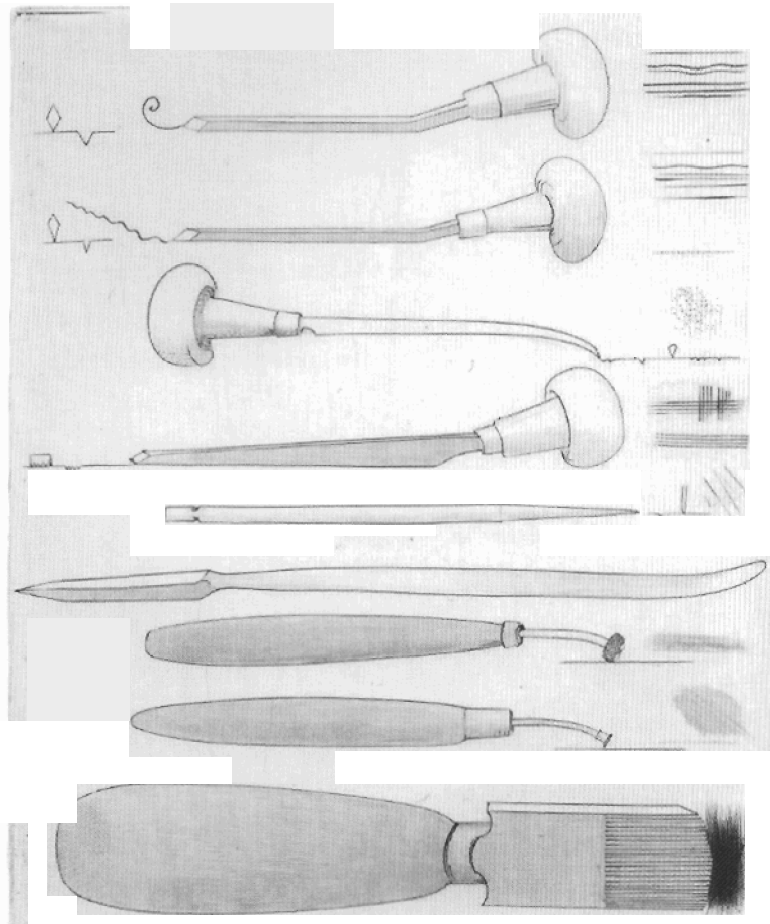


PLATE 14
Amy Worthen. *Engraving Tools*, 1995.
Color engraving, 7½ × 6 inches.

Engraving Step-by-Step

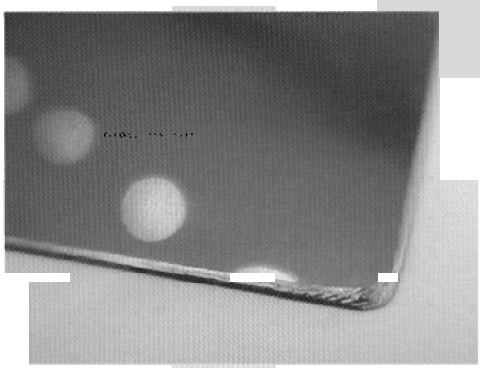
with Amy N. Worthen

In 2006 we at Crown Point Press were fortunate to meet Amy Worthen, a master engraver who has worked on her own art exclusively in this medium for nearly forty years. Worthen was trained in engraving at the University of Iowa and at Sir John Cass College, City of London Polytechnic, an institute for teaching the formal practice of engraving to silversmiths and engravers of currency and script. She worked with us to enhance our skills in this process and shared some Magical Secrets of her own so we can share them with you. The line illustration of tools in pl. 14 was engraved by Amy Worthen to illustrate her article on engraving techniques and history for *The Dictionary of Art* (New York: Grove, 1996).

AMY WORTHEN, 2006.

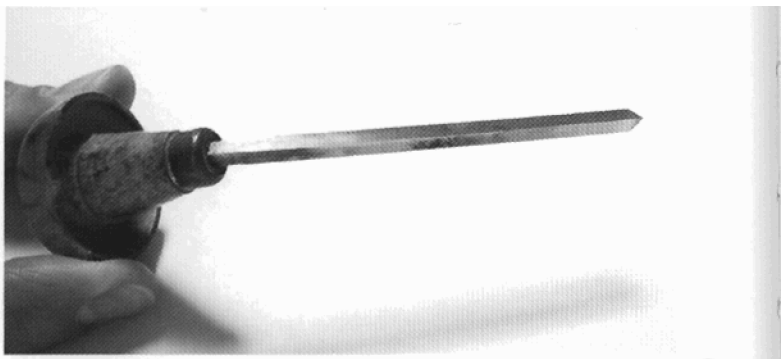
1. PREPARE THE PLATE

   Because you will be moving the plate around in your hands extensively, it is important to bevel the edges well, flatten the corners with a file, and then smooth the roughness from the edges and corners with fine sandpaper. See chapter 1, page 21, for more on plate preparation.



A PLATE WITH BEVELED EDGES.

THE SHAFT ENDS WITH THE ANGLED FACE OF THE BURIN.



THE BELLY, OR TWO LOWER SIDES, OF THE SHAFT.

2. SELECT THE TOOL

A burin is a tool made of a square or rectangular steel shaft cut off at a 30-to 45-degree angle and stuck into a stubby mushroom-shaped wooden handle. The handle is not completely round; it has a flat side that can fit into the heel of your palm. The shape of the shaft—square or rectangular—when cut off at an angle creates a square or lozenge face. The smaller the angle of the burin's face, the greater the likelihood that the tip will break; the greater the angle, the more resistance to the metal the engraver will experience. A larger burin will engrave a bolder line but will also cause a lot of resistance from the plate.

Some burins have bent shafts, while others are straight. Amy Worthen prefers a bent tool. She says the bent ones are made mostly in the United States; French and English engravers generally like straight tools. Ideally the stem of the tool should not be much longer than the length of your fingers when the knob is pushed into your palm.

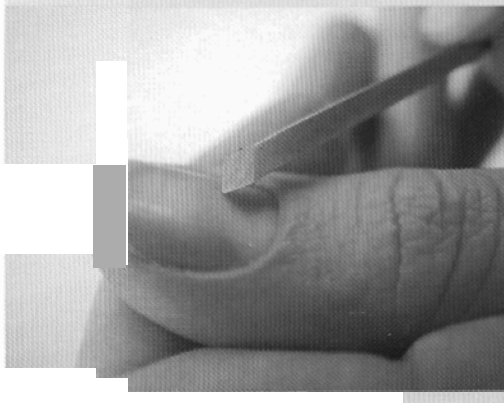
TIP *If you have a tool that is difficult to control because it is too long, you can have a machinist remove the handle and cut a bit off the back of the shaft.*

Engraving tools come in different shapes and sizes. Manufacturers have different numbering systems—for example, sizes range from #1 (small and fragile—the shaft breaks easily) to #10 (large and difficult to push through the metal): A #6 burin is a good all-purpose size. A lozenge burin creates a fine line that is deeper than its width, and square burins create broader lines that are as deep as their width.

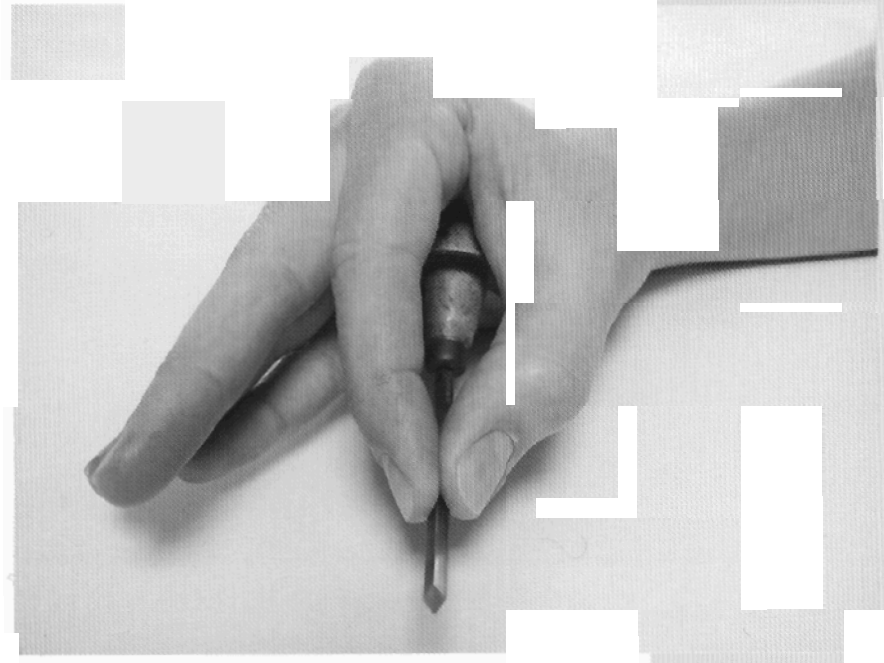
3. SHARPEN THE TOOL

Test the tool's sharpness by sticking its point gently into your thumbnail. If it slides instead of catches, the tool is dull. A properly sharpened tool will stick against the nail.

A burin is a more complex tool than a point, and correct sharpening is more critical to success in using it. Three surfaces need to be sharpened: the angled face and the two lower sides of the shaft. Worthen calls this lower shaft the belly.

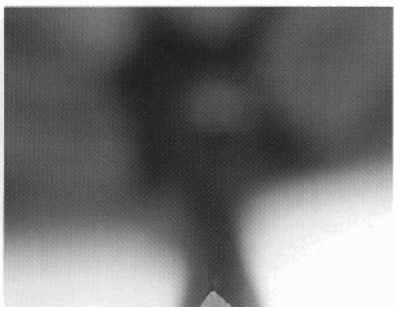


TEST THE TOOL'S SHARPNESS.



FIT THE TOOL TO YOUR HAND.

REFLECTIVE HOT SPOTS.



A PROPERLY SHARPENED BURIN

If you are using a new tool, or a frequently used one that is well maintained, you will notice that, as you tip it under a light and look at its face, there are no reflective hot spots. The light is reflected evenly across the face of the tool. If the tool's face reflects light in an even way, only the two lower sides of the shaft, or belly, need to be sharpened while working.

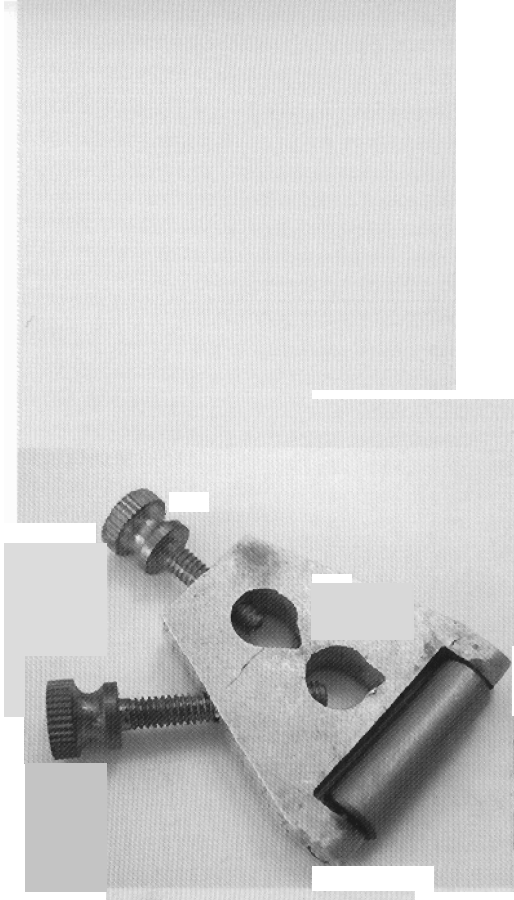
The lower sides are the longest ones on the shaft, and they face the table when the tool is resting on the flat side of the handle. Sharpen them one at a time, holding each one flat against the stone and pulling and pushing back and forth from your body. The back-and-forth motion on the two separate sides hones the two lower planes, the ones that do the cutting.

To sharpen the angled face, keep it flush against the stone and rub the tool's face back and forth on a fine sharpening stone moistened with 3-in-One oil. Keep the whole face flush with the stone. If you can, use a jig for sharpening the face in order to maintain the correct angle.

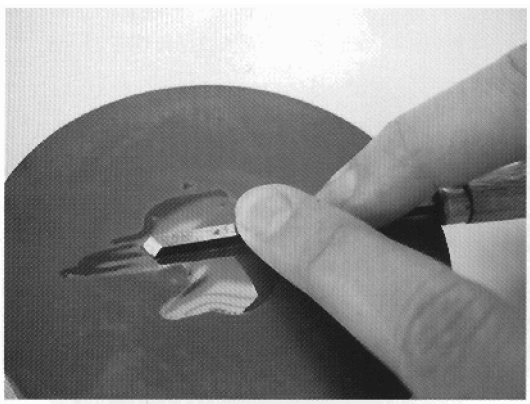
TIP *Another option if major surgery on a tool is needed is to send it to professionals for realignment.*

For major surgery to rework the angle of the face, I suggest using a sharpening jig. Worthen, working without a jig, begins with the rough side of a standard sharpening stone, moving the tool in a circular motion with the face flat against the stone. As light begins to reflect more evenly from the face, she switches to the fine-grained side of the stone. Worthen finishes with an Arkansas stone, which is very fine-grained. She uses this stone also for routinely keeping the tool honed. If you sharpen your tool regularly and evenly, only very rarely would you need to rework the angle of the face.

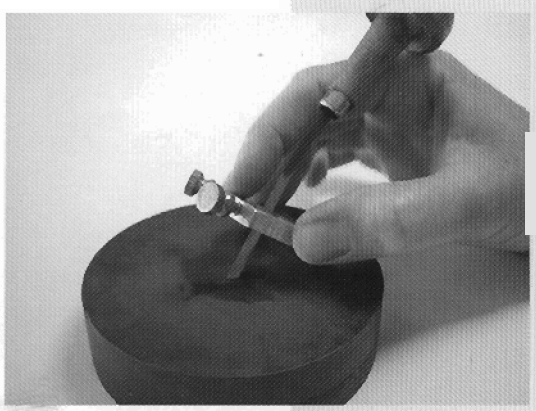
TIP *Always use lubricating oil in sharpening. If you sharpen on a dry sharpening stone, it will wear unevenly and eventually cause your tool to sharpen unevenly. Sharpen briefly and often. "I give a couple of licks forward and backward on the stone to the belly every few minutes while working," Worthen says.*



A SHARPENING JIG.



SHARPEN ONE SIDE OF THE BELLY AND THEN THE OTHER.



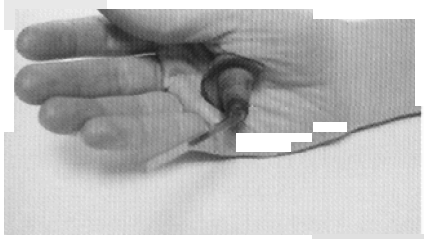
SHARPENING THE FACE WITH A JIG.

AMY WORTHEN ENGRAVING.

AMY WORTHEN INSTRUCTS CATHERINE BROOKS.

4. SET YOUR FOUNDATION

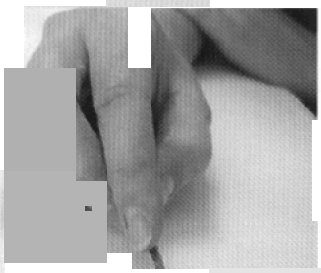
The foundation of making a beautiful engraved mark is in your posture. You will be pushing the tool through the metal, and the thrust should come from the body. Amy Worthen sits sideways to the table, her legs parallel to its edge rather than under it. To use her approach, line up your torso against the edge of the table without leaning or shifting your weight to the side. Plant your feet firmly under your knees. Sit erect on a chair that is firm, or on a wooden stool; don't lean back. Make sure that the chair elevates you to a height that will allow your forearm to rest flat on the table without collapsing your shoulder.



HOLD THE BURIN'S KNOBLIKE HANDLE IN THE CENTER OF YOUR PALM.

5. HOLD THE TOOL WITH YOUR PALM, NOT YOUR FINGERS

Hold the burin's knoblike handle in the center of your palm and wrap your thumb and first two fingers gently around the shaft. Your fingers are only there to guide the tool, not to press on it.

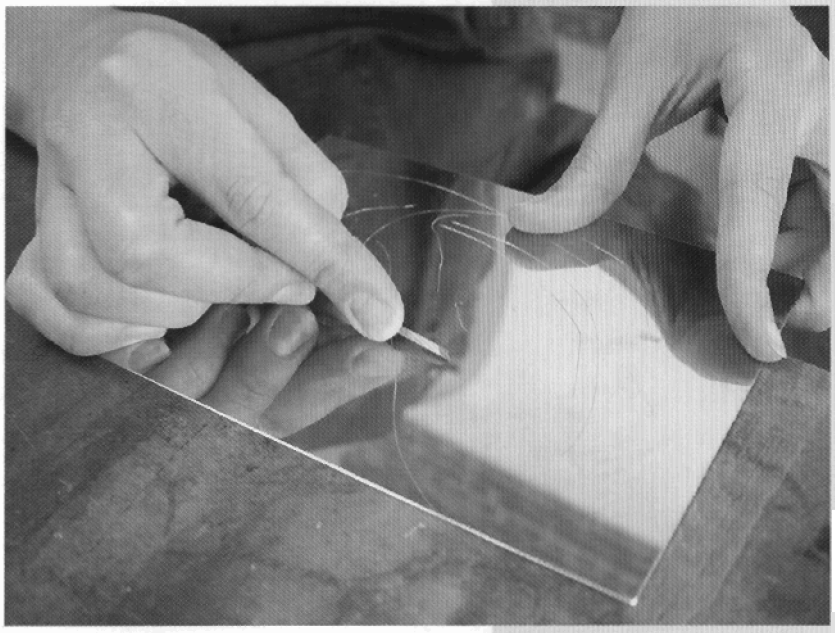


RAP YOUR THUMB AND FIRST TWO FINGERS
IOUND THE SHAFT.

As a test, try lifting the tool simply by squeezing your palm, pulling your fingers back. Then fold the fingers against the tool. Resist the temptation to put a finger directly on top of the blade as it may encourage you to press down, thereby hanging the shaft up in the metal and destroying the fluidity of your line. You can place your forefinger lightly on the side of the top angle of the tool to keep it steady, but do not apply any downward pressure. Keep the stem of the tool parallel to the plate and your wrist and forearm down.

6. PUSH THE TOOL USING YOUR BODY, NOT YOUR HAND

Dig the angled tip of the tool into the plate slightly, just enough to engage it, and then correct the angle, making the tool parallel to the plate and table. Push the tool straight ahead.

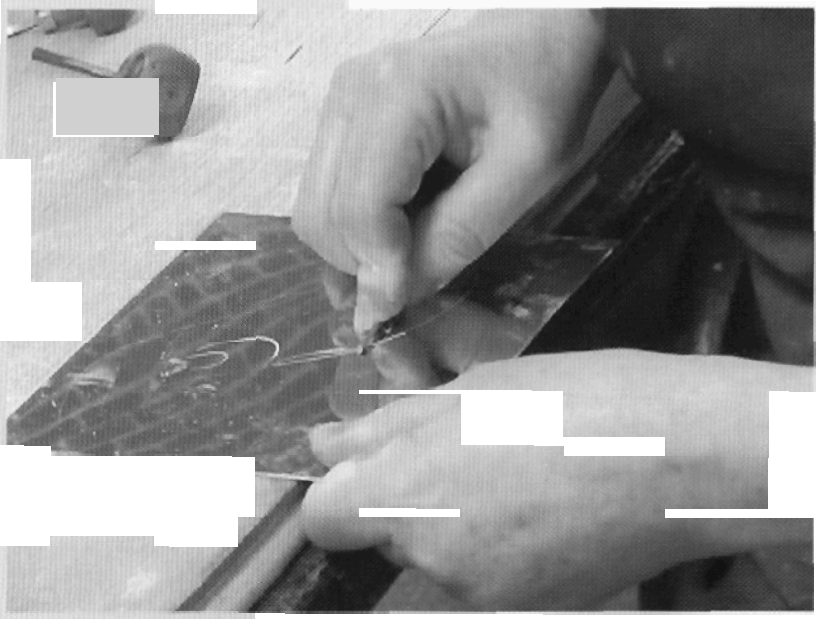


MAKE THE TOOL PARALLEL TO THE PLATE.

PUSH THE TOOL STRAIGHT AHEAD.

Keep your arm bent at 90 degrees, the forearm resting on the table, the inside of the upper arm touching your body. Pretend your elbow is attached to your ribs so your arm won't move independently of your torso. The force of the tool comes from the movement of your whole upper body.

As the burin glides through the metal without getting stuck, you will see a little curl of copper twirling out of the line. Amy Worthen suggests that you think of ice-skating: you glide along and are not on the tips of the skates. If you are engraving correctly, a minimum of forward pressure should be necessary, with no struggle at all.

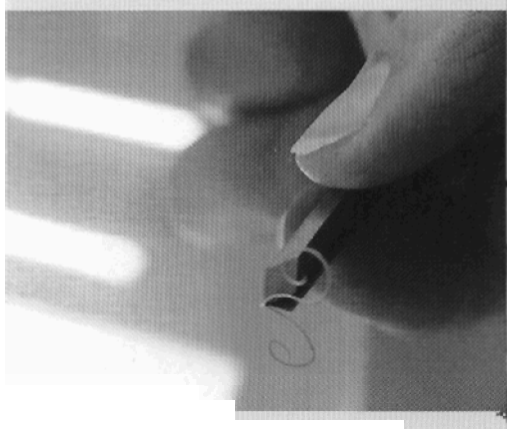


THE PLATE SHOULD HANG OVER THE EDGE OF THE WORKTABLE.

7. TURN THE PLATE, NOT THE TOOL

Use the hand that is not holding the tool to brace the plate, and turn the plate to engrave curves.

Here is the most important thing to remember: always push the burin straight ahead, parallel to the table edge. The combination of two hands working together, the hand holding the tool moving straight ahead while the other hand turns the plate, creates the curving, flowing, swelling, and tapering line. When you reach the end of a cut, and the burin exits the line carrying a thrilling little curl of removed metal with it, you might think, as Worthen does, that you are making wire by hand.



MAKING WIRE BY HAND.

Etched lines, like engraved lines, are often described as wiry, but in etching the metal removed is eaten by the acid. Engraved lines are literally wiry. As you become skilled, you will be able to exit the line smoothly, leaving no sharp splinter or roughness when the metal curl dislodges. If roughness does remain, don't worry. You can remove it later.

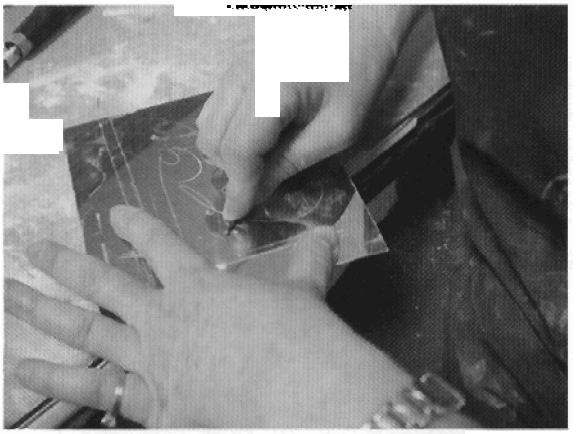
To create bold lines, engrave many lines parallel to one another. Or you can reenter the same line and engrave further to create swells. To fill a space with linear tone, you can densely hatch or crosshatch lines. When crosshatching, Worthen recommends using a tool with a different size face for each line direction and making perpendicular lines at a slight angle for variation.

BOLD LINES MADE BY ENGRAVING LINES PARALLEL TO ONE ANOTHER.

TURN THE PLATE, NOT THE TOOL, TO CREATE CURVES.

TIP *The plate you are working on should hang over the edge of the worktable toward you at least an inch. You will be steering the plate with the hand that is not holding the tool, and the overhang gives you a bit of the plate to grasp. Always keep your engraving hand and tool on a supported section of the plate so it does not tilt or flip.*

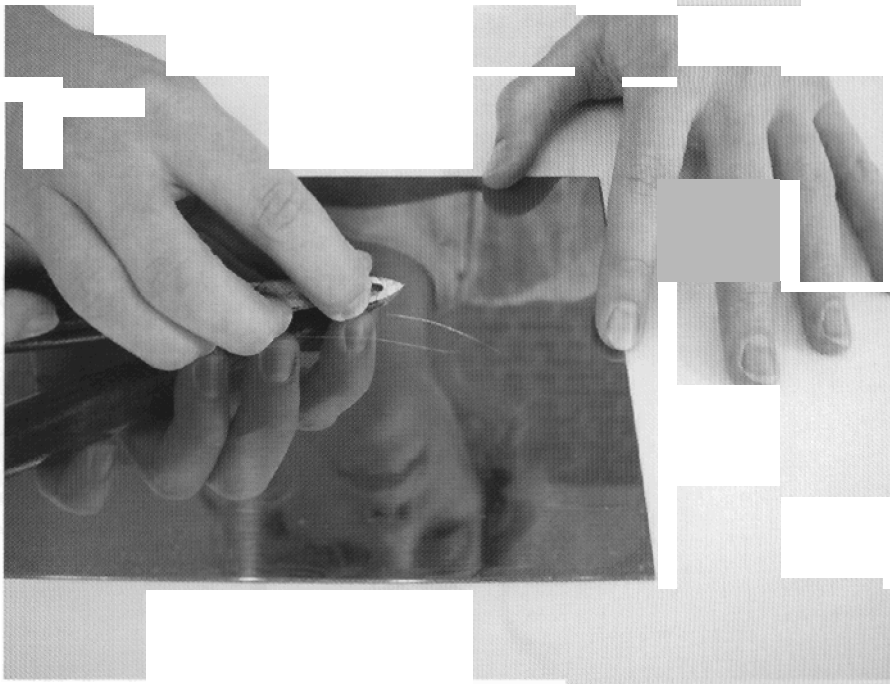
TIP *As a safety measure, when bracing or turning your plate, keep the bracing or turning hand lifted slightly, with only the thumb and fingers touching the plate. If your tool slips, it is likely to be pointed in that direction, and having your palm raised above the plate may keep you from stabbing yourself.*



MAKE A BRIDGE WITH THE HAND THAT HOLDS THE PLATE.

USE WHITING ON YOUR PLATE TO MAKE THE LINES MORE VISIBLE.

TIP *As with drypoint, you can use whiting on your plate, pushing it into the lines you are creating to make them more visible. You must remove this, of course, before you print.*



REMOVE UNWANTED BURR BY PUSHING A SCRAPER LIGHTLY AGAINST THE PLATE.

8. REMOVE THE BURR OR LEAVE IT ON THE PLATE

The curl of metal removed by the burin leaves a trough where ink will reside. Along the edges of the trough, or at the spot where your tool exits, a burr of metal might cling irregularly. It will print like a drypoint mark and give a soft character to your engraving. It is conventional to remove the burr in engravings, but Amy Worthen generally leaves hers in place as she likes the quality it gives to her work.

To remove unwanted burr, lay a sharpened scraper flat against the plate and push it lightly against the line. You will be able to feel the burr under the tool as a roughness. Simply flick and scrape it off, not pressing down into the metal. Remember that the burr is above the surface, while the lines you have engraved are deep within the plate.