

Glass Beads of the Viking Age

HL Renart (the fox) of Berwick

What are Glass Beads?

Glass beads are small pieces of glass that have been melted and molded inside a heated oven (forge) or over the very hot coals of a fire, and then wound or spun on a thin rod and possibly decorated (*Ill. 1*). Others small decorative items similar to glass beads are pieces of amber or jet that were carved into beads, gaming pieces, or other jewelry items.



Illustration 1: Glass beads (Dahlquist and Martensson undated)



Illustration 2: Glass Gaming Pieces (Levick and Beadle 1992)

Who Made the Beads?

Glass bead-makers were artisans who imported glass from Western Europe to support their craft. The beads were used as jewelry for the townsfolk and for trade items across the lands. The artisans lived amongst the Viking people, and followed in their footsteps as they moved from area to area. Therefore, Viking glass beads were made in Norway, Sweden, Denmark, Greenland, England, Gotland, Scotland, Ireland, etc. Other cultures worked in and made glass, and there are glass beads from prehistoric sites, Celtic sites and Roman sites. However, this paper is concentrating upon beads made during the Viking or Norse era.

When?

The Vikings made glass beads from the 8th -11th centuries. As mentioned above, glass beads

were made prior to the Viking era by other cultures, and, of course, they were made after the Viking era and are still made today.

Who Wore the Beads?

Mostly the women of the time, at least in the Viking culture. In archaeological finds, women were found to be buried with jewelry and textile implements, while the men were buried with their weapons, riding and hunting equipment (Graham-Campbell 2001:119).

In many cases beads were worn as festoons strung between the oval brooches customarily worn on the chest, but complete necklaces have also been found (*Ill. 4*). The nature of these festoons and necklaces varied with different amounts of glass, gemstone, amber, and silver beads. The nature of a particular necklace would have been dependent upon a family's wealth, for the rare gem type beads and silver were mostly imported from Western Europe and probably expensive.

A related use of glass bead making technology was the creation of gaming pieces. Glass gaming pieces have been found at Birka, Sweden. It is probable the gaming pieces were made using the same techniques as beads. An picture of glass gaming beads is given above in Illustration 2.

As an aside, in Skamby, Sweden, in 2005 an archaeological dig was in progress on a boat grave. The grave site was undisturbed, but very poorly preserved. Within the grave were found some pieces of iron, a knife, nails, and a small box. But during the burial, on top of the grave chamber rather than within it were 23 gaming pieces that are of a diagnostic shape and size and known parallels suggesting a ninth century date (Williams and Rundkvist 2005).

What materials were used in the making of glass beads?

Glass was bought from merchant traders from Western Europe. They also traded in broken glass vessels, amber, wood, jet¹ and bone. Rough glass from Western Europe came in lumps or in tesserae, which were small cubes, often originally intended for mosaics and sometimes pillaged from Roman ruins(*Ill. 11*).

Viking merchants had established a network of trade routes (*Ill. 3*) that stretched from Iceland to the Caspian Sea (Graham-Campbell 2001:88-91) and it is likely the materials for bead making, as well as the beads themselves, were traded all along these routes.

The composition of glass varied throughout the Viking era. For example, towards the end of the first millennium AD, there are indications of gradual change in glass technology in the Viking age, e.g. at Peel on the Isle of Man. 'Although soda-lime-silica glass was still in use in the ninth and tenth centuries, transitional glasses of a mixed-alkali (soda and potassium oxide) and other new compositions are also present, reflecting a glass technology in a state of 'flux'. Eventually, these led to the use of potassium-rich glass in the high medieval period for cathedral and church windows' (Guido 1999:88).

¹ **Jet** is a geological material that is not considered a [mineral](#) in the true sense of the word, but rather, a [mineraloid](#) derived from decaying wood under extreme pressure, thus organic in origin. The name "jet" is the English word derived from the French "jaïet". Jet is black or dark brown but may contain [pyrite inclusions](#), which have a brassy color and metallic [lustre](#).

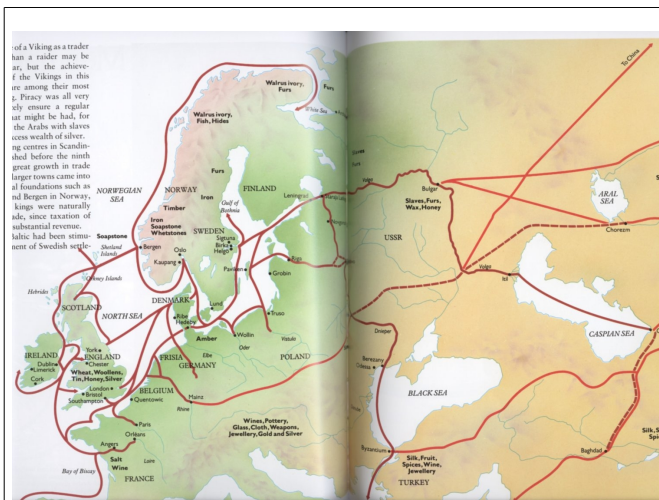


Illustration 3: Viking Trade Routes (Graham-Campbell 2001)

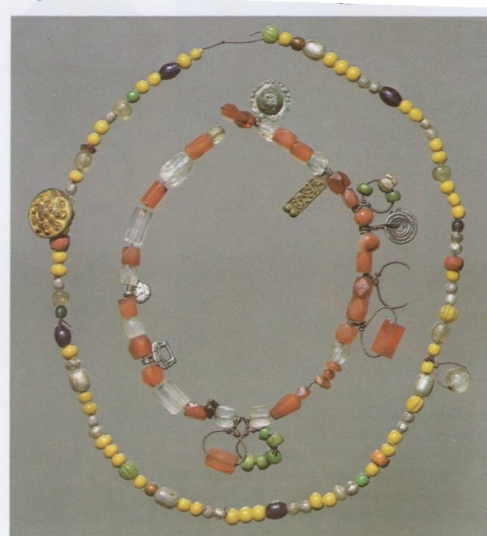


Illustration 4: Bead Necklace and Festoon: Graham-Campbell 2001:118

What methods were used to make glass beads?

The viking glass worker would have created a small furnace. Once heated, the glass would be sent into the furnace through holes in the side, with bellows at the bottom, for keeping the furnace hot (*Ill. 5*). Metal rods (mandrels) dipped in clay would be used so the worker would not need to handle the hot glass (*Ill. 6*, for examples of glass working tools, and *Ill. 7*). The mandrels also served the purpose of making the holes in the beads. With a set of bellows the forge would easily carry temperatures of 1000c. (Bencard undated:11). Another method involves using the coals of a hot fire and dishes, and melting the glass over the fire.

The only real difference in methods of melting the glass in modern times is that we use a torch instead of a furnace. The mandrels are still used, and still dipped in clay, although they are made of steel instead of iron.

The glass workers would place a tray or dish with pieces of glass in the opening of the furnace, close enough to slowly heat the glass; too much heat too quickly would only shatter the glass. After a few minutes the glass would be moved into the oven with a set of iron tongs, when it started to melt it would be transferred to the mandrel. If a normal round bead was being made, spinning the mandrel slowly just out of the heat would give the desired shape. Allowing the bead to cool slowly, the bead could then be removed from the mandrel and put into a clay pot on top of the coals allowing it to cool and to keep the bead from cooling too quickly and cracking (*Ill. 8*). This would also anneal the beads as the oven would slowly cool over time (Dahlskog and Martensson undated: 4).



Illustration 5: Small Glass Furnace (Dahlskog and Martensson undated)

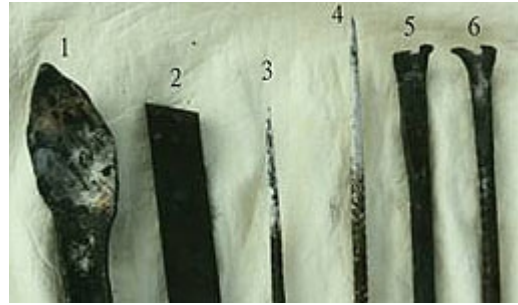


Illustration 6: Iron beadworking tools (Dahlskog and Martensson undated)



*Illustration 7:
Viking Age Bead on
a mandrel (Ward
2007)*



*Illustration 8: Annealing Pot
(Dahlskog and Martensson
undated)*

These techniques are still used today. The glass worker will use a store bought glass rod and slowly introduce it to the torch, so it will not shatter. Once the glass begins to melt, it can be added to the clay-dipped mandrel. With a spinning motion, keeping the mandrel just outside of the flame and the glass above the flame, the glass will easily transfer to the mandrel. Once the desired amount of glass has been added, keeping the glass on the mandrel molten (in a honey state) will allow for the bead to be shaped. Spinning the mandrel will soon create a lovely round bead (donut shaped). Passing the bead above the flame, slowly moving it out of the heat, the bead is quickly lowered into the safety of a fiber blanket. The blanket will allow the bead to cool slowly, keeping it from cracking. For annealing beads today the glass worker will need the use of a kiln, such as a pottery kiln.

Annealing is used to make the beads tougher so they are unlikely to shatter. The beads are heated and then very slowly, over the course of hours, allowed to cool. The point of doing this is to allow the surface of the bead and the inside to cool at the same rate, lessening the possibilities for stress fractures in the glass.

Millefiori² was used to enhance the beauty of the beads created (*Ill 9, 10*). The technique involved making rods of glass of different colors, then combining them, and drawing them out to make new multicolored rods, which were then sliced, and then the pieces were fused together to make composite colored beads of remarkable complexity for the time (Dubin 1987:75).



Illustration 9: Millefiori Beads (Dubin 1987:75)



Illustration 10: Millefiori beads and various other glass beads and pieces Graham-Campbell 2001:102

In an archaeological report from Ribe, they have listed the findings of 2 bead maker's workshops and a bronze maker's workshop. Over 1800 pieces of glass have been recovered from the site. Of those 26% are whole and fragmented beads, 20% glass rods, 21% tesserae, 20% waste and 13% shards of glass containers. In addition the following have been found : a piece of rose quartz, a piece of quartz, rock crystal, an amethyst bead, a carnelian bead, as well as 2 fragmented roman cameos with engravings of figurines. Of the ca. 480 found beads 76% are single colored with the rest multi-colored. 39% of the single colored beads are blue, 24% green, and 17% white. The remaining 20% are red, orange, yellow, purple and clear glass. A few silver and gold foil beads have been found as well (Bencard 1983:8).

Within the finds were some 360 rods and stringers of glass, 59% were single colored and 41% multi-colored. They consisted of 39% blue, 24% green, 17% red, 10% yellow, 9% white and 1% clear. 44% of the multi-colored rods were millefiori, 34% simple rods with parallel differently colored stripes and 21% reticella (Bencard 1983:8).

Some expert disagree on whether the Vikings had the millefiori technique, but taking into account the archaeological finds within the subject area, it seems safe to modify the traditional theory

² **Millefiori** is a [glasswork](#) technique which produces distinctive decorative patterns on glassware.

that millefiori beads found in Viking contexts would have to come from Italy or even the Middle East. Given the vast network of Viking trading contacts, it's likely the technique was quickly imported into and utilized in the Viking homeland.

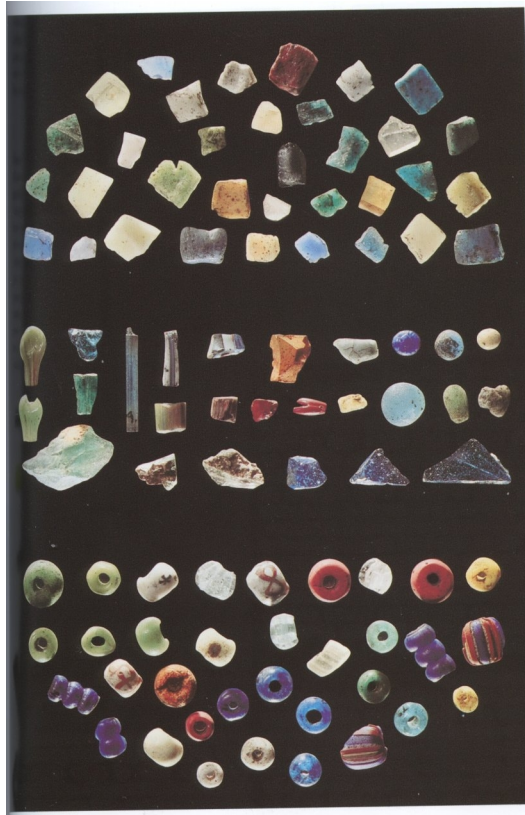


Illustration 11: Mosaic cubes or Tesserae, glass scraps and beads from the Viking town of Paviken on Gotland (Graham-Campbell 2001:103)

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