

Cindy Drozda

"The Fine Art of Woodturning"

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Natural Edge Lidded Chalice

Part 1: Prepare the blank:

I am starting this project with a piece of burl, with a natural top. A log section with bark edge works well, too, as does a Banksia Pod. Here is my way to balance the natural edge so that the bowl has a relatively level-looking rim. This method works on different sizes and styles of project, and works equally well on wet or dry wood.

The demo project is using a blank that will yield a 5" (127mm) diameter x 3-1/2" (90mm) tall bowl, and a lid of 3" (75mm) diameter x 3/4" (19mm) thick.

Choose a plywood disk (clear plastic or other materials work, too), with a countersunk center hole, that is the intended size of the finished bowl's rim.

Position the disk on the natural side of the burl (the "top" side of the Chalice), with the circumference of the disk where the intended rim will be. Screw the disk onto the blank with a flat head screw making sure that the screw head is flush with the surface of the disk. Since the inside of the Chalice will be hollowed out, the depth of the hole and screw length are not critical.

Measure down to the burl's surface from the edge of the disk all around. If the dimensions suggest a good balance of the rim, you are ready to cut. If it is not balanced to your satisfaction, use wedges under the disk to achieve a balance that you like. What I look for is to have the disk the same distance from the burl's surface, at the rim, at opposing points around the circumference.

With the disk down on the bandsaw table, make a straight cut on one side of the blank (try not to cut into the disk). If the blank's surface is not level, choose to make this cut on the thicker side of the blank so you have a supported cut for the next step. This surface that you just cut is perpendicular to the rim of the bowl. Be careful here! Don't have any body parts in the line of cut. This tall and narrow blank can be tippy.

Put the side that you just cut on the bandsaw table, and make a straight cut on the bottom side of the bowl, parallel to the disk. The bottom of the blank is now parallel to the intended rim.

Now is a good time to cut the blank down to your intended bowl height. This allows you to save any un-needed wood for another project instead of turning it all into chips on the lathe. Measure from the rim, to the bottom of the bowl (adding a little for a tenon on the bottom). Allow for the thickness of a lid blank, and cut off the rest to save for another project.

The lid of the Chalice will be cut from the bottom side of the blank. Cut off a slice parallel to the last cut that yields a lid blank of the intended thickness. For best grain match, mark which side is "up" on the lid blank.

With the bottom side of the blank on the bandsaw table, you can saw around the disk (again, trying not to cut the disk), and you will have a round blank to take to the lathe.

Use the disk's center hole to find the center of the bottom of the blank.

Put the blank between centers on the lathe, with the drive center on the natural edge side (the rim of the bowl), and the live center in the center mark that you made on the bottom side of the bowl.

If the natural burl surface is too lumpy to get the drive center where you want it, either use a drive center that can accommodate that, or make a flat for the drive center. A good way to make a flat for the drive is to drill with a Forstner bit on the drill press. Be careful when drilling a natural top burl on the drill press. The piece should be clamped to the table for safety.

Take a cut to true up the blank to round. If the rim looks balanced to your satisfaction, you're ready to cut a chuck tenon. If the rim is not quite right, reposition the live center to "rock" the blank and find a good balance to the rim. Make very small adjustments, and take a cut every time you move the live center. Every time you reposition the tailstock, you are going to make the bowl smaller.

When you have the rim balanced to your satisfaction, cut a chuck tenon on the tailstock side of the blank (not the natural edge side).

For this deep bowl, I like to use deep cylinder-type jaws, and make the tenon as far up the wall of the bowl as the jaws can accommodate. The outside shape of the bowl can be formed completely, leaving a ring around it where the chuck tenon is. If you don't have deep jaws, you will still want to keep the tenon as large in diameter as you can. That means more bulk in the bottom of the bowl, which means the roughout will take longer to dry if you are starting with wet wood.

If you are working with wet wood, seal the outside surface with Anchorseal or similar end grain wood sealer.

Mount that tenon in the chuck, and you are ready to turn your Chalice!

Natural edge safety:

Keep in mind that a spinning natural edge is like a saw blade! It is a good idea to keep your body parts well away from that edge! I use the tool rest as a barrier, and make sure to keep my hands on the side away from the bowl at all times.

Though it may seem "safer" to turn at a slow lathe speed, you will have better results on a live edge (interrupted edge) with as much spindle speed **as you are comfortable with**. An interrupted cut, such as natural edge, acts more like a solid piece of wood the faster it spins. At really slow lathe speeds, the tool feels like it is getting "sucked in" to the cut, and it is difficult to get a smooth surface.

Another word on spindle speed: If it's scary, the lathe is going too fast. If the lathe is moving around the room, it's too fast. **Use your own judgment, and do what feels safe to you!!**

Leaving the tailstock up until it's actually in the way is a good idea, for safety. As is wearing a full face shield.

Part 2: The inside of the bowl - wet wood:

If you are working with wet wood, there is no need to do more work on the outside at this stage. Continue on to hollowing out the inside, leaving a thick enough wall to allow for distortion during drying, seal the inside surface, and put the roughout aside to dry. When it's dry, continue with the next step.

Part 3: The inside of the bowl - dry wood:

For a roughed out and dried piece, the tenon will need to be trued up to remove any distortion from drying. I like to do this by using chuck jaws or a waste block to jam the opening, and bring up the tailstock. True up the tenon and the bottom section of the bowl below the tenon ring.

If the piece is being turned from a dry solid piece of wood, the blank is ready to mount in the chuck after Part 1.

Now is the best time to completely shape the outside, up to the chuck, including the sanding. If the chuck tenon is large for the jaws, there will be spaces between the jaws. The spaces allow me to view the wood available in the blank, and visualize the complete shape.

Use of Negative Rake Scrapers can produce a smooth finish in the interrupted edge area that needs very little sanding. I do not sand the interrupted area while the lathe is spinning. In an effort to keep the edges crisp, I like to use a random orbit sander with a 2" or smaller pad to sand the natural edge area, with the lathe turned off, starting with 240 or 400 grit.

Once the outside is done, I like to develop the rim thickness in the interrupted area first, keeping the wall thickness consistent in that area of the bowl.

Hollow out the inside of the bowl, sand it, and cut a recess for the lid.

Part 4: Reverse the bowl to finish off the bottom:

Mount the piece on a jam chuck using the lid recess. I sometimes will use the lid blank for this. If the wood is very hard, it will not jam well onto a piece of the same very hard wood. A softer jam chuck, like soft maple or cherry, gives a better jam fit. It needs to be a good tight jam fit for best results.

Finish off the lower section of the bowl, removing the chuck tenon ring, and blending with the top section that is already shaped and sanded. Use the tailstock as long as possible.

Tape the piece onto the jam chuck for extra insurance, and remove the tailstock to finish the center bottom. Create a small shallow tenon. This tenon is for mounting a base on the bowl, so make it small enough not to interfere with the footprint or design of your intended base. The entire outside of the bowl should be completely sanded at this point.

Part 5: Turn a Finial and Pedestal.

Please take a look at the "Chalice Finial and Pedestal Steps" document for the turning of Finial and Pedestal.

Part 7: Turn the lid:

Mount the lid blank in the chuck (or leave it there if you used it as the jam chuck), and fit the lid to the bowl with your desired fit. I recommend not making a tight fitting lid on a delicate piece like this one. Remember: Sanding will loosen the fit, and finishing might add a marginal amount to it. A lid fit can also change with time. Loosening up a little is ok, tightening up is not so good.

Complete and sand the inside of the lid.

Mount a waste block with a hole in it in the chuck. Jam fit the lid into a recess. This fit doesn't need to be super tight because I will either have the tailstock up or the piece will be taped in for the whole process. A really tight fit will require pushing the lid out through the hole in the waste block.

Finish the top of the lid.

Tape the lid in after it's sanded, and take away the tailstock. Create a recess for your (already turned) finial. A flat next to the tenon makes a good joint between the finial and the lid.

Part 7: Finishing:

Completely finish the bowl and lid with your desired finishing material before gluing on the finial and base. I like to use slow epoxy for this. Titebond is a good choice, also, and 5 minute epoxy is ok, too. If you're mounting a gemstone in the lid, drill into the finial using a drill bit the diameter of the earring post. This acts as a fastener to secure the finial to the lid.

Part 8: Please Turn Safely:

Keep the tailstock up to the work whenever possible. This is always a good idea. For the safety of your work piece and your self!

Be sure the tool rest and tailstock are tightened down and don't have a tendency to move. This is especially important when turning a natural edge blank between centers. Keep checking the tailstock pressure as you turn, as the wood can compress from the turning force.

Be sure the chuck is tightly fastened to the lathe spindle, and that the jaws are tight. If you leave for awhile, re-check the jaw tightness before turning on the lathe.

Keep all body parts away from the spinning natural edge rim

Always stop the lathe before repositioning the tool rest. This is good practice all the time, but even more so with a natural edge piece.

Wear eye and/or full face protection at ALL TIMES

Use your own good judgment, and only do what feels safe to YOU.

Oh, and above all, be sure to HAVE FUN !!

A disclaimer: What I have written here, and what you see in my classes, is merely my way of doing woodturning. There are as many different methods as there are woodturners, and if it gets the job done safely, we are all "doing it right". If you do things differently, and it works for you, I am not arguing or telling you to change. I am just offering another possibility. It is my hope that you will learn something useful from what I share. Please accept this information only for what it is: my way, my opinion, not the only way to do things.