

TOM CRABB WOOD BENDING DEMONSTRATION – 20 SEPTEMBER 2008
Sponsored by CENTRAL VIRGINIA WOODTURNERS

Tom Crabb, well known for his imaginative eccentric or off-center turning, drove over from Richmond this morning to the Crimora Community Center as the guest of the Central Virginia Woodturners, our sister club near Waynesboro. Those who didn't make the drive today missed quite a show as Tom spent the day showing us how he creates the various bent handles that adorn his hollowed vessels.

To get a full appreciation of this narrative, we invite you to print it off as a guide to follow as you look through the accompanying pictures that are also posted on our www.woodturnersofthevirginias.org website.

Tom has been turning since the early '90s and has been combining 'bending' with his turning for the past two years. To get the overview, just remember green wood and this order: turn, cook, and bend. Sounds simple so far?

But first, how does his mind work to think of such ingenious ways to stretch his turning skills to create shapes that don't even occur to most of us? Tom won't tell us specifically, other than that he is inspired by ancient shapes such as Greek-inspired amphoras, the two handled vases with long necks narrower than their bodies, and some of the vases associated with the ancient and highly sophisticated Minoan culture that thrived on Crete over 4,000 years ago. Beyond these muses, he simply likes to try new things to see where one idea or shape might lead into another. And living up to his dry sense of humor, he confessed that when the muse doesn't move him, he can always clean the shop.

Back to the beginning, though, a very good place to begin, especially when you don't know where you're going or how you're going to get there. Most of us can turn a spindle, this time about 12-14" long and 2 1/4" in diameter. (This particular cylinder came from a branch of Hackberry, the easiest wood to bend according to the U.S. Forest Service. See the list at the end for the woods from easiest to hardest to bend). Now all you have to do is start to shape a cup form on the bottom, leaving lots of waste wood to let you part it off easily. Then comes the horizontal boring with a 2" Forstner bit down the flange to where the hollow form begins...doing the math, you get a very thin wall of 1/8" thickness.

Although he laughed about not always having a plan, he stressed the importance of studying the grain closely before selecting which part of the flange to keep for his handle or handles (smart idea is to have two handles in case one breaks!). If you want the strongest handles that will bend best without breaking, go with the grain, not against it. Look for quarter-sawn cut "faced grain" in comparison with "tangential faced" grain. When you see the pics, this should be clearer. He then marked out his selection and rough cut it with a jig saw...whew! Now picture the hollow form with this 3/8" wide, 10" or so long flange or "handle in the rough" protruding out of it.

Anyone who has ever turned any scoops with handles rotating swiftly around perilously

close to one's hands and tools will appreciate that the incipient handle must be pushed or pulled aside in some way not to impede the hollowing of the vessel. How to do this? Simple...everyone's old friend to the rescue...DUCT TAPE!!!! Since the handle has some flexibility to it, he was able to attach one end of Duct Tape to the tip and the other to the base of the hollow shape near the chuck to pull it back a bit to allow him to continue his hollowing. Don't forget, though, to check that tape occasionally, since if it slips, watch out! By the way, Tom insisted that he always uses the professional silver Duct Tape and never the sissy colored stuff. Makes all the difference.

Also, give the turning a dry run to ensure you don't hit the tool rest and ruin your work (someone mentioned we might need a 'break' soon, but Tom said he never uses that word when demonstrating the delicate art of turning or bending).

Tom then proceeded to hollow the vessel, starting with a 3/4" bore and avoiding the whirling handle. Since he was going into end grain, he said the Kelton hollowing tool is good to use. And the thinner the better, since the vessel will have less chance of splitting when it finally goes into the cooker if there is very little mass remaining. He finished with a Sorby tear drop cutter using a push and pull motion without swinging the gouge handle too far to the right which might collide with the vessel handle.

All finished, he then sanded the handle smooth, taking off the ridges and irregular saw marks, refining the lines and leaving the same thickness across the 3/8" width. Best to do all this finish work down to 400 or 600 grit now when it's easier and the wood more accessible.

With all the tedious 'unfun' part behind him, Tom then showed us his system of clamps and jigs to bend the wood and hold it in place as it dried. We also got a rundown on the theory of how all the boiling of wood allows it to be bent without breaking. Just remember that there are two qualities to wood--the

plastic--lets it bend
and the
elastic--brings it back

Then comes the neat imagery of the cells slip sliding to the side when heated in water. The lignin and wood fibers literally move as they slide over one another and then tend to stay in a new place when cooled. He started by placing the vessel in a pan of water which he boiled for about 10-15 minutes with the lid on. Then carefully using oven mitts and tongs, he retrieved the vessel from its hot bath (don't believe rumors that he spilled some hot water down the front of his pants) and clamped on a mold to provide the form the handle would take. Picture him then slowly bending the handle with the tension side up and the compression side down. Slowly, slowly he works so as not to crack the wood. To facilitate the work, he uses an old section of a belt sander as a back strap to spread out the stress and hold the handle securely. Tricky part here is to take your time and coordinate all three of your hands so as to secure the various clamps as the handle progresses around the mold. Try to look for all the jigs and stop blocks in the pictures to

get an idea how the handle takes its shape in "tight and severe bends" and is held in place to dry. Best to leave it there overnight for good results. Finally, the handle is attached with a dollop of medium CA glue. If you don't secure it, it will act like a weather vane and spring back or bob with changes in the humidity.

Although we had a slight break in the handle the first time through, Tom glued it and used a novel 'sandwich' of wax paper on each side to contain the glue in the break. He then immersed the wood into the boiling water a second time to regenerate the wood's plastic qualities. Much to our delight, the handle held, although the faint scar where the break occurred remained visible in the Hackberry he was using. But it was a teacher by positive example in how to salvage a piece rather than discard it.

He then finished the bowl by clamping it into a large Jorgensen clamp (ideal for this work, since it assumes so many shapes) and refining its lines with a power sander. It's always tricky to finish with the same shape on both sides, but Tom showed us how lovely the final contour can be with some practice and an eye to detail.

He uses a Watco finish for grained wood and Krylon 1311, a clear fixative with matted gloss finish, for light woods, especially Holly that yellows with most finishes.

In conclusion, he spoke about signing his work which he tries to keep as simple as possible. He said there was much to praise in a 'neat and tidy bottom' (not just in woodworking ;-)). No reason to include the name of the wood, since woodworkers already know and collectors usually don't care.

He left us with the promise that vessels, especially classically shaped ones, with handles seem to sell well. Go forth and may your handles never break.

Best Wood Bending Stock

Stock Selection: The US Forest Service has evaluated 25 hardwood species for relative bending quality. In their testing, the best are:

- Hackberry (best)
- White Oak
- Red Oak
- Chestnut Oak
- Holly
- Dogwood
- Magnolia
- Pecan
- Black Walnut
- Hickory
- Beech
- Elm
- Willow

Birch
Ash
Sweetgum
Soft Maple
Yellow Poplar
Hard Maple (Worst)

Note: Don't waste your time on any conifers.

This ranking represents the results from one evaluation; variation in the results can be expected from tree to tree and site to site.