

The Bowl Gouge

Using long-and-strong tools to turn the outside

by Peter Child

Woodturning gouges are of three types: one designed for bowls, one for between-center coving and small rounds, and one for roughing square stock to cylinders and sweeping curves, also between centers.

The blade of a bowl gouge is always "long and strong," meaning heavy duty. A good new one measures 12 in. from cutting edge to tang. It has a deep U-shaped flute with much meatier metal at the bottom, or keel, of the flute than at its two wings. Bevel angle varies with how tall a person the turner is, but it is always less than 45 degrees, although not so small as to make the edge fragile. There is no second bevel as in a bench chisel or plane iron, and there is no point. The edge is shaped square across.

Four sizes of bowl gouges are in current production: 1/4 in., 3/8 in., 1/2 in. and 3/4 in., ranging in weight from 4 to 16 ounces. Each size has a particular function. The 3/4-inch is absolutely the largest that can be used correctly; any bigger gouge is not a bowl gouge, however long and strong it may look. The heavy-duty handles should be about a foot long, and hefty—weight and length are necessary for control. This is why bowls should be turned outboard and should not be attempted between centers, where the lathe bed restricts movement of the gouge.

Coving gouges, for between-center work, are of medium strength and have a longer bevel and a lighter handle than bowl gouges. They also have pointed, "lady fingernail" noses

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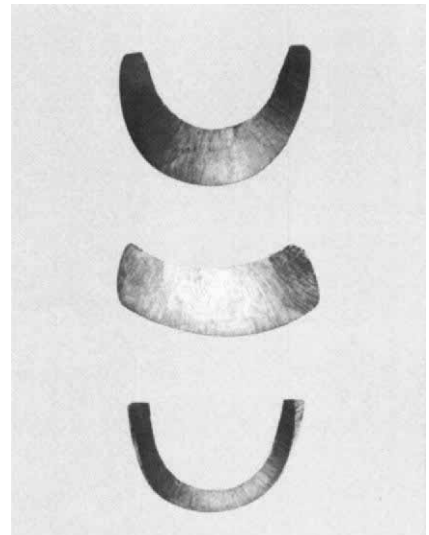
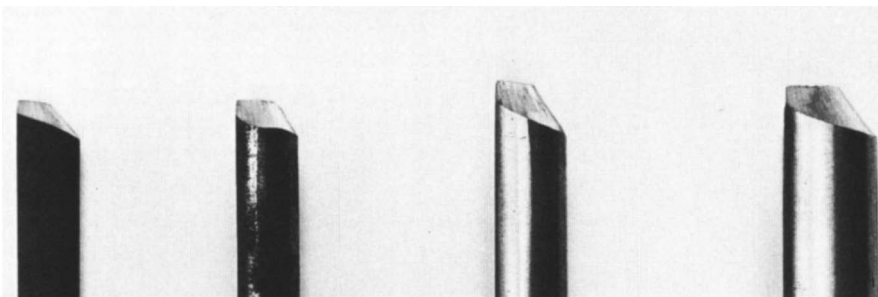
The different sizes of bowl gouges corresponding to cabinetmaker's planes are shown below. From the right, the 3/4-in. gouge is equivalent to a scrub plane, the 1/2-in. and 3/8-in. are jack and smooth planes, the 1/4-in. is a block plane for cleaning up endgrain. A turner with a new set should start by grinding all the bevels to the angle of the 1/2-in. tool, second from right. To try your hand without investing in a whole set, choose the 3/8-in. 1/2-in. gouge. At right, starting from the top, head-on views of the three kinds of turning gouges, all at 3/4 in. Bowl gouge is ground square across; spindle or coving gouge is ground to a pointed nose; roughing-down gouge at bottom is ground square across.

and a much shallower flute. Common sizes range from 1/4 in. up to 3/4 in. The roughing-down gouge serves for larger work.

Roughing-down gouges are of medium strength, deeply throated, semicircular rather than U-shaped in cross section, beveled at 45 degrees, and of even thickness. Their lack of keel makes them unsuitable for bowl work, whatever the size. They range from 3/4 in. up to 1-1/2 in.

Depending on the mood of the factory grinder, the bevel of a new tool can be any angle or length at all, and so the purchaser will have to reshape it. Any point must be removed so the edge is straight across. The bevel should be hollow ground right up to the cutting edge, without a second bevel. A skilled operator can thus provide himself, straight from the grindstone, with an edge that has a fine sawtooth cutting burr. Such an edge would horrify a cabinetmaker or carver, but it is most practical for a turner as it can be resharpened in seconds on the grindstone. An absolutely flat bevel does the same job as one hollow ground, but takes longer to obtain and maintain with a flat stone. Although the final result will be much sharper than the sawtooth edge, it may not last long enough to merit the time and care taken to obtain it. Also, with a stone it is very easy to round the bevel, exactly opposite to hollow ground. The slightest belly is intolerable since it causes the tools to lose most of their usefulness.

When cutting, the whole length of the bevel is in full contact with the wood. Take a piece of wood and hold it in the bench vise. Use the gouge to make a groove in the wood, as though starting a carving. In controlling the cut there





Child slices curls of wood from the rotating disc. Proper gouge work depends upon correct stance, hand position and coordination of eye, hand and leg. With the bevel always rubbing (bottom middle photo) the trick is to roll the tool over in the direction of the cut, while lifting the handle straight up. The cut begins at 12 o'clock high (left) and slices a downward arc to three o'clock (top and middle right). He watches the progress of the cut at the silhouette at the top of the whirling disc. His right hand rolls and slides the

handle up the thigh; his right leg supports and powers the thrust of the tool, his left palm presses firmly on the rest, the thumb pushing the blade and the fingers curled around and controlling it. The shaving is narrow at the start and broad at the end, but its thickness does not change. At bottom right, the gouge digs in. The wing away from the direction of cut, here the left wing, has been allowed to touch the wood. It scores a deepening ring in the bowl, ending in a sharp tear, startling the operator out of his careless stupor.

should be no space between the bevel and the wood. Now try to make a similar groove with the bevel not in contact, holding the handle more or less upright. It will be almost impossible. A gouge can remove wood without the bevel rubbing and without conscious effort, but only because the power of an electric motor is scraping it off. Only with the full bevel rubbing is it possible to take clean cuts.

There are two main methods of turning a bowl. One is to screw the wood to the faceplate and turn the outside and base first, perhaps with a flange or lip, and then remove the wood, reverse it, and somehow reposition it on the faceplate to turn the inside. The other way, my method, is to flatten and sand the bottom of the blank first, then fix the base to the faceplate and turn the outside and inside in one operation. There is a little more cutting against the grain, but the troublesome end grain is the same in either case. And I am saved the tricky problem of getting the bowl back onto the lathe in exactly the right place, since I never take it off.

Let us move to the lathe to cut the outside of a bowl with

the long-and-strong gouge. The blank is sawed to a disc, screwed to a faceplate and mounted outboard. The tool rest is parallel to the axis of rotation, set about center. The height of the rest is adjusted according to the height of the operator, so that the gouge cuts at the center of the disc or slightly above center. (We assume the operator is right-handed and cutting from left to right, from the face of the disc toward the faceplate.)

Every cut has to be fully under control from beginning to end. The operator has to stand centrally behind the gouge, with its handle upright. He cannot see the bevel. With the blade on the rest, the heel of the bevel rubs the revolving wood. The cutting edge is not yet touching the wood.

Keeping the blade on the rest, he gradually lifts the handle straight up until a thin shaving appears at the center of the U-shaped channel. This indicates that the whole bevel is rubbing, without the turner having to move to one side to look. At this stage, the blade will be in contact with the front, not the top of the tool rest.

The left hand holds the blade close to its cutting edge and on the rest, palm over the blade, first and second fingers curled around it, and thumb, if not curled around, then pushing against the side of the blade. This hand does not move for the duration of any one cut—the fingers may move slightly at the end of the cut, but the palm remains where it is. The right hand holds the long handle very close to the bottom in a tennis or hammer grip.

The shearing cut of the gouge starts at the top (12 o'clock high), coming down in an arc to finish at 3 o'clock. The first cut is started about 1/2 in. from the right-hand edge of the disc and removes wood from left to right toward the faceplate.

The shaving is removed first by the center of the blade, then, progressively, by its right-hand edge or wing, so that only half the cutting edge is occupied. To do this the turner rolls the blade over to the right and at the same time lifts the handle straight up. This coordination has to be learned and the way to do it is to start a thin shaving with the center of the gouge and keep the shaving at the same depth for the duration of the cut. If the blade is rolled too much the shaving will finish thicker than it started. If the handle is not lifted, the cut will be straight across and not in a downward shearing arc, which is the best cutting action. Do not attempt to remove too much wood with one cut—a cut that traverses a half inch at a time is ample for practice, and this should be done again and again, keeping the shavings the same thickness throughout.

Sometimes the gouge digs in, a startling and unpleasant jump that leaves an unsightly gash in the wood. All sorts of circumstances can lead up to this shock—bevel not rubbing, gouge out of control due to incorrect holding or wrong position, blade not sharp, or overcutting. What actually happens is that the unwitting operator allows the blade to roll in the wrong direction, from right to left, and the left wing of the blade comes into contact with the wood. This is what digs in.

To avoid this, I emphasize rolling and lifting the gouge and using its center and right wing only. This motion keeps the left half of the blade away from the wood and out of harm's way. This "wrong half" is the only cause of a dig-in.

Time and again I am puzzled at seeing an operator standing in one position, albeit a correct one, and endeavoring to traverse more and more wood with each cut. To keep the blade cutting he has to roll it over more, move his hand along the rest (incorrect), and lift the handle uncomfortably high. This is overcutting, an awkward motion which can easily lead to a disastrous dig-in. I now firmly believe this mistake is a result of training, probably in other crafts. Consider a cabinetmaker hand planing at his bench. He stands still. Likewise a woodcarver and a potter with his clay. But to keep constant control of a gouge, a turner seldom stands still for long.

After a disc has assumed a distinct rounding, say from half of full thickness to almost the faceplate diameter, try the following. Take an even cut from full disc thickness toward the right. The gouge will tend to come off the cut after about 1/2 in. of travel. Do not force it to cut further, but move your feet a little to the right and take up the cut from where you left off. You should find absolute control in cutting, and a comfortable action. Remember that each cut is still from 12 noon to 3 o'clock. The bowl might look a little ridged, but

not much. A practiced turner can do the whole area from middle thickness to faceplate in one or two sweeping cuts, but his feet are continuously moving him sideways to the right. The majority of bowl turning is done by body and legs, not hands alone.

The normal stance of a right-handed operator is left leg in front of right, with the right hand holding and providing thrust to the gouge. To make a smooth and even cut over wood containing end grain, hard and soft areas and perhaps knots can be quite difficult. The blade may skip over a hard area, then plunge too deeply into the soft.

Try this. Stand directly behind the gouge in the correct position, but reverse your legs so that the knee or mid-thigh of the right leg touches the end of the handle. It will feel most peculiar at first. Take a cut, but with the handle not quite in contact with the leg. Next, take a cut with the handle butt touching your leg and either raise your heel to lift the handle, or slide it up your thigh. The handle is always lifted straight up, not sideways, so the leg can support the tool over the full cut. Turners use this leg action to control depth of cut, whatever the terrain, and as a third hand or power source to remove large shavings in minimum time. The 3/4-in. gouge cannot be used to full capacity with the hands alone, unless one has the mighty thews of a blacksmith.

While the left wing of the blade must be kept away from the wood to avoid dig-in, no harm will result if the gouge is rolled so far that the whole right wing is cutting. Try having the bevel rubbing, but not cutting, and rolling the tool to the right over the whole working area. Repeat the exercise, but deliberately look away from the blade—don't watch what you are doing. This should convince you that nothing untoward will happen, and will give confidence to an otherwise apprehensive and tense approach. Now start a cut, looking at the blade, and immediately transfer your gaze to the top of the disc. A suitably placed lamp will help. You will be able to see the effect of the cut without looking at the cutting edge. The coordination of roll and lift, so difficult for beginners, is automatically simplified when the eyes transfer information directly to the hands. If the gouge is rolled over too far, the cut will immediately thicken and you will see it happen at the top of the disc. Your eyes will send a correction directly to your hands. As a bonus, you can govern the shape of the bowl much more easily. By starting each cut just before the finish of the previous one, you can reduce and practically eliminate ridging. The gouge does the work almost alone.

A basic woodturning principle is that all cuts are made from large diameter to small, and never going uphill from small diameter to large. Too deep a practice cut can lead into this, so watch it.

Up to now we have assumed the turner is right-handed, and most technical writing ignores the hapless left-hander, who must mentally reverse all the directions. But when a bowl bellies out in the middle so one has to work both right to left and left to right to keep working toward the smaller diameter, then a right-hander must also learn to switch directions and hands. If he doesn't, the fingers are pulling the blade and it can easily roll back the wrong way and dig in. A gouge blade should always be pushed, never pulled, and the hand that is doing the pushing has the opposite leg supporting the handle. I always tell my right-handed pupils they will be better turners when they learn to do it left-handed and I am nearly always proved right.