# Tips for hollowing end grain

BY ALAN LACER

End grain is the bane of many woodworkers. Furniture makers go to great lengths to hide it, and finishing end grain poses a number of problems. End grain can be just as ornery in wood turning.

Hollowing into end grain requires a different approach than hollowing into face grain. With a face-grain turning, a gouge is used in a cutting action that travels from the rim to the center (see *FWW* #147, p. 52). In this orientation, the bevel of the gouge rubs against the inside wall while cutting the wood fibers in the direction of the grain. However, a gouge does just the opposite when hollowing into end grain. Rather than laying down the fibers, it tears them.

To our benefit, wood turners have relied on a solution that dates back many centuries: the hook tool and its modern counterpart, the ring tool (see the photo on p. 102). In essence, these two tools work like a bowl gouge with the flute bent to 90°. Unlike a gouge, the hook or ring tool is used in a cutting action from center to rim. The cutting area and bevel are at right angles to the shaft of the tool, thus making it possible to rub the bevel against the wood as it cuts. A hollow center on the ring or hook tool provides a place for the wood chips to exit the cut.

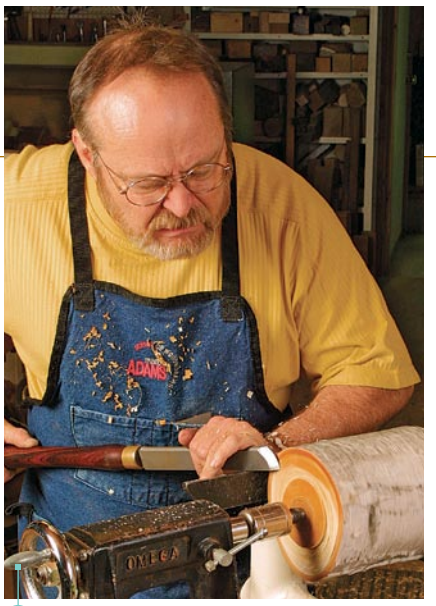
### Practice on a green-wood bowl

Hook and ring tools have a bad reputation because they are very aggressive and can catch easily. I find the

## Start with a log or cut limb

**A section of a small log or large tree limb is ideal for turning end-grain bowls with a natural edge. Mount the log on the lathe between centers to rough it round.**

1 ***Find the center.*** *Lacer uses a clear plastic template with various diameters traced on it to help locate the center of the log.*



2 ***Face off the top with a skew chisel.*** *A shoulder cut with a skew chisel will make a cleaner cut in the bark than a parting tool.*

3 ***Turn a tenon on the base.*** *Make a peeling cut with a skew chisel to cut the tenon.*

4 ***Rough-turn the outside.*** *Preserve a strip of bark for the rim and peel off the remaining bark before roughing.*



Photos: Matt Berger

best way to teach people how to hollow into end grain with these tools is to turn a shallow green-wood bowl. Green wood cuts much easier and cleaner than kiln-dried lumber, and bowls made with it can incorporate a natural edge that often will distort as it dries, adding an element of surprise to a design.

Another benefit of green-wood turning is that material is easy to find. I like to use freshly cut logs or tree limbs measuring anywhere from 3 in. to 12 in. dia.

### Identify the center and mount the log

Most logs are not truly round. As a matter of fact, they come in about every shape other than square. So to incorporate a natural-edge rim successfully, you need to take some care when locating the center point. I use a shopmade template of Plexiglas inscribed with different-diameter circles. I line up a circle with the perimeter of the log and then mark the center with an awl.

When first mounted between centers, the log will be off balance, so make sure it's on the lathe securely and that your lathe is set to a slow speed. Pound a four-spur center into the base end of the log and use a live-cup center to hold the rim end at the tailstock.

The first step is to face off the rim with a skew chisel. Unlike a parting tool, which tends to leave a jagged edge and tear the delicate bark, a shoulder cut with the toe of the skew will cut the bark cleanly.

Next, cut a round tenon on the base so you can remount the turning in a scrolling chuck. Use a skew chisel for this operation as well, making a series of peeling cuts by holding the flat of the skew against the tool rest and bearing down on the turning with the bevel of the tool. The tenon should be straight, and the shoulder above should be slightly concave to rest on top of the chuck jaws. Also, be sure the tenon isn't longer than the depth of your chuck. Next, rough-turn the exterior of the vessel, leaving a small patch of bark around the rim. Once you've completed the initial work between centers, take the turning off the lathe and remount it in the chuck.

**TWO TOOLS FOR HOLLOWING INTO END GRAIN**

**The ring tool (top) is a modern version of the hook tool (bottom), which dates back centuries. Although they have some similarities to a bowl gouge, they cut from the center to the rim and have a cutting edge 90° to the handle.**

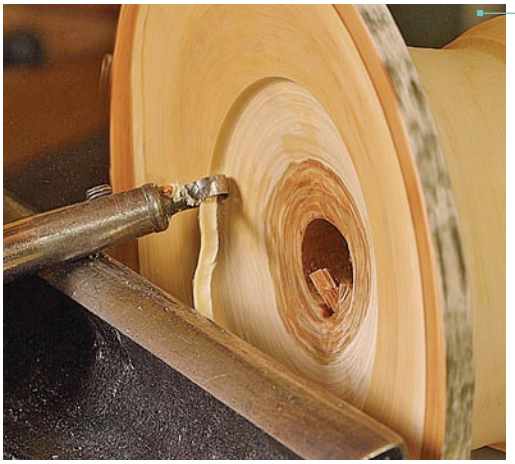
### Rough out most of the exterior

Several shapes will emphasize the natural edge. One is a flared rim—often described as a bell shape or a

## Hollow out the inside

**For the rest of the process, mount the tenon in a four-jaw chuck. Begin hollowing the center while using the tailstock center for extra support. Then remove the tailstock so you can cut deeper, alternating between the inside and outside of the turning.**

1 ***Rough out the inside rim with a bowl gouge.*** *This may cause tearout, but it is effective at removing waste quickly.*



2 ***Switch to a ring tool or hook tool.*** *Smooth the surface left by the gouge with either the ring tool (left) or hook tool (below). Cut from the center to the rim to produce a smooth surface. Hold the tool so that the flute is pointing between 9 and 10 o'clock.*

3 ***Continue the roughing and smoothing process.*** *Use a bowl gouge to remove material quickly, then a ring or hook tool to smooth out the final surfaces.*

flower petal. Begin roughing out the exterior shape with a gouge. I use a heavy detailing gouge (½ in. across) or regular ⅜-in. or ½-in. bowl gouges. For this initial work, I still use the live-cup center on the tailstock end to keep it steady.

Cut most (two-thirds or so) of the outside shape before shifting attention to the interior. Also, turn the area around the delicate rim to a near finish, because it will be difficult to get a clean cut in this region once you've removed the supporting fibers on the interior.

### Follow a strategy for hollowing

Begin hollowing by establishing a clean upper natural-edge rim, making light, shallow, slow cuts with a very sharp gouge from the rim toward the center. The tool may tear the fibers, but it is effective at removing waste rapidly, and the surface will be refined with the hook or ring tool. When you are satisfied with the rim, remove the tailstock center and drill a hole (½ in. or ¾ in. dia.) to establish the depth. This hole also removes the "stationary" center region and provides a start for the hook or ring tool. Then work the interior just below the rim with the hook or ring tool, cutting from the center to the rim.

When the rim area is complete, continue hollowing the turning, first with the bowl gouge, working from outside to inside, and then with the hook or ring tool, making clean cuts from the center to the rim.

As you cut deeper with the hook or ring tool, hold the tool so that the flute is pointing between 9 o'clock and 10 o'clock, and take light to moderate passes. As you make the turn from the bottom up the wall of the turning, move the handle of the tool down and away from your body so that the bevel is always rubbing on the wood. If the bevel lifts, you run the risk of a catch. A catch also can occur if the angle of the flute approaches 12 o'clock.

When only the lower fourth of the bowl needs hollowing, shift your sights back to the exterior and turn it to its final shape. Then complete the inside with the hook or ring tool until the walls are uniformly about ¼ in. thick.

### Scrape and sand to achieve a finished surface

To reduce sanding time dramatically, make the final passes on the interior of the bowl using a round-nose scraper oriented to make a shear cut. Hold the scraper tilted to about 45° off the tool rest, pivoting on the left corner of the tool and cutting from the center to the rim. You'll know that you're holding the tool correctly

## *Sources of Supply*

**RING TOOL**
**www.rockler.com**
**800-279-4441**

**HOOK TOOL**
**Martel Hook Tool**
**amartel@netc.net**
**514-255-9769**

## Turn to a final shape

**Alternate between turning the exterior and interior until you've achieved a pleasing form with walls of a consistent thickness.**

1 ***Establish the outside shape.*** *Use a detailing or bowl gouge to form the profile of the turning, always cutting in a downhill direction and with the grain.*

2 ***Measure the wall thickness.*** *Aim for consistently thick walls to prevent the wood from cracking as it dries.*

3 ***Scrape a finished surface.*** *A rounded scraper tilted to 45° generates a shear cut, which reduces sanding time.*

4 ***Wet-sand on the lathe.*** *Small turnings can be sanded on the lathe, using water and wet-or-dry abrasives ranging from 120 grit to 320 grit.*

if the cut produces long, thin shavings, as opposed to dust. Experiment with the cutting angle until it works.

Wet the entire bowl with a paper towel, and sand with 120- through 320-grit abrasives. Then part the turning at the base with a skew chisel and cut it off with a thin-kerf saw with the lathe turned off. The base, which contains the pith of the tree, should be as thick as, or thinner than, the walls to prevent it from cracking as the wood dries.

### Dry slowly and finish

To avoid cracks, slow the drying time by placing the bowl inside two heavy paper bags, or wrap it in newspaper and store it in plastic bags. Most of the drying—depending on humidity conditions—will take place in the first 48 to 72 hours using either method. For good measure, check the piece every day and change bags or newspaper regularly. If cracks start to develop, soak them with medium-viscosity cyanoacrylate glue. Give the piece at least 10 days of the paper treatment. After that, it should be ready for a final sanding and finish. I spray on a water-based, shellac-based, or lacquer finish for light woods and a wipe-on oil-based finish for dark woods. □

**PART THE BOWL AT ITS BASE**

**Cut off the turning with a thin-kerf saw (left). The remaining nub can be removed with a chisel or carving gouge. After the bowl has been dried, give it a final sanding (below) and then apply a finish.**