

Layered Bowls

By Jim McPhail

Jim McPhail shares his techniques for these turned gems that excel in showing off the beauty of wood.



At the Utah Woodturning Symposium in June, Jim McPhail demonstrated to overflowing crowds. All eyes were focused on his process for showcasing wood. Although Jim doesn't claim to have invented the technique he uses, we know of no other turners who have built a business around this process. Here is Jim's story.

So what's a layered bowl?

Layered bowls are turned from stacked layers of a variety of woods

in different thicknesses. Segmented bowls are similar, but many of the segmented layers are turned from several species of wood to create a pattern. Layered bowls also differ from laminated bowls, which generally feature wood of the same thickness.

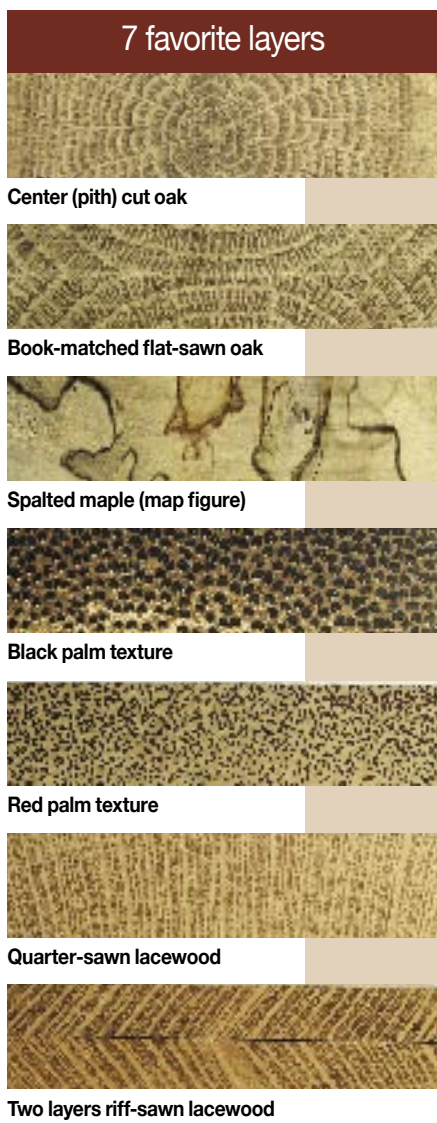
There is an endless variety of concepts and combinations within the layered bowl framework. For example, the bottom of a layered bowl can be a two-piece, book-matched layer; a layer may be created from several alternate laminations of

veneer. Some favorite combinations are shown in the chart *opposite*.

Parts to a layered bowl

The basic layered bowl has a top and bottom layer, each often turned from the same wood species. The center layer is a contrast layer, often showing off color or figure interest. The side layers accent and separate the top and bottom from the center

For this article, Jim assembled a 1½×3½" bowl, above, from cocobolo, black ash burl, red palm, and veneer accents of black marfuman and persimmon. The detail *opposite* locates each species.



layer. Finally, the veneer layers further define the layers and add interest and detail to the bowl.

The basic bowl may not need the side layers or may substitute multiple layers of veneer.

There are many options to make the center layer interesting:

- Highly figured burl, spalting, or other natural patterns.
- Grain figure based on how you orient the grain of the layer.
- Split center layer, creating a pattern.

Even-layered concepts

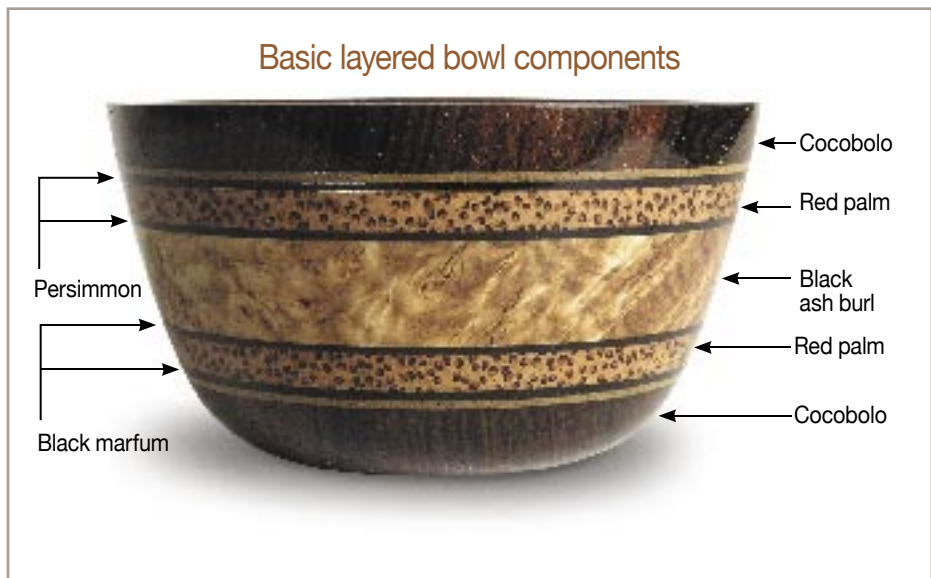
There is no limit to other concepts and combinations. If you make

different colored layers with the same thickness of wood, you create a more formal, regimented design. Variations on even layered bowls include:

- Riff-sawn layers, a “basket-weave” pattern.
- Center layers of spalted wood, cut and re-glued with veneer layers. This reminds some shoppers of antique maps.
- Natural wood figure, cut and re-glued with veneer layers.
- Laminated layers of veneer.



Maple burl top and bottom; five lacewood center layers. “I borrowed from other ‘round’ crafts by combining the texture of basketry and the shape of ancient pottery.”



Cocobolo top and bottom; sequentially cut layers of spalted maple. “I call this series map bowls because the pattern reminds me of an old globe map.”

- Even layers, creating a graduation from dark to light values.

Sizes and shapes

The complexity of the design and production of layered bowls goes up



Bloodwood top and bottom; sequentially cut layers of honeylocust. "I cut the center layers for this bowl with the pith as the center layer; the flame figure was just good luck."



Holly top, African blackwood bottom; alternating layers of hard maple and black castello. "This is one of a series of black, white, and grey bowls."



Cocobolo top and bottom; layers of red palm cut from three different boards. "I am always looking for wood colors and textures that will create a graduated effect."



exponentially with the size of the bowl. I've found that textures and figures that look great on a 3"-diameter bowl may get completely lost in a 7"-diameter bowl. Most of my bowls are between 2½" and 5".

Layers must be dry (stable) to ensure that you don't have a pile of wood rings a few years later. You'll need to sand flat and evenly thin (or thick) to ensure that they glue evenly and turn symmetrically.

You can consider bowls from two basic viewpoints: bowls viewed from the side and bowls viewed from the top—what I call "outside" bowls and "inside" bowls.

Outside bowls have thicker layers, which create bowls that are high enough that the elevation view is the most interesting. Inside bowls have thin layers, which create bowls that are flat enough that the plane view is the most interesting.

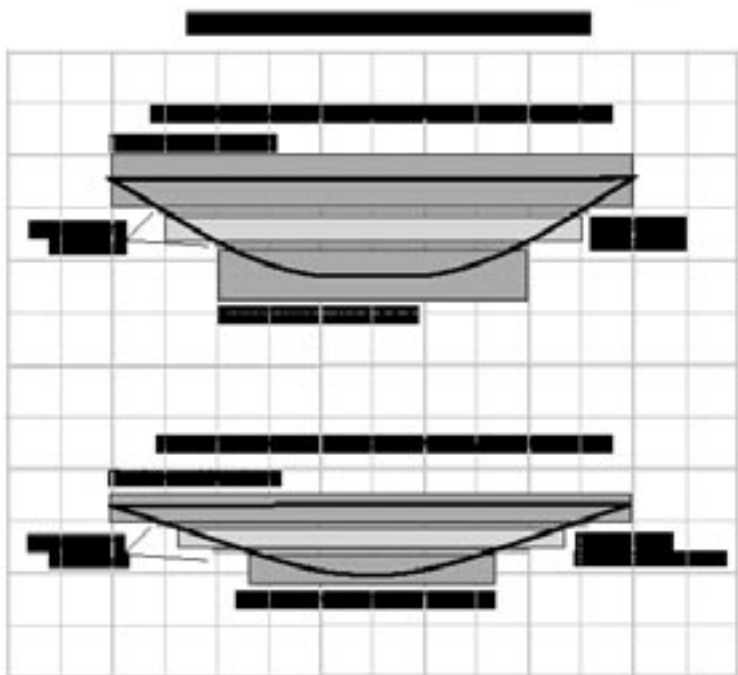
You can also find inspiration from other disciplines, such as pottery



bowls.

The shape of the bowl often depends on the design concept you create when you choose woods and combinations of woods. A bowl with a great-looking bottom layer obviously needs to have a wide-bottomed shape to show off the figure. If you want a map bowl to look like a globe, you, of course, need to make a "half-round" bowl.

One way to develop shapes is to buy a tablet of quarter-inch scale graph paper as shown *above*. Draw a box showing the height and width



of a bowl with a centerline drawn top to bottom. Then you can try a wide range of shapes on one side of the centerline; the ones you like can be completed by folding the graph paper on the centerline and tracing the side you've drawn onto the other side of the centerline. It's a lot easier than trying a bunch of shapes on the lathe!

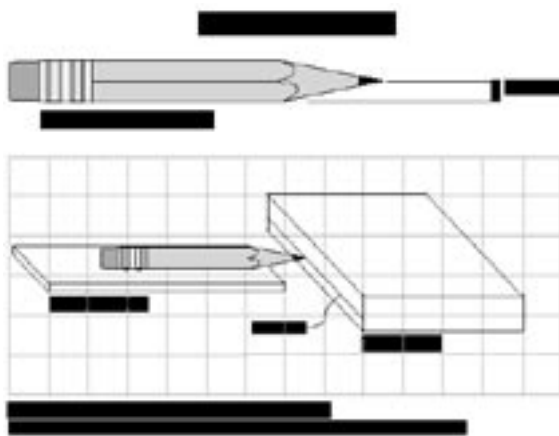


Resawing blanks

When I get ready to resaw blanks, I rely on a standard #2 pencil—regardless of the thickness of the stock—to find the desired thickness. Here's how.

As shown in the illustration directional, a standard #2 pencil will draw a line $\frac{1}{8}$ " above its base. Knowing this, you can make a set of marking blocks as shown above that will streamline the marking process.

—Jim McPhail



Cut and assemble

Once you've selected your layers and appearance, it's time to cut, assemble, turn, and finish the pieces. Here are some tips to improve your results:

Bandsawing. If you're going to do a lot of resawing, you will get a better result from a 3-teeth-per inch (tpi) blade at least 1/2" wide. I prefer a 3/4" 3 tpi skip-tooth blade.

Sanding. It's important to sand the glue surfaces smooth and flat. I recently started using a Performax drum sander that has helped me sand faster and more accurately.

Gluing. I use cyanoacrylate (CA) glue for all my assembly and first coat of finish. A 13-layer, four-hour glue-and-clamp job with shop glue takes only about 30 minutes with CA glue. The CA fumes will make you eyes water, so use in a well-ventilated area.

Waste blocks. If you decide to turn a lot of bowls that are 7" or less in diameter, make up a set of waste blocks fitted to your chuck. (My blocks are made from 2x2" scrap blanks, 3" long.) When I have used a block to turn four or five bowls and the block is down to about 1" long, I glue a 2x2" plug onto the working end of the block in order to use it again.

Surface finishing. The steps to sand and finish the bowl include grits 180, 240, 320, and 400. Spread a thin coat of CA glue on the bowl surface after the 320-grit sanding. The thin CA will act as a sanding sealer and usually fills any thin gaps between layers.

Wipe on the glue with the lathe at about 200 to 300 rpm and immediately wipe off the excess with a soft cloth before the CA glue sets. Use additional coats of CA as needed for a final finish.

Finishing. A combination of CA as a sealer and Micro-Mesh as an



1 Bandsaw each layer for the bowl to approximate thickness desired. For additional stability while resawing, spot-glue scrap block to the side of the workpiece.



2 Drum-sand each layer to final thickness. (The dust flap was left open for photography purposes.)



3 Cut layers to final size. Stack pieces in proper order, and number top to bottom.



4 Choose contrasting or accenting veneer colors. With a heavy-duty paper cutter, trim veneer squares about 1/2" larger than the bowl layer.



5 Place a veneer square on a piece of wax paper, and spray activator on the veneer. Then squeeze a generous spiral of CA on the layer to be glued.



6 Press layer onto the veneer and quickly move it in a rotary motion to even out glue between the two pieces. Activated CA will set in about 8 seconds.



7 Use a sturdy pair of scissors to trim excess veneer and CA from all four sides.



8 Do not use activator to glue same-size components. You will have about 30 seconds to position layers. Not registration lines for alignment.



9 Mark diagonal centering lines on bowl base. On dark woods, mark with a white gel pen as shown above.



10 Using the center mark, spin a circle with a compass to the edges of the base layer.



11 With a hand saw, remove the corners. Keep the best corners as a record of the woods and their thicknesses.



12 Using the centering marks, adhere a waste block to the bottom of the ready-to-turn piece with CA glue.



13 Turn the outside shape and sand to 320 grit. At about 300 rpm, apply a thin coat of CA and immediately wipe off excess. Polish with Micro-Mesh.



14 Turn the inside of bowl, then finish the inside by repeating the finishing steps used on the outside of bowl.



15 Part the bowl off the waste block after spraying inside and out with one coat of lacquer. Turn and finish bottom (shown mounted on a vacuum plate).

abrasive/polishing agent are key factors in a really fine, touchable finish. Depending on the woods you incorporate in your bowl, you can either use the Micro-Mesh immediately after the CA or lightly sand the surface with 400 grit before using the Micro-Mesh.

Start with the coarsest Micro-Mesh grit, 1500. The amount of sanding residue on the sheet after each pass is an indication of when you need to proceed to the next grit. I use 1500, 2400, 3600, and 6000 grits, with 12000 used to polish the bowl after it's been lacquered. Apply a single, thin, wet coat of lacquer on the bowl immediately after the Micro-Mesh to avoid dust or fingerprint oil from marring the surface. (I use Deft brand gloss lacquer in an aerosol can.)

Jim McPhail (JimMcPhail.com) is a member of the Southern Highland Craft Guild and is on the Board of Carolina Mountain Woodturners, AAW's largest chapter. He lives in Fairview, North Carolina.

Sources

Wood. Cormark International (cormarkint.com) is a direct importer of African hardwoods at wholesale prices.

Veneer. Certainly Wood (certainlywood.com) stocks more than 100 varieties of veneers. CA glue. ARGCO (argco.com; 877-747-4744) is a national supplier of plumbing materials. Argco sells CA in 1-pound or larger quantities. The activator comes in 15-oz. spray bottles. Contact Bruce Hallmark at 877-747-4744 or Bruce@argo.com.

I prefer thick for adhering layers and thin for finishing.

Micro-Mesh Abrasive. Gamco Services (gamcoservices.com; 407-865-3484) is a metal-shop supplier that sells Micro-Mesh abrasives in 12x12" sheets at \$10.10 each.

— Jim McPhail