



SCULPTURE TECHNIQUES

Ceramic
Arts
Handbook
Series

Edited by Bill Jones





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Construction Methods

WORKING WITH THROWN PARTS

by Jo Taylor



Equivalence i, 6½ in. (16.5 cm) in height, colored porcelain.

My ceramic sculptures are created using a combination of wheel-thrown and handbuilt pieces that I developed over several years while studying for my master's degree at Bath Spa University, Bath, England. This period of study allowed me to take risks and make mistakes, there were many disasters along the way but I now feel confident combining these methods to make something unique.

Inspiration

Inspiration comes from decorative architectural features such as ornate plaster ceilings, elaborate wrought iron, stone façades, and carved wood. I live near the Georgian city of Bath in England, and I'm influenced by the local architecture and country house interiors. I've also travelled around Europe and found inspiration in the extravagant



1. Cut thin sections from the thrown and textured forms with a wire tool.



2. Gently lift off the cut section then place it on a board to firm up.



3. Someone gave me this tool, which was originally used for making butter curls!



4. This flexible rib with cut grooves is made from an old credit card.

palaces of Potsdam near Berlin, Germany; Gaudi's unique architecture in Barcelona, Spain; and the villas and gardens of Rome and Florence, Italy. I enjoy how the ornate comes to life with light and shadow—there's a sense of organic growth frozen in time. I aim to capture this in my work, to show how soft the clay once was while suggesting energy and movement.

Throwing

My background is that of a functional maker; however, I came to find the repetition stifling and now enjoy the freedom of not having to create identical forms. The first stage of building a sculpture is to complete the thrown parts, as these take the longest to reach the leather-hard stage. I use the wheel to make individual decorative pieces I

would liken to drawing, or even doodling; it's less controlled and there's plenty of room for what I call a happy accident. I throw rings, which can be sliced to make arches—a strong form to build on both technically and aesthetically, and a reference to the same principle in architecture (figures 1–2). I vary the scale of the pieces—some pieces are larger and thicker to provide stability for the structure, others are smaller to carry movement around the piece. I use the speed of the wheel and various tools to create marks that suggest direction and energy in the finished work.

My favorite tools for mark making are an apple corer and an old credit card with arches cut in the edge. I also have a great kitchen tool used for making curls of butter (figures 3–5). For small marks I use a needle tool, sculpting



5. Use a flexible, grooved rib (or notched credit card) to contour a thrown ring.



6. Use the shaped end of a sculptor's tool to create a continuous groove on the ring.



7. Cut a section from the ring with a wire tool held taut against the bat.



8. Make a small sized ring, then use a sculptor's tool to add detail.

tool (figure 6), or sometimes just my fingers. As I carve lines, I'm careful not to cut too deeply into the clay, so that the arches stay intact once they're cut free from the bat (figure 7). Small loops are thrown off the hump, carved (figure 8), then cut off and set aside to firm up (figure 9). Some thrown rings are left intact after being textured (figure 10) and are placed onto the bat either flat or curved into shapes (figure 11). Crisscross patterns can be made by moving a thin tool from the center of the wheel head to the outer edge while the wheel is spinning (figure 12).

Handbuilding

While the thrown pieces are firming to the leather-hard stage I continue with the handbuilt pieces. I form them on bisque molds, which have been fired

to 1832°F (1000°C) so that they're still porous and absorbent. I press coils onto the mold, adding little pieces to make a motif, then use my hands and some water to make it appear more joined and fluid (figure 13). Some of the motifs directly reference inspirational forms from photographs or drawings, but quite often I follow the same process of drawing or doodling. As these pieces firm up, they can be removed and sometimes gently twisted to add extra movement (figure 14). Once all the pieces are leather hard they're smoothed and refined on all sides to eliminate any unwanted blemishes (figure 15).

Construction

I build the pieces on a kiln shelf, so that the works can simply be placed in the kiln when

Sculpture Techniques



9. Cut off the top of the ring as a complete round piece, and set aside to firm up.



10. Use a round ended sculptor's tool to create a ring with wider grooves.



11. The ring is cut, gently lifted off, and curved while being moved.



12. Use a sharp tool to create a crisscrossed surface of thin lines as the wheel spins.



13. Form pieces on a bisque-fired slab using small coils and damp fingers.



14. Once some of the water is absorbed from the clay, gently lift them off of the slab.



15. When the pieces are leather-hard and smoothed, they're ready for assembly.



16. Assembling is done piece by piece, by selecting each piece and placing it first to see if it works visually.



17. Thoroughly score each surface before joining, the same way as you would join a handle to a mug or jug.



18. Each work is at least two sided, so attend to all sides to ensure physical and visual balance.

dry to minimize breakage. The largest parts are used first to give stability to the structure and are joined with a standard score and slip process (figures 16–17). Sometimes the join is reinforced with a small coil of clay if extra strength is needed to support the structure.

The building process continues organically—there is no specific plan (figure 18). By joining and adding parts, the work slowly evolves until a decision is made to stop.

Drying and Troubleshooting

Each piece is dried slowly as there will be shrinkage in different directions from using both wheel-thrown and handbuilt parts. To control the drying, I use thin sheets of dry-cleaner plastic. The plastic is draped over the work, which stops the

thinner pieces at the top from drying too quickly and allows some air to get to the larger, thicker pieces at the base. The work is checked daily for cracks, and if any occur, often where a handbuilt part has been joined to a wheel-thrown part, they're gently corrected with a curved tool and a coil of clay if needed.

Once the work has dried it's once fired, slowly, to 2300°F (1260°C). The initial stages of the firing incorporate a drying cycle if the work is thick, to ensure all water is evaporated. I soak the kiln at 86°F, 140°F, and 194°F (30°C, 60°C, and 90°C) for at least an hour each, depending on the thickness of the piece. Then I raise the temperature to 1112°F (600°C) at 140°F (60°C) an hour, then up 212°F (100°C) an hour to the top temperature of 2300°F (1260°C).



Blue and white wall piece, 13 in. (33 cm) in height, hand-built with wheel-thrown and mold-made pieces.



Capricious, 13½ in. (35 cm) tall, handbuilt with wheel-thrown and mold-made porcelain pieces.



Guardian of the Promenade i, 63 in. (160 cm) in height, handbuilt and wheel-thrown stoneware.

2

Figurative Sculpture

BENJAMIN LIRA: HEADS AND POTS

by Mark Shapiro



Head N° 105, 35 in. (89 cm) in height, glazed stoneware.

I first met Benjamin Lira in New York in the early 1980s. The spare loft that served as Lira's and his former wife Francisca Sutil's studio and living space was almost entirely taken up with their artwork and the bare necessities of life. A shelf of four large antique sake jars was one of the few decorative touches in the loft. Lira's nascent proclivities as a collector were constrained in those days by

cramped city spaces and the limited finances of his early career. I commented on the compelling presence of the jars, and was curious about how they came into Lira's possession. Their pride of place was reinforced by his evident pleasure in them. He was surprised by my enthusiasm and my interest in ceramics. Though neither of us were working in clay at that time—I was making sculpture and



Benjamin Lira working at Huara Huara Studio, Santiago, Chile. *All Photos: Fernando Maldonado.*

Lira was painting—we had the pleasure that day of discovering a mutual passion that presaged our shared fate as ceramists.

As a young child, Benjamin Lira encountered clay when his grandfather offered him some to play with during a family vacation. Though the crude figures he made were never fired, he remembers these objects and the tactile pleasure of modeling the receptive material.

He began working with clay in the studio of Ricardo Yrarrazaval, familiarizing himself with the techniques of forming hollow volumes, glazing, and firing. Soon the ambition and scale of his work outgrew his allotted corner of the studio. Lira was aware of Ruth Krauskopf's Huara Huara studio, a home to Santiago's vibrant ceramic community, but it seemed the studio was

not taking new members. Still, he kept a clipping of an article that included her contact information. Finally, in 2000, a vacancy became available, and to this day Huara Huara continues to be his home base for ceramics.

Process

So what of Lira's move from paint to clay, from the flat dimension into volume? He sees the development as the natural unfolding of his artistic research, "I realized that I had to canalize my strong feeling towards volume and introduce it into my pictorial space. So the direction towards sculpture in ceramics was the next link in the chain of my work."

Lira's painting has a tactility and orientation to process that resonates perfectly with ceramics. He



Benjamin Lira in his studio surrounded by his ceramic sculptures, Santiago, Chile.

often paints by layering color, embedding sand, and working back into the built up surface to reveal a final effect. This requires control of time-bound step-by-step action—an intimate and strategic harmony with the specific logic of the materials at hand. The changing nature of the stiffening paint determines the work flow and cutting through the layers of color transforms all that came before.

Lira's work in clay naturally extends this revelatory quality of his painting technique. "I feel that my painting vocabulary matches perfectly well with the language of ceramics; I can explore the richness of volume, draw its surface and add glazes for the potential color that is born with the alchemy of the fire in the kiln."

Clay volumes of the grand dimensions of Lira's sculpted heads present many structural and

logistical problems. The forming alone is one thing, but drying them evenly, applying glaze, and moving them into and out of kilns require extreme patience and skill. And, of course, getting them successfully through the firing is the last hurdle.

Lira's approach to the construction of the heads also parallels the method of his painting practice. Just as Lira's recent works on paper are built up of layered fragments that give an architectonic dimensionality, his heads are constructed of rolled out slabs of clay, overlapped to create the "canvas" of the head. The layered volume is worked by pressing outward to develop the overall form and features. One might suggest a kind of reciprocity is at play: Lira works the clay from the inside out and he paints from the outside in.

Of Heads and Pots

The language we use to talk about pots typically refers to the human form: pots have feet, bodies, waists, shoulders, necks, and lips. Even the composition of clay itself is called the body. Pots also connect to the body in their kinetic and social roles. They transmit sustenance as we use them to prepare, cook, present, and serve sustaining food and drink. We hold the cup that brings nutritious liquid to our mouths; at the table, we affirm and celebrate our connections to colleagues, friends, and family. Pots connect nature and culture.

The heads are insistently vessels, with most left open at the top. The opening allows access to their interior, which, Lira admits, he sometimes spends more time working than the most immediately visible outer surfaces. The casual, almost broken-off effect of the edges of the rim, where the representational known of physiognomy opens into the unelaborated interior, is abrupt and dramatic.



Head N° 104, 31 in. (79 cm) in height, glazed stoneware.



Head N° 81, 26 in. (66 cm) in height, glazed stoneware.

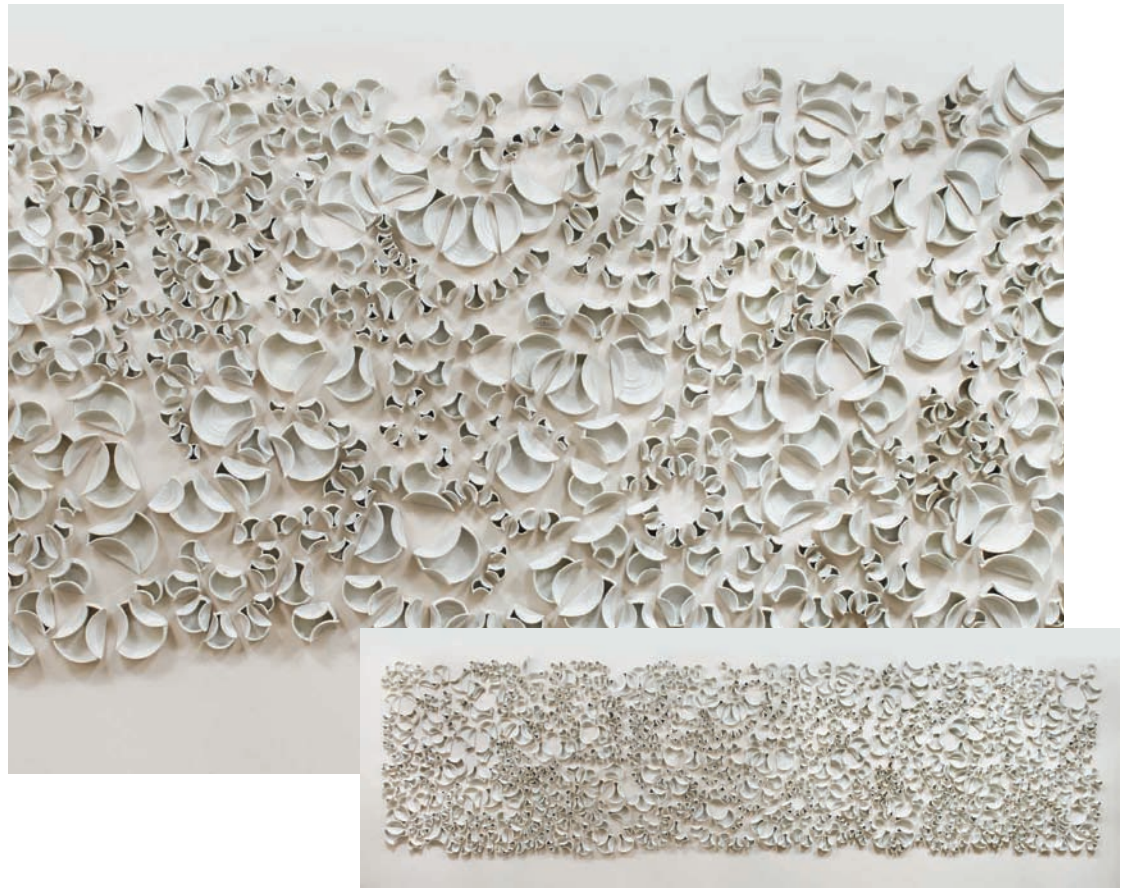
The socially presented face yields to pure subjective possibility. While the exteriors may aspire to a universal humanity (Lira speaks of expressing a “human condition”), with features refined to abstracted essence, an almost platonic ideal rendered physical, their interiors are more mysterious.

Lira chooses to work not in the lower earthenware temperatures associated with indigenous traditions throughout the world and in his native South America, but with the high-fired stoneware. High-fired wares are composed of clays that have a preponderance of kaolins, which are free of the fluxing iron content of the most commonly found red clays. Brought to near the white heat of 2192°F (1200°C) (cone 5), they are impermeable even without glaze and ring when struck, evincing a glassy density. The glassiness and permanence of his ceramics resonate the intensity and purity of Lira’s vision.

3

Wall Sculptures LARGE WALL INSTALLATION

by Monica Rudquist



Intersection, 24 ft. (7.3 m) in length, created from approximately 1000 thrown, altered, and reassembled porcelain cylinders, installed at Northern Clay Center, Minneapolis, Minnesota.

Intersection is a wall installation made up of approximately 1000 thrown and reassembled porcelain cylinders covering a wall 24 feet long and 8 feet tall. The idea for the installation came as a reaction to the various textures and patterns that I saw on a trip to Spain and the Netherlands. I was especially interested in the marketplaces filled with stacks of flowers, fruit, vegetables, etc. Then there was the tile work at the awe-inspiring Alhambra Palace, a

building that is both organic and regulated in its form. Upon my return, I had the idea to create a wall installation from thrown parts. I wanted to create a texture and space using the thrown form that would envelop one's vision and create a sense of place. I received a Minnesota State Arts Board grant to work on this project and a scheduled exhibition at Northern Clay Center in Minneapolis, Minnesota, gave me a deadline.



1. Approximately 1000 porcelain pots were thrown for the *Intersection* installation.



2. Altered thrown pieces.



3. Top section has bisque-fired pieces, lower section has greenware and a third section starts to overlap creating a transition.

Making a Plan

Making and preparing for the installation went hand in hand as I needed to know how I was going to install these pieces before I actually made them. I used thrown and reassembled cylinders as the building blocks. Each piece has a small, nail-sized hole on the back for hanging directly on the wall. The bigger issue was figuring out the template. This was the largest installation I had made up to this point and I did not want to make the template after the fact. I also wanted the piece to retain as organic a form as possible.

I had two 8-foot $\times$ 42-inch tables to work on so this became the template size. I divided it into six 8-foot $\times$ 42-inch sections. This provided me with the greatest flexibility while creating the 24-foot-long piece. I made a template for each section and a work schedule to complete the enormous task.

The schedule for each section went like this: day one was throwing; day two assembling; day three composing on a template; day four numbering each piece, making the nail holes, and tracing the placement on the template. I repeated this making schedule over the course of about three months.

Template

I created the template first on the table to determine the design and mark the placement of the clay pieces, then repositioned it to the wall for exact placement of the pieces. I used Tyvek house wrap to create the template. This enabled me to work with one template from start to finish as the house wrap is water resistant and very tough. I could place freshly thrown pieces directly on the template and continue to work on them as they dried without ru-

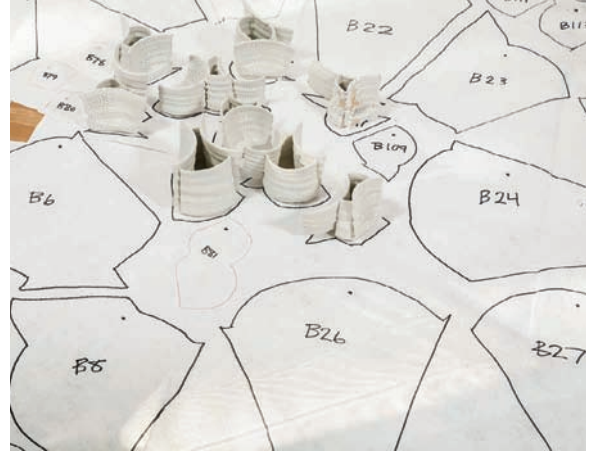
ining the template. I could also write directly on the house wrap with a permanent marker to trace the pieces and mark the nail placement. This made installation easier since I could tape the template directly to the wall, nail right through it, then remove the template without destroying it.

Fitting Pieces for the Wall

After I finalized the composition of each section, I made the nail holes. I wanted the pieces to fit flush against the wall, so I made the holes about an inch down from the top and $\frac{1}{2}$ inch to $\frac{3}{4}$ inch deep at a 45° angle and with a wide enough diameter at the deepest point for the nail to fit. I used headless nails between $\frac{1}{2}$ inch and 2 inches long, depending upon the size and weight of the piece.

Since all the pieces were different sizes and shapes, it ended up being a fairly intuitive thing to figure out the weight and balance of how the individual pieces would actually hang. On some of the larger pieces, the hole needed to be made farther in toward the center or off to the side to create the correct balance. When it came to actually hanging the pieces, museum wax made it easy to make slight adjustments to each piece.

To make the holes I used three tools—a small arrow-shaped metal carving tool, a fettling knife, and a sponge. I used the arrow tool to drill a hole at a 45° angle, the fettling knife to ensure it was wide enough at the deepest point for the nail to fit in fully, and the sponge to round the edges of the hole to prevent chipping. Since these pieces were made from porcelain and fired to cone 10, I was confident that this was a strong hanging method. Finally each piece was numbered to match the template.



4. Tyvek template with pieces traced, numbered, and nail positions marked.



5. Creating holes on each piece for hanging.



6. Nailing right through the tough Tyvek template.



7. Labeling each nail with the piece number made finding the piece a little easier.



8. Laying out the numbered pieces on the template.



9. Hanging the pieces on the wall with museum wax helps secure them and make adjustments easier.

The Story of *Intersection* becoming *Intersections*

Intersection began as a personal journey; The making was a huge endeavor spurred on by a number of events coming together. The death of my mother along with my son's graduation from college became the two markers in my life that fueled the creative energy necessary for such a huge project. My mother had always told me to be true to myself, to make what was in my head because no one else would.

Months after the original show at Northern Clay Center was taken down and *Intersection* had been packed up in its 20 boxes, I received an email from the non-profit organization, LifeSource. They were building a new headquarters and wanted to talk to me about creating a piece for their new space. I thought that they had seen my show and the piece, *Intersection*. At the meeting it became apparent that they had not. When I showed them an image of *Intersection*, they immediately connected with the piece, you could feel it in the room. LifeSource facilitates organ and tissue transplants; they saw their mission in my piece. It was quite humbling. Over the next four months I worked to transform the original *Intersection* into *Intersections*. It grew to 35 feet long and 5 feet tall. The installation in their new building became a collaborative effort as many employees in the organization signed up for shifts to help throughout the two-week-long installation.

After the installation, I told the people at LifeSource: "*Intersections* has become its own and it is at home at LifeSource. It is like watching your child grow up. They begin as part of you then they become their own person, stronger and more wonderful than you could ever have imagined."

Wall Sculptures



Monica Rudquist and volunteers from LifeSource installing *Intersections* at LifeSource in Minneapolis, Minnesota.

4

Mixing Materials

DEBORAH SIGEL: STEEL AND EGYPTIAN PASTE

by Mary Cloonan

There is a discordant beauty inherent in Deborah Sigel's work. The black steel framing the deep cracks in the Egyptian paste seems at odds with the bright colors and botanical forms. It's this dichotomy—order and chaos, stoic and friendly—that entices and intrigues. Viewing her work poses questions about the nature of beauty in imperfection, the clash of industrial with organic elements, as well as how the pieces were made. Sigel pushes the rules and limits of the materials she uses while pulling the viewer in to investigate the resulting textures and colors.

Sigel began her explorations into Egyptian paste while at Cranbrook Academy of Art in Bloomfield Hills, Michigan, where, in addition to studying ceramics, she spent a lot of time in the metals studio and interacted with other students in both areas. Egyptian paste is a low-fire mixture of ceramic materials containing clay, sand, colorants, frits, and soluble salts. These salts effloresce to the surface along with water as the paste slowly dries, forming crystals, which create a self-glazing clay-glaze hybrid once fired. As the name implies, it was originally developed in Egypt and was used to mimic semi-precious stones such as turquoise or lapis lazuli.

Intrigued by the property of the glassy paste, and the opportunity to build sculpturally with color, she explored its characteristics. Initially, she experimented, creating steel cages to hold the paste with the hope it would flow and drip. Instead, when she fired the pieces, the Egyptian paste held its shape, cracking within the confines of the frame. As she continued her investigations



Detail of *Burst*, 26 in. (66 cm) in height, Egyptian paste and steel. Photo: Brian Giniewski.

and exploration, she became more enamored with the steel frames as a line drawing combined with the ceramic material and set upon her creative course. The work feels simultaneously ancient and modern.

Sigel finds inspiration in the beauty of nature and rational mathematics, and the pattern and order found there. The objects are distillations of plant forms pared to a stoic geometry and joyful palette; playful, candy-hued constructs whose fissures are constrained by blackened steel drawings.

Sigel creates work meant to be displayed on a wall, not just for convenience, but as a carefully orchestrated maneuver. The wall allows her to manipulate the space and interaction between the objects, and to let the shadows play a part in the composition. It also emphasizes the patterns created by the grouping, allowing one to view the whole while investigating the individual, implement-like objects.

In many pieces, flowers bloom in a tight grid across the wall, an arrangement that implies a matching game, or other game of skill. The grid also imparts a careful taxonomy of a botanist's organization, allowing for infinite possible arrays. Six petals radiate from a central metal circle that also serves as a way to display the work. Rods are bolted to the wall, and the central metal ring is placed on this rod, allowing the flowers to cast shadows and spin or pivot gently, a random settling that makes the pattern slightly askance, softening the grid.

Building the Forms

Sigel welds the frameworks for her sculptures from $\frac{1}{4}$ -inch steel rod, which can withstand the heat of a low-temperature firing (figure 1). Fabricating her frames in this way gives her the ability to sculpt with strong, bold lines. She sees the forms as a three-dimensional drawing for the Egyptian paste to inhabit.

Once the frame is fabricated and cleaned up, Sigel dons gloves to protect her hands from the caustic soluble salts and to minimize her exposure to colorants, then packs the forms completely with Egyptian paste (figure 2). Her recipe consists of glass frit, soluble salts, nepheline syenite, clay, and a small quantity of sand to help control shrinkage. She has reduced the amount of soluble salts, substituting in nepheline syenite, to combat the scumming on the surface that's common with Egyptian paste. Occasionally a small amount of lithium carbonate is added if a slight sheen is desired, so that after the firing, the surface still looks

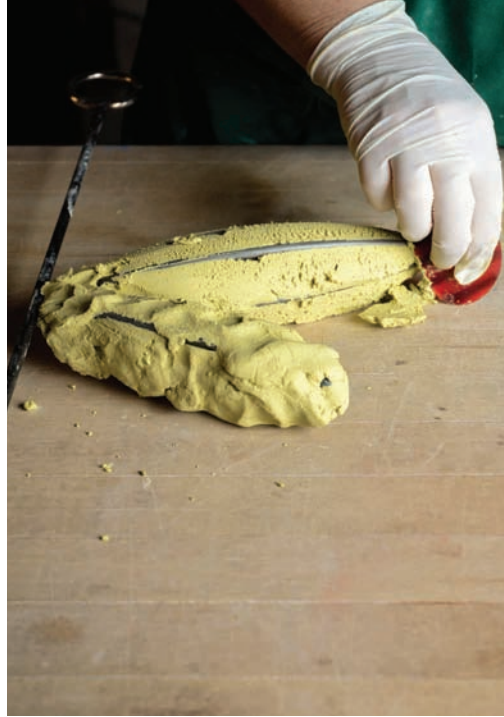


1. Welded $\frac{1}{4}$ -inch steel rods form the frameworks for the sculptures ready for the Egyptian paste to be added.

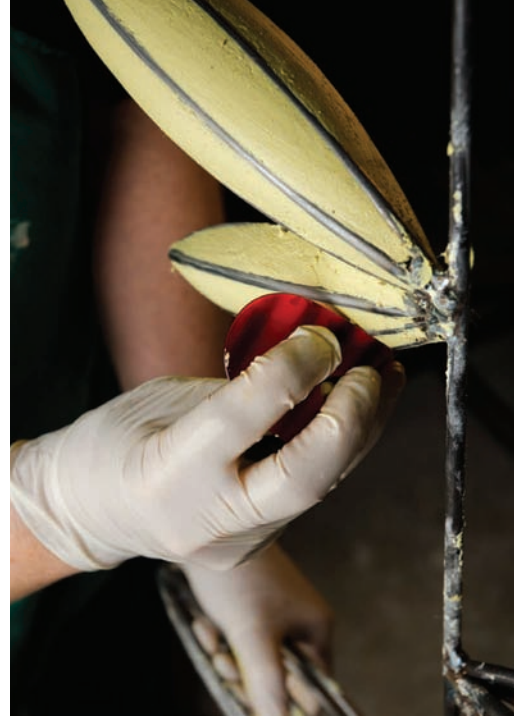


2. Wearing gloves, press thick Egyptian paste into the voids within the framework.

PROCESS PHOTOS: HANNAH WATSON



3. Use a soft rib to compress the Egyptian paste and remove excess to reveal the steel supports.



4. Refine the forms further using a soft rib to smooth the Egyptian paste and refine the shape.



5. Using a fettling knife to smooth the surface of the Egyptian paste between the metal supports and clean excess paste from the supports.



6. Loading the 42-inch tall hanging *Wisp* structure into the kiln, supported by hard bricks and a black steel pipe.



7. After the firing, the metal has serpentine curves due to the action of the heat and weight of the pods.

like it did when freshly modeled. Colorants are added at 6–8% in the form of Mason stains, or 2% for metallic oxide colorants. Sigel started her investigations into Egyptian paste with two recipes (see page 114). As time went on she began to favor Mark Johnson's Matte Egyptian Paste recipe and made a few modifications including firing higher and lowering the amount of soluble salts. The new recipe may not conform to the standard idea of an Egyptian paste recipe, but the modifications work well for Sigel's sculptures.

The dry ingredients are mixed with just enough water to create a thick, moldable paste. Sigel then carefully hones the surface, using the spine of the rod as a guide, meticulously smoothing the paste with a soft red Mudtools rib (figures 3–4) and a fettling knife (figure 5).

Once the frames are filled and refined, she loads them wet into the kiln and fires them slowly to cone 05 with the kiln lid or door propped open for the moisture to escape. This is a counter-intuitive process for anyone accustomed to the usual firing techniques for Egyptian paste, where it's dried slowly to allow for the soluble salts to come to the surface creating the self-glazing layer, but it works for producing the surfaces Sigel prefers.

Still, she does find it fascinating that the pieces stay together despite being fired wet, "Why don't they explode? It baffles me!" Perhaps it's the openness of the paste body, which contains little clay. Perhaps the cracks form early on in the drying process and allow the steam to escape in a less destructive manner. The combination of firing damp with the incompatible coefficients of expansion

between the steel and ceramic materials promotes the cracking and fissures she is seeking, a randomness within the set pattern. Note: You can fire wet. Pieces explode in a kiln when the outside dries and traps water inside. As the water turns to steam and expands, it has no way to dissipate, and the resulting pressure causes the piece to break. When firing wet work, heat the kiln slowly.

Loading the kiln also influences the final work. Flowers are fired flat on a bed of sand, this supports all the petals while supplying a release in case of over fluxing. *Wisps* and *Bursts* are hung in the kiln, in the same position they will be displayed after the firing (figure 6). Sigel builds brick towers in the kiln with a support rod made of black steel pipe, the kind used for gas lines, that the top loop of the steel armature hangs from. An interesting alteration occurs in the kiln. The *Bursts*, being a single, centralized point or weight, remain straight. The *Wisps* start off straight, but

the offset placement of the pods distribute the weight and heat differently creating serpentine curves (figures 7–8).

As individual pieces or as a whole installation, there is a quiet elegance and rhythm to their geometry. They're stoic, but there's also a strong sense of humor; playful colors imply toys and their display cause one to invent games with the quirky implements (figure 9).

For Sigel, the materials are more than just a curious aesthetic result; they become a metaphor for the effects of time. It's about embracing chance and revelling in the precarious balance of chaos and order. The kiln is an important partner in her creative process, it alters with heat and time, transforms the steel and Egyptian paste, recording history, and endurance. In her work, Egyptian paste and steel are integral and integrated elements, a symbiotic relationship creating controlled serendipity.



8. Completed *Wisp* forms, to 39 in. (99 cm) in height, showing a variety of Egyptian paste colors and the way the steel curves as a result of the firing. Photo: Brian Giniewski.



9. *Bursts*, to 26 in. (66 cm) in height, in a completed installation. Photo: Brian Giniewski.

MARK JOHNSON'S MATTE EGYPTIAN PASTE

Cone 08

Sodium Bicarbonate	6%
Ferro Frit 3134	20
Bentonite	8
Silica	66
	100%

JUANITA'S PASTE

Cone 08–06

Nepheline Syenite	30%
Soda Ash	5
Sodium Bicarbonate	5
Ball Clay	10
Fire Clay	10
Silica	40
	100%

Add: Bentonite 1–2%

Deborah Sigel started her investigations into Egyptian paste using both Mark Johnson's Matte Egyptian Paste and Juanita's Paste recipes before modifying Mark Johnson's Matte Egyptian Paste recipe to better fit her needs.



DEBORAH SIGEL'S EGYPTIAN PASTE

Cone 05

Ferro Frit 3134	20.60%
Bentonite	8.25
Sodium Bicarbonate	0.50
Nepheline Syenite	2.60
Silica	68.05
	100.00%

Add: Silica Sand 5–8%

For sheen

Add: Lithium Carbonate 0.125–.25%

For Cobalt Blue

Add: Cobalt Carbonate2%

For Yellow

Add: Degussa/Cerdec Bright Yellow 6–8%

For Orange

Add: US Pigment Tangerine Inclusion Stain 6–8%

For Green

Add: Imported Green Stain* 6–8%

For Purple/Lavender

Add: Mason Stain Amethyst 6–8%

For Black

Add: Mason Stain Chrome Free Black 6–8%

Mixing: Start with 33% water as each colorant takes a different amount of water, cobalt carbonate needing a good bit more than the others. Add more water in smaller increments as the paste can quickly become over hydrated and sticky. Paste tends to stiffen up by the next day or two and will need to be re-wedged to become pliable again.

If you'd like to try using Egyptian paste but don't want to mix your own, check out prepared versions at www.amaco.com and www.lagunaclay.com.—Ed.



Bill Jones received a Bachelor of Fine Arts in studio ceramics from The Ohio State University, and operated a pottery studio during the 1970s. He joined the American Ceramic Society in 1997 to serve as editor of *Pottery Making Illustrated* as well as manage the Ceramic Arts Daily Book program. He currently lives and works in Gambier, Ohio, where he continues to edit ceramic art handbooks and operate Pine Row Studio with his wife, Pamela.

Clay is the most versatile sculpture material around. It's easy to use, readily available, inexpensive, and perfect for creating works of most any size or shape. For thousands of years, artists have relied on clay to express their creativity and give tangible form to their ideas.

In *Sculpture Techniques*, you will discover a world of fresh ideas from more than thirty artists as they share their unique methods and inspired designs. Expand your construction skills, learn different ways to create figurative sculptures, make pieces for the wall, and incorporate other materials for both strength and special effect.

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