



SECOND EDITION



CLAY A Studio Handbook



Vince Pitelka



Beth Cavener's *The Question that Devours*, 2015, 64 inches in height, stoneware, modeled solid and carved hollow, paint applied after firing. Cavener writes: "On the surface, these figures are simply feral and domestic individuals suspended in a moment of tension. Beneath the surface, they embody the consequences of human fear, apathy, aggression, and misunderstanding." Photo: Beth Cavener

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Marty Fielding's *Mixing Console*
2014, 16 inches in length,
handbuilt cone 3 red clay and
slip cast cone 03 earthenware,
terra sigillata, underglaze,
glaze, oxidation fired. Fielding
says, "I seek harmony in my
surroundings, moments of respite
from the rush and concerns of
daily life." Photo: Marty Fielding

Handbuilding

2

In contemporary clay we are easily seduced by the wonderful abundance of tools and equipment available, but consider that the most effective and beautiful ceramic sculpture and vessels through history were often created with nothing more than human hands and a few simple handmade tools. It is particularly instructive and humbling to observe the art and craft of tribal cultures, where the tools may be primitive, but design and craftsmanship are as sophisticated as anything the industrialized world can offer.

A common assumption holds that the potter's wheel is the standard method of hand making utilitarian vessel forms, but through history most vessels were handbuilt off the wheel. The potter's wheel did not appear until 4500 years ago in the Middle East, 3000 years ago in East Asia, and in the Americas only when introduced by Europeans less than 400 years ago. Handbuilding processes are preferred in many ancient ceramics traditions still vital and active today, including Southwest Native American cultures.

Handbuilding has earned an equal share of attention in contemporary studio clay, and in academia has clearly dominated and in many cases supplanted the wheel. Handbuilding offers unlimited possibilities in structure and surface impossible or impractical on the wheel, and allows construction of almost any imaginable shape. Handbuilding processes are divided into four categories: pinch, coil, slab, and solid construction.

Pinch and coil methods are prevalent in ancient and tribal cultures. Slab construction was widespread in Mesoamerican Pre-Columbian cultures, but otherwise is rarely found until modern times. Pinch construction is by far the simplest, and provides an ideal introduction to other ceramics forming methods. Pinch forms are usually confined to less than 6 inches in diameter, although there are exceptions as in the fine work of Michael Imes. Pinch forms can be very thin and delicate or thick and substantial. There is something very special about an eggshell-thin pinched form that is sanded, coated with terra sigillata, and polished to a satin luster.

Coil forms can take almost any shape imaginable. Coiling is the only method where novices can quickly learn to make very large vessels or sculpture, an experience

that rapidly builds confidence in clay working. Coiling is especially appropriate for organic forms, large volumetric vessels, and some kinds of figurative sculpture.

Clay slabs can be formed and assembled in either soft slab or stiff slab method, indicating the condition of the slab while being worked. Soft slabs are ideal for curvilinear and organic forms, and can be slumped, draped, or soft formed to quickly create small sculpture and vessels, or shaped into component parts and assembled into larger forms when leatherhard. The stiff slab method is ideal for rectilinear and architectural form, and the two approaches are often combined, as when parts are soft formed and then assembled when leatherhard.

Solid forming is popular for sculptural work when it is advantageous to aggressively manipulate the clay additively and subtractively from the outside, as in the animal sculptures of Beth Cavener. Such work is generally cut apart when leatherhard, hollowed out, and reassembled.

This chapter includes detailed instructions for all of these techniques. While exploring and applying this information, remember that capability in handbuilding is largely dependent on your own sense of invention. Ignore the pessimists who say it's all been done before, because human ingenuity for all its wonder has barely scratched the surface of creative possibility. We clearly see this in the amazing diversity of materials, technique and expression in contemporary art, with so much that is fresh and new.

Clay Preparation: Clay Consistency and Wedging

Never settle for clay that is too wet or too dry—it simply isn't worth it. Excessively wet clay won't hold its form, but can be wedged on a dry plaster slab or cut into slices or formed into arches standing vertically to stiffen quickly. Stiff clay doesn't respond well and taxes your muscles, but can be covered with soaking wet rags in a bag or barrel overnight to soften, rewetting if necessary. Mixing clay in quantity allows it to age, improving workability, but that only works if you carefully monitor its condition and maintain an ideal working consistency.

Figure 2.1



1 Cylinder wedging: Place hands on either side of the lump in handshaking position.



2 Lean into the lump.



3 Continue leaning into the lump, smearing the lower portion against the wedging table.



4 Roll the top of the lump directly up towards you, grasp the sides with your hands.



5 Lean into the lump again, roll it back towards you, and repeat.



6 Continue until the lump is well blended and shows this appearance.

Proper preparation of plastic clay by wedging or pugging in a de-airing pugmill is important in all ceramic techniques. Poorly prepared clay does not respond well and tends to tear and crack. Every air bubble provides the beginning of a fracture or separation. Wedging clay or pugging in a de-airing mill mixes and homogenizes the clay and eliminates air. For either of the wedging methods explained below, start with a ball of clay the size of a large grapefruit and place it in front of you on a flat surface, preferably a sturdy, immovable plaster or concrete surface or canvas covered wedging table. Effective and efficient wedging makes use of muscles in your back, hips, and legs, but this requires a bench or table at the proper height. Stand straight with your arms hanging relaxed at your sides and your fingers bent. Your knuckles should barely touch the wedging surface.

Different clay bodies can be blended through wedging. Colorants, sand, grog, nylon fiber, or paper pulp may be introduced, however if that is the objective it's usually best to start with the stack and slam method, explained below.

Ram's Head Wedging

When first learning to wedge, the ram's head technique is generally easiest. The name is derived from the appearance of the resulting lump of clay, which looks like a ram's head

with the spiral of clay on either end vaguely resembling curved horns. Hold both hands as you would to shake hands with someone, and grasp the ball of clay firmly with your hands wrapped around either side as indicated in figure 2.1. Apply pressure downwards against the table as you push the ball away from you three or four inches without allowing it to roll, causing the underside to smear back against the table. Roll the ball back towards you, standing it up on the smeared "extension," grab again on either side, and push down and away as before. As you repeat this and the lump takes on a cylindrical shape, be sure to grasp it by the ends and not from above, because that will fold the clay upon itself, trapping air and defeating the purpose. Repeat this at least twenty times for each lump of clay. Thorough wedging creates a spiral twisting and stretching throughout the lump, homogenizing any irregularities in composition or moisture content and eliminating air bubbles.

Some people make a comparison to kneading bread dough, but wedging is an entirely different process because the objective is to eliminate air. Each push should smear the lower portion of the lump without introducing air into the clay. With proper pressure from each end during ram's head wedging the cylindrical lump should maintain its size and shape. If you find the lump elongating to either side

as you are learning the technique, slap your palms against the ends to narrow it.

Cone or Spiral Wedging

When you are comfortable with cylinder wedging you may wish to move on to cone or spiral wedging, which is more effective and can accommodate larger quantities of clay at a time. When learning the process, start with a ball of clay slightly tapered into a cone shape of equal height and width. Once accustomed to the method you'll

begin with a plain lump or ball, but initially it helps to start with a rough cone. Lay the cone on its side, with the flat end facing right and slightly away from you, and the point of the cone facing left and slightly towards you. Place your right hand over the flat end of the cone, and your left across the upper part of the curved side. Push as above so that the bottom surface of the cone smears a little, especially at the point on the left. Roll the lump towards you so that it is standing on the smeared "tail," and push again, as is shown in figure 2.2. Each time you push, the

tail of the cone will extend primarily from the pointed end at the left, and as you wedge repeatedly will slowly migrate around to the rim of the flat end on the right. The effect is that the clay is very efficiently circulated throughout the lump in a continuous spiral pattern. With practice, each time you release pressure the lump will roll towards you so that it appears to bounce off the wedging surface. When novices see this done by an experienced clay worker it seems as if the lump is bouncing like a rubber ball.

Figure 2.2



1 Cone wedging: Place the left hand on top and the right hand on the right side of the lump.



2 Lean into the lump, smearing the lower portion against the wedging table.



3 Roll the right-hand edge of the lump upwards towards you and reposition your hands as before.



4 Lean into the lump again.



5 Roll the lump towards you again and reposition your hands. The lump should be taking on a cone shape.



6 Lean into the lump again. Repeat as many times as necessary.



7 A well-wedged lump, showing the characteristic spiral pattern on the right-hand face.

Stack and Slam Wedging

The stack and slam method is especially suitable for those who experience muscle and joint problems with the above wedging methods, and is by far most effective for blending clays of different composition or moisture content and for introducing other materials into the clay. This method

Throwing

3

The potter's wheel appeared in Palestine 4500 years ago as an elaboration of the simple turntable, providing mechanical rotary motion to facilitate forming clay vessels. Until then all clay forms were handbuilt by pinch, coil, or solid-modeling methods. Many Third-World and tribal cultures today still prefer handbuilding, and the work often shows a compelling organic asymmetry. Classical notions of beauty associated with symmetry and physical perfection affect so much in our culture, but even when handbuilders produce smooth, symmetrical vessels, there is always the essential slight irregularity or asymmetry that provides character and evidence of process.

In the modern age, machines and technology easily seduce us. Propaganda of the Industrial Revolution pushed the myths that machine made is better than handmade, and that factory goods are reliable and consistent while handmade goods are unreliable and irregular. This was a clever and completely misleading marketing ploy, and in truth aficionados of fine art/craft have always appreciated the variability and originality of handmade objects that cannot be duplicated in factory production. In consideration of these things, it's amazing how often clay students assume that the potter's wheel by its nature is intended to produce mechanical symmetry, and that greater precision is necessarily a noble and logical objective. While that may be worthwhile in skill building, it's only logical if symmetry and precision conform to your personal preference. Much of the finest contemporary wheel thrown work is "thrown and altered" and quite fluid, gestural, and asymmetrical.

Whether for sculpture or functional vessels, the wheel is often best used as a tool for making component parts assembled off the wheel to create distinctive and inventive forms, often combined with handbuilt parts. The wheel excels for making hemispheres, spheres, ovoids, flat and concave/convex disks, cylinders, cones, tubes, and a myriad of other shapes that can serve as component parts in handbuilding. Contemporary ceramics is wide open, with unlimited possibilities for innovative experimentation and expression in vessels and sculpture. Do not succumb to popular rhetoric limiting the role of this medium or the potential of the wheel.

Of clay forming methods employed to produce items that can truly be called handmade, the wheel is most efficient. That can offer tremendous advantages as long as you remain in control. Even in many cultures with long-standing pottery traditions, mastery of the wheel simply gives license to alter the form on or off the wheel. Considered this carefully, and don't allow the limitations or possibilities of the wheel to subvert you from your natural artistic inclinations. Some of the most exciting wheel thrown work today is done with soft clay on a slow wheel, giving in an organic immediacy and irregularity of form and surface that become a record of the movements and processes invested in creation of the work.

Learning to throw requires a great deal of practice and skill development, and there are no shortcuts other than frequently reviewing the following suggestions and guidelines. Read and reread the information carefully to absorb the important steps and ensure that you are not overlooking important parts of the process. There are so many separate steps and details to keep track of as you learn to throw, and committing this information to memory will ease you into the process far more gracefully. For best results and quick progress, spend several hours a day at the wheel. The speed and efficiency developed by diligent and repetitive practice is essential in learning to throw. This is not specifically about production, although that may be your objective. Learning to throw quickly and efficiently allows you to create the forms you want before absorption of water renders the clay unworkable.

For those new to throwing, I recommend that you adhere closely to the guidelines and suggestions below. Once you develop some proficiency, start improvising technique, and at that point anything is fair game. Every person's inclinations and body geometry are a little different, and no matter how you are taught initially, much of what you ultimately learn is by the seat of your pants. Study the techniques as they are explained and try to follow the directions carefully, but as your skills increase, be ready to adapt your methods when you find a better way of doing something.

Throwing Right-Handed vs. Left-Handed

Traditional Japanese potters throw with the wheel turning clockwise, while in the West we throw counterclockwise. The decision should have nothing to do with whether you are right-handed or left-handed, because throwing requires manual dexterity and control with both hands, and it matters little which tasks are done with which hand. If you are left-handed, you have nothing to gain by learning to throw completely backwards from everyone else.

Wedging and Preparing Balls of Clay

Successful throwing requires properly prepared clay, and the first step is thorough wedging. See the section on wedging in the chapter on handbuilding. Wedge plenty of clay, and divide into fist-sized balls. When learning to throw, always sit down at the wheel with at least a dozen balls of clay. You must abandon the preciousness of the individual piece. Starting with only a few balls of clay encourages an unconscious determination to make every piece a success and thus an unproductive tendency to overwork the clay. Keep working on a piece if things are going well, but the instant it starts to go bad, scrap it and start another. You will accelerate the learning curve and accomplish far more.

Clay Consistency

Don't try to throw clay that is too hard or too soft. It's impossible to describe the ideal consistency, but as a general rule the clay should be soft and plastic but never so much that some of it sticks to your hands when tossed back and forth. You'll quickly learn the ideal clay consistency. Clay slightly on the stiff side may seem more manageable for the beginning thrower, but it's an illusion. You really are better off with soft clay. Stiff clay is unresponsive and can be hard on you physically over time, especially when throwing larger forms. Clay that is too soft absorbs water faster and will not maintain physical structure.

Experiment with clay of varying consistencies and continue to experiment as your throwing skills improve. Very subtle differences in consistency will significantly impact performance on the wheel. For the experienced thrower, well-aged clay slightly on the soft side is very responsive, and if thrown quickly will maintain its physical structure.

Centering

The purpose of the centering process is to shape and compress the clay in a smooth, symmetrical mass perfectly centered on the wheel head or bat. Proper centering is essential to good throwing. Clay sticks best to a surface slightly damp but not wet. Squeeze water over the wheel head or bat, scrape off any clay residue, and squeegee off

all water with a stiff rubber rib. If the surface is slightly rough, as with a weathered wood bat, use an old towel to absorb excess moisture left by the rubber rib.

Slap a ball of clay down in the center of the prepared wheel head or bat. Rotate the wheel slowly and slap the clay from both sides (figure 3.2) to roughly center the ball and seal down the lower edges. You can greatly simplify the wheel centering process by slap centering before you apply water.

Correct Position for Centering

Effective centering utilizes the weight of your upper torso and the powerful muscles in the hips and back rather than muscular strength in the arms. Move your stool very close to the wheel head as shown in figure 3.1. Before starting the wheel, try the following movements to assure that your position is correct. Hold both hands as you would when shaking hands with someone but with your wrists pressing together at the base of the thumb. Throughout the centering and coning process, pretend that your hands are permanently connected at the base of the thumb. Your hands can hinge and swivel at this point, but they should remain firmly connected in order to give the appropriate stability and cross bracing. See the series of images in figure 3.3.

Bend your right hand back at the wrist, and wrap your fingers loosely around the slap centered lump. Lay the base and first joint of your left thumb across the top of the lump of clay, but do not allow the upper edge of either hand (at the base of the index finger and thumb) to close down against the clay, as this will apply excessive downward pressure and cause the lump to flatten against the wheel head when you begin centering. The primary force of centering is across the wheel head, not down against it. Maintain the openings at the upper edges of your hands so that you can see the lump of clay throughout the centering and coning process.

Maintaining this hand position, lean your right elbow into the crook of your right thigh where it meets your torso. If that feels very awkward, lean your right elbow against your right thigh a few inches from the hip joint. Lean your left elbow against the top of your left thigh. Lean down on both elbows with the weight of your upper torso, and roll your hips forward. This movement should force the base of your right palm (where it meets your wrist) against the lump of clay. The base of your right palm applies the primary force in this centering method. As long as your elbows are locked in place as described above and your hands cross-braced, you will have a great deal of force at your disposal by rolling your hips forward.

Figure 3.1



Proper seating position when throwing.

Figure 3.2



Slap centering. Seal the lump down with the lower edge of your hands while the wheel is turning slowly.

If you cannot get your right palm to apply a powerful force against the clay when you roll your hips forward, it indicates that you are not sitting close enough to the wheel head and/or you are not locking your elbows against your thighs. Practice this position and movement until you are comfortable with it.

When you are sure that your position is correct as described above, squeeze water over the lump, accelerate the wheel to high speed, and place your hands as described above with your hands pressed together at the base of the thumb to provide cross bracing. Anchor your elbows firmly, roll your hips forward and lean into the lump with the base of your right palm and press down across the top of the lump with the base and first joint of your left thumb. Be sure that you are bearing down upon your elbows to firmly lock them in place. This should prevent your arms from bouncing back and forth with the irregularity of the clay. If all goes well when you lean into the spinning clay, the irregular slap centered lump will transform into a smoothly centered mass.

As mentioned, the primary pressure in centering is across the wheel head rather than down against it, but some pressure from above with the left thumb is necessary to consolidate and center the top of the lump. Pressing down against the wheel head with the edge of your hands is wasted effort, and a gritty clay body can quickly erode through your skin.

Always maintain a fairly wide “footprint” at the base of the lump while centering. Avoid digging the lower edge of your hands into the base of the spinning lump, as this can cause it to come off the wheel. Throughout the centering/coning process maintain this same wide footprint.

Aside from purposefully altering or distorting a thrown form during or after the throwing process, try to avoid ever touching the clay unless the wheel is turning. Apply force to the clay only after the wheel is spinning, and always release pressure gradually while the wheel is still turning.

Pulling your hands away suddenly will throw the lump off-center or damage the vessel. Similarly, stopping the wheel while you are applying force will distort the clay. For greatest control, throughout the throwing process always keep your hands cross-braced and your elbows anchored against your thighs or torso, with the exception of certain parts of the process you’ll learn later.

As you try to center, think about your body position, and watch to see if your forearms are moving back and forth. A little observation will show what needs to be corrected. If the process is done properly, with your elbows leaning firmly against your thighs and with the strength of your back and hip muscles behind the effort, you will be able to muster a very powerful force easily capable of centering soft, malleable clay.

If any flange of clay spreads out at the base of the lump during centering, it is the result of closing your hands down against the clay and applying too much force downwards against the wheel head. If this does happen, use the square corner of a wooden rib to scrape off this flange of clay before continuing with centering. Make sure that the primary force is across the wheel head, and ensure that you maintain the “hand shaking” position, with open spaces between the clay and the upper edges of your hands.

Always center at medium to high speed, and apply water as often as necessary to lubricate the clay. As your skill develops, try to complete the centering/coning processes as quickly as possible. This reduces the amount of water absorbed by the clay, retaining more structural stability. A very gritty surface during centering is usually the result of excessive water and overworking the clay. Aside from the unpleasant texture it doesn’t really hurt anything, and as your skill and speed increase this will no longer happen. Remember one of the cardinal guidelines: clay appreciates a vigorous commanding approach. Do not be afraid to push hard. The clay might push right off the wheel head, but you’ll learn something in the process.

Figure 3.3



1 Centering and coning: Initially center the clay with firm side pressure.



2 Profile of properly centered lump.



3 Continue the side pressure while hinging hands together, causing clay to rise.



4 Cross section showing intermediate stage of wheel-wedging.



5 Continue side pressure to raise the lump to a rounded peak.



6 Cross section showing maximum rise. Heel of thumb poised to press clay down.



7 With continuing side pressure to prevent mushrooming, press clay back down.



8 Continue pressing downwards as the lump widens.



9 Finalize centered form after repeated wheel-wedging.

Coning the Clay as Part of Centering

After hand wedging, the clay platelets are aligned in random “currents” throughout the lump. During the centering process as described above, those currents fight you and mass of clay feels slightly lumpy or irregular. This is because you are only centering the outside surface, while the platelets within are still in random currents. The coning process in effect twists the lump all the way through to its core, aligning the platelets in symmetrical spiral currents ideal for throwing. The term refers to repeatedly raising the clay in a cone shape and pushing it back down, always maintaining the same footprint at the base.

Coning should be done at medium to high speed with frequent water lubrication. After the clay is partially centered, continue to apply the same forces, pressing against the lump with the base of your right palm while keeping the ball and first joint of your left thumb across the top applying a little downward pressure to maintain a slight domed top. While maintaining those forces, slowly hinge your hands together and lift simultaneously as indicated in figure 3.3. As explained above, keep your hands connected at the balls of your thumbs throughout the centering and coning processes.

As you cone the clay upwards, continue to maintain moderate pressure with your left thumb across the top of

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