

Trent Bosch

Notes on Turning and Sculpting Wood

Objective

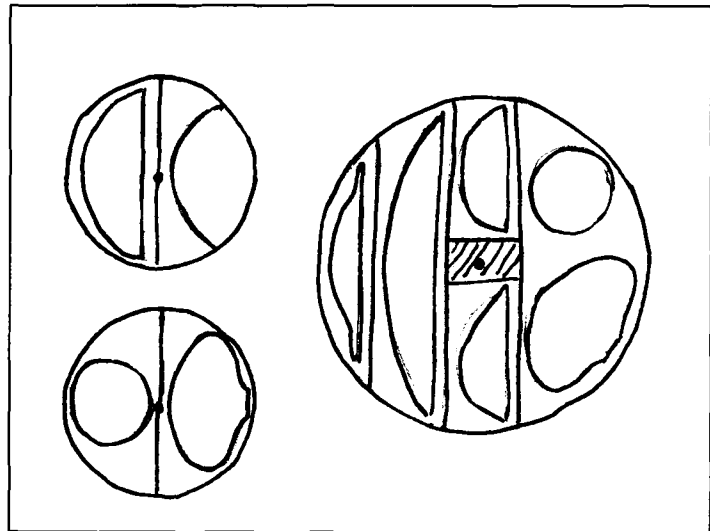
Over the past 15 years I have been exploring the creative possibilities and the unlimited potential that turning and sculpting wood has. This information sheet is to be used as a supplement to my hands on classes and demonstrations. My objective is to broaden your knowledge base and to expand your potential creative possibilities. There are many ways to approach woodturning below are some that work for me, you need to find what works best for you and as always enjoy the creative process.

Materials

I use mainly green (the wetter the better) domestic hardwoods, Acquired from arborists or individuals removing trees due to development, old age or storm damage. My favorites in my area include silver maple, ash, honey locust, elm etc.. I rarely turn down a piece of wood even if it is not one of my favorites (you never know).

Cutting The Material

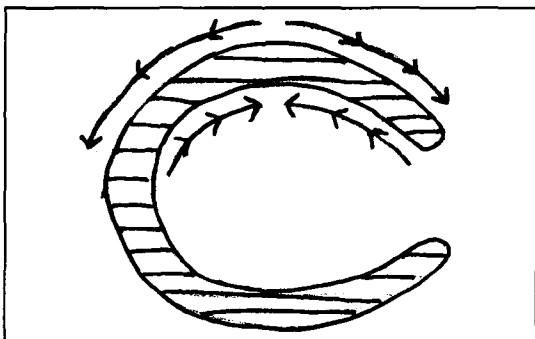
Starting with the log allows you to have complete control over the process giving you the ability to lay out the grain in any manner you see fit. I usually begin by removing the pith (center of the tree). This will remove an area that is prone to cracking, although this is a general rule there are certain situations where the pith being included will create interesting grain patterns.



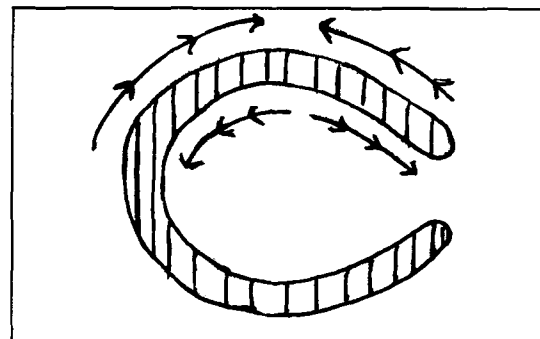
Layout of various forms in small and large logs

Grain Structure

Paying attention to the grain structure of the wood is important for two reasons. 1) The aesthetic success of the piece relies on thoughtful layout. 2) Cutting the wood the proper direction will allow for much cleaner cuts which in turn cut down on sanding time.



End grain Direction of cut



Face grain direction of cut

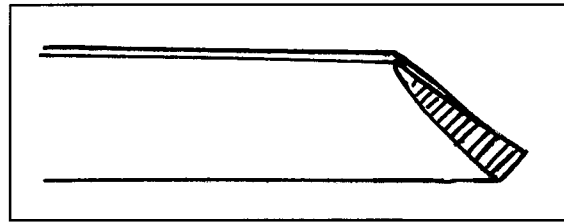
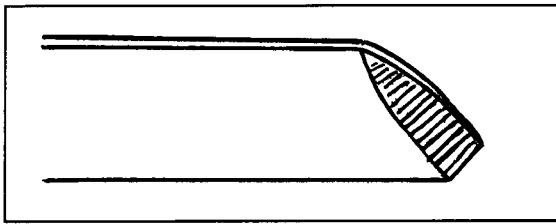
Tools

My basic tools include: 5/8" bowl gouge, swept back grind, 3/8" bowl gouge finish cut grind, 3/8" spindle gouge, fingernail grind, double ended scraper, and hollowing tools.

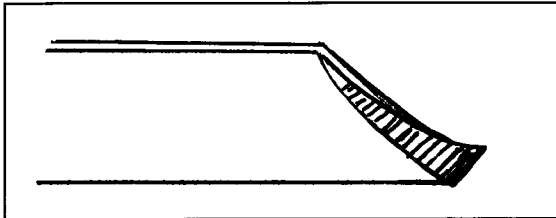
I use the sweptback grind bowl gouge about 85%-90% of the time I am on the lathe.

Sharpening

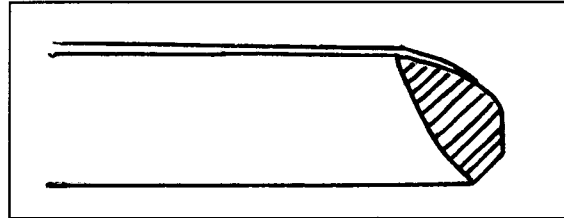
- Wheels: 60 grit works best (bread knife theory)
- Grind very carefully like you are grinding your fingernail. It does not take much pressure at all.
- Jigs are great if they get you the grind you want. To get the best results with jigs do not change the set up. Consistency is a very important Part of using jigs



Best grinds for the swept back grind gouge, with a 60 degree bevel angle



Grinding too much on the sides.



Grinding too much on the front.

Slow speed versus Fast speed

Slow speed (1725) is better to learn on or for doing grinding by hand.

Fast speed (3250) is for use with jigs and more experienced grinding.

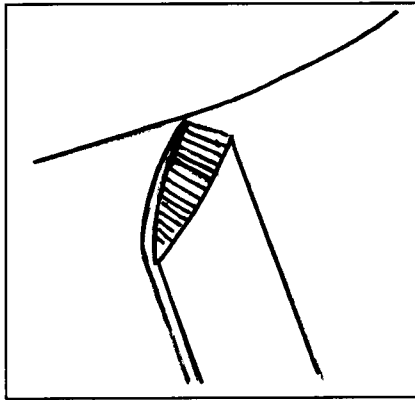
The height of the grinder is important. Get it up higher so you can see what you are doing. I set the height of my lathes to about 2" above my elbow. This is also where I put my grinder

Tool Usage

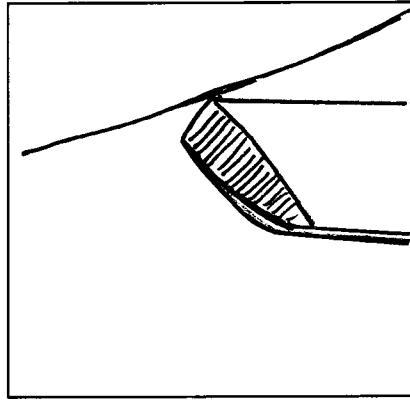
Ride the bevel, ride the bevel, and ride the bevel!

Doing so gives increased control and will slice the wood off rather than rip it off.

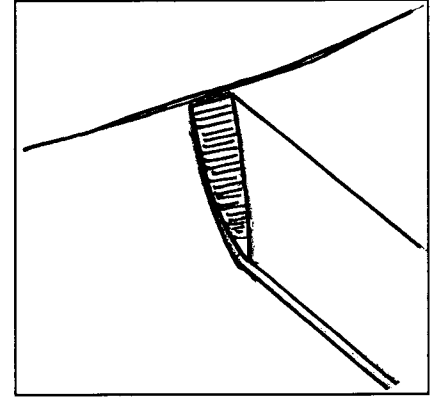
Riding the back of the bevel will make the tool cut out – riding the front of the tool will make it cut in. This is controlled by the movement of the tool handle. This is what allows you to shape the wood into the desired shape



Riding the front



Riding the back



Just right

Use the tool you are most comfortable with and can get the form you like from.

Sheer scraping cuts vs. Shearing cut

Sheer scraping is still scraping. It is just at an extreme angle that allows the tool to get more of a sheering cut reducing tear out.

Sheering cut will always produce a very clean cut if used properly. But it is hard to get into some locations and getting a good fair curve takes some effort.

Lathe

- A good stout lathe is important and will not hamper the creative process.
- Set up the lathe so the center of the spindle is about 2” above your elbow. This will allow you to turn for extended periods of time without fatigue.
- Variable speed is great and should be considered a necessity
- Cast iron is an ideal machine tool material.
- I would make the same object on any lathe of good quality (a \$6000.00 lathe will not make your work better than a \$2000.00 lathe)

Safety

When using machinery of any kind you need to always be focused on the task at hand do not let your mind wonder. Accidents happen when you are not paying attention to what you are doing. If you find yourself getting fatigued or tired mentally or physically it may be time for a break.

Eye protection, face shield, ear protection, no loose clothing or hair, etc.

You should go through a safety checklist before you turn on the lathe.

- Proper personal safety equipment
- Tailstock in place and tight
- Lathe on the lowest speed
- Tool rest won't hit the piece when the power is applied
- Material is suitable for turning
- Area is clear of others

Lathe speed

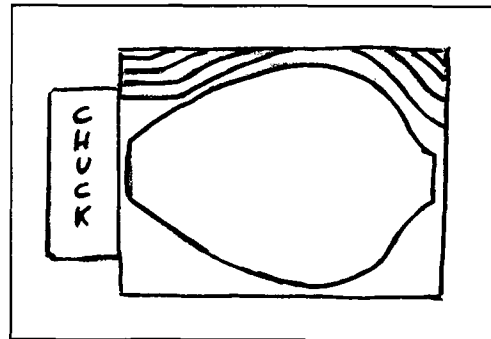
There is no super easy formula for figuring out the best speed. The speed on a large piece will be much slower than the speed on small piece. The best way to approach it is to not turn the speed up any higher than you feel comfortable with.

Hollow Forms

Mount the piece between centers to allow you to change the axis of the piece if needed for design considerations or removal of a defect. I do both face grain and end grain hollow forms. Tooling – you will need tools to allow you to remove the inside. Long and strong are important. The tool will have to hang far off the tool rest. Find a set of tools that you feel comfortable with and use them a lot. There is no substitute for practice.

Shape the exterior to its final shape first. Leave the bottom with extra material for support of the hollowing process.

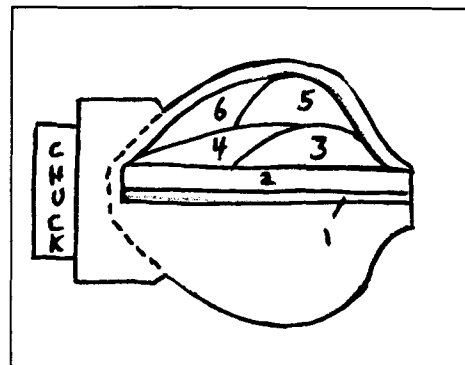
Do not begin hollowing until you are totally satisfied with the exterior shape. Once hollowing begins you will not want to go back to the outside.



Shaping the outside

Steps in hollowing:

- 1) Drill a hole down the center to 1/2" above the expected outside depth.
- 2) Open up the vessel all the way down to the bottom of the hole. Note: steps 1 and 2 could be accomplished with a forsnor bit in the tailstock. (I prefer to do it as described in step one and two.
- 3-4) Open up the hole, further allowing more room in the vessel.
- 5) Get around the top corner starting to refine the final wall thickness.
- 6) Saved for last to allow support for the other steps.



Steps in hollowing

Steps 2-4 Straight tools

Steps 5-6 Bent tools

Hollowing Tool tips

- The bent tool needs to be used with the bent part in front of the tool rest.
- A good bent tool will have the cutter on center with the shaft.
- Smaller scraper tips will allow you to cut more aggressively without the risk of the tool grabbing.

Bowls

Primarily face grain

Mount on a faceplate, screw chuck or between centers.

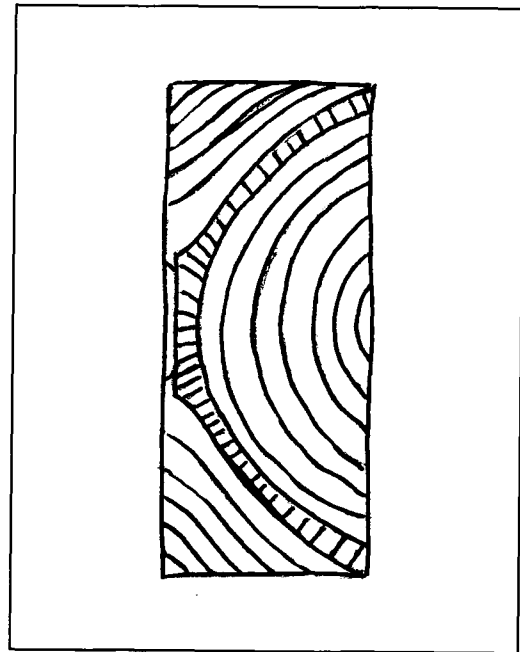
Start after your final shape right away. Don't worry about truing the blank up. This will allow you to develop your final shape all through the process.

Try using a left handed cut. This will allow you to throw the shavings away from you rather than in your face.

(Ride the Bevel)

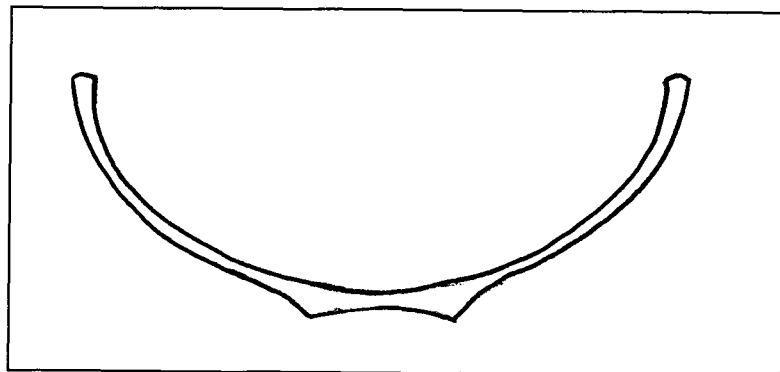
Get the shape on the outside exactly how you want it before flipping it around.

The bowl inside is done very similarly to the outside starting with your bowl shape from the beginning. This will allow you to shape the inside without a lot of funky transitions.



If it is a large bowl you may have to take it down to a heavy version of your final shape. Then you will work down the bowl in steps as shown, refining them and blending them together.

Bowl Profile for a utility bowl. I prefer thick around the rim for strength and thinning out below for a lighter feel.



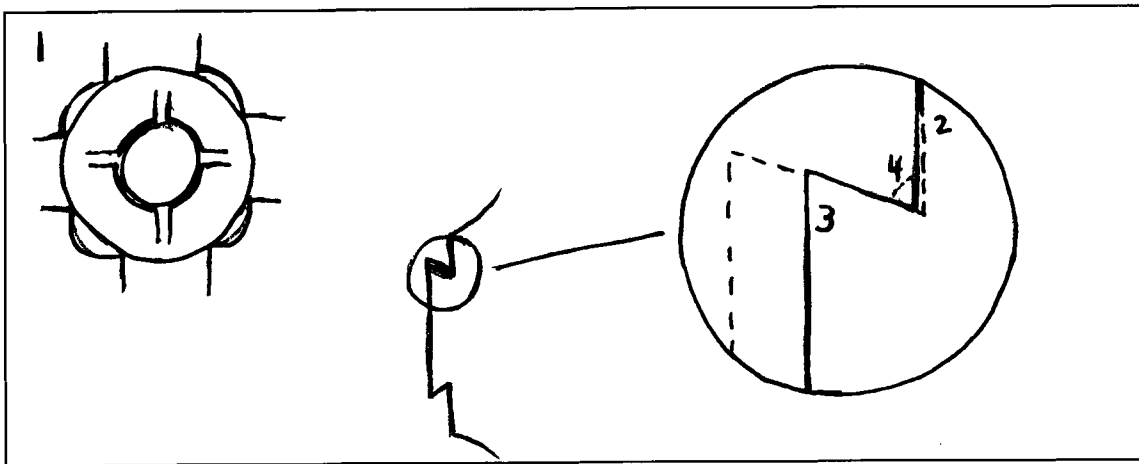
Chucking

Know the type of tenon your chuck requires.

Chucking diameter

4 things to pay attention to

- 1) Right diameter for the size jaws you are using.
- 2) Create a flat for the face of the jaw to register up against – can also be slightly faced in
- 3) Make the tenon the right length – you want the face of the jaw to register up against the flat of the bowl. This is where you get all your support.
- 4) Cut a sharp clean tenon if you leave a small radius in the corner of your tenon it will not allow it to register up to the part it needs to.



Sanding tips

Sand with the lathe at a slow speed. This allows the paper to cut without as much heat and lets you actually cut with the paper not just glaze over the surface.

Start with course paper that will make larger scratches and work down to finer and finer grits until it gets down to scratches you can't even see.

Take your time. Do a good job. This is one of the final steps and if it is done right will help the piece succeed.

Carving and sculpting on turnings

When you plan to carve on your piece make sure you leave enough material to allow you to develop the effect you are after.

Often I will use a softer material such as clay or a foam that sculpts easily such as floral foam. Use of these materials will allow you to refine and make decisions about the carving before working in the harder material.

Use of a carving stand or work holder allows you to focus your attention more on the carving and less on holding the piece. Making the use of sharp tools much safer.

Carving tools I use frequently.

Reciprocating:

Air body saw uses a 18tpi hacksaw blade, roughs out work very quickly

Reciprocating carver using flexcut cutters. V shape cutter is my favorite.

Rotary:

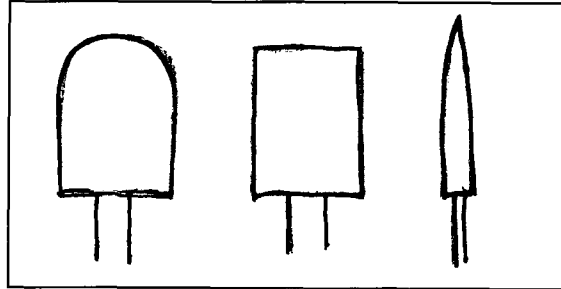
Die grinders using various burrs. I like the Kutzall extreme and the freedom typhoon burrs in various shapes

Micro die grinders small version of the die Grinder for use in tighter locations with smaller burrs

Flex shaft tools

Angle grinders with various attachments

Look at tooling not necessarily designed to be used in woodworking that may help you accomplish the desired effect.



My favorite burr shapes

Surface Treatments

The possibilities are endless. The list below is not even close to a complete list but can be used as a starting point.

Inlays, Carved textures, Pyrography, Metal leaf, Piercing, Sandblasting, Indentions, Paints, Dyes, Airbrushing, Burning, etc etc etc...

Finishing

I look for a few different things in a finish. I want it to be fast, easy to apply, and appropriate for the piece.

One of my favorites for utility pieces includes Mineral oil/ walnut oil – they are easy to use and non-toxic. They can also be refinished by the end user and give the piece a nice subtle look. I also use beeswax/ mineral oil or walnut oil / beeswax mixture on the pieces as well.

For more decorative pieces I use a spray lacquer such as Deft. It works fast and easy. Also Waterlox transparent works great. It is a wipe on oil that dries fast and builds up a nice sheen. The more coats the glossier the finish. I usually put on 3-4 coats and cut it back with 0000 steel wool until it has the desired sheen for me.

If I am sandblasting or want to leave the wood feeling, looking natural I will use a spray fixative (used to seal charcoal or pastel drawings so they won't smear). It leaves a very thin coat on the surface of the wood to protect it from the oil of your hands, but leaves the wood looking almost unfinished.

Design

Spend as much time getting the shape you are after as you need. A piece that you spend the extra time shaping will show and stand the test of time. It is never a waste of time to do so.

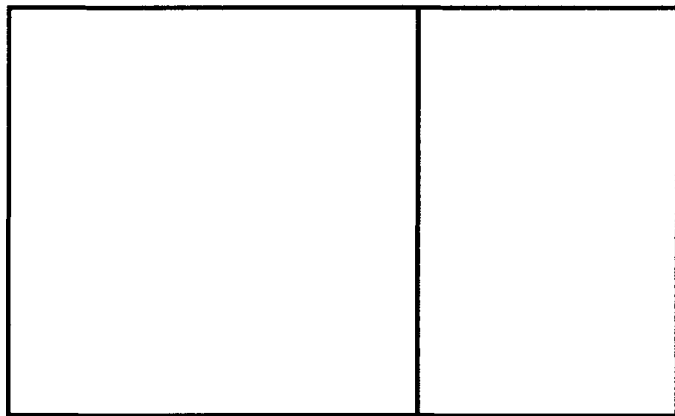
Look at the top edge of the piece when doing the final shaping. It gives you a better sense of the true shape.

Work the piece as a whole when doing the final shaping. This allows you to see the complete form better.

Leave the piece in the chuck but take it off the lathe and look at the piece in the orientation it will be when finished.

When shaping start from the point you believe to be the largest diameter and work from there.


The Golden Mean (rectangle) can be used for developing proportions in your work. These proportions can be found in nature and the human body as well as in art and architecture dating back centuries. You can use this as a guide in developing these shapes



Doing research on the elements and principals of design will give you a better understanding of the way we see objects and what is most pleasing to the viewer.

Conclusion

I hope this information gives you a starting point for creating your own unique turnings. As always, just have fun with your turning and it will show!

Happy Turning,

Trent Bosch