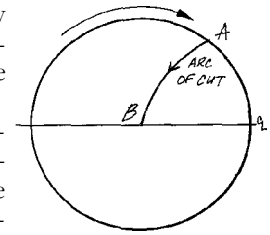
Bowl Turning

On the inside

by Peter Child

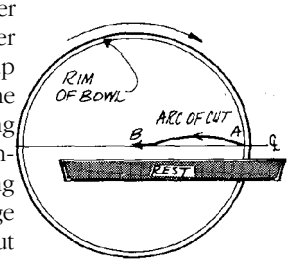
It is preferable to turn the outside of a bowl until it is ready to finish-sand before removing any wood from the inside. This should prevent troublesome vibration. Then, starting on the inside, there are three main problems facing the amateur:
· the outward thrust of the whirling wood on the gouge;
· starting a cut exactly where wanted without the risk of any sideways "kick," which if not expertly controlled can ruin the work, especially at or near the rim of the bowl;
· two inside areas that have perforce to be cut against the grain and thus can tear out.

The long-and-strong bowl gouge at work on the outside of a bowl shears an arcing cut from hour hand 12 noon to 3 p.m. or to 9 a.m. depending on which way we are going. It should follow that the same action would be correct when taking out the waste from inside the bowl.



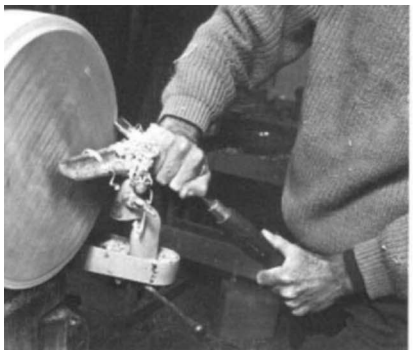
However, doing it this way actually invites a dig-in because whirling wood tends to throw the gouge blade over onto its back. The trailing edge and wing (the right-hand half of the blade) contact the wood and damage is inevitable. Without starting the lathe, place the gouge blade, bevel rubbing, at point A. Rotate the disc toward you slowly by hand and at the same time try to travel (bevel in contact but not cutting) from A to B. The wood surface pushes the blade back over to its right-hand edge, and the effect is more pronounced the nearer the blade gets to point B.

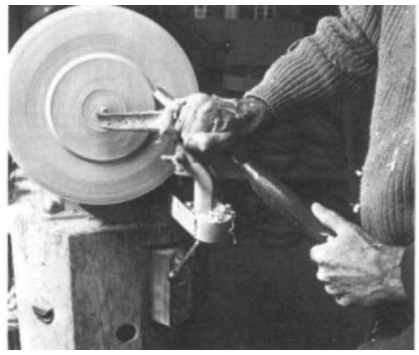
To start the cut correctly, set the rest below the center of the disc. With the gouge handle only slightly down from horizontal, the cutting edge can enter at A, the same height as the center of the bowl B. For small bowls—up to 7-in. diameter—entry near the outside rim is fine, and the cutting arc is slight. In large diameters, entry can be made anywhere along the straight line A to B. The gouge will enter quite easily an inch out from B, and successive cuts can be taken until point A is reached. However, the farther away from B, the more skittish the gouge will behave, and the more difficult it will be to start cutting exactly where wanted. In large bowls the arc of the cut ends before B is reached and the cut finishes in line with and across to B. Cutting from above and down to B can cause trouble.



I will now give a simple instruction. Place the gouge blade

One complete cut in leveling the surface of the rotating disc: The gouge is held motionless, its bevel tangent to the corner of the disc, flute outward, and then it is rolled toward center to start the cut with full bevel rubbing. Top of cutting arc is reached at center below. Gouge finishes horizontal, flute outward, its center at the center of the wood. Right hand, firmly on rest, is fulcrum and does not move throughout cut. Left hand holds gouge butt on thigh and lifts it to navel as cut progresses. Turner sidles to right so wings won't jam.





on its side, flute facing towards center, handle only just downward from horizontal. Push the blade in and start the cut. There appears to be no reason why this should not work every time, and the instruction surely could not be made any plainer. Sadly, the majority of my pupils disagree. So I have had to analyze why. First, the front surface of the disc may not be quite flat so it wobbles in rotation, and the unevenness can knock the gouge away from the desired route. So we will level it from outside to center.

A 1/2-in. gouge is held on the rest, handle almost perpendicular, edge at disc center height, distanced a little way outside the rim of revolving wood, and with flute facing outward. The handle is pulled slightly forward towards the body so that the full bevel of the blade will make contact with wood as soon as the cut starts. The blade is rolled over to the left and makes cutting contact with the wood while rolling. This forward roll of the blade is what provides control. Then the handle is lifted sideways to the right to continue a light cut to center. The rolling action can be stopped else the cut become too thick, and just enough forward pressure is used to keep the cutting edge traveling smoothly to center. If the full distance cannot be accomplished in one sweep, start where you leave off, and begin again. This is the quickest and cleanest way of flattening any disc, including tabletops.

Even with the front surface nicely flat some will still not be able to enter the wood on target—the first attempt sends the blade outward into limbo, or at best, along a crazy path in the wood surface. If this happens the turner must smooth it before trying again. Otherwise the blade can find the path again and really go crazy.

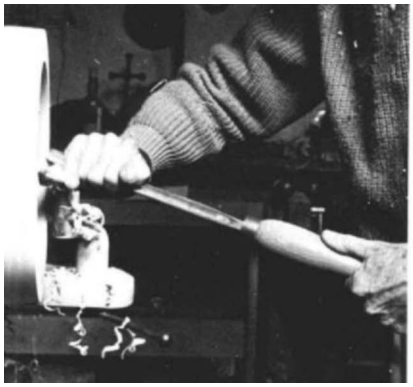
There is an easy way out which I do not recommend, but it can be a start and may lead to increased confidence, and then a determination to succeed. Use a 1/4-in. parting tool horizontally at a scraping angle to put a groove or notch into the wood at the site of proposed entry. Only a very shallow groove is required. Then hold the gouge blade, handle just down from horizontal, flute facing toward center, and cut. The groove will hold the blade and there will be no sideways "kick." When this has been proved, discard the parting tool and try a slight vee-cut made with any suitably shaped scraper. Even this should be enough to stop the blade from slipping outward. Now try the proper method. Present the blade as described and push it slowly forward so that it just contacts and rubs the wood. Hold this position for a few seconds, then slowly but firmly push the blade into the wood.

The square-nosed, deep-fluted, long-and-strong bowl-turning gouge is the most difficult tool to master, but when mastery is fully achieved the tool is a joy to use and well worth the effort. After the many years in which the woodturner's hook tools were in use, the comparatively modern cutting gouge has been so thoroughly developed that it can do its job by itself with the minimum of guidance by its user—if the user knows what to do!

It will be obvious by now that only half a gouge blade can be used at any time, which half depending on whether the cut is from right or left. The inside of a bowl can only be cut from right to left, using only the center (where the point would be in a spindle gouge) and the left-hand wing. The best cutting action is a roll from center to engage part or all of the left-hand wing.

To simplify matters we will dispense with the rolling action at first. Start a cut as described. If the blade is just pushed straight forward without any sideways movement of the handle, then all the left-hand wing will enter the wood and jam. In order to use the left-hand edge to full effect, the extreme end of the left-hand wing must be kept just clear of the wood, and to do this the handle has to be moved progressively over to the right. At entry the bevel is not in contact with the

Peter Child, English master turner, continues the discussion begun in Fine Woodworking, *Winter '76 of using long-and-strong bowl gouges.*



Starting a cut: Gouge just contacts wood, with left-hand corner of blade clear to avoid a dig-in. The bevel, center, as yet has no support from the wood, so the tool must be held very firmly and pushed straight in to start its arc toward the center.

wood, but the sideways movement puts it in contact and then the blade cuts more or less cleanly. Cutting thus, in a straight line from A to B and ending up with the center B in the bottom of the flute, is the first step in using the gouge properly.

More than just "hand-power" is needed to use a heavy-duty gouge to its full capacity. The right-hander will naturally have the palm of his left hand on the rest, with any unrestricted fingers curled over the blade. The nearer the hand to the cutting edge, the more control is gained. Therefore, he has only the grip of his fingers to prevent the gouge from ripping outward, especially at the starting cut. The left-hander is much better placed, as he naturally has the palm of his right hand behind the blade.

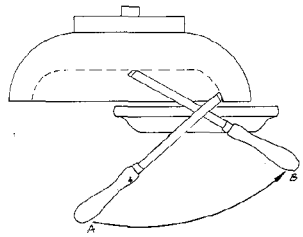
The correct position is:

· right hand on the rest behind the blade with what fingers that can do so curled around it, and thumb possibly against the barrel of the blade;

· left leg in front of right, right leg back with knee bent, so that pressure can be exerted by the left leg to provide the "push-power" for the cut.

In action, the right hand is a pivot for the blade (the palm does not move during any one cut). The butt of the handle is held on the left leg, and the left hand holds it at the very end in a hammer grip. With both blade and handle held firmly, the only way a cut can be made is with a sideways swing of the hips. The cut is a scoop.

Looking down on the work, A to B is the distance traveled by the handle in a complete cut from rim to center. In a small bowl, this is insignificant but in a 12-in. bowl the handle has to travel quite a way, and you are holding it.



A professional turner is mobile, and walks the distance A to B with the gouge cutting its way continuously from rim to center. The handle never leaves the body, which provides the power. An amateur can start a cut as described, swinging to the right as far as is comfortable without actually falling over, stop the cut, step a little way to the right, continue the cut, and so on, in several stages. Depending upon the height of the lathe and the turner's height and leg-length, the handle can be on the leg, rising to the upper thigh, into the groin, and possibly ending up on the rib cage when the cut is completed at dead center.

Gouge nears completion of cut, top, coming down toward center line before horizontal push to center itself. Close-up shows full left half of blade cutting, but tip of wing is clear.

Turner fails to shuffle to right, and left corner of gouge enters wood, causing a jamming ridge.

Cut taken without use of left hand demonstrates proper body control. With right hand as stationary pivot, power comes from thigh as left foot lifts entirely off floor. Photo at right shows full-power cut: Left leg provides lift, while left hand governs forward roll of tool. Palm of right hand does not move, but turner swings to right to keep blade cutting without jamming.

There is a second method of removing the waste from the inside of a bowl, one that many amateurs might prefer. Take a disc, say, 3 in. thick, and before mounting it on the lathe, drill a hole in the center about 1 in. in diameter and 2-1/2 in. deep, thereby removing the core of the center so that waste can be removed progressively from hole to rim. When starting the first few cuts from the side of the hole, the amateur can try an experiment that may prove the importance of body control. The gouge is presented to the right side of the hole, the flute facing left, the handle held against the left leg slightly down from horizontal, with the right leg behind the left, and the right knee bent.

The test is to be able to take the first couple of cuts without any help from the left hand. The left leg pushes the gouge into the wood and the body swings over to the right so that the blade travels to center through the pivot of the right hand. It will be found necessary to raise the heel of the left foot off the ground to lift the handle, and after the first two cuts, the entire left foot has to leave the ground and you resemble the stork. However, in successive cuts, instead of the left foot leaving the ground, the left hand is used only to lift and roll the gouge, and the leg and body power the cut.

The perfect gouge cut is a rolling action of the blade from left to right using only the left-hand wing of the gouge and swinging over to the right so the tip of the left-hand wing is just out of the cut. This shearing action is kind to the two areas of wood where we have to cut against the grain. Any other cut or scrape can wreak havoc in these areas and no amount of sanding will completely remedy the damage.

Try placing the blade into a cut with the middle just in contact and the right-hand wing backed over just short of dig-in contact. Then roll the blade over to the left to engage the center and left-hand wing. This push-roll towards the middle counters the outward thrust and a much better cut is obtained than by merely pushing the gouge towards center without any roll.

Thousands of words have been published for and against using scrapers in turning. Those in favor say that in comparison to gouges, which are difficult tools and can be dangerous, scrapers are easy to handle and with careful use can achieve the same results. Those against maintain that the best finish is a cut finish and scrapers are just not needed. The truth, as usual, falls between.

When a bowl has been cut and fashioned to such a degree of finish that it does not need any scraping—then, and only then, should a scraper be used. A good cut finish is improved by scraping. A bad finish can easily be made worse. Only the minimum of wood should be removed by scraping. A scraper should be used as a finisher—not as a wood remover.

The scraper tends to bounce back and forth as the bowl revolves and different surfaces—end grain, quick-growth areas, knots—come round and have to be dealt with at speed. Every bounce of the tool can inflict slight damage, especially to the two end-grain areas. The bounce can be overcome by forcing the scraper into closer contact with the wood but the damage caused by this viciousness is much worse.

For maximum control, a scraper has to be of heavy thick metal, with a blunt angle bevel (almost none at all), and equipped with a long handle so that, like the gouge, the hands hold the tool but the body does the work. Unlike the gouge, the scraper bevel must not come into contact with the wood. The edge must be kept sharp, either by honing or straight from the grindstone. Since the edge can be blunted in two or three strokes, depending on the type of wood, I prefer the grindstone method of sharpening as it is quick.

The scraper blade is held firmly down on the rest and the handle tucked into the side of the body. Imagine that the wood surface consists of peaks and valleys. The scraper should remove only the peaks without touching the valleys. This minimizes bounce.

However sharp the tool, it is still a scraping edge, not a cutting one, so the wood fibers are laid over in one direction. All my lathes have reverse switches so I can scrape both ways.

To finish up, I find the best abrasive paper is open-coated garnet, of the "finishing" variety. The "cabinet" grade is much too stiff. I use two grits, 100 followed by 150. Very rarely I might use 220, but nothing finer. With reverse, I can sand the bowl both ways.