

Bowl Turning Fundamentals



Introduction & Thoughts on Design:

Bowls can be turned using either green (freshly harvested wood) or kiln dried wood. A beginning turner should consider starting out with green wood. I would recommend that a new turner attend a spindle turning class before attempting to turn bowls. All the skills learned in spindle work will make the turning of bowls so much easier to accomplish. Start out with a bowl blank about 8" to 10" in diameter. If roughing out a green bowl that will be set aside to dry before finishing, remember to leave it thick enough to compensate for wood movement. The general rule is 2.5 to 3 times the desired finished thickness or more. This rule is fine for average woods. Remember that some woods move more than others and should be left thicker so that when they dry oval in shape, that there is still enough material left to turn a round bowl.

Before mounting a blank on the lathe give some thought as to the design of your bowl. Do you want to turn a deep or shallow bowl? Will the top of the bowl curve into the bowl opening, appear to go straight up or open out. Will it be a Calabash style bowl or one with a well defined foot? Do you want a functional bowl or a more artistic bowl?

Tools & Materials:

3/8" Bowl Gouge with traditional grind
3/8" Bowl Gouge with side ground
3/8" Beading and Parting tool
3/8" Spindle Gouge for detail work
Point tool optional for detail work
3/4" Round Nose Scraper
3" X 9" X 9" or larger green or dry wood
Four Jaw Chuck
2 Prong Drive Center
Bearing Center

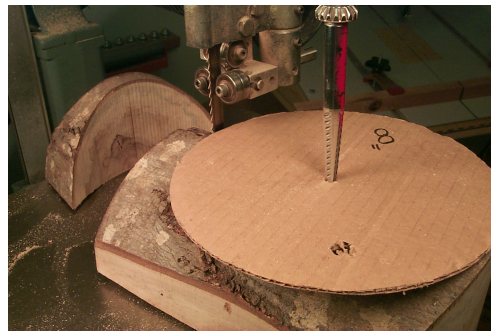
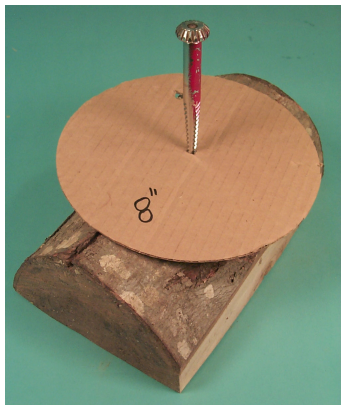


Note: I have found that it helps to do a practice exercise before starting to turn a bowl or platter to practice using a bowl gouge to do concave and convex cuts. Chuck up a piece of wood such as poplar approximately 3" thick by 5" by 5" and practice outside bowl cutting & shaping techniques. Follow by chucking up another piece to practice doing the inside cuts (concave cuts.) This exercise is good for both inexperienced and experienced turners to help hone their skills with out worrying about destroying their finished bowl.

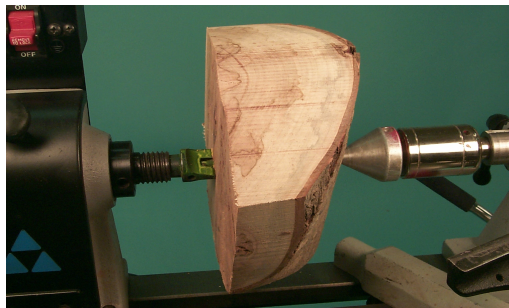
Procedures:

1. Select a piece of wood for your bowl blank. If using kiln dried wood, select a piece of wood at least 2.5" thick and 6" to 10" in diameter. If using a green log that has been sliced in half, select one that has been chain sawed to approximately 4" longer than its' diameter. The extra 4" is to allow for checking as the log dries. The log should have been split in half just after it was sawed to length, to aid in equalizing the drying process. The ends should be sealed with end grain sealer, old paint, or old carpenters glue anything that will seal the end grain.

2. Use a compass to make a cardboard template the same diameter of the bowl you want to turn. Mark the center of the template and place a nail in it to attach the template to the bowl blank. Decide which side is going to be hollowed out, keep in mind that most of the wood will be removed from the top; therefore the most figured side should become the bottom. Place the template on the bark side of the half log or on the side that is to be hollowed if using a kiln dried blank and drive the nail in only deep enough to hold the template. Now cut the corners off on the band saw being careful not to let your fingers slip into the blade. The corners can be left on and turned off on the lathe but this makes the turning process a bit trickier.



Cutting Bowl Blank to a circle using a Bandsaw

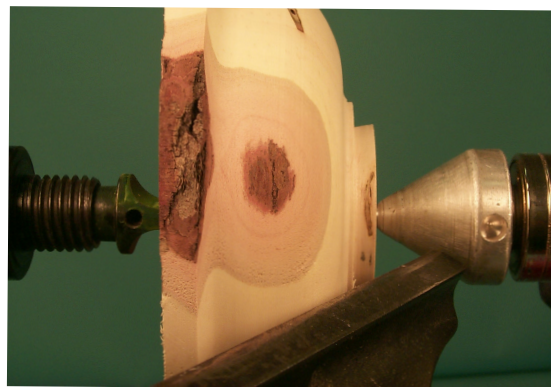


3. Insert a two prong spur drive, or drill a hole to accept a screw chuck (for the Oneway Stronghold and Talon chucks a 3/8" hole is recommended.) into what will be the top of the bowl. The spur drive should be inserted across the grain so as not to split the blank. If using a spur drive adjust the blank between centers so that it is balanced or if turning a natural edge bowl so that the high spots are on the same plane with each other and the low spots are on the same plane with each other. Now bring up the tail stock equipped with a Bearing Center. I prefer to use a Oneway Bearing Center.

Whenever possible bring up the tail stock and hold the blank between centers. This extra precaution helps keep the work on the lathe.

4. Check the speed of the lathe. It should be around 300 to 600 RPM's depending on the size of the blank or how out of balance it is. As you turn the piece you can turn up the speed as it becomes more balanced. Be sure to wear a face shield as bowls sometimes disintegrate and at times bark flies off and can be quite painful.

5. Rough out the outer shape of the bowl. Before you finalize the shape be sure to turn a foot on the bowl to fit your chuck. Some chucks require a dovetail shaped foot while others such as the Stronghold and Talon chucks require a 90 degree foot and shoulder (although Stuart Batty advises and rightfully so that the angle where the tenon meets the shoulder should be slightly undercut at approximately 89 degrees. This ensures that the shoulder will sit flat on the top of the jaws. The shoulder should cover the top of the jaws as that is where the bowl is supported. The size of the foot should also be appropriate to the style of bowl that you are going to turn.



The foot of a Utility Bowl should be at least 1/3 of the final diameter of the bowl. For an artistic

bowl the foot can be smaller. A Calabash bowl has a slightly rounded bottom with out a foot. Mark the center point of the foot or leave a stub where the cone center held the blank in place to aid in centering the work when reverse turning.

6. With the foot properly turned and the outside of the bowl shaped you can now remove it from the lathe and mount it in the chuck. Be sure that the shoulder of the foot rests firmly on the top of the jaws.



Facing Off the Top of a Bowl

7. Face off the top of the bowl. The top of the finished bowl should be below the pith. The pith is the center of the growth rings and if included in the finished bowl, the bowl will check or distort the top edge of the finished bowl.

8. If turning a small bowl 12" in diameter or less you can start hollowing in the middle and work your way from the center out to the outside of the bowl. Each cut should mimic your final cut. This method will allow you to practice your final cut many times before it really matters. Check the depth of your cuts and the wall thickness, frequently to insure that there is enough wood left on the bottom to reverse turn the bowl and clean up the foot. Use a side ground bowl gouge for the bulk of the hollowing. For the bottom third of the bowl and the final finish cuts I sometimes switch to the bowl gouge with the traditional grind.

Note: Please refer to the supplemental sheet on tool techniques for bowl turning.



*Hollowing a large bowl using the stair stepping method
leaving material in the center of bowl to minimize flexing of outside of bowl*

9. When turning larger bowls, it helps to leave some material in the middle to help minimize the flexing of the outer edge of the bowl as it turned to its' final shape. On large bowls it is best to turn the top third to finished thickness, then the middle third and finally turn the bottom third.

10. Sand the inside of the bowl beginning with 80grit and going through the various grits.

11. Remove the blank and set it up to reverse turn the bottom.



MDF mounted in a 4 Jaw Chuck or on a faceplate with grooves for jam chucking bowl rims for reverse turning



Oneway Mega Jaws

11. There are several methods that can be used to reverse turn bowls. Oneway sells jumbo jaws with rubber buttons which is the easiest method. Another method is to place a pad inside the bowl and rest it against the jaws of the chuck and bring up the tail stock with a Bearing Cone Center in it and center the bowl. Another method is to turn a scrap piece of wood to a cylinder and round off the top to match the inside curve of the bowl. The next step is to place a pad or sand paper inside the bowl and once again bring up the tail stock with a cone center and center the bowl. Another method is to attach a piece of scrap MDF or wood larger in diameter than the outside of your bowl turn a groove in it, to jam chuck the outside rim of your bowl. To test to see if the bowl is centered and which direction it needs to be adjusted, turn the lathe on at slow speed

or turn by hand while lightly marking the outside of the bowl by resting a pencil on the tool rest in a stationary position. Now look at the pencil mark and where it is missing move the blank toward the tool rest and repeat. If turning green wood the wood may have changed shape and it may not be possible to get it perfectly centered.

12. Finish turning the outside of the bowl and the final shape of the foot or bottom of the bowl.

13. Now it is time to finish sand the bowl.

14. Remove the bowl and apply finish. I like to use Mike Mahoney's walnut oil utility bowl finish. Mineral oil and beeswax are also acceptable finishes, although mineral oil tends to remain tacky and Beeswax is not very durable.

15. Grab some popcorn or go out to the garden and harvest some salad fixin's and enjoy your finished bowl.

For further information on turning bowls refer to the following sources:

Books:

Turning Bowls by Richard Raffan

The Art Of Turned Bowls by Richard Raffan

Turning Green Wood by Michael O'Donnell

DVD'S:

Bowl Basics Workshop with Mike Mahoney

McNaughton Center Saver with Mike Mahoney

Two Ways to Make a Bowl with Stuart Batty & Mike Mahoney

From Tree To Table with Mike Mahoney

Turn It On Video Series with Jimmy Clews

Mastering Woodturning Bowl Turning Techniques. Glen Lucas

Mastering Woodturning Tools and Techniques, Glen Lucas

Top Compression foot with shoulder

Left drilled hole for screw chuck

Right 2" diameter by 1/4" plus or minus deep, predrilled hole for Expansion chucking

