Winged Goblet

Bell shaped goblet with twisted optic blown stem with wings and blown folded foot

Handblown Glass goblet with applied wings

Goblet

About the Object:

The object is a *facon de Venise* goblet with a bell shaped bowl, on a optic stem with wings, and a folded blown foot.

About the Original style:

The emulated style of goblet could be a mid to late 1500's Venetian style goblet produced elsewhere in Europe, or in Venice for export. The bowls are of many different styles. Many of the surviving originals have an unpractical (for drinking) bowl shape. The stem is twisted with mold lines, and has wings applied. These wings are a style called "*Morise*" (1) The Foot is a simple blown foot.

Item 55. Glass in the Rijksmuseum second half 16th Century

Material: The type of glass used in this project is a soda-lime glass. This is a same type of glass used in the original objects.

There were different formulas being used in period, starting from where they gathered the base materials for the glass, and including slightly differing the proportions of the chemicals.

Ingredients of Soda-lime Glass

Silica (structure): Is the main structure of Glass

Almost always Silicon Dioxide

Soda (flux): A high alkali ingredient, that lowers the melting point of Silica, and makes the Silica easier to use.

Often Sodium Carbonate

Lime (stabilizer):Lime is added increasing the hardness and chemical durability and providing insolubility of the glass.

Often Calcium Oxide

The Venetians used soda ash from the Levant, which also had a large amount of calcium, which also supplied the stabilizer. (5) Venice fiercely protected these sources of raw materials, banning the export of it, and other ingredients of their glass. Many Roman glassmakers used Natron as the alkali fluxing agent. This is detectable with chemical analysis, because Natron has a very large amount of sodium , and a very low amount of potassium and magnesium (typically less than 1 percent) Other glass made with plant ash have greater potassium, magnesium and phosphorus contents. Beechwood ash can be distinguished from other types because of it's very low sodium and high potassium contents. Beechwood Ash was used extensively in Bohemian glass (4).

Normal sand has a lot of impurities, for example, Iron. Iron is one of the materials used to color glass, something to avoid if the desired result is uncolored clear glass. To avoid this, Venetian glassmakers used "Lapidis Ticini," which were quartz stones from the Ticino River. (5) Other glassmakers also tried to get a clean a sand as possible. Chemically almost all sources of sand or quartz are the same, unlike soda, which can have substitutions in the same periodic family.

Form:

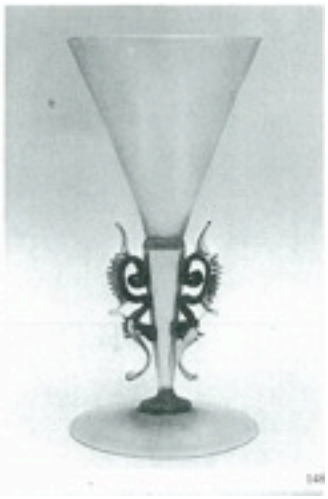
Winged goblets have many variations in form, with most of the variety in the bowl shape.

The stem shapes generally are an optic twist, with divisions. But there are also examples with a non optic, no divided stem.

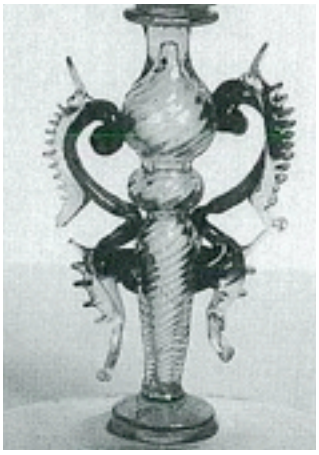
Most of the wings are colored base layer, with one of more clear bits laid on top. Some are completely clear, with clear on top. Compared the bowl, stem and foot, the Wings are not as straight even or precise, with often a visible variation from side to side on the same piece.

The feet however, are a style called a "Low Foot", which is when the foot in generally flat, as compared to a "High Foot" where the foot is part of the stem. I have seen no examples of winged goblets with a "High Foot." Also, the majority of winged goblets do not have a folded foot, (where the rim is folded over, to double the thickness) but at least one example with a folded foot exists

Ex. of an impractical bowl
(2) item 54



Ex. of plain stem with conical bowl
(1) item 148



Ex. of uneven wings
(2) item 57

Ex. of a "High Foot"
(2) Item 22

Ex. a folded fold
(1) item 151

Process:

The Bowl is made first on the blowpipe, and while the top is still connected to the blowpipe, the bottom 2/3rds of the bowl is made into the final shape. The *avolio* is placed on the bottom of the bowl, by bringing a fresh bit of glass from the furnace, attaching it to the bottom of the bowl, and using the jacks to shape it. A pontil is attached to the *avoilo*, and the piece is broken off from the blowpipe at the top of the bowl. The top of the bowl is reheated, and opened up. The piece is then broken off at the pontil connection, and placed in a hot oven (*garage*) at ~1000f.

The stem is started, the *parison* that will be the stem is stamped into a mold to create the lines. The stem is blown and shaped into the final shape, while on the blowpipe. A hot bubble of glass is applied to the bottom of the stem to become the foot. It is stretched and a ring of glass is chilled, and broken where the ring is. The foot is then heated, and the inner edge is folded in, and then entire foot is widened and flattened. A pontil is applied to the center of the foot, and the top of the stem is broken off the blowpipe.

The wings are applied to the sides of the stem. Each wing requires two bits of glass brought, one of the base seahorse shape, and one for the overlay on top of that. Time is taken to heat and straighten the wings are they are made. Once the wings are complete, a small bit of glass is applied to the top of the stem, and the bowl is brought out on a preheated plate. Tweezers are used to grab the *avoilo* of the bowl and apply it to the fresh bit on the top of the stem. The entire piece is flashed in the heat a few times and some time is spent adjusting and straightening it. Once the piece is flashed enough that all the components are near the same temperature, the goblet is broken off the pontil, leaving a sharp mark on the underside of the foot, and placed in the *lehr* (cooling oven) to cool down slowly, over about 12 hours to room temperature.

The entire time the piece is being made, it had to be flashed in the heat often (in the reheating chamber) to ensure that no part of the goblet went below a ~1000f degrees, which would cause parts to crack during the process. The glass starts off, out of the furnace at around 2100f degrees

Differences:

Material:

Changing a studio to use an exact historical formula of glass would be prohibitive, with little benefit, as the end product is almost undetectable. The glass I use, is close enough period glass, that you would need a chemical analysis to tell them apart. (taking in the account aging and craftsmanship.) Also the studios I use are either propane or natural gas powered, and there would no detectable difference if I were to use a wood fired studio. Heat is heat.

Form:

I have chosen to make this goblet with some compromises. I made a simple bowl for practical reasons. I find it difficult to drink out very widely flared bowls, or wavy topped bowls. A folded foot is uncommon, but I think it's a important feature to ensure long use. The folded foot makes the rim of the foot twice as thick, and much more resistant to breakage. I used an *avoilo* to join the stem and bowl, mostly because I like to hold winged goblets near the base of the bowl and it feels awkward without an *avoilo*.

Process:

Unfortunately, the process is one of the most poorly documented parts of glassblowing. Also, to compound that, in glassblowing there are often many different way to do the same things. I could have done the entire goblet in the reverse order, doing the stem first. I could have added the stem on the end of the bowl, and avoided putting the bowl in the oven while I made the stem. In short, there are many way to gett he same result, and trial and error lets me find the fastest way to get to the same result. Until the 1970's, there was very little transfer of knowledge out of Venice on goblet techniques.

Sources

(1) **Barovier Mentasti, Rosa. Mille anni di arte del vetro a Venezia, Albrizzi, Venice 1982: ISBN 8876460012**

(2) **Ritsema van Eck, Pieter C. Glass in the Rijksmuseum Waanders Uitgevers, Netherlands 1995: ISBN 9066304081**

(3) **DeRaedt, Janssens, Veeckman "Compositional Distinctions between 16th century 'facon-de-venise' and Venetian Glass vessels excavated in Antwerp, Belgium." Journal of Analytical Atomic Spectrometry, 1999, 14, 493-498**

(4) **McCray, W. Patrick. Glassmaking in Renaissance Venice Ashgate. Vermont 1999: ISBN 0754600505,**

(5) **Jacoby, David. "Raw Materials for the Glass Industries of Venice and the Teraferma, About 1370 – 1460." Journal of Glass Studies. Vol. 35. Corning, New York.1993.**

Suggested further reading.

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Mentasti, Rosa Barovier. Glass Throughout Time: History and Technique of Glassmaking from the Ancient World to the Present Skira, Italy 2003 : ISBN 8884913454

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