Turn a Rainbow Bowl

by Phil Cottell

Rainbow bowls are eye-catching, and will please family, friends—and even customers. They are easy to make, but offer a few interesting challenges including beads on the face grain, an undercut rim, and on-lathe painting.

Tools and materials

I use the following tools for this project: 3/8" (10mm) spindle (detail) gouge with a swept-back grind; 1/2" (13mm) bowl gouge; negative-rake scrapers (about 1" and 2" (25-50mm)); drill for sanding (with pads/disks); rotary cutter tool with a round burr; acrylic paints or inks (opaque or transparent); small paint brushes; archival black ink in a brush-tip pen; and a 3" × 8" (8cm × 20cm) blank of light-colored, dense hardwood such as eastern sugar (hard) maple. You will want to choose timber that will provide a smooth finished surface and little interference with the paint colors.

Shape the bowl & make beads

To start this project, you will need to turn a basic bowl with a wide rim that will receive the surface decoration. As many articles have covered the details of basic bowl turning, I will not repeat those steps in detail here, but refer you to other articles and videos on the topic (see sidebar).

For more guidance on basic bowl turning and bead cutting, use the AAW's Explore! tool to read Turn a Simple Bowl *(Glenn Lucas) and* Bead-and-Cove Sticks *(Mike Peace). You can search AAW's library of publications, including videos on related topics by scanning the QR code, clicking the link below, or navigating to www.woodturner.org.*

Woodturning Resources
Explore!

Photo 1. *After chucking the form by its foot, face off the top and smooth the outside with shearing cuts.*

Photo 2. *Using a pencil and ruler, mark off even divisions for the beads.*

Photo 3. *Define and shape the beads with the detail gouge. Light cuts yield wispy shavings and a refined surface.*

Photo 4. *Start hollowing the form until you have room to undercut the rim.*

I mount the blank on the lathe with a screw chuck with the outside of the form facing away from the headstock. I bring up the tailstock for support and true the blank and turn a basic bowl form, with a tenon on the foot for chucking. I aim for a smooth, continuous curve from rim-to-tenon. I then reverse mount the blank with the tenon held in a four-jaw chuck.

I use a freshly sharpened detail or bowl gouge to true the face and underside of the bowl, and remove any edge roughness on the outer rim (**Photo 1**). Next, I make the wide rim using a pull cut to produce a smooth surface, which tilts slightly—about 5 degrees—toward the center of the bowl. With a pencil and ruler (or by eye), I mark the divisions that will define the rainbow beads (**Photo 2**). Use the tip of the detail gouge to vee-cut in at these marks from each direction (**Photo 3**). With the same tool, round the beads from their top surfaces into the vee cuts—this is the standard bead-cutting technique. Remember to touch the bevel to the wood, then gently raise the tool handle until the edge begins a fine cut. Care here will save sanding time later. If the beads appear uneven in width, take a few light cuts to adjust them.

With the beads all in place, it's time to undercut the rim. This makes a wide-rimmed bowl look and feel lighter, and the shadow lines created within the bowl are attractive. Start hollowing with the detail gouge where the last bead ends, working part way into the bowl (**Photo 4**).

Photos 5, 6. *Undercut the rim using either the detail gouge or round–nose scraper.*

Photo 7. *Complete the hollowing using a bowl gouge and scraper.*

Photo 8. *Sand the interior. The over–sized disk conforms with the curve of the undercut rim.*

Then, using the same tool with the slightly open flute facing toward the rim, begin a very gentle undercut (**Photo 5**). Aggression does not pay here, as it's easy to get a catch and knock the bowl off the lathe. An option for the nervous (or aggressive) turner is to undercut the rim before shaping the beads; a scraper could also be used in lieu of the gouge I use. A freshly sharpened, 1" negative-rake round-nose scraper smooths the undercut. Having the toolrest as close to the cutting tip as possible will minimize tearout (**Photo 6**). Hollow the rest of the bowl with the bowl gouge (**Photo 7**), then smooth the inner surface with the larger scraper. Aim for a sturdy 1/2"-thick wall, which is stable for painting, and feels good in the hand.

Prepare the surface

Power sand, beginning with 80– or 120–grit and working up to 320–grit abrasive. Lathe speed for power sanding should be about 350 rpm. Frequently stop the lathe to assess sanding progress. Wipe the form with a piece of shop towel after each grit to remove particles of broken abrasive. Pay special attention to the undercut area, using a slightly oversized sanding disk on the pad to wrap into the curve of the undercut (**Photo 8**). Work with the coarsest pad until there is no sign of tearout. Inspect your sanding before changing grits to ensure tearout is removed and sanding marks are uniform and becoming increasingly fine with each grit.

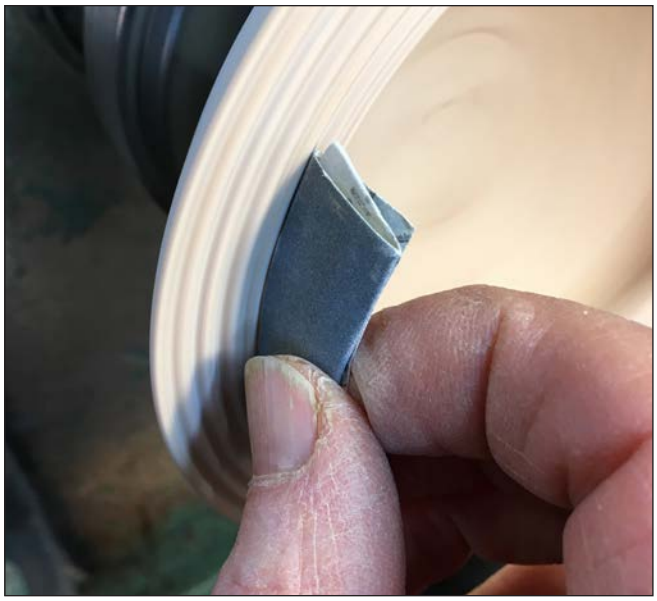

Photo 9. *Sand the beads by hand to preserve their shape. Beads sand quickly, so don't be too aggressive, especially with coarse grits.*

Photo 10. *A decorative element in the center adds a thoughtful design touch.*

The beads are sanded only by hand (**Photo 9**). I generally start with 180–grit abrasive and end with 320–grit (though ending with 220–grit will give the paint a little more "tooth" to grip). I have a locking chuck, which allows me to run the lathe both forward and backward with each grit, which I feel produces a better surface. However you approach the task, care with sanding will make the painting task easier. An optional step at this point is to cut in a small decorative feature around the center of the bowl with the detail gouge, then sand it by hand with 320–grit only (**Photo 10**).

Paint the rainbow

Remember the mnemonic for the spectrum of rainbow colors—ROY G BIV? Seven colors, but you only need red, yellow, and blue; combining red and yellow will make orange, yellow and blue will make green, red and blue will make purple, which can substitute for indigo and violet. A white plastic lid is helpful for laying out drops of paint to see the mixed colors better than on a colored surface (**Photo 11**). A drop of acrylic flow medium helps the paint spread.

Photo 11. *Prep for painting by mixing and laying out your colors in advance. A white plastic lid makes a fine pallet.*

While you have your paints mixed and at the ready, make a few swatches of each color on a scrap piece of wood. This will be helpful for testing the compatibility of finishes.

Place a long toolrest across the full face of the bowl, an inch or so away from it. This provides a view of your progress while supporting your painting hand and allowing for correction of any deficiencies. Reduce lathe speed to about

60 rpm, if possible, or, rotate the bowl with one hand, or, ask a buddy to help. Begin with the archival black ink pen, defining a thin black line at the outer rim and at each of the bead divisions (**Photo 12**). A black outline makes the colors pop.

The brush tip delivers a reliable, steady line. Acrylic paint begins to dry quickly, so move right into the first color, loading up the brush with red, but not so much as to drip, gently applying paint to the first bead as it slowly rotates by (**Photo 13**). Reverse the rotation and apply paint in both directions, stopping often to examine coverage. When you are satisfied with the coverage, wash and blot the brush, then move on to the next color. The last color, purple (or violet as the case may be), can slightly wrap around into the bowl; try for a sharp line where the paint ends (**Photo 14**). The paint will dry to the touch in an hour or so; it can be gently encouraged a little with a heat gun, held about 18" (46cm) away.

Finishing

Many finishing options are available. Using an oil finish allows me to wet sand the undercut rim with 320–grit to remove any residual tearout that may have revealed itself (**Photo 15**). I like to use Osmo Top Oil, but other options abound. Just be sure to use your sample board to test your finish for compatibility with your paint. It's convenient to apply the first coat with the piece on the lathe when it is still possible to correct defects. Gently wipe off

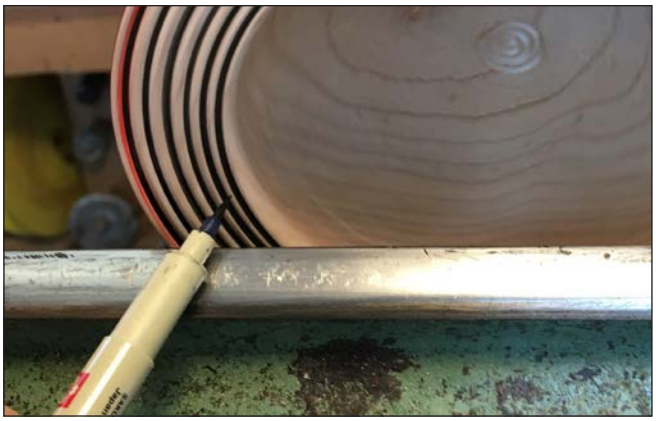

Photo 12. *Define the divisions between the beads using black ink. A fine-tip pen makes the task simple.*

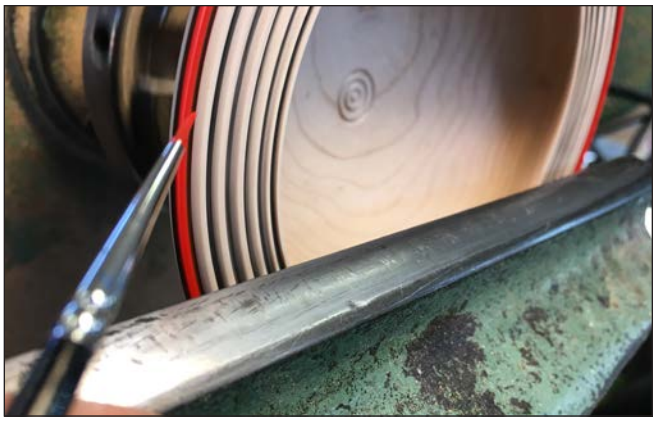

Photo 13. *Rotate the lathe slowly to apply an even coat of paint. Reversing the rotation ensures even coverage.*

Photo 14. *Wrap the last color (violet) into the bowl, aiming for a clean line where the paint ends.*

Photo 15. *Carefully wet sand the undercut rim using the finishing oil as a lubricant; avoid sanding into the paint.*

the excess finish with a paper towel, but avoid dragging one color across another. Allow the finish to dry for about twelve hours before proceeding. Apply the second coat of finish off-lathe, after the foot is complete.

Photo 16. *Use a vacuum chuck or a jam chuck with abrasive disks to access the foot for final turning.*

Photo 17. *Shape the foot with a detail gouge, and add any decorative embellishments.*

Turn the foot

A vacuum chuck is generally the easiest method for reverse-chucking a vessel to finish the foot, but it entails a bit of a financial investment. Absent that, anyone can use the method shown here—a rounded wood driver, or jam chuck, placed in the chuck and trued up. I use a caliper to measure the thickness of the bottom and verify how much material I can remove from the foot before creating a funnel.

I put a few used sanding disks between the driver and the bowl for cushioning; a scrap of split leather or suede also works well (**Photo 16**). A 320–grit disk oriented with the grit towards the bowl will encourage any slippage to take place between the driver and the disks, rather than against the wood surface. That said, the objective is to snug up the tailstock enough that no slippage occurs. Whether using a jam or vacuum chuck, make sure the chuck fits inside the bowl and does not touch the painted surface, which is easily marred at this stage.

With the detail gouge, shape the foot, cut in any decorative lines, then hand sand forward and back from 180– through 320–grit (**Photo 17**). Off lathe, the tailstock nub can be cut off with the burr in a rotary tool, and any marks from the nub sanded away with a 1" sanding pad and 1–1/2" disk, using only 320–grit abrasive (**Photos 18, 19**).

Photos 18, 19. *Remove the nub from the base with a burr grinder or carving tool and sand away any tool marks.*

Photo 20. *Sign your work using a fine tip archival ink pen or a pyrography tool.*

Sign the piece with an archival-ink pen—a 1mm nib works well (**Photo 20**). Apply the first finish coat to the foot, wiping away excess oil. I give the finish on the foot a day or so to begin curing, then apply a second coat of finish to the entire piece, again wiping off excess oil before allowing the finish to cure.

As with most lathe-based designs, options abound for improvising on the basic theme. Other interesting variations might include a loose-lid rainbow box, platter, plate, hollow form, or wall plaque. The closing image shows a birthday rainbow lidded box I made for my wife in which the edge of the lid covers the violet bead. I made the lid from purpleheart to further the rainbow theme, and added an ebony handle.

Enjoy brightening your world with rainbow bowls, and let us know how you get on.

Philip Cottell is a founding member of Island Woodturners Guild, Vancouver Island, a Chapter of AAW, and has served on the executive. He and his wife, Donna, enjoy retirement in Brentwood Bay BC, with their re-homed smooth collie, Raven.