

ceramic carving tool techniques

| Second Edition |



bringing the ceramic surface to life



This special report is brought to you with the support of MKM Pottery Tools

Ceramic Carving Tool Techniques

Bringing the Ceramic Surface to Life

One of the best ways to make a piece of clay work as your own is to literally put your mark on it. In **Ceramic Carving Tool Techniques: Bringing the Ceramic Surface to Life**, you will learn to go further, bringing the form and surface of your work together into a signature style using a variety of clay carving tools in combination with carving techniques like sgraffito, etching, wire-cutting, relief carving, and more.

Advice on the Best Tools for Carving, Cutting, Scratching, and Slashing Clay

by Robin Hopper

No matter how you want to approach the carving of your clay work, knowing what tools work best for each job—or even what tools are available—is a great way to get started.



Considerations for Carving Clay

by Emily Reason

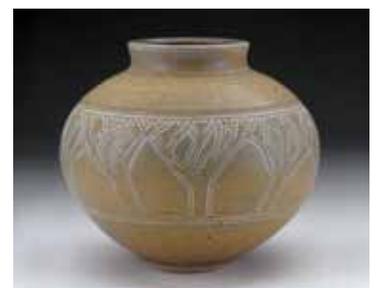
Carving into a clay surface can be very gratifying, but when you're making pieces for use, you need to be mindful that the carving accentuates the function, rather than hindering it. Being attentive to a few basic design considerations will help you keep your clay carving appropriate to the form.



Making and Glazing Incized Ware

by Ann Selberg

Whether you work with sgraffito, relief carving, incized line decoration, or some other clay carving technique, there are a few tricks to successfully glazing ware with carved surfaces.



Advice on the Best Tools for Carving, Cutting, Scratching, and Slashing Clay

by Robin Hopper

An infinite variety of graphic marks can be made in soft clay through the use of a wide assortment of knives, forks, scalpels, welding rods, wire-ended or wooden modeling tools, sticks, bones, awls, needles, saws, wires, kitchen utensils, and just about anything that can be creatively employed to produce an image, mark or sign. The nature of working with tools is such that artists usually develop favorites that seem to become extensions of their hands. Most potters and ceramic artists I know seem to have boxes of tools selected or made for specific processes of surface enrichment. They invariably are seeking the one tool that will out-perform all others, feel better in the hand or just be more pleasurable in use. Tools either can be purchased or found objects. In sensitive hands, sometimes the most unlikely looking implements give the greatest results. Almost any tool takes time to give out its secrets for best use, so continued play or exploration of potential is a given if you want to use tools to their optimum level. Slight variations of pressure, twist or movement can produce or reveal the most amazing complexity of marks from even the simplest of tools.

Tools and Methods

The tools that seem to perform best with either soft or leather-hard clay—the states where most slashing, scratching, carving, and cutting is done—are primarily tools with sharp points or edges. Clays generally are abrasive, finely granular materials that quickly will take the edge off of softer metal tools. Most cutting tools perform best when kept sharp. The types of material used for ceramic tool making varies from fairly soft alloy metals to knife-quality steel and beyond, into tungsten carbide, a fine, very hard crystalline material.

The price of the tool often will indicate the quality. The better the quality, the more efficiently it will do the jobs required of it. Inexperienced clay workers often blame themselves for problems caused by tools that are inadequate for the job. Potters' tools that are packaged as beginner sets often make an already difficult process more so with unsatisfactory tools that quickly become dull from abrasion, causing unwanted “chattering,” or bouncing, of the tool on the clay because it is too dull to cut properly.



Cutting and scratching tools.



Wire cut harp.

Photos (unless otherwise noted): Judi Dyelle

The best tools are usually individually handmade by small companies that understand exactly what the potter needs from personal experience and discussion with the people who use them. Tools made from high-quality knife steel, such as those made by Dolan Tools, will outperform soft metal tools and keep an edge against the abrasive qualities of clay for a long time. Knife steel easily can be sharpened with a file to maintain a sharp cutting edge.

The best and most long-lasting edge on pottery cutting tools is provided by tungsten carbide, a material considerably harder than steel. Even though it is very hard, crystalline tungsten carbide is extremely brittle, and tools made from it should be used carefully. Avoid dropping these tools on hard surfaces, as they may break. Tungsten carbide tools are usually individually handmade by small companies, such as Bison Tools. Although more expensive than metal tools, the cutting quality of tungsten carbide tools is much better. They are even capable of trimming and cutting through bisque ware! Should they require sharpening, they can be returned to the company.

For the serious potter, tungsten carbide tools are probably the most satisfactory tools, turning what was often mundane work into sheer pleasure.

Buy the best tools you can afford, or make your own using the best materials you can afford.

Cutting

The way clay cuts depends on both the state of the material and the cutting tool. As a general rule when using knives and scalpels, the stiffer the clay, the more easily controlled the cut, and the softer the clay, the more resistance there will be to the cutting tool. Clay tends to cause the knife blade to drag by sticking to its surface.

Wire Cutting

The potter's wire is much more than a tool for separating a thrown pot from the wheelhead or throwing bat. It can be simply a flexible wire with a handle at each end, or it can be fitted into a handle similar to a small woodworker's bow saw and tightened to form a rigid cutting edge. Such a tool can have numerous interchangeable plain or twisted cutting wires to give a wide variation of possible cuts.

The twist wire shows multiple cuts that pick up on the features of the glaze, emphasizing the thick and thin qualities. Twisted wires with a much greater textural emphasis can be made from sprung wire curtain rod, which is often used for stringing kitchen curtains and is usually covered with a plastic coating. This can be found in old-fashioned hardware stores. After removing the plastic coating, the wire can be gripped with needle-nosed pliers and stretched to create a variety of wavelike patterns of grooves. Pulling this type of wire through soft clay and moving it from side to side will give a surface evocative of sandy beaches after the tide has receded. Using the pro-



Photo: Eva Heyd

Marc Leuthold's *Wheel, Anagama Series*, 20 in. (50 cm) in diameter, 2 in. thick, wood-fired stoneware, 2002.

cess of slab making by throwing a block of clay on a hard surface, wire cutting it into slabs and pulling and stretching the sheets of soft textured clay on a hard surface allows for a great variety of expanded patterns.

Carving

Surface carving is usually done best with a variety of tools—from knives and gouges to wire-ended modeling tools—when the clay is leather-hard. The thickness of the objects to be carved should be considered carefully early in the process.

Surface Expansion

Creating linear images in soft slabs of clay or in soft thrown clay cylindrical forms and then pushing from beneath or inside the thrown form allows expansion of the image and textural development at the same time. Spraying or brushing the surface with a solution of sodium silicate and quick drying it with a blowtorch or heat gun while leaving the underside or inside of the form quite soft will produce remarkable surface textures when the clay expands from beneath or inside. Often resembling aged, tooled leather, these textured surfaces react well with thinly sprayed colorants or glazes or when fired in wood, salt or soda firing kilns.



Fluting tools.

Tearing

Ripping clay is best done when the clay is soft leather-hard. At this state it is easier to grip without sliding and to either gently tease apart or vigorously tear, depending on how you want it to look or feel. Clay often has a will of its own when being ripped, and sometimes a few guiding pinpricks along the tear line makes control somewhat easier.

Fluting

Fluting is the process of cutting decorative grooves into a clay surface. It is best done on leather-hard clay with wire-ended modeling tools of various shapes, bamboo tools with sharpened edges or metal tools with cutout sections and/or sharpened edges. If the clay is too soft, it may deform the object being fluted; if it is too hard, it may crack the surface or edges of the object. Fluting generally is done in a dragging motion, pulling down toward you in a clean, sweeping motion. The clay will cut cleanly and evenly at this stage if your tools are sharp. If the clay has started to change color or the surface is starting to dry, the tool is more likely to slide uncontrollably than cut easily. Unless you want loose grooving of the surface, fluting is a meticulous and time-consuming process.

On a round form, some people mark out exactly how many strokes are needed so the last and first strokes will be equally spaced. Others do it by eye, allowing the spacing to expand or contract as the last few cuts are made.

Fluting often leaves a burr at the edge of the cut mark. If this is undesirable, it can be removed in the leather-hard state with a damp sponge, or in the dry state with a soft, abrasive pad, such as a softened kitchen scouring pad.

Fluting doesn't necessarily have to be deep to be effective. The final quality of this type of mark usually lies with the



Fluted pitchers, bisque fired.

glaze used over the top. If high-temperature fluted porcelain is covered with a transparent or translucent glaze such as a celadon, the fluting can be very shallow yet still visible because the glaze pools in the slight depressions, giving a variety of tones. Deep fluting is perhaps most effective with high contrast glazes, where there is a strong variation in color from thick to thin and the thinning glaze emphasizes edges dramatically. High iron content Tenmoku glazes that are dark brown to black when thick and almost orange when thin are a good example of high-contrast glazes.

Fluted surfaces often are enhanced greatly by wood, salt or soda firing. With suitable glazes, fluted surfaces can be further altered by sandblasting.

Pineapple or Crosscut Fluting

Another traditional form of fluting uses cuts in opposite directions, either diagonally, or vertically and horizontally. This generally is known as pineapple, or crosscut, fluting in reference to the diamond- or square-shaped protrusion



Rachelle Chinnery's *Flores Series*, 14 in. (35cm) in length, carved porcelain, cast bronze base, 2003.

sions left from the original surface. As described above, all fluted objects play beautifully with glazes across their surfaces, emphasizing edges and depths by various color or texture changes.

Faceting

Faceting is done by cutting the clay surface into a series of wide, flat planes. Cutting wires, large knives or carpenter's blades are often used for faceting, and the process is best done on clay between the soft and leather-hard states. Since faceting emphasizes flat planes and edges, it will be enhanced by glazes and the firing processes described for fluting.

Sgraffito

Sgraffito comes from the Italian word for scratch, and it describes the process of making marks by scratching designs into surfaces. The tools used for sgraffito are basically anything with a sharp point. A personal favorite of mine is a 9-inch length of welder's brazing rod ground to a point or chisel shape, then sanded smooth. The rod has a good heft in my hand, and it has a short length of rubber tubing to enhance the grip.

Sgraffito can be done directly into the clay, through a layer of slip or pigment or even through glazes. For artists who enjoy the drawing process, sgraffito is similar to drawing on paper with pen and ink or hard pencil. Sgraffito drawings made directly into the clay can be further enhanced by filling the lines with ceramic colorants. The colorants can be applied as a solution with water, then cleaned of the excess with a fine scouring pad. Or they can be applied with a ball of cotton wool and powdered color.

Since sgraffito processes often cause considerable dust, it is recommended that you wear a dust mask. Sgraffito through slips, engobes or underglazes into the body is best done at leather-hard through dry states. Sgraffito through the glaze and down to the bisque usually produces the best results when the glaze is still damp. A colored slip coating on the object before bisque firing often gives greater emphasis to the drawn design, particularly when it contrasts with the glaze color. Glazes for use with sgraffito processes should have at least 10 percent clay content to prevent possible crawling problems caused by glaze loosening from the bisque surface in the scratching process.

Saw Blades, Cut Kidneys and Texture Tools

Saw blades; sections of saw blades; flat, metal kidneys with toothed edges; or notched tile installation tools all make great tools for producing sweeping multilinear marks, particularly on soft clay. As with the fluted surface, the marks made by toothed tools are greatly enhanced by many glazes and firing processes. Broken hacksaw and band saw blades can be recessed into wooden handles to make them easier to use. To increase the variation in the linear markings, some teeth can easily be removed with a file or carborundum grinder. The marks can be thought of as miniature fluting, done in a single sweep or movement.

Piercing

Piercing, or perforation, can be done with fine knives; metal tubes, usually brass; drill bits for wood or metal; or small, shaped brass tubes with retractable springs that push the cut pieces out of the tube. Timing is of the utmost importance when doing this type of work. If the clay is too soft, the object will deform or warp in subsequent firing. If it is too stiff, it likely will crack under the pressure of the piercing tool.

Fine filigree piercing also can be done after bisque firing when there is less likelihood of risk from breakage. Fine tungsten-tipped drill bits can be used in small Dremel or Foredom type drills. There likely will be a considerable amount of dust, so it's a good idea to wear a safety dust mask and glasses.

Cleaning

Any of the previously mentioned processes that create dust should prompt you to carefully clean the piece before firing or before glazing to prevent glaze application problems caused by dust or loose particle buildup. Crawling is the most serious of these problems. Small, stiff, coconut fiber brushes are available in multiple sizes in ceramic supply stores and are invaluable for cleaning such surfaces.

Emily Reason: Considerations for Carving



Tableware, large plate, 11 in. (28 cm) in diameter, porcelain, fired to cone 10 reduction.

Dinnerware is a challenge to make because it demands specific qualities. It must be consistent in design, size and shape if it's to be a set. I find that if I don't make all the plates or all the bowls for a set in one sitting, they'll vary from one series to the next. Dinnerware pieces should also nest and stack well, and be durable, yet lightweight. In addition to the challenges of making dinnerware, there's the logistical challenge of efficiently loading a kiln with mostly broad and flat wares. The variables in reduction firing present further challenges in attaining consistent glaze surface. I therefore try to fire entire sets at once. Din-



Carved plate, 11 in. (28 cm) in diameter, porcelain, fired to cone 10 in reduction.

nerware needs to fit in well with daily lifestyle, including the ability to go in the dishwasher.

Know When to Say When

I'm currently obsessed with carving. Very few pieces I make aren't carved. Clay is truly the ideal material for creating texture; especially since clay objects are so often meant to be touched. Making functional ceramics with texture is therefore fitting for me. Creating beauty, while maintaining a standard of usefulness, is my major goal. It's important that my carved and slip trailed surfaces don't deter from the function of the piece. My dinnerware design has a scalloped service rim that is carved. The food surface itself has no



Carved serving bowls, to 14 in. (36 cm) in diameter, thrown and altered porcelain, fired to cone 10 in reduction.

Candlestick holders, 6 in. (15 cm) in height, porcelain, fired to cone 10 in reduction, 2010.



texture and a glossy glaze for easy cleaning. It's easy to get carried away with making texture, so I try to leave quiet areas on each piece where there is none.

I use a homemade carving tool, which was modeled after a tool used to create carved patterns on Chinese Yaoware pottery (see page 49). The L-shaped blade, set in a bamboo handle, is used to create a pleated pattern of lines. For me, carving lines is a rhythmic motion that achieves even, consistent marks. The corner of the L, carves into the leather-hard clay, making the deepest part of the recessed line. The tool is effective in achieving a line with depth, allowing the glaze to vary as it pools in the deepest part of the line.

Marketing

The dinnerware I make is pretty labor intensive, so I have to price it accordingly. My customer demographic for it tends to be folks with disposable income. They also seem to be people with knowledge of and an appreciation for fine handmade craft. I'm still learning as I go about marketing strategies for selling my work. I know for certain that professional quality photographs are where good marketing begins.

Emily Reason lives and works in Marshall, North Carolina. To see more of her work, visit www.emilyreason.com or <http://emilyreason.blogspot.com>. Her tableware was included in "Table Manners," at Lark & Key Gallery (www.larkandkey.com) in Charlotte, North Carolina.



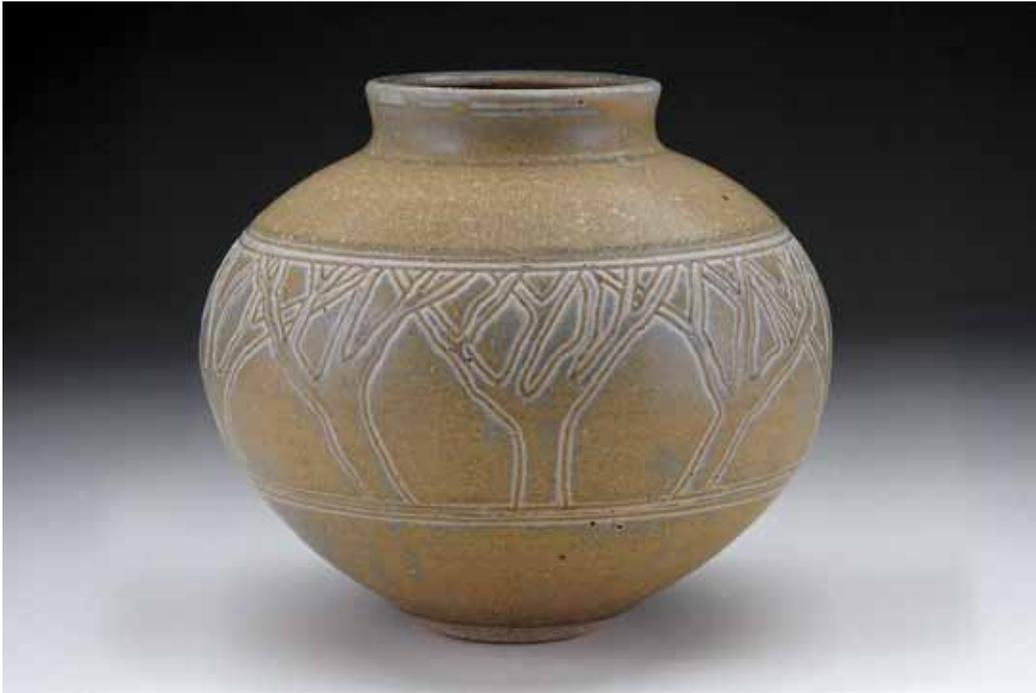
Above: To make the scalloped rim on my dinnerware pieces, I first cut through the leather-hard rim with a fine-blade knife. I soften the cut edge by compressing a damp sponge between my fingers and repeatedly run it over the edge of the rim. The result is a refined edge that is still adequately thick for durability.

Below: My homemade carving tool was modeled after a tool used to create carved patterns on Chinese Yaoware pottery. The L-shaped blade, set in a bamboo handle, is used to create a pleated pattern of lines that will catch pooling glaze.



Making and Glazing Incised Ware

by Ann Selberg

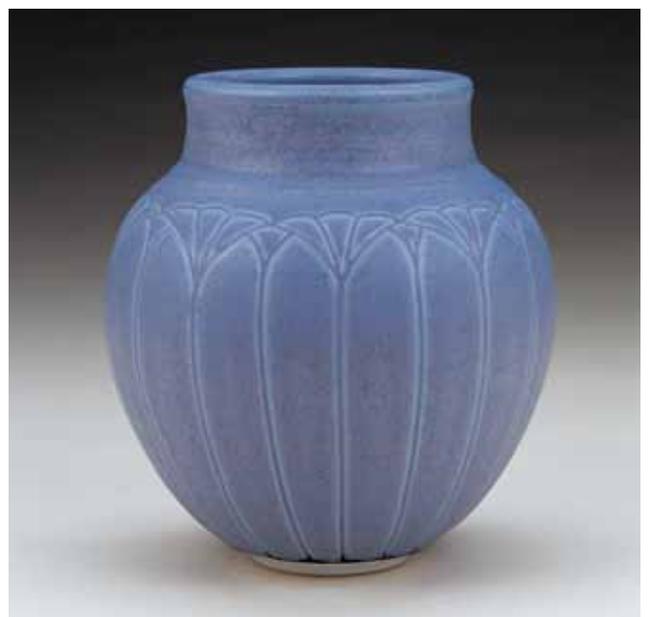


As a seasoned calligrapher, Ann's incised lines are as much about the drawn marks as they are about the space around the line and their relationship to nearby lines.

Incising suits my temperament. It satisfies my love of pattern and order. It is subtle. I've found inspiration in incised Cycladic terra cotta at the Getty Museum, Pueblo pottery at the Heard Museum and art pottery at the Terra Museum.

Originally all my designs were done freehand on the pot. Some of my art training precedes the use of computers for graphics and signage. I was taught to do layout by hand. I became a competent calligrapher. The concept of eyeballing it rather than precisely measuring, and the calligrapher's understanding that in drawing a line one also creates space around the line and relationships to nearby lines, are with me during incising. Some ideas do require pencil sketching first.

I use a small, U-shaped trimming tool while the clay is leather hard. Some experimentation is involved in determining the proper depth of the incised groove. Designs that call for fluid hand movement help necessitate even depth and smooth line work. I'm always thinking of how my hand will move across the pot with the tool, as well as how



This wheel-thrown porcelain vase was carefully incised and fired to Cone 10 in reduction, by Ann Selberg.

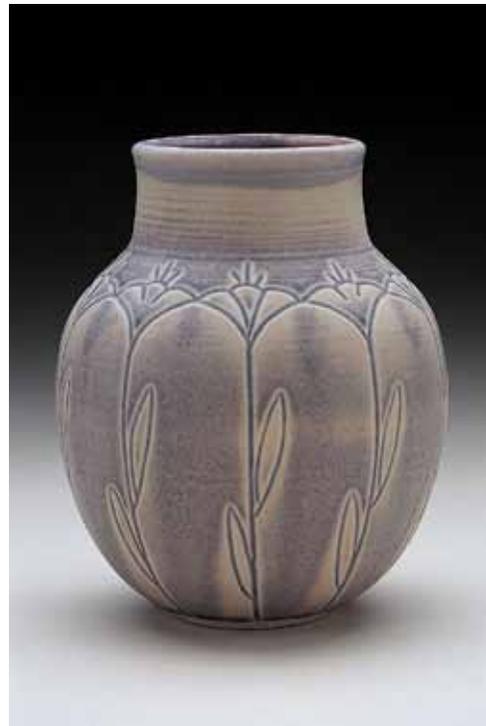
the shape of the specific pot is enhanced by incising.

Because the sole decoration on my pots is relief created by incising, breaking glazes set off the patterns best. A matte or semi-matte surface suits the character of the pieces. Each pot is dipped in a single glaze.

A narrow, deep groove will cause air bubbles to form when the pot is dipped in glaze. If the mark is too shallow it will be lost in a coat of glaze. Horizontal lines on a piece tend to gather bubbles, so these pots should enter the glaze diagonally.

It has always been my inclination to avoid gauges and scientific equipment in relation to pottery making. There is certainly a sense that some of the mystery and the sport will be lost. When the old-fashioned method of sticking my hand in the glaze to test for thickness could not

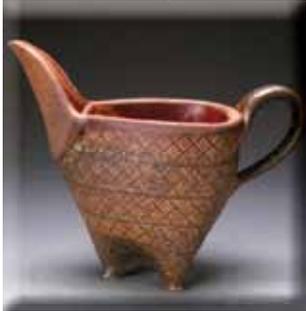
satisfy my need for consistent results with the incising, an \$18 investment in a hydrometer helped me find the proper glaze consistency, where patterns show through the glaze and there is still sufficient glaze to create a pleasing surface. This little instrument proved to be worth its weight in cobalt carbonate. It is a sealed blown-glass tube weighted on one end so it floats upright in the glaze. It has a graded scale on the side that is calibrated to indicate specific gravity of a liquid at 60 F (15.5 C). Specific gravity is the measure of the density of a given substance compared to the density of the same volume of water. For my glazes, a specific gravity between 1.6 and 1.65 is a good place to start. It seems that each glaze has a slightly different ideal specific gravity, which also may vary with a change of clay body.



Breaking glazes set off the patterns best in Ann's carved pieces. To enhance the patterns, she uses matte or semi-matte glazes which break from the carved lines and add further to the decoration.

MKM Rollers 4 Clay

Make Incredible Designs Fast & Easy!



All rollers are 6.0 cm wide, but have design faces of differing widths (1.5cm, 3.0cm and 6.0cm)

• All rollers are made of fine-grained hard wood and treated with teng oil for durability.

• All rollers fit into the same handle, and can be easily and quickly changed out for a roller with a different design or width.



VISIT: WWW.MKMPOTTERYTOOLS.COM

MKM Stamps, MKM Decorating Disks™, MKM Throwing Tools™, MKM Wood Ribs & Paddles

WHOLESALE: FAX: 920.830.9394 VOICE: 920.205.2701 EMAIL: mkmTools@sbcglobal.net

RETAIL: Your local distributor