



Our online educational series  
continues!

## MARVELS AT THE MUSEUM



### Ancient Core-Formed Glass

Long before the invention of the glass blow-pipe, which took place in the Roman Empire about 50 B.C., most hollow glass vessels were formed around a removable core. Contemporary glassblower William Gudenrath has experimented with the techniques most likely used to create these vessels. The steps in his process are fully illustrated in *Glass 5,000 Years* by Hugh Tait (NY: Harry N. Abrams, Inc., 1991, pp. 214-215).

Gudenrath begins by making the core, hand-kneading a mixture of clay and horse dung into a solid oblong shape corresponding to the interior space of the intended vessel. Unlike the ancient glassmakers, Mr. Gudenrath wears rubber gloves during this part of the operation. The

core is formed around the end portion of a long iron rod. It is carefully dried and then, using the iron rod as a handle, inserted into a pot of molten glass. In the case of the NBMOG unguent bottle, the glass was opaque white. A relatively uniform layer of white glass coats the core when it is removed from the pot.

Gudenrath now gathers a small bit of dark blue glass from another pot using a different iron rod. He touches this glass to the side of his coated core at a place close to its tapered end. Rotating the core as he holds the rod with the blue glass steady, he can easily draw out a thick blue thread and apply it in a spiral down the length of the white body.

After reheating the coated and now spiral-threaded core at the furnace, Gudenrath rolls it on a flat iron table to smooth the thread into the white glass. Then, using any sharply-pointed iron tool dragged alternately up and down the surface of the core, he creates the herringbone design. Notice that shallow vertical ribs are formed between the "troughs" where the pointed iron tool was dragged.

Finally the neck and rim of the bottle are shaped, the handles are applied, and the whole construction, complete with its iron rod and clay core, is set aside in a different furnace or in a different section of the principal furnace to slowly cool without cracking. This cooling process is called annealing. When the core-formed vessel is cool, Gudenrath can painstakingly scrape out the clay core to remove the iron rod and free the interior space of the now finished bottle.

NBMOG's amphora-shaped unguent bottle (amphoriskos) is nearly identical to two examples in the collection of the Toledo Museum of Art and closely related to a small single-handled vessel (oinoche) in the collection of the Museum of Fine Arts, Boston. These items are illustrated by David Frederick Grose in *Early Ancient Glass* (NY: Hudson Hills Press in association with the Toledo Museum of Art, 1989, pp. 112 & 143). Grose dates these pieces to the late 6th through 5th centuries B.C., notes the essentially Greek character of the forms, and discusses their re-attribution from Egypt to the island of Rhodes, where a core-forming industry began to thrive in the 7th century B.C.

Today it is hard to imagine a time when glass was not blown into bubbles at the ends of hollow pipes and then quickly shaped into all manner of useful and attractive forms. For more than a thousand years before the seemingly simple "invention" of the blow-pipe, however, glass was painstakingly crafted using the core-forming technique. Local industries flourished and then died away in countless locations across the Middle East, from Egypt and the eastern Mediterranean to Mesopotamia and Babylonia. Evidence of their prosperity, their productivity, and their cultural interactions can be read from the tiny glass treasures now widely scattered in museum and private collections or still emerging from archaeological sites.

The NBMOG amphoriskos represents a small but exciting piece in the fascinating puzzle of scholarship that continues to shape our understanding of the ancient world.

-- Kirk J. Nelson, Executive Director

**Watch it happen!** Please click the link below to see master glassblower William Gudenrath demonstrate the technique of making a core-formed vessel.

## Core-Formed Glass Demonstration

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*(Above)*

**Four core-formed vessels of eastern Mediterranean origin,  
used for holding perfume or oil**

(left to right): amphoriskos, 6-4th century B.C., H: 3 13/16", Acc. 2011.036

amphoriskos, 2nd-1st century B.C., H: 5 1/2", Acc. 2011.041

alabastron, 3rd-2nd century B.C., H: 3 9/16", Acc. 2011.037

alabastron, 2nd-1st century B.C., H: 4 1/2", Acc. 2011.040

Gifts of Eric Streiner



*(Above)*

**Core-formed unguent (medicinal ointment) Bottle**

Eastern Mediterranean

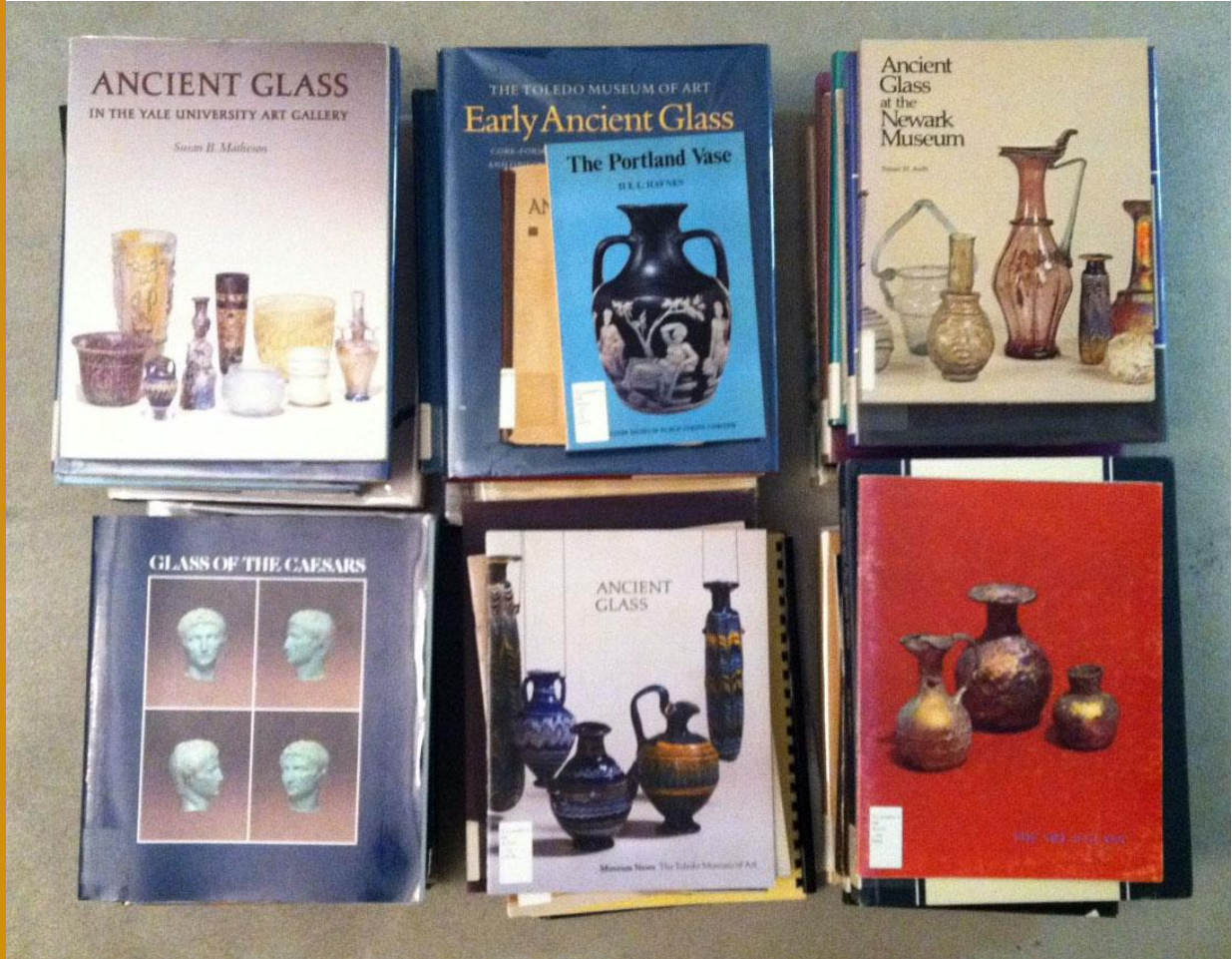
c. 500 B.C.

H: 4 1/4"

NBMOG Collection

Acc. 2005.012

Gift of Edie Lawson



*(Above)*

**A selection of books on Ancient Glass**

from NBMOG's Virginia Shaw Rockwell Research Library

This library contains more than 12,000 volumes in ten languages  
and 200 shelf feet of glass subject files!

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## *Membership Drive 2020*

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Content includes: pillar-molded glass, tiny salt dishes that tell a big story, Lava or "Sicilan" glass, Melissa Ayotte paperweights, Sandwich glass and the rise of American antiques collecting, the "Gingham" art glass jug, studio glass art pioneer Edris Eckhardt, vintage postcard views of glass factories, a special art glass and fashion exhibition in honor of women's suffrage, drinking glasses old and new featuring actor Harrison Ford, a gravity-defying (apparently!) crystal table fountain, a glimpse into the Crystal Kingdom that is NBMOG's glass animal collection, the mystery behind a magnificent Pairpoint stag, Kate Greenaway vases, Mt. Washington art glass, Sandwich glass, historic glassmaking photographs, Trevaire Ware, adorable antics of the resident museum cat, and even a tour of our new home, the spectacular James Arnold Mansion!

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**Museum Cat** in training:  
all dressed up and learning how to greet guests!  
He looks forward to welcoming you very soon!

