few strokes are necessary to penetrate each flat bead.

**SMOOTHING AND ROUNDING.** When a number of bits have been drilled they are strung on a length of string with a knot on one end. The naked end of the string is then wrapped around the hand and the thumb pressed down on the column of rough beads until it is almost rigid. If any very irregular bits are found they are roughly rounded off with a hammer. This tight column is then either rolled back and forth over a sandstone slab by the free hand or by another piece of sandstone held in it. Some bead makers knot the string at both ends and roll the column of beads between stones held in the two hands. Water and grit are applied during the operation, which rapidly reduces the rough bits to a uniform roundness and smoothness. There is much variation in the quality of the beads. The best are perfectly round, thin, and of even thickness, while the poorest often show crinkly edges and very irregular thickness.

Turquoise beads are made in the same way, but it is a considerably longer process because of the greater hardness of the mineral. An added difficulty is the necessity of separately grinding and polishing both faces of each bead, a process which is not necessary with the shell.

**SIZE.** Finished beads are from one-sixty-fourth to three-eighths of an inch in thickness and from one-sixteenth to one-quarter of an inch in diameter. The thickness of the bead depends on that of the shell from which it is made. The larger beads are usually turquoise.

**STRINGING.** The completed beads are strung on any available string, commonly in double rows about a foot long. In necklace making strings are made in loops sufficiently long to hang well down on the chest (E). Sometimes three or four such loops are bound together at the top, so as to form one article (F). Often the beads are strung in a

taper, the smallest beads being at the top. They are often interspersed with beads or lumps of turquoise or coral, large lumps of shell and jet silver beads, and sometimes animal teeth. Short strings of turquoise, (D) often showing a few coral beads, or inlaid shell pendants are very commonly attached to the bottoms of the necklaces.

**INLAY WORK.** Pieces of shell, wood or jet are cut to the shape of the finished article, square, oval and rectangular forms being the most common (H). If the pattern is made up of isolated pieces, shallow holes of the right size are cut into the backing. Crescents and crosses are also made. An adhesive, formerly pinyon gum, but now common glue, is applied to this backing, and in it are set small pieces of shell, turquoise, lignite or coral, cut in square, triangular or rounded forms. The designs made by these bits are always geometrical and on some of the more elaborate pieces resemble the patterns seen on pottery. Sometimes sections of shallow, clam-like shells are covered with solid masses of inlay, without pattern (G). Inlay work is applied to pendants, with or without necklaces, ear-rings, and combs. These pieces are often parts of ceremonial costumes. In pre-historic times scrapers and other bone and stone objects were inlaid. A celebrated example is the large frog effigy found in Pueblo Bonito and now in the American Museum of Natural History in New York.

**BEADS IN COMMERCE.** There appear to have always been definite values for strings of beads among the peoples of the southwest. Some years ago a turquoise string 6 to 8 inches long was equal to one pony, while one 12 to 15 inches long would buy four cows or eight sheep. A large chunk of turquoise weighing 8 to 10 ounces would buy three to five ponies according to its color and fineness. Among the Pueblos a good string of medium fine shell beads was worth seventy-five cents to a dollar and a half. Strings 2 feet long bring about two dollars and a half at Zuñi. Unusually fine beads were worth two to four dollars for a 12 to 15 inch string. At Zuñi turquoise beads are very highly valued, extremely fine strings bringing twenty-five to fifty dollars. All kinds of native made beads were considered heirlooms and when not buried with the dead passed from mother to daughter through many generations. Age, color and good workmanship added greatly to their value.

Compiled by Jean Allard Jeançon from the following sources:

MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION. NEW YORK

1. Beads and Beadwork of the American Indians—Orchard. Contributions, Vol. 11.
2. Turquoise Work of Hawikuh, New Mexico—Hodge. Leaflet No. 2
3. Hawikuh Bonework—Hodge. Indian Notes and Monographs, Vol. 3, No. 3

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK

4. The Aztec Ruin—Morris. Anthropological Papers, Vol. 26, No. 1
5. Pueblo Bonito—Pepper. Anthropological Papers, Vol. 27

BUREAU OF AMERICAN ETHNOLOGY, WASHINGTON

6. Archeological Expedition into Arizona—Fewkes. 17th Annual Report
7. Two Summers Work in Pueblo Ruins—Fewkes. 22nd Annual Report

UNITED STATES NATIONAL MUSEUM, WASHINGTON

8. A Study of the Primitive Methods of Drilling—McGuire. 1894 Annual Report

General information about beads, 1; Colored pictures of inlay, 2; Details on prehistoric beads, 4-7; Pictures of drills, 8.