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# A Handbook on Beads

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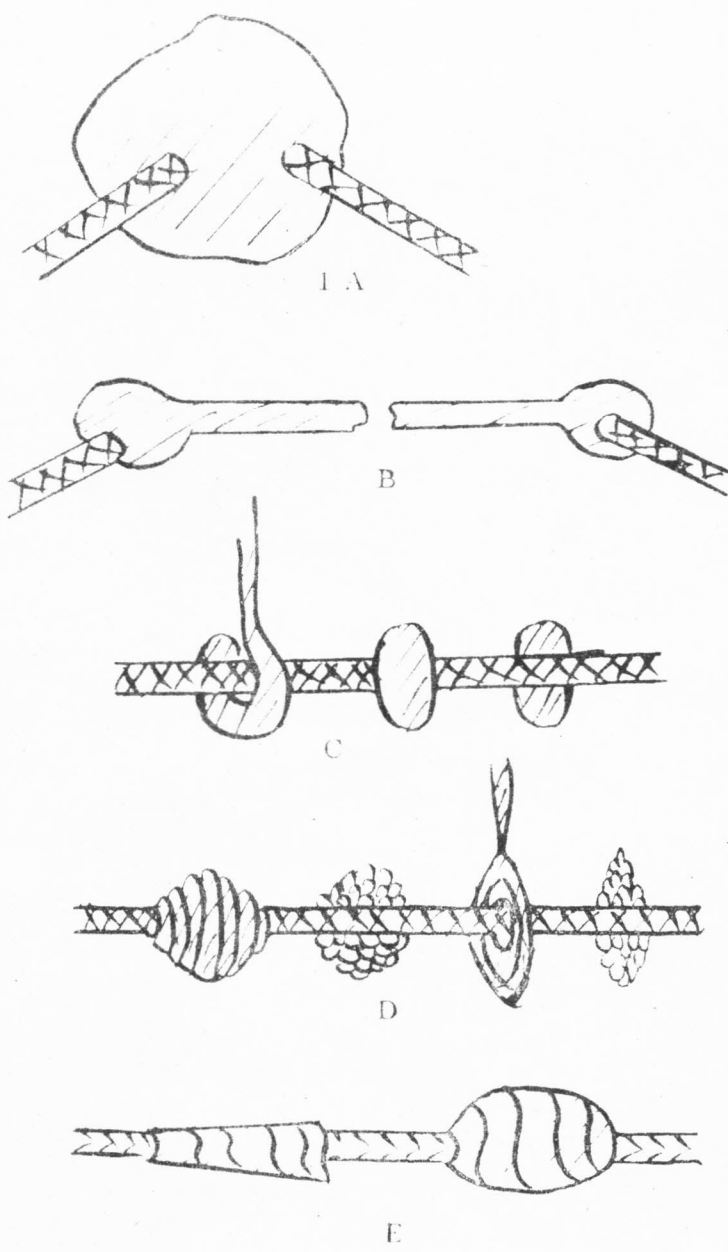
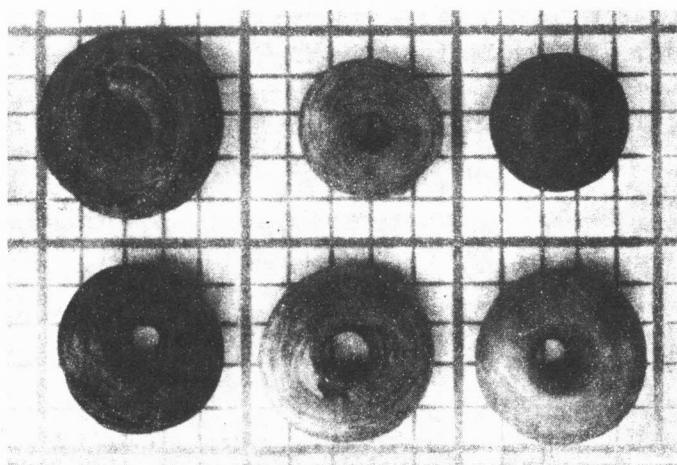


FIG. 1  
How WOUND beads are made.

## The fabrication and technique of glass beads

Glass is made in thick earthenware crucibles, which may contain from 2 to 200 pounds of a mixture of pulverized quartz or quartz-sand with alkali (soda, potash or nitre, sometimes even lead) and some lime. The container is heated till the contents consist of red-hot molten glass. Generally, before heating, iron or copper, manganese or cobalt is added to colour the glass. All this must be thoroughly mixed and then melted into a thick, syrupy mass of red-hot, viscous glass. A workman stirs



Multiple wound short bicones of opaque glass. Old beads of the 1st millennium A.D., made in India and collected at Zanzibar.

*(Photograph by the author.)*

this with an iron bar, on the end of which he gathers a lump of melted glass, in which he inserts a second iron bar (fig. 1 A) and hands that bar to another workman, who walks away with it, pulling out the viscous mass to a shiny glass rod (fig. 1 B) that solidifies before it touches the

floor. The faster this man goes the thinner the rod will be. It may be pulled out to 100 m. or more and vary in diameter from twelve mm. to one millimetre. These long rods are then cut down to handy lengths of 60 or 90 cm. to become the raw material for making the oldest and simplest kind of beads, the so-called « wound beads ».

### WOUND BEADS

Nowadays such glass rods are taken from the glass factory at Murano, for instance, to home-workers in Venice, where ten to twenty girls sit in a room at a large table, each in front of a glass-blowing lamp (blow-torch), their faces protected by a glass plate. They melt one of the glass rods at one end and fold it round a copper or iron wire, which they hold in the other hand. When the glass ring is closed round the wire (fig. 1 C), the rest of the rod is cut off and the wire with the glass ring is turned and heated till the ring is nicely round or oval. When three or five rings have been turned around the wire it is laid aside to cool. In cooling the metal contracts more than the glass and the beads can be stripped off. According to the diameter of the wire we get a wide or narrow perforation. When the wire tapers, the perforation will taper too, which often happened in the old days. Then, too, the heat was often not strong enough to melt a thick rod of glass and larger beads could only be made by winding a rod of 1 or 2 mm. diameter several times around the tapering wire or other core. We must, therefore, emphasize a division between simple wound and multiple wound beads (fig. 1 D). The latter will in several places be the oldest glass beads known.

The reader will easily understand that this way of making beads is a very tedious one as every single bead must be made singly by hand. Most ornamented beads, which we will treat later, are made thus singly by hand. But a much more mechanical method, that gave us the « drawn bead », was later discovered, and beads have been made by this newer process since the beginning of our era. And it is not only the simple globular or oval bead, that can be « drawn ». Drawn beads may when still hot, easily be modelled into barrels or cubes or cylinders, prisms, etc., by pressing them with metal objects or by using small moulds, for instance of melon-bead form, fastened on the end of pincers, as has already been described and figured by Antonio Neri (1612) in his *L'Arte Vetraria*.

### DRAWN BEADS

Before the lump of red-hot glass is taken out of the furnace with an iron bar, it must have been decided whether drawn or wound beads are

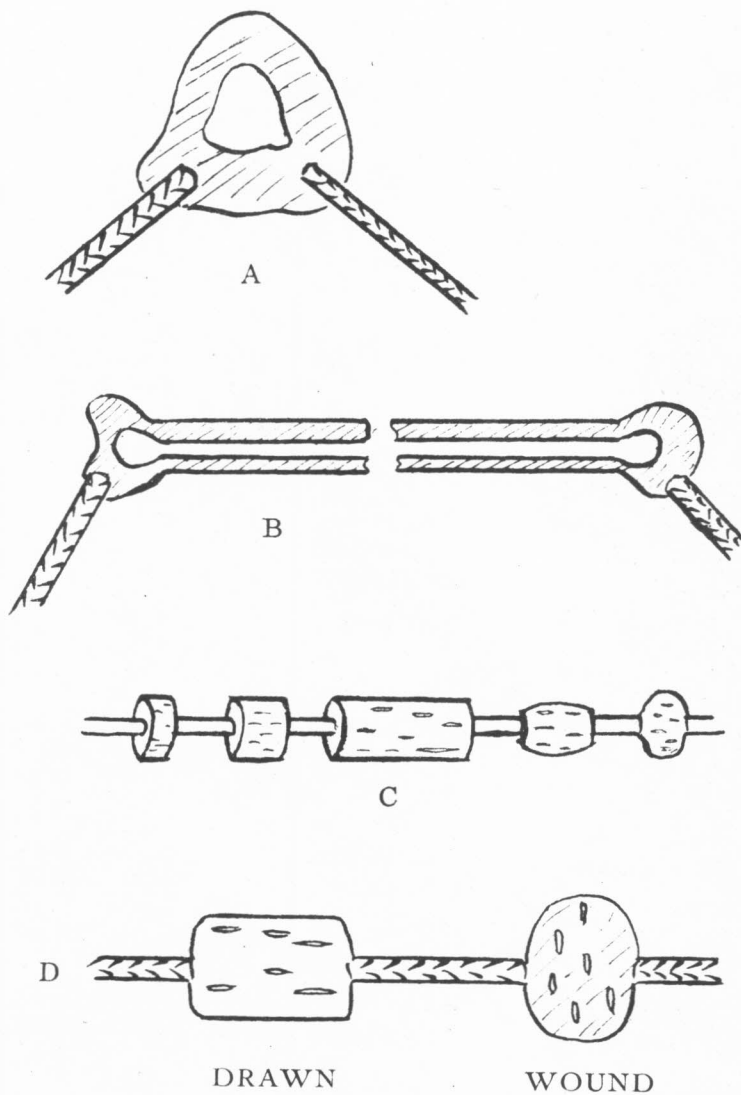


FIG. 2  
How DRAWN beads are made.

to be made. To make drawn beads the man who took the glass on his bar will take another bit of iron and work the lump of red-hot glass into a sort of funnel, which he then closes again, so that a large air-bubble is included in the glass (fig. 2 A). Then the second iron bar is taken away again by the second man and now it is not a glass *rod* that comes into existence but a great length of glass *tube* (fig. 2 B). This long tube is cut or broken into 90 cm. lengths and a bundle of these tubes is chopped into pieces of 3 mm. or 12 mm., each little piece being a small cylindrical tube, that may be called a bead (fig. 2 C). Of course the process is not so simple as I describe it, but it can be readily understood that each tube, however long it is, will be reduced in a few minutes to perfect beads. Perfect? Well, the sharp corners must be polished off, but this, too, can be done mechanically, tens of thousands in one revolving barrel. In the bead-trade most of the drawn beads are called « pound beads », as they are generally sold by weight and not by number. These beads are often ground with sharp sand in tumbling-machines that turn them from real cylinders into oblates and even globular beads.

Drawn beads can be ornamented, too, with very few manipulations. We find, for instance, red beads with a white core. To make these the hot bulb of white glass in which an air-filled cavity has already been formed, is rolled over a marble plate to smooth (marver) it. Then it is rolled over a plate of half-molten red glass which sticks to it and when the mass is drawn out, a red bead with a white core is the result, a bead thought so beautiful by many natives that only one tea-spoonful of these small beads was taken as payment for a full day's work in about 1900.

The same result may be reached by dipping the hollow bulb of white glass in a crucible containing molten red glass, that will gather around the white glass so that a tube, drawn out from the bulb, will show the same result, viz. red on white glass, that can be cut down to red on white beads.

Another way of ornamenting drawn beads is to lay differently-coloured strips of glass over the air-filled bulb of glass before drawing out begins. This produces the striped beads that are so often seen. In the first few centuries of our era globular beads were pinched off from the viscous tube of glass with a pair of pincers, resembling those used to make ice-cream balls, but much smaller. In this way segmented beads were made in a long row. These would be broken or sawn into single beads, but often two or three beads were left together. We find this form in the Roman gold-leaf beads and in a blue variety too. Many of the well-known Roman blue melon beads have been made this way.

These kinds of beads are sometimes wrongly called moulded beads, but in glass terminology moulded objects are blown into a form or mould, which I do not think was ever done with such small objects as beads.

Sometimes as many as six layers of different coloured glass are wound around the hollow glass bulb and when the mass thus formed is drawn out and ground and polished chevron beads (rosette or star beads) will be the result.

Some people talk and write about cane beads, meaning cylindrical tube-beads, but a cane is a stick or rod and can never be cut into tubular beads. There are however, a few other methods of bead fabrication which we have to consider, namely folded, pressed, spiral, blown and hand-perforated beads.

### *FOLDED BEADS*

These are made from flattened rods of glass, folded around a wire, in the same way as the wound beads. Often the line where the ends were melted together is clearly visible, running parallel to the perforation. These beads were rather common in the first centuries of our era in India and, sometimes, in Egypt.

### *PRESSED BEADS*

While still half molten, beads of all forms can easily be pressed, e.g. into hexagonal or square beads or even into bicones or barrels with flattened ends. Nowadays many beads are made by pressing the pulverized material into lozenges or tablets like aspirin and then heating them to become porcelain or plastic beads.

### *SPIRAL BEADS*

In Egyptian and Roman times beads were sometimes made by winding thin half-molten rods spirally around a wire, the result being something like a Turritella-shell or a horn of plenty (fig. 1E). They can also be modelled into trigonal or square prisms.

### *BLOWN BEADS*

It is possible to heat part of a glass tube and blow it up to an ellipsoid bead. This method, amongst others, was used for making hollow beads, where gold dust or silver dust was blown in. Nowadays you meet with imitation pearls made thus.

## *HAND-PERFORATED BEADS*

These are made in a great part of India as home-industries. Drops from a molten rod of glass on a soft earthenware dish are perforated with the aid of a hot iron nail, while still plastic.

### *« BAKED » BEADS OF PULVERIZED GLASS*

There are two more ways of making beads that are still practised in west Africa. We can best call them baked beads.

These are made by the aborigines in west Africa from pulverized glass bottles (medicine-bottles). The powder is available in the common three colours, colourless or « white », blue and brown, although I am told that nowadays you can buy the powder in any colour you wish in small plastic bags on the market. The method is the same as was used in ancient Egypt to make faience beads. Holes are made in a lump of clay by pushing in sticks of a quarter of an inch diameter to a depth of about half an inch. A smaller stick the width of a match is placed in the middle of these little holes and then pulverized glass of different colours is inserted in the holes in horizontal layers. When the block of clay is baked in an open fire, the small sticks burn and leave an opening, the perforation of the bead.

The second method is to drop the powder very carefully into a boat-like small hollow stick. In this way interesting striped beads may be made.