Turning a Natural Edge Bowl w/ Foot

by Jim Silva

A natural edged bowl is a bowl in which one incorporates the natural contour of the tree's trunk into the piece to be turned. For our purposes here, natural edge will refer to a bowl's edge with OR without the bark still attached.

The bowl we'll be turning is a shallow bowl with a small pedestal foot and will be turned from start to finish while green.

Wood Selection:

- As I primarily desire to create bowls with the bark attached I find that the best chance of leaving the bark intact is to use fresh, green wood. Ideally, wood cut in the late fall thru early spring will have the highest success rate as the dormant tree's cambium layer (layer between the sapwood and bark) will have the lowest moisture content. In dormant trees, this cambium layer contains less moisture, therefore being less prone to shrinking as moisture evaporates. Less shrinking maintains better contact between this layer and the inner bark of the wood and typically results in a reduced chance of the bark chipping off while being worked. Additionally, green wood bark is somewhat more “plastic” and will resist tearout more readily.

- I find that trees with smoother bark (paper birch, beech) to bark with medium depth fissures (cherry, maple) is marginally easier to work with than some woods with very deep fissures like some of the hickory/ashes. I've done a Shag Bark Hickory NE bowl in the past but it took several attempts to get one that didn't look like a dog chewed it in places.

Grain Orientation:

- While end-grain natural edge bowls are quite interesting to turn, for our purposes in this demo we'll be turning side grain (perpendicular to the bed).
- While for this project I generally opt for a symmetrical grain orientation as well as a more gentle wave to the bowl edge, you should feel free to experiment with more radical axis orientations that will lend themselves to more asymmetrical edge shapes. (See appendix)
- Additionally, the shape of the tree itself will be a determining factor in your orientation selection process where you will need to allow for bumps, voids and other challenges the wood holds.

Tools:

- Bowl gouge(s) – Bark is nasty stuff and usually contains dirt, grit and other general nastiness that will require frequent trips to the sharpener.
- Detail gouge/ parting tool/ skew. - We'll need one of these for creating the foot/tenon. I generally just use a detail gouge. Your mileage may vary.
- Curved scraper – I use a 1 1/2” x 3/8 scraper for cleaning up the inside of the bowl where the wings meet the main body of the bowl. These bowls flex and warp as you turn them and this is a typical problem area for many people.
- We'll also be using a Forstner bit to create a safe footing for our spur center (we'll start between centers then move to a scroll chuck.

Ok. Let's make a mess!

I've cut my blank on the bandsaw and drilled a 1 3/8” hole through the bark into the more solid sapwood in the center of the blank to give me a good, safe seat for my spur center.

Now I'll mount it between centers with the spur in the drilled recess and live center on the flat side of the blank.

I begin turning at the tailstock end, removing the sharp edge of the blank and working diagonally from center out toward the outer edge of the bark.

You'll note I don't attempt to true the blank horizontally with the bed of the lathe. I do this intentionally as to not disturb the bark edge any more than is strictly necessary. It also reduces a great deal more of the mass and allows me to turn at higher RPM's sooner. ***(NOTE: With NE bowls, I always turn at the highest speed I feel safe with. This particular blank was about 7” in diameter. I began at about 700 RPM and gradually increased my speed to 1500 RPM by the time I got the shape of the outside of the bowl merged fully with the bark edge. I STRONGLY caution you to use your best judgment as to the speed you operate your lathe at as not all wood, lathes, and turners operate safely at the same speeds. I offer these RPM numbers only as an illustration of MY customary speed settings.)***

Once I establish the general curvature of the bowl I begin removing material from the bottom of the piece to create a tenon. As this piece will eventually sit on a pedestal foot my tenon is approximately 5/8” deep and has a step in the middle to rest the tops of the jaws against.

The step illustrated here serves a dual purpose. The smaller diameter tenon is what I'll actually grip the piece with in my scroll chuck. The larger diameter serves as a seat for the top of the chuck's jaws. This section will eventually get turned away and form the “neck” of the pedestal foot.

<<< As you can see in this photo, I'm gradually working my way from the foot toward the highest points of the bowl edge or the “wings”. You'll see at the top of the photo where the bark is beginning to peel up due to the direction I'm cutting. Although you typically want to cut in this manner (“uphill” from smallest diameter to largest), it poses a problem with natural edge bowls. Pressure from the tool, no matter how delicate or how sharp the tool is acting to lift the bark edge away from the cambium layer beneath it.

At this point I'll change direction and lightly and carefully cut the “wrong” way from the edge toward the foot. I'll only be going in this direction until I get below all the bark an into solid wood, shear scraping with my gouge to preserve the sharp, unbroken bark edge.

You'll note how crisp the bark edge is in this photo as a result of cutting carefully in the “wrong” direction. This is where the higher speeds help, giving your tool less time in mid air and more time in contact with the wood. Be careful and always watch the “ghost” image that the spinning piece shows. If you have trouble seeing this try taping a sheet of light colored cardboard across the bed of the lathe. The contrast may allow you to see what you're cutting better.

Now that we've gotten the shape where we want it, have shear scraped it to a smooth tool finish and lived to tell about it we'll now reverse the piece and mount it in our scroll chuck.

This would also be a good time to resharpen your gouges.

Next, we'll begin the process of removing material from the inside. Natural edge bowls require a little more care than a typical green wood turning as the height of the edge is variable and will begin warping as soon as we start removing material from stress release, moisture loss and tool pressure on the un-supported wings as well as centrifugal force.

I've found that removing material in steps, from the center outward the most effective method. I begin near the center an cut into the middle of the blank, taking cuts at whatever thickness you feel comfortable with to a depth of perhaps 1”. I'll do this across the bowl, working my way toward the edge with lighter cuts being made as I approach my final wall thickness. (In this case about 3/16”.)

You can see that at about an inch deep I've still not cut down to solid wood. The sections that stick up (left and right in the photo) are the wings I've been discussing.

The wings will begin to flex with centrifugal force as well as with pressure from the edge of the tool as you cut deeper into the bowl. For this purpose, once I've cut to my final thickness at a particular depth, I never go back and cut there again. The most I'll do is move back approximately 1/8” to join the next depth to the original. This takes a bit of practice so take your time and cut lightly.

In the photo to the right, you'll see that I've now gone below the lowest “valley” of the bark and am into solid wood.

From here on the rest of the inside will be just as any green turning. At the point where the bottom of the bowl transitions into the sides of the bowl there is often a small “hip” that you can see/ feel. While this is not uncommon to any bowl, NE bowls are particularly susceptible to this as the asymmetrical wings warp the bowl due to centrifugal force as you cut. I find the easiest way to deal with this area is with the largest curved scraper I have. Make sure it's as sharp as you can get it and take feather-light cuts through this transition area. Never attempt to go over the wings of the bowl as scrapers and intermittent wood don't mix. (Don't ask me how I know this!)

Now for the easy part. Remove the bowl from the chuck at set it aside to dry for a few days. I almost never have to wait more than 48 hours for a bowl this size and thickness to dry completely and become stable. We'll fast forward through time here and pick this up a day or two later. ~~~~~~~~~~~~~~~

(I really don't see the big deal with time travel. We're two days later now and haven't even broken a sweat... Well, onto the next part. The pedestal foot.)

To finish the pedestal foot I'll be reversing the piece onto a jam chuck I made from some plywood and walnut. The jam chuck has a gently curved face covered with self-adhesive foam bought at a local craft store. I'll place the bowl over this and bring up the tailstock to “jam” it into place.

I'll then true the bottom of the foot then work on the neck of the pedestal foot. I generally find that my 3/8” detail gouge will get me a nice slope to the foot as well as a clean, sharp transition to the bottom of the bowl.

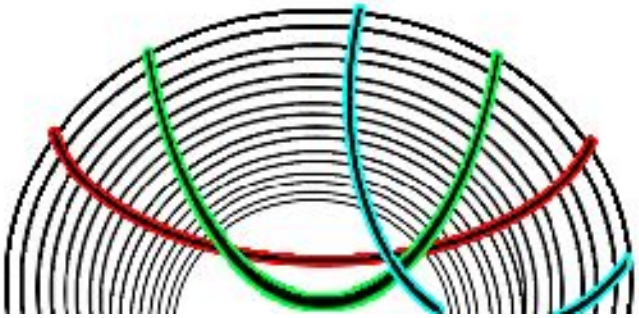
As the bowl will have undoubtedly warped a bit there will be some out-of-roundness on the foot and bottom of the bowl. The bowl I don't worry about other than to gently blend the newly turned foot into it with some shear scraping using my detail gouge. It's important to note that the bottom of the foot should always be slightly concave in order to seat well on whatever surface you put it on. Any additional movement of the wood that may occur due to further drying can be flattened by rubbing the bowl over a piece of sandpaper layed on a hard flat surface thus eliminating any rocking the warping may have induced.

Finally I turn away the all but the last bit of the bottom of the foot leaving a small nub that I'll carve off after it's off the lathe. I generally sand the foot, neck and the transition area of the bottom of the bowl at this time but the remainder of the sanding will take place off the lathe.

I sand all my NE bowls of all sizes on my drill press. I use a soft 3” hook and loop pad with a 1/4” shank available in many woodworking supply shops. This method of sanding (generally starting at 100 grit and working up to 400) enables me to blend any areas that have warped without endangering my hands with a spinning irregularly edged bowl on the lathe. I'm able to precisely angle the piece to sand exactly where I want and also to pull directly of the edge of the piece leaving a very sharp, clean bark edge that I can't duplicate with any other method.

This also causes very little strain on the hands like using a hand drill mounted pad will produce. This method is also very helpful on the outside of the bowl. Below is a similar bowl that has been finish sanded and given several coats of poly.

Appendix:



The red line represents the general curve of the bowl demonstrated here as it was cut out of the log. The green line would create a steeper sided bowl, still with the grain balanced symmetrically. Playing with the steepness of the sides of the bowl and using the natural contours of the log can give a bowl with one very high wing as illustrated by the blue line.

Have fun experimenting.