by Curtis Benzle

As an aspiring graduate student in 1974, it never occurred to me that those persistent cracks pestering my porcelain could actually be a good thing. As I struggled to control the fissureprone character of my preferred clay body, I continued to address these stress fractures exclusively through the eyes of a European-influenced concept of perfection.

Raku introduced me to the impact that process plays in the ultimate appearance of a piece, but it wasn't until I delved deeper into Eastern aesthetics through the study of Muromachi- and Momoyama-period artwork along with Zen philosophy that I made the conceptual leap from Raku to vitreous porcelain. At that point those previously annoying cracks were reintroduced as an integral element in the ultimate character of my pieces—a critical component of the object's physical provenance. It was in this frame of mind that my fascination with Kintsugi was born. That was my philosophical journey. My practical journey was, though chronologically parallel, far simpler.

My "Redford" Moment

During the early years of my clay career, when a firing crack occurred in my work, I would routinely proceed to fix it, AKA make it disappear. I would make a paste of calcined porcelain (from my same clay body), force the paste into the crack, and refire the piece at one cone higher than it was already fired to. There was of course a limit to how many times I could refire, but in most cases, the crack would seal before I exceeded the upper limits of my clay body. This process, though arduous, continued until one fateful day when a phone call arrived from Rosemary, a pleasant woman who identified herself as Robert Redford's personal secretary. It seemed Mr. Redford's cleaning





Mix the five-minute epoxy, then immediately apply it to the crack with a toothpick.



Brush on quick-set gold-leaf size (glue) to the epoxied area. Let dry for 30 minutes.



A finished repair after burnishing with a small brush.



Apply latex frisket around the outside edges of the epoxy, but avoid the epoxy.



Apply gold leaf to the epoxied, painted areas. I use loose gold leaf.



Apply red gilding primer onto the epoxied area, but not on the frisket.



Remove the frisket and any excess gold leaf and paint that stuck to it.

service had damaged one of my sculptures in his art collection. A member of the Redford cleaning crew had apparently picked up the piece by the lip and snapped off a small, $\frac{1}{2} \times 1$ -inch piece.

"Could I repair it?" queried Rosemary. While repairing a break was quite a departure from repairing a crack, I must admit I was star struck and without hesitation responded, "Absolutely!"

The sculpture and its broken bit arrived within the week. I began the repair by essentially gluing the broken piece back in place with a slip made from calcined porcelain mixed with a bit of sodium silicate. It worked! Now to hide the crack. I proceeded with my usual method of packing the crack with calcined porcelain and refiring. As an added precaution, between each refire, I would laboriously grind away any residual porcelain powder. After several firings the piece was whole again. I repacked and shipped the restored sculpture to the Redford estate. It never occurred to me to include an invoice for time, labor, and ability. Surely Mr. Redford's sincere appreciation and continued patronage would suffice. Only that reward never arrived.

As I waited in vain, I had plenty of time to ponder every aspect of my response and repair process. Despite the skill and extensive time required to make this little bit of object history go away, there was, in the end no actual reason for anyone to take special note of my efforts. The chip and the repair were forgotten.

Annoying though this incident may have been, it provided me with ample motivation to revisit the topic of cracks, repairs, and just how history impacts an object. At last the nexus of my aesthetic philosophy and experience had arrived! My early attempts to hide the cracks, fissures, and breaks in my porcelain stood in glaring contrast to the historically relevant approach embodied in the Zen embrace of natural occurrence as an integral element in the existence of the object.

The Kintsugi Discovery

Once I decided to accentuate and embellish cracks, I still had to figure out how to do it. Kintsugi had yet to make its way into the American ceramic vocabulary and Googling was not yet an option, but research led me to historic photos of cracks that look as though they were filled with molten metal. Trying my own version, I started with five-minute epoxy and gold leaf. As I perfected my technique, I was nagged by the thought that I was faking it. This pernicious thought persisted until, as fate would have it, I ending up with a residency in Seto, Japan-one of seven original Japanese kiln sites and a renowned center of porcelain production.

During a personalized tour of the Aichi Prefectural Museum of Art with the head curator, I seized the moment and asked if he would please share their technique for repairing cracks. The curator responded, "Ah, Benzle-san. We use "phiminopochi." I pressed him further,

"Once you have applied this "phiminopochi" material to the cracked area, how long does it take for the material to set?" The curator kindly smiled and said, "Five minute." We shared a good laugh and I was left with a clear conscience concerning my repair technique.

I now know that the original Kintsugi method employed an adhesive called urushi lacquer, which is derived from the Chinese lacquer tree. Following application, the urushi lacquer was traditionally dusted with powdered gold and buffed. Because urushi lacquer is highly toxic and both the urushi lacquer and powdered gold are difficult to obtain, I continue to use two-part, five-minute epoxy and 23-karat gold leaf.

Adapted Kintsugi Method

Mix the five-minute epoxy (slower setting epoxies spread too much as they set) following the package instructions—usually it requires a 50/50 mix of the two parts. Don't mix too much as it does set up quickly. Immediately apply epoxy to the crack. I use a toothpick and work from the widest part of the crack to the narrowest part (1). Let the epoxy set up for 24 hours.

Next, carefully apply latex frisket around the outside edges of the epoxy—avoid getting any on the epoxy (2). This will mask



Blaze, 17 in. (43 cm) in length, handbuilt, colored porcelain, epoxy, gold leaf.



Vieques, 15 in. (38 cm) in length, handbuilt, colored porcelain, epoxy, gold leaf.

out the surrounding areas, preventing the gold leaf from sticking where it shouldn't. Let the frisket dry according to the package directions.

Brush red or orange paint onto the epoxied area (3). This color base is very traditional for gold leaf, and adds a warmth to the leafed area once finished. Avoid getting paint on the frisket as much as possible as you work. Allow the paint to fully dry.

Now, brush on quick-set gold-leaf size (glue) to the epoxied area (4). Let the size dry until it's tacky, usually about 30 minutes. Then, apply gold leaf to the epoxied, painted areas (5). I use loose gold leaf (as opposed to patent leaf, which is attached to paper). The loose leaf requires you to work in a room with no air movement. The leaf is very thin and difficult to handle. Let the goldleaf set for one day.

Remove the frisket and any excess leaf and paint that stuck to it (6). Finally, clean up around the leafed areas as needed (7).

Curtis Benzle is Professor Emeritus at the Columbus College of Art & Design and currently maintains his studio in Huntsville, Alabama. He has work in the Metropolitan Museum of Art, the Smithsonian Museum of Art, L.A. County Museum of Art (LACMA), and the Cleveland Museum of Art. His production studio line, Benzle Porcelain Co. has been carried in over 500 galleries throughout the US.