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IDEAS ON CORING OUT MULTIPLE BOWLS

SOURCES

Quite obviously, the first thing you need is a good source of fairly large trees. In my case, I have agreements worked out with several tree trimming outfits. When ever they are called to remove a tree I might be interested in, they call me and I go look at the tree. If I take the tree, I pay them a fixed agreed upon amount (\$50) and haul the trunk away. I have some acreage to store the logs on until I can cut them up. If you only have a lot in town, arrange storage somewhere where access is convenient, and where no one will object to the activities related to it.

TRANSPORTING

Many years ago I decided that trying to hoist one end of a log into a flatbed trailer and then winching it up onto the bed was not the way to go. Inspired by butane tank trailers, I built a logging trailer from 2 1/2" x 3/16" wall square tubing. The frame of the trailer is 4' from the ground, and is shaped like a triangle. The point of the triangle faces the pull vehicle and has an arm that drops down then turns horizontal to which the hitch is attached. The back corners of the triangle are where legs point down to the wheels. There is also a 2" diameter pipe which runs down the backbone of the trailer, located high enough that I can just hook my coffin hoist into various attachment points on it. This pipe is triangulated down to the frame, plus the wheel legs are triangulated up to the frame, making the whole rig very rigid. 2"x2" x 1/4" angle irons are welded across the back and front of the frame, with notches cut into the vertical leg to hold the chains which lift and support the load. I normally back the trailer 2/3rds of the way over the log, slide a chain under the log under the rear coffin hoist eye area, then attach the coffin hoist and have away at it. If I only have one log to haul, two chains are used to secure the back of the log. One chain hooks on the right side of the trailer, then goes down around the log and back up to the right side. The other chain does the same on the left side. This cradles the log and prevents it from swinging sideways. Then I lift the front of the log and secure it, then transport it to my logging yard. Two logs are slung side by side. I can load a 3000 lb. log in 15 minutes without breaking a sweat, even in August!

A logging trailer would be an ideal club project. If you anticipate building one, contact me for more information.

ROUGHED OUT BOWL STORAGE

One thing not thought of until you need it is a place to store/dry roughed out bowls. Thru past experience, I knew that the conditions in my shop were unique, but just about perfect for drying. My shop is in a basement (almost unheard of in Texas, particularly the hill country.) So I simply had to clear out enough room for a drying rack which is fabricated from a 2x4 frame, covered by 3/4" plywood. It has 6 casters on it for moving it around, but it will only move when it is not loaded!!!! The sides and shelves are made from 6x6x1/4" diam fencing panels. These panels are 5' wide x various lengths. The panels are wired together with split water hose over the corners to cover the tie wire ends. Shelves are 16" on center. There is also a stiffening frame in

the middle of the length (also made from 2x4s) to help support the middle of the shelves. Loaded to maximum capacity, the shelves droop a little, but are in no danger of collapsing.

This rack is ideal except for access, which is limited to one side. Being open as it is, it is easy to set up a fan to play across the bowls and hasten the drying process, if desired. More information about the drying process will follow. Also, being in a basement, the temperature/humidity is relatively constant and the drying bowls, with some exceptions, are not stressed by the drying process.

CARE OF DRYING BOWLS

The vast majority of bowls that I turn are made from box elder. Box elder (in my shop, under my conditions—your experience may differ) is very very stable while it is drying. Escarpment cherry (the local cherry wood) is horribly unstable. Walnut is somewhere in the middle. Other woods also will differ, probably with live oak being the most unstable wood available. For box elder, I simply place them in the rack, look at them for a few days to make sure no mold is growing on the wood, and forget about them for 9 months to 1 year or more. Box elder will also tolerate the fan blowing across the bowls to help remove the moisture. If mold occurs, I simply spray it with a Clorox/water (50-50 mix) solution and that kills the mold. Cherry is wrapped up in a layer or two of thick brown paper, as is walnut. Usually I wait a couple of days before wrapping either, just to make sure no mold is starting. If for some reason I were to turn live oak (someone is paying me to do it) I would simply turn it to finished thickness, say 1/8"-3/16" and let it warp.

Because the box elder is so stable, I can turn the bowls to 5-6% of the diameter and still have plenty of wood to work with when it is dry. Cherry requires at least a 20% wall thickness. Walnut can get by with 10%, but only if it is wrapped in paper to slow down the moisture loss. Let me emphasize that your experiences with your woods in your conditions will most certainly vary, so experience is the only sure guide here. But it will only take you a year or so to find out about the conditions you are dealing with.

STRATEGIES FOR CUTTING OUT CORES

The normal woodturner will naturally look for the biggest bowl he (or she) can get from a log. But this is not always the best approach. Again, with box elder, because of the stability, I locate the top of the bowl towards the pith of the tree, allowing me to get the biggest and the most bowls from it. But cherry, because it is so unstable, requires a different approach. In this case I orientate the bowl top toward the bark of the tree, with the bottom of the bowl toward the pith. This puts the narrowest part of the bowl toward the part of the tree with the most stress, and minimizes the distortion and bowl loss. Of course, I cannot get quite as large, or as many bowls from this orientation, but the bowls I do get require less care and attention and are more successfully dried. The best way to determine things like this is simple experimentation, where you orientate bowls one way in one half of the log section, then the other way in the other half of the log section. A few months drying will definitely tell you which way is best.

When I cut a log, I normally cut a section about as long as the log is in diameter. Then I will slice it parallel to the pith, but a couple of inches to one side. Just before that side falls away, I cut the other half, again a couple of inches to the side. I end up with two pieces of log that are about 45% of the diameter, with the remaining 10% in the middle with the pith in it. The middle piece is immediately cut length wise on the pith. These two pieces are totally quarter-sawn, usually have noticeable figuring, and make superb handles, spindles, or other items that will fit. Including some truly magnificent but smaller bowls. If the log is large enough, I will normally slice off the bottom area of the bowl also. Yes, instead of ending up with a deep bowl, it is shallower, but it will have a more pleasing shape if it is say, 20" in diameter but only 7" deep. A bowl half as deep as it is in diameter is an in-between shape, and is not really pleasing. The ratio between the diameter and depth should (in my opinion) be from 3-1 to as much as 6-1. Much higher than that and it becomes a platter, which is another subject altogether.

CORING OUT THE BOWLS

There are available quite a selection of coring systems which all have one thing in common—they aren't big enough for me!! My lathe will swing 24" (many lathes will) and I have available trees that occasionally call for that size bowls, so I needed a larger set of tools than what were available. I ultimately settled on the McNaughton coring tools, simply because quite a lot of the professional bowl turners uses them. However, it is really stretching them to core out a 18" bowl—16" is really a practical limit. So I was forced to make my own larger coring tool. My tools are made from 3/8" x 1 1/4" spring steel. I purchased the spring steel in the form of "S" tines for a harrow from Tractor Supply. In order to shape it, I had to heat it red hot and bend it around a mandrel until it was shaped as I wanted. A piece of HSS is brazed to the tip as a cutter. I also had to fabricate a tool support for this oversized tool. It is patterned after the McNaughton support, just scaled up. The tool was NOT heat treated after fabrication, as I decided to try it out and it worked just fine. If the tool had bent, I would have been forced to heat treat it. If you decide to do the same, be advised the steel is D-51. Your heat treat people will need to know this.

If you buy a coring system, experience will teach you how it works best. Most problems with them occur when the tip of the tool is setup to be above center line of the spindle. This is a BIG NO-NO!! The tip must be at or just below the center line. Otherwise, the tip will flex downward when making a cut, and being above center line, it actually moves toward the center as it flexes, insuring a magnificent catch. If it is just below center, the wood is actually moving slightly away from the tip, so the movement of the tip is canceled by this action, and the catches are much more benign.

TIPS FOR FINISH TURNING ROUGH TURNED BOWLS

There are as many methods of finish turning rough turned bowls as there are turners doing it, but some of the things that I have discovered may be helpful. The first thing I did was to make a very large 'drive disc', 1" smaller than the swing of my lathe. This was made from 2 thicknesses of MDF, glued together. This 1 1/2" thick disc was mounted to a dedicated faceplate, turned true, then covered with a router pad. In use, a rough turned bowl is simply jammed against the disc using the tail stock to hold it. Rotating the disc by hand will tell you if it is centered and

tracking securely. If so, you can now turn a tenon, a recess, or if you have a vacuum setup, the bottom can be turned completely, except for the little pillar where the tail stock is and the area right around the rim. It can also be sanded. Then the 'drive disc' is removed, and the appropriate chuck is put on the spindle to allow the inside and top to be turned. If you turned a tenon or recess, the 'drive disc' can be utilized again to finish up the bottom.

I fabricated a vacuum system following an article in the Fall '05 edition of WOODTURNING. I suggest you consult this article for details. One area where I deviated from the article was making my chucks. The author used plywood discs whereas I discovered that they were very difficult to make airtight. So now I make my chucks from plastic piping. Fortunately, they are doing some utility work in town and I was able to cadge (for a \$10 'the beer is on me tonight bribe') some 6", 8", 10" & 12" sections of thick plastic pipe. You only need a foot or so. For the smaller vacuum chucks, a double thick disc of plywood is glued/screwed to a dedicated faceplate and the outside of the disc is turned to just fit inside the pipe. Then the section of pipe is forced over the disc, tried up as much as possible, then screwed to the disc. A 1/4" groove is turned on the back outside of the disc and this groove is filled with silicone to effect a good seal. Also, both sides of the plywood are thoroughly painted, also to seal it. Then the plastic is turned true, with a rounded front. A seal from 3/8" thick neoprene is glued to the front and seals the chuck to the bowl. These chuck do not leak air, altho they are heavy. If you choose, One Way makes the aluminum chucks, all the way up to 12" if I recall correctly. And they work.

Another thing that I discovered when turning roughed bowls was if the bowl becomes very thin, it will deflect from the pressure of the tool. To counteract this, I fabricated a steady rest that rolls against the back of the bowl about opposite the tool rest. It is adjusted to put just a little pressure against the back of the bowl (this is assuming that the back, or bottom of the bowl has previously been turned true) and immensely helps eliminate 'chatter marks'. It consists of a banjo made from two pieces of 7/8" square solid steel with a tool post attachment made from a piece of 2" diameter steel welded to the front end of it. The tool post is drilled for a 1" diameter vertical post. On top of the vertical post is positioned a support for 2 inline skate wheels, which are orientated vertically, one just above the other. Your imagination will be required to come up with a method of attaching the wheels, as inline skates are all different. Just set the wheels up so they are basically perpendicular (sideways) to the surface of the bowls.

Perhaps another item which will add to your bowl turning abilities and comfort is a morse taper extension. Altho I do not have one, nor know where you can obtain it, I have seen them in action and they are certainly worthwhile having. This is simply a steel extension with a male morse taper on one end and a female morse taper on the other end. To use it, put the male end into your tail stock, and the live center into the female end. This puts the live center much further out from the tail stock, and allows you to put the center against the bottom of a bowl that is either being driven by a chuck (needed to stabilize large bowls) or to center a rough turned bowl up into a vacuum chuck used as a driving chuck. Then the inside of the bowl is turned round to fit the vacuum chuck and then it is reversed onto the vacuum chuck to turn the outside. A phone call to Enco or McMaster-Carr might be helpful.

Special tool rests can be very useful, also. Rather than the standard "S" curve tool rests, I fabricated a tool rest from 3/4" thick plate. This plate has the front portion curved to more or less match the inside of a big bowl. Also, this plate is horizontal. I have found that the flat top surface helps keep my bowl gouge or scraper much steadier than a tool rest with a narrow top surface. Also it can be fabricated to whatever dimensions you require. Plus it can be positioned very close to the area you are turning. Other tools rests can also be made to fit your particular situations.

SANDING TIPS

I strongly suggest that you read the article by Larry Genender about shop-built sanding discs in the summer issue of the AAW Journal. Power sanding is the only way to go on large bowls. Also, you can experiment by using various foams including neoprene. Also, you may find that it is cost beneficial to use velcro discs. On a 20" or larger bowl, you might use 3 or 4 discs (5" diam) of each grit you use. Personally, I often start with 80 grit, then 120, 220, and finish up with 320 grit. Most sanding problems result from not thoroughly sanding with each respective grits until all the previous sanding marks are eliminated. The second most common problem is trying to use a disc after it is worn out. If you do this, it takes longer to sand, and you stand the chance of heat checking the bowl. If you heat check the bowl, you may as well re-turn it, as you will not be able to sand out the checks without it being very noticeable. Also, a worn out 220 is not equivalent to a 280 or 320 grit--it is simply worn out 220.

Personally, I use discs from 5" all the way down to 1". Also, I have 3 or 4 different 'firmness' of discs. A hard disc is fine to use on the outside, but it will cause grooves on the inside. Generally, the shorter the radius of the curve, the softer and smaller the sanding disc should be. My collection of discs probably exceeds 25 in number, and I occasionally make more when special conditions require them. A good source of foam is stadium seats, which are about 15" by 10" or so, 1" thick, and the foam is a good compromise between too hard and too soft. A look at the yellow pages under 'Foam' might be productive also.

The drill I use is the ubiquitous Sioux 3/8" drill, the 2500 rpm model. I have 3, having bought the first one some 20-odd years ago. Two still work, the third has finally worn out the gears. Occasionally blow out the sanding dust. Also, if the motor or gear box gets hot, there are two things you can do. First and easiest, stop and let it cool. This is the primary reason I do not use velcro attached discs. The time it takes to remove and install a new sanding disc allows the drill to cool down between uses. Also, if you take your drill apart you will find that the gearbox has heavy grease in it. Clean this out and replace it with 'engine assembly lube'. You get this at the automotive supply store. It is moly based, white in color, and is much cooler running than the heavy grease Sioux uses. Put the gear train back into one half of the housing, then squirt the lube in till it about comes up level with the housing. Too much grease is as bad as too little. Leave some room for things to expand.

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