

Gloria Badiner

Drawing from a Scientific Background to Enrich Glass Art

by Colleen Bryan

Gloria Badiner, owner of *Arts & Artifacts* studio in Mattawan, Michigan, has worked with glass art for 25 years. However, she is technically trained as a scientist, and that has made all the difference in her approach to and exploration of glass art.

Scientific Training

“I happened to be lecturing at a small conference at Brown University. My area of research was biological—bone marrow growth and differentiation. I saw some cast glass work at Brown and fell in love with it. I didn’t know how to make it or why I was so attracted to it.” That fall back in Kalamazoo, Michigan, serendipity intervened. A local school offered a class in sand casting, teaching students to ladle molten glass into a sand mold to make one-of-a-kind pieces. “That was my first introduction to making glass, pouring hot glass to make glass ribbons. I loved it. I found it so very exciting. There comes a point in life where you sit on a fence and have to decide which way you’ll choose to get off. I decided to make glass for a living.” Her technical training informs her methods and approach to glass, and allows her to consult with the ceramic and glass industries.

Badiner’s path into glass brought advantages and posed some humorous and needless difficulties. She recalls one early experience: “As scientists, we often make our own materials. When I started making glass, I bought crucibles, built a kiln, bought a batch of sand, flux, and limestone, and made my own glass. When I share this story with glassmaker friends, their jaws drop. But I simply had no idea that you could go into a designated store and buy beautiful materials already tested and matched for coefficients.”

Badiner seems none the worse for having expended the extra effort. “It was a primal experience. I learned about color and coefficients, observed a lot of subtleties, and developed a genuine passion for the materials. There is nothing wrong with being naïve as long as you’re looking for information.

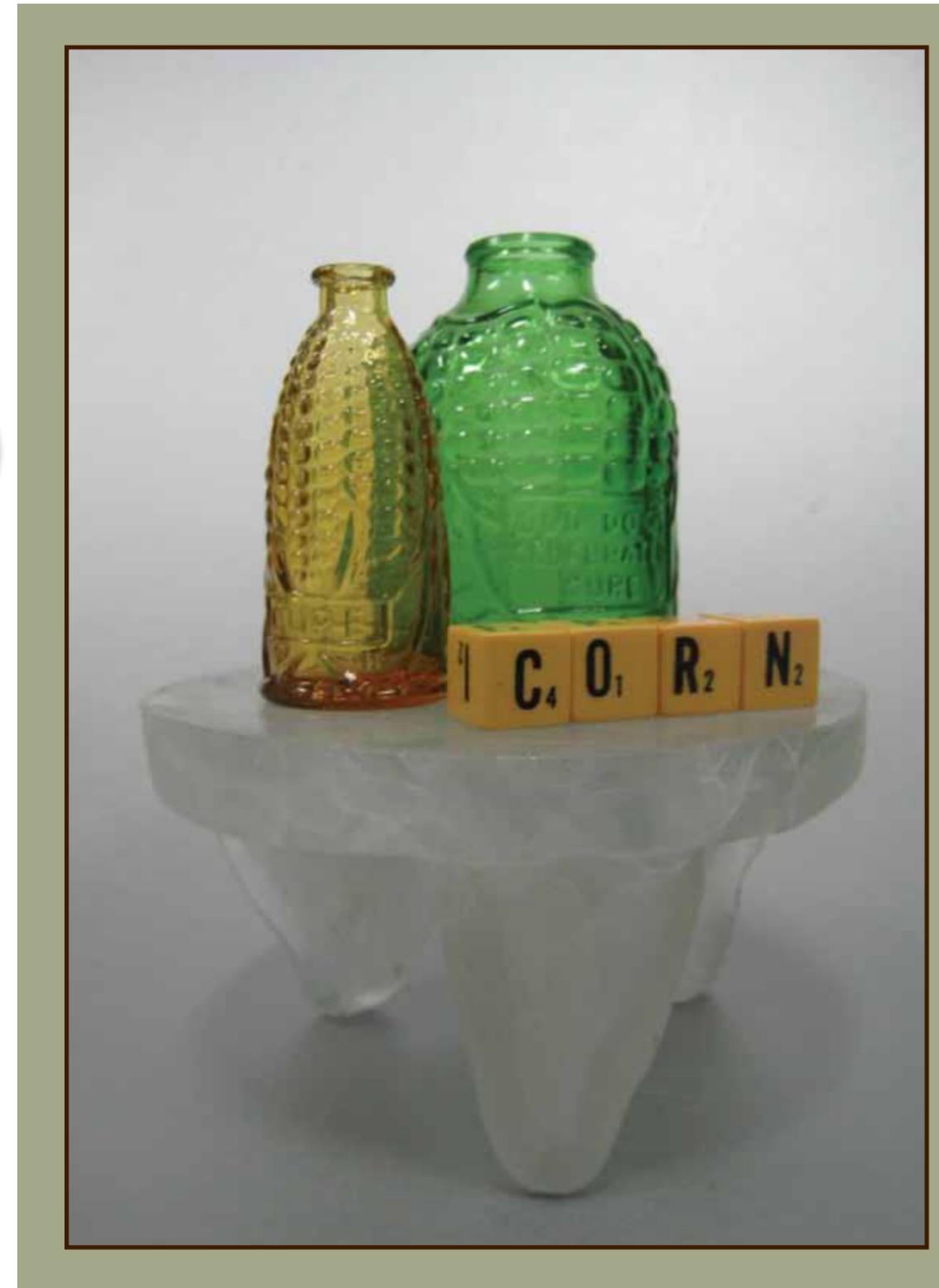
“I feel lucky to have been trained that there is usually a way to the end you want as long as you persist. I keep great notebooks about how I fire a piece, which colors I use, and other details so my little discoveries are reproducible. The scientific method has carried over to my artwork, and I think it serves me really well.”



Gloria Badiner, *Bucket Full*, sand cast glass with copper and plastic.



Gloria Badiner, *Corn Stalk Tablet*, fused glass with gelatin and iron transfer.



Gloria Badiner, *Take Your Medicine*, food vials, Bakelite tiles, and cast glass.

Scientific Approach to Materials and Methods

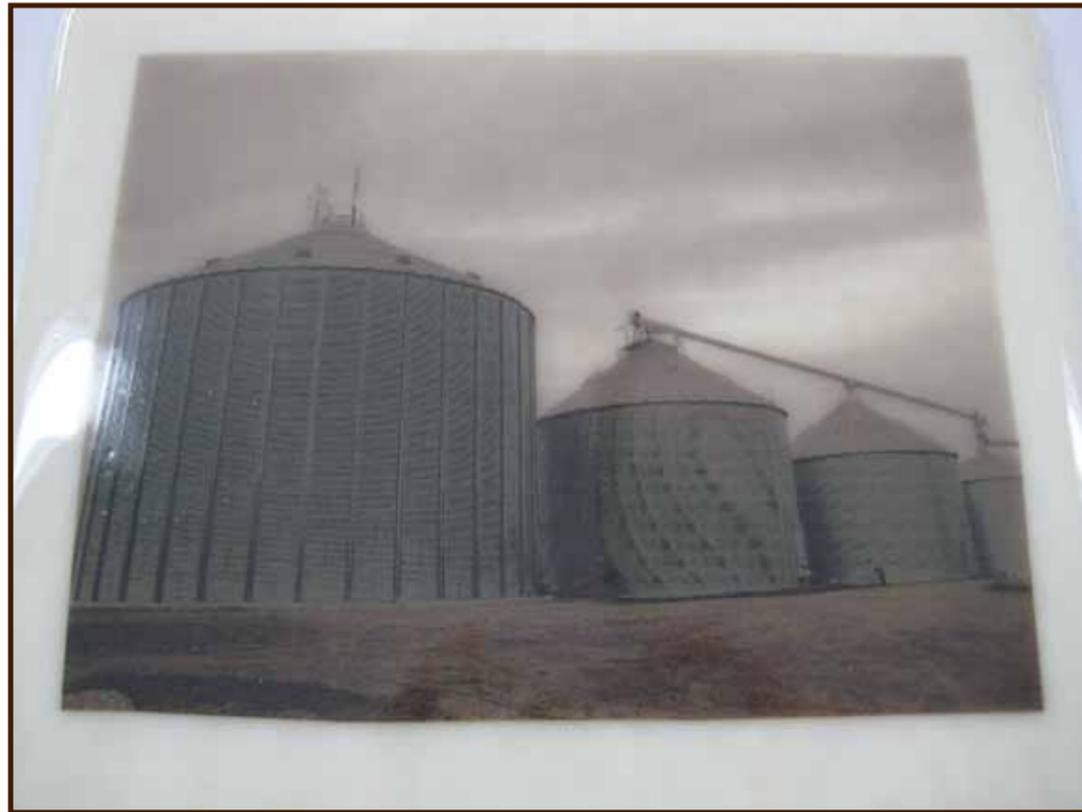
Scientific inquiry infuses the artist's exploration of artistic materials and methods. For instance, Badiner uses photographic methods extensively to record her scientific processes. Some light reading about how metal emulsions bring out patinas set her off on a line of inquiry. The research suggested that iron salts in cyanotype blueprints, a photographic printing process that gives a cyan-blue print, might be that same sort of material.

Recently, Badiner began revisiting the cyanotype blueprint method and discovered that through chemistry, heat can cause cyanotype to mature on glass. Badiner makes a gelatin solution by boiling bones and painting the solution onto the glass in a process evocative of a 1860s photographer. She takes a photographic image and makes a negative on the glass, which she puts out in the sun to set for 20 minutes. Then she washes it off with water to release any materials that haven't been exposed. The process does not have the size restrictions of modern photographic processes. She later puts the material in a kiln and slowly brings up the temperature. The chemicals release and develop with heat.

She experimented with the process during a Pilchuck residency, and after 40 firings got it to work. "I figured out how to use it, and now I am using a cellulose material from the food industry. The end result doesn't look like anybody else's picture. It has some graininess, and the borders are ragged and uneven. It doesn't give you an image, but rather creates a three-dimensional texture on glass. I've taught that technique to many people. It's fun adding a little science to their education." Badiner reckons that science and chemistry are so satisfying of her innate curiosity that she will incorporate them as part of all the glassmaking techniques she uses going forward.



Gloria Badiner, Drop by Drop, color image decal created from Badiner's own photo and transferred onto fused glass.



Gloria Badiner, printed image ready for text.



Gloria Badiner, Kernel by Kernel, color image decal created from Badiner's own photo and transferred onto fused glass.



Gloria Badiner; Pull the Pin, kiln formed vessel with fused tiles and cast iron.



Gloria Badiner; Tablet – It's a Long Story, kiln cast tile with iron transfer.



Gloria Badiner, Seed Bag, linen bag, cast glass, and wooden tiles.

Consulting

Badiner enjoys doing a bit of consulting with glass and ceramic companies around technical failures in mold making. “I like using that part of my brain once in a while. They are usually interesting problems, often having to do with scale-up. Things do change with scale-up, when you go from making one hand-built mold to pressing out 100 copies of that mold. Sometimes mechanical issues have to be addressed, sometimes materials issues. You can see a bit of an undercut from the machinery. Annealing time has to be computer controlled. Small objects have some forgiveness with the annealing time that a thick slab of glass does not have. Sometimes thick and thin pieces together don't anneal well and tend to break when scaled up to a large object. So the question becomes, do you change the thickness or the annealing time or the shape of a piece? Industry wants to keep annealing time as short as possible, or they end up paying more to create an object. Even people who do this all the time cannot anticipate every problem with a scale-up. It is like going from test tube science to a big mixer. You learn a lot.”

Badiner is intrigued by the emerging emphasis on greener studios and is working as a member of a Glass Art Society committee exploring their potential. “Because we [glass studios] are so small, we find it hard to link into existing energy co-ops and systems. Particularly the glass-blowers are creating that energy for themselves with co-ops, but there is potential for lots more greening of studios in the future. Companies with big-time fuel costs are going into green energy futures. But greening a studio requires that artists be better businesspersons, attentive to the need to recycle, reuse, and re-fuse.”

When it comes to explaining in her own words how she sees her training as a scientist intersecting her role as an artist, Badiner reflects: “As scientists, we take an idea and distill it to its essence, dissecting intent and emotion away from basic questions, meticulously doing our research. As artists we take an idea and have the wonderful luxury of creating—filling space with sound, vision, or object, and using intent and emotion. Both of these paths can be technically challenging. I love science. I love glass. I have found glass art to be science with heart.”

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You'll find more about the work of Gloria Badiner, a scientifically trained glass artist, and learn how she balances architectural glass design, glass sculpting, and teaching from her Arts & Artifacts Studio in Mattawan, Michigan, in the March/April 2014 edition of Glass Art.

The exterior of Badiner's Art & Artifacts studio.



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