

SCWT Bowl Demo 3/11 Notes by Ron Browning

Let me start by saying that the following notes, statements, rules and conjectures are my opinion based on many years of making mistakes, sanding starting with 36 grit, and basic frustration. However as a fellow turner said to me recently, “When a customer buys a turned piece he doesn’t care what grit sandpaper you started with!” So, with that said, if you are happy with the results that you are getting keep on keeping on. If your results are not exactly what you want and you keep on doing the same things and expecting different results, well that is the definition of insanity isn’t it? Here are my thoughts about woodturning for bowls.

1. Design

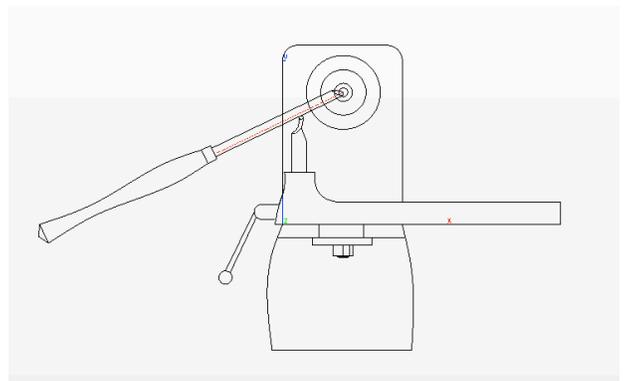
You can’t turn what you want if you don’t know what that is! I suggest that you make a rough sketch of the cross section of the bowl that you want to turn. An open form bowl is probably the easiest to start with. It is an open form if the rim of the bowl is bigger than the rest of the bowl. Bowls should have curves. Think of a bead chain hanging between 2 points, this is a catenary curve. Or think about a thin piece of flexible material that goes around fixed points. This technique is used when laying out boat parts in the sail loft. Straight sides or portions of sides are ok if that is the design that you want, but unless you are designing dog dishes you should stay away from straight sides. I have trouble making both sides of my cross section the same. I only draw one side; to see both sides I have a small piece of mirror in the shop. I put the mirror on the drawing so that it goes through the bottom of the bowl. Now when I look at the paper and the mirror I get to see both sides exactly the same. Change the angle of the mirror with respect to the centerline of the cross section and you will be able to see your design in a more open or closed orientation.

2. Sharp tools

Turning tools need to have a consistent bevel angle so that the “feel” remains the same after each sharpening. Another benefit here is that your tools last longer. The most important sharpening tool is the Sharpie marker. Marking the bevel allows you to see when the jig is set just right, you can see the marker ink removed from the cutting edge to the heel of the bevel.

3. Proper tool rest height

Spindle height should be at the height of the round bone on the outside of the elbow with forearm horizontal. Tool rest should be adjusted so that the cutting edge passes through the center of rotation when the hand on the tool

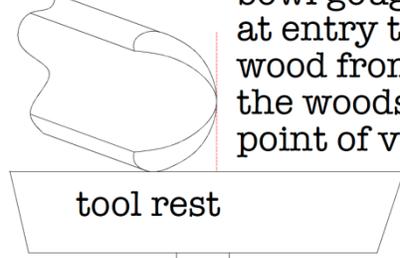


handle is locked into your body. If the tool doesn't pass through the center of rotation then you will get a dip or tit.

4. East West Rule

Whenever the tool enters the outside of the wood to start a cut the flute must be completely closed. If you put a straight edge across the top of the flute of your tool when the straight edge is vertical the tool is "closed" if the straight edge is horizontal then the flute is "open." If the flute is not completely closed the tool will skate

flute is exactly verticle.



bowl gouge at entry to wood from the woods point of view.

across the surface causing an instant design change! Once the very point of the cutting edge makes a mark on the wood that mark becomes a surface that the bevel can rub, float on, skim over, kiss etc. You can now open the tool and begin to remove wood. Initially opening by as much as the straight edge would go by rolling the tool to either 11 o'clock or 1 o'clock (30°). You can continue to open to a maximum of 45°. You shouldn't be able to see the red mark in the bottom of the flute.

5. Bevel supported cut vs. non supported cut

We have all heard or been taught the A, B, C's of turning:



A – Anchor the tool on the tool rest.

B – Rub the bevel on the wood.

C – Raise the handle of the tool to achieve the cut. That describes a push cut or a bevel supported cut.

And here is where the controversy begins; what does rub the bevel mean? Once the cut has started the part of the bevel in contact with the freshly cut surface of the wood is what gives bevel support.

A push cut can be pulled! No I'm not talking nonsense, if the cutting edge is leading the handle while being pulled through the wood **with** bevel support then it is a pulled push cut, both are bevel supported.



A non-bevel supported cut, pull cut, is not a bevel rubbing cut, it is only A – Anchor the tool on the tool rest and C – Start the cut. The bevel is not in contact with the wood, only the cutting edge and it is being pulled into the wood by the hand that is on the metal of the tool not the handle. This cut is very useful in removing waste wood by pushing the pull cut into the surface of the wood. No, not more nonsense talking either! If you are removing

waste wood from the inside of the bowl using a pull cut you have to push it because the bowl is in the way if you try to pull it. A pull cut will always result in lines on the surface of the wood.

This is a problem. A problem that must be solved! The solution to the problem was the shear scrape with the long wing on the fingernail grind.



Then to negative rake scrapers or 80 grit gouges.

Use a push cut and don't make lines.

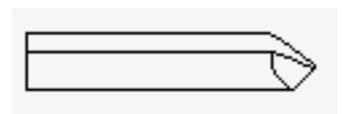
I would like to add a 4th step, SEE – once you have started the cut move the point where you are looking to the top of the item so that you can see what you are making.

6. Shear Scrape

The English grind bowl gouge is the preferred tool to use to achieve this cut. It is achieved by placing the tool on the tool rest with the flute pointing toward the wood with the handle of the tool held low and the flute closed. Now approach the wood with the tool and stop when the top of the flute or top cutting edge is 1/16" from the surface of the wood. Now rotate the tool till the bottom of the flute or bottom cutting edge just contacts the wood. This is a very very light touch that results in a smoother surface.

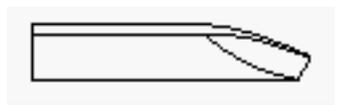
7. English grind vs. fingernail or Irish grind

Both of these bowl gouges are made from the same stock, they can be "U" shaped, "V" shaped or parabolic shape and they come in basically the same sizes from 1/4" to 3/4" diameter, the



English grind

most used is the 5/8" round stock with a parabolic cross section. The English grind is the easiest to maintain the sharp.



Irish grind

This grind is achieved using the "V" arm on the Wolverine jig. The fingernail grind must be kept sharp using the Veri-grind® or similar jig and the "V" arm. The angle on the front of the English grind is usually 40° to 45° while the fingernail grind is 60°.

Some sharpen a second fingernail grind gouge to 40° to allow access to tight places. For most turning the two different types of gouges are used in identical manners, cutting on the tool just below the point on the curve of cutting edge.

If you put a mark in the bottom of the flute with a red magic marker you can use this as a guide that is basically "**No safe cut can be made if you can see the red!**" (Exception to every rule, inside finish cut with Ellsworth grind *only if done correctly!*)

8. Bottom feeder bowl gouge

This gouge is used in a push cut method across the bottom of a bowl where the 40° or 60° gouge is unable to maintain a bevel rubbing cut because the sides of the bowl interfere with the tool. The bottom feeder is sharpened at a very blunt angle 80 – 85°. This is done using the grinder tool rest, *not the “V” arm*, by placing the tool on the tool rest of the grinder with the handle making the angle and rotating the tool to achieve the bevel. A secondary bevel is also ground on the tool at about 60° which can be done on the “V” arm.

9. Sanding

The most effective and safest method of sanding involves the use of an inertia sander, or self powered sander. Several are on the market at this time or you can make your own using roller blade bearings and 5/16” hardware. This type of sander must have ball bearings because you are able to create speed in excess of that which can be tolerated by bushings. If you don't make the rail road tracks then you will be able to start out with sandpaper that is much finer than that required to remove them. The way to know what is the next grit to use is by adding half of the grit number to the grit number you are using, i.e. if using 220 grit then $220 + 110 = 330$, so the next grit is 320 because that is what is available.

10. Sequence of Turning for a round or square bowl blank

Put a faceplate, wood with Formica, in the chuck, or just use the face of the chuck. Put the bowl blank with the bottom of the bowl against the faceplate with the live center providing pressure against the center of the blank. Turn a tenon on the blank to fit your chuck. Reverse the blank and put it in the chuck, use the live center to provide pressure then tighten the chuck. It is important to have the mark from the live center on the wood. Turn another tenon on the blank. At this point you can remove the tailstock and shape the bottom of your bowl using push cuts taking only 1/16” cuts. Remember the east west rule, your tool must be completely closed (a straight edge held against the tops of the flute has to be vertical) when the cutting edge touches the wood. Make a mark on the wood then open the gouge about 30°, the angle between 12 o'clock and 1 o'clock, and make your cut. Repeat this process till you have just about formed the outside of your bowl. Before making the final push cut sharpen your gouge. Sand the outside of your bowl to at least 320 grit. Reverse the bowl and lightly tighten the chuck. Place the live center into the mark that it made when you turned the tenon and tighten the live center. Now you can tighten the chuck jaws. Check that the bowl is running true. If it is not you will have to remove it from the chuck and make sure that there is nothing interfering with the chuck jaws. Reinstall the bowl in the chuck making sure to not go into the same place as before. Turn the inside of the bowl using push cuts. Measure the wall thickness and try to make it uniform from the rim to where the wall starts to widen to make the bottom. The bottom should be the

same thickness as the walls so leave enough wood there to allow you to reverse turn to the proper thickness. Sand the inside of your bowl to the same degree that you sanded the outside.

11. For an irregular shaped bowl blank

As turners we often use half logs or crotch pieces to make a bowl. When I want to turn one of these I start by putting another live center in the headstock Morse taper hole and then using both live centers I static balance the blank by moving the points on the wood till the wood no longer has a heavy side. If doing a natural edge then some consideration must be given to balancing low and high areas of the blank. Move the points of contact to first balance the low areas then the high areas while maintaining static balance. Mark the centers points of contact then use a Forstner bit to drill through the bark if necessary. Re-mount the blank to make sure the piece is still in static balance. Turn a tenon on the tailstock side of the blank then mount the blank in the chuck and turn a tenon on the other side. You should then mount the blank in the chuck with the bottom of the bowl facing the tailstock. At this point you can remove the tailstock and shape the bottom of your bowl using push cuts taking only 1/16" cuts. Remember the east west rule, your tool must be completely closed (a straight edge held against the tops of the flute has to be vertical) when the cutting edge touches the wood. Make a mark on the wood then open the gouge about 30°, the angle between 12 o'clock and 1 o'clock, and make your cut. Repeat this process till you have just about formed the outside of your bowl. Before making the final push cut sharpen your gouge. Sand the outside of your bowl to at least 320 grit. Reverse the bowl and lightly tighten the chuck. Place the live center into the mark that it made when you turned the tenon and tighten the live center. Now you can tighten the chuck jaws. Check that the bowl is running true. If it is not you will have to remove it from the chuck and make sure that there is nothing interfering with the chuck jaws. Reinstall the bowl in the chuck making sure to not go into the same place as before. Turn the inside of the bowl using push cuts. Measure the wall thickness and try to make it uniform from the rim to where the wall starts to widen to make the bottom. The bottom should be the same thickness as the walls so leave enough wood there to allow you to reverse turn to the proper thickness. Sand the inside of your bowl to the same degree that you sanded the outside.

12. Parfix 3408

Finishing a turning has always been a problem for most hobbyist turners because they are not skilled auto body finishers. Parsons Adhesives has developed hundreds of CA glues; Parfix 3408 is a "wicking" CA with a 90 second delay time built in. When used as a finish you have in essence a cellulose reinforced acrylic layer that is as much as 1/16" thick on the surface of your turning. It is applied to the surface using the spout of the small container and a paper towel to even it out and make sure everything gets

covered, put rubber gloves on before beginning to keep from getting stuck to your work. Once the surface is covered fully use another paper towel to remove as much of the CA as you can. You can set your work aside and complete the finishing process in 24 hours or use Parfix 1144 Accelerator. This layer must be sanded with the next finer grit, so if you finish sanded with 400 grit then you will sand the surface again, after applying Parfix 3408, with 600 grit.

13. Finishing the bottom

The bottom of your turning must have the same quality of finish as the rest of your turning. There are several ways to finish turning the bottom of your piece; use a vacuum chuck, a set of Cole jaws, Longworth chuck, etc. I find that a piece of Formica covered plywood with a hardwood tenon glued to the back is a suitable base to finish turning your work. You will need to wrap a layer of masking tape or painter's tape around the top of your piece so that you can fold over some of the tape onto the top of the work. Then, using the mark left in the center of the piece by the tailstock, trap the work between the Formica faceplate and the tailstock. Then apply hot glue, I find that 3 - 1" long beads of hot glue are usually enough to hold my work. You may want to go all of the way around until you become more familiar with this method. Leaving the live center in place, finish turn the bottom until you must remove the live center in order to finish turn the center of the bottom. Sand through the grits as you did on the rest of your work and apply Parfix 3408 and sand with the next finer grit. To remove your work from the Formica use an acid brush or any other small brush to apply some denatured alcohol to the hot glue. I then use a dental pick to hook into the hot glue and it comes right off. The denatured alcohol does not dissolve the glue; it only breaks the bond between the glue and the other surfaces it is in contact with. Make sure to hold on to your work, the alcohol some times runs down and gets onto the other 2 sections of hot glue and your work falls on the floor if you don't have a grip on it. After the Parfix 3408 is fully cured (wait a day or mist with accelerator Parfix 1144) buff the surface with Vonax polishing compound and you are done!