



# The BB Stave System: Ted Beebe

## Exploring A New Approach

### The discovery

A friend and I were visiting a barn to look at a large maple burl that had been there for years. Off to the side, I noticed several wedge-shaped boards, about 30" (76cm) long, 8" (20cm) wide, 2" (5cm) thick on one edge, and 3/4" (19mm) thick on the other edge (*Photo 1*). Being a segmented turner, I kept thinking about the wedge angle and how that might be utilized in bowl construction. I now know that the angle was about 15 degrees and the wood was quarter-sawn spruce. The boards had once been used to make book-matched backs for mandolins.

After a few days of contemplation, it occurred to me I could tweak the

boards to cut curved, wedged staves for a bowl. I wanted to keep the 2" edge and bring the other edge to a point, giving me a 20-degree angle (*Photo 2*). To do this, I cleaned up the edges of each board and ran them through my thickness planer on a shopmade 20-degree sled. I would need eighteen staves, at 20 degrees each, to form a bowl blank, so I marked out a bowl profile for the staves using a template (*Photo 3*).

With the bandsaw table tilted to 10 degrees, I cut out the staves. Cutting the stave shapes with the bandsaw table tilted ensured the cuts would be parallel to the wide edge of the board. I then added a notch toward the bottom

of each one to assist in clamping the bowl while gluing (*Photo 4*). The final step in stave preparation was to sand off the fuzzy edges so they wouldn't interfere with the glue joint.

Gluing can be a challenge if I try to do too many pieces at once. I can glue up several pieces and use the notch for clamping, but it gets tricky. A more cautious approach is to glue up two or three staves at a time, taping them together and/or using rubber bands, then do a few more (*Photo 5*). With this method, I glue nine staves together for half of the bowl, and then the other nine, with spacer dowels inserted between the bowl halves (*Photo 6*). After the glue dries, check the last two mating surfaces. If they are off at all, rub each half on a sheet of sandpaper taped to a flat surface to improve the joint. Draw pencil marks on the surfaces to be glued; when the pencil marks are sanded off, the last joint is ready to be glued.

The notch I had cut toward the bottom of the staves now served as a tenon for mounting the workpiece on the lathe. The turning went well, but it is certainly different from a traditional segmented bowl. All of the glue joints are sidegrain to sidegrain, and you are ultimately turning an "endgrain" bowl (*Photo 7*). ▶

### An idea is born



1



2

The original found boards sparked the idea for the BB Stave System. The author modified the wedge angle so it came to a point, but only because he prefers that they meet at the center point in the bowl bottom. Other turners might prefer to mount the staves on a separate solid bottom, thus eliminating the need for a pointed wedge.

## Curved wedge staves!



**3**  
The staves are marked out and cut at the bandsaw. Tilting the bandsaw table to the appropriate angle ensures the curved cuts are on plane with the wide edge of the board.



**4**  
A notch is added to aid in clamping and to double as a tenon.



**5**  
The staves are glued together in sections, not all at once.

## Glue-up and turn



**6**  
Gluing the stave segments in two halves with a spacer allows for adjustment before final gluing. Dry-fit the segments first to assess your glue joints. If they appear to be "spot on," it may not be necessary to glue the two halves with a spacer.



**7**  
The final turning reveals interesting grain patterns.

## Make a BB Stave Bowl

Here are the basic steps to make a bowl using this method from 2x6 dimensional lumber. This example entails twenty-four staves, each one with a 15-degree wedge angle.



**a**  
**b**  
Mark the staves on the wedge-shaped board using a pattern, so all the staves are the same shape and size.

Resaw a 4' (122cm) length of a 2x6 board at the bandsaw with the table tilted to 15 degrees, bringing one edge of each resulting board to a point. Clean up the bandsawn surface with one pass on the jointer.



**c**  
Cut the staves at the bandsaw, with the table tilted to 7.5 degrees.



**d**  
Glue the twenty-four staves together, and turn the bowl.



**e**



## Endless possibilities

I was very pleased with the bowl I had made with this new stave concept and started to wonder what else could be produced using this method. I quickly realized that the basic wedge-shaped board, shown in *Photo 2*, had much more potential than just making bowls. I began to see it as a blank slate with lots of possibilities.

To explore further, I turned four hollow forms by cutting four sets of eighteen staves (*Photo 8*). You can see from this

picture that there were two scraps from each set of staves, one from the upper left and one from the upper right. When these scraps were positioned together, my wife Kathy thought they looked like a sunflower, so I proceeded down that road and made sunflowers (*Photo 9*).

I also made a nested set of five maple bowls by gluing up half spheres (twenty-one staves each). *Photos 10 and 11* show that this time I cut and oriented the staves in a different direction. I had set

out to have eighteen staves in each half sphere, but apparently my wedged board was at an angle less than 10 degrees. The solution was to add three more staves, which got me close enough to continue.

At this point, I showed my stave system to my friend and mentor Paul Bartlett, an excellent segmented turner who is also very good with CAD systems. He was impressed and began exploring other applications. Using my newly discovered concepts, he made a set of nested bowls and then a nested set of eggs (*Photos 12-14*). Then Paul took it a step further by incorporating veneer, both vertically and horizontally as he was assembling the staves and horizontally as he was preparing the original board (*Photo 15*).

Paul and I have made forms using eighteen, twenty-four, thirty-six, and forty-two staves, but there are lots more options, depending on the wedge angle of your initial board. We have determined other applications could include spheres, endgrain cutting boards, ribbons, and platters; we suspect we have not even scratched the surface. Paul and I named this new concept the BB Stave System after our last names, Beebe and Bartlett. We hope lots of other turners will continue to explore the possibilities. ■

*Ted Beebe, living in both Fletcher, Vermont, and Port Charlotte, Florida, can be reached at teddy.beebe@gmail.com. Paul Bartlett lives in Englewood, Florida.*

### Other forms



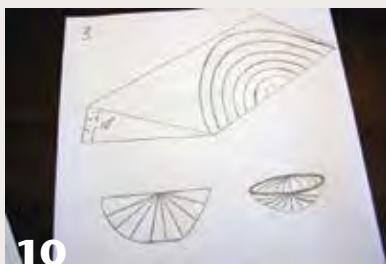
8



9

After turning the initial bowl using this method, the author soon saw many more possibilities, including vase forms and even sunflowers.

### Half-sphere bowls



10



11

Cutting multiple semicircle staves from a wedge-board resulted in a half-sphere bowl, with all of the stave points coming together at the rim.

### Nested staved eggs



12



13

The author's mentor and friend Paul Bartlett turned a set of nested eggs using this newfound construction method.



14

### Add accent veneer



15

Paul then created a set of hollow forms with veneer incorporated both vertically and horizontally.