

Mark St. Leger
CMW Demonstration: February 21, 2009
By Bob Gunther
Photographs by Bob Cole, Bob Heltman

Overview:

Mark lives in the mountains of Southwest Virginia. His interest in woodturning began when his father showed him a weed pot and a tagua nut vessel that he had turned. That was twenty years ago and Mark still enjoys the endless possibilities of woodturning.

After years of working in the field of building Mark was asked if he would consider teaching woodworking to high school students. That was eighteen years ago and he continues to teach in a rural high school. During this time he has, with the help of caring contributors, turned a virtually empty school shop into a fine woodworking and woodturning facility.

Mark has been an active demonstrator and workshop leader for turning clubs. He also demonstrates at many regional and national symposiums. He demonstrated six years ago for CMW. He is currently on the faculty list of Arrowmont School of Arts in Gatlinburg, TN, The Appalachian Center for Crafts in TN, The Peters Valley Craft Center in NJ, and the John C. Campbell Folk School in Brasstown, NC. He is a lifetime member of the Blue Ridge Woodturner Club in VA and is a member of the American Association of Woodturners where he previously served as a member of the board of directors. His teaching techniques were featured several years ago in the *Skill Building Projects* video produced by the AAW.

Mark's sense of humor adds an additional factor in his very effective teaching skills as we found out during this CMW demonstration.

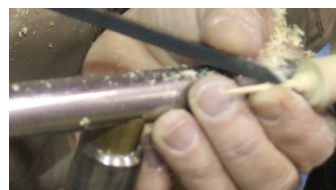
Morning Session:

Mark began his demonstration with a quick tune-up of CMW's Stubby lathe including waxing the tool rest.



His first project, a skill building one, was a toothpick. He used a small piece of maple that had one end chamfered so it would fit into the number 2 Morse taper. This was tapped in for a secure fit. Mark used a fast lathe speed, but he did not use the tailstock for this project. He used the

skew to do a peeling cut to round off the piece. He began at the tailstock end and removed wood progressing toward the headstock. He used a planing cut to achieve the final finish. Mark did minimal sanding and does not enjoy extensive sanding. He used his left index finger to support the work while turning. Details were turned on the headstock end of the toothpick before parting off. It was pointed only on the tailstock end. Mark completed the toothpick by signing it.



Mark hones his skew after sharpening at a compound 45 degree angle. He also hones the lower edge of the bevel. This permits him to ride the bevel and get a very burnished

finish. He uses one-inch PVC pipe for tool handles. He puts a maple plug in each end with two set screws into the side of each plug in order to secure the tools in place. Tools, depending on their shaft size, can be inserted into either end of each handle. He does not fill the PVC with shot. He wants light weight handles, these are especially ideal for weight reduction when traveling.



Mark next turned a sphere box.

He used a small maple blank about $2\frac{1}{4}$ inches square and $4\frac{1}{2}$ inches long. He turned this blank into a cylinder and used a parting tool to partially part it about $\frac{1}{4}$ " off the center. He turned tenons on both ends. The piece was parted in two and the shorter section put in the chuck jaws after Mark drew a line along the length of the cylinder. This facilitated aligning the two sections later in the turning process. Mark hollowed the smaller section to $1\frac{1}{2}$ " in diameter and $\frac{3}{4}$ " deep. He hollowed with a $\frac{3}{8}$ " ball end tool. This permits drilling and cutting. He then switched to a Hunter tool. Mark made the interior sphere shaped in order to mimic what the outside shape will be. He used a shear scraper to clean up the interior. Mark also trued up the opening face and turned about $\frac{1}{4}$ " of the interior parallel to the lathe bed so that threads (female) could be chased. He used a skew to flatten this area. Mark chamfered the leading edge and turned a recess distal to the thread area so that the thread chaser would not run out of room during the thread formation. Mark then chased female threads. Lathe speed was about 300 rpm. Mark used a 20 tpi chaser. The wood where the threads were chased Mark waxed with a toothbrush. Cutting was done above center. An arm brace was used to control the cutter. Once the threads were begun the tool was turned to 90 degrees to complete the threads. Mark waxed repeatedly during the thread chasing. One needs to be sure that the threads are at 90 degrees and not tapered. Mark used a small jig to check whether or not the threads were tapered. They were tapered, however, and Mark corrected this. This completed the female threads. Mark marked the piece between the #1 and #2 jaws before removing it from the chuck.



Next Mark placed the male portion of the box on the chuck. He measured the opening of the female part of the box and transferred that measurement to the male portion of the box. Then he turned a tenon on the male portion to $\frac{1}{4}$ " long and $\frac{1}{16}$ " larger than the female opening. He chamfered the edge. He reduced the lathe speed to 300 rpm. Then Mark used the male thread chaser in a rotary motion to initiate the cutting. Again, he waxed the wood he planned to chase. Initially the male portion was too large in diameter. Therefore Mark removed the tops of the threads with a parting tool and chased more threads to achieve the proper diameter. The initial rotating motion of the thread chaser is not needed to deepen the threads.

Mark then hollowed the male portion one inch deep. This compensates for the $\frac{1}{4}$ " tenon (the female portion was hollowed to $\frac{3}{4}$ "). The interior was shaped as a half sphere.



The same tools were used as before. This completed the male threads and the interior of the male portion of the box.

Next Mark placed the piece (both halves) between centers and turned it to a two-inch diameter using a $\frac{1}{2}$ " roughing gouge. He marked the center as well as one inch on each side of center. He turned each end of the cylinder to $\frac{5}{8}$ " diameter up to the one-inch lines. This made the length of the piece the same as its diameter. He used a detail gouge to remove waste at each end beginning sphere formation. Mark continued shaping using a one-inch Corian ring held against the surface as a guide to roundness. This completed the turning of the first of three axes (ak-sees) needed to complete the sphere. Then Mark removed the piece from between centers and placed it between cup chucks. One chuck had a #2 Morse taper on it. Once in the cup chucks it was on axis #2. The two previous tenons, now protruding at 90 degrees were turned away to further create the sphere shape. This completed axis #2. The piece was then rotated 90 degrees in the cup chucks to axis #3 and further shaped. It was then sanded. This completed axis #3. The piece was then rotated in various positions in the cup chucks and sanded. This completed the sphere box.

Mark then made a stand for the sphere using a small disc of Cocobolo shaped like a donut. Both sides were turned so it sat flat on the table and the sphere sat in the center of the donut ring.

Mark then carved a small piece of boxwood to a rough #2 Morse taper shape and tapped it into the spindle. He turned it to the shape of a wood screw. Threads were chased and the head of the screw shaped. It was then parted off. The head of the screw had Phillips-head lines burned into it. The screw was then placed into the sphere box or ball thus creating a "screw ball". The box or ball was then decorated with baseball stitching using pyrography. This completed the morning session.



Afternoon Session:

Mark began his afternoon session by turning a rectangular box. He used a 2" x 4" piece of burl about 1 inch thick. He previously band sawed it into a gentle curve along the long axis. It was gripped with two jaws of the Talon chuck (two jaws had been removed). The top of the box was turned first. The completed box would be about $\frac{3}{4}$ " thick. Mark turned a convex curve along the long axis of the box to produce a gentle, curved shape.



Next, he drilled a $\frac{5}{8}$ " hole $\frac{5}{8}$ " deep in the center of the top of the box. The box was then hollowed using a $\frac{3}{16}$ " angled hollowing tool with the tip on center. A $\frac{1}{4}$ " wall thickness was achieved on the narrow dimension of the box. Mark used a modified planer blade to clean up the interior. He cleaned up the previously drilled hole with a $\frac{1}{4}$ " round skew. Mark sanded the exterior of the box using a circular motion. This would be done up to 600 grit.

Then he removed the piece from the jaws and the jaws that had been removed were replaced on the chuck. A jam chuck was placed on the chuck that fit into the 5/8" hole previously drilled in the box. Mark measured the bottom thickness before placing it on the jam chuck. A golf ball with a $\frac{3}{4}$ " hole was put on the live-center and placed up against the piece forcing it onto the jam chuck. The bottom of the piece was then shaped to compliment the curve of the top. The live center and the golf ball were removed and the bottom of the box completed. It was then sanded.



Next a piece of blackwood was placed in the chuck. It was trued up with a roughing gouge. The diameter of the opening of the box was measured and a tenon turned on the blackwood to fit. The blackwood was undercut to fit the curve of the top of the box. Spiraling was done on the bottom of the tenon. It was then parted off. A second top was made to fit another box to be made later in the demonstration. The tenons of the tops (lids) need to be 90 degrees and not tapered because later they need to be held in a chuck to turn the top of the lid.



Mark used a homemade collet chuck to grip the lid's tenon so that the top of the lid could be detailed. He formed a slight dome and marked the center. A 1/8" hole was drilled 1/8" deep. The lid was then sanded. The second lid was completed in the same way.

All the jaws were then removed from the Talon chuck. A small piece of burl was placed in the chuck and the chuck tightened. A detail spindle gouge was used to shape the finial. The natural edge of the burl was on the top of the finial. A tenon was turned on the finial to fit into the lid.



Mark textured the box using a flexible shaft Dremel tool with a 3-edge cutter. He randomly scratched the surface with the cutter. This completed the rectangular box.



The jaws were replaced on the Talon chuck. The third box (bias box) was started. A 2 3/8" cube of maple was used. Mark took the point out of the live center and he used no drive center - only the spindle. He mounted the cube on the bias between centers. Corners of the cube were in the live center and spindle. Exposed corners were checked to be sure they aligned. Mark used a detail gouge to remove small amounts of wood from the top of the box (nearest the tailstock). He turned the bottom of the box to a partial spherical shape. He left wood so a tenon could be turned to put in the chuck when it was time to hollow the box. The piece was then almost completely parted off but enough left so it could be twisted off from the waste wood. This protected the three points on the box from damage should it come flying off in



the parting process. Mark placed the tenon in the chuck and hollowed the box. Prior to hollowing he drilled a 5/8" hole leaving a 1/4" thick bottom. Hollowing was done as with the previous boxes. The previously turned second lid was fitted to give a loose fit so it would rattle when the box rocked. Before taking the box out of the chuck Mark sanded the three flat sides to get out all saw marks. Then he fitted the box onto the jam chuck using the golf ball as he did earlier and completed the spherical bottom of the box including sanding. (You don't want to sand the three



points or you will lose their crisp detail.) Mark inserted the previously turned top and made a finial to fit into the top. He made the finial with a 1/2" tenon and fitted it into a homemade off-center chuck. The finial was placed on the jaws. Mark turned the finial off-center first using a 1/2" roughing gouge and turning the finial to a 1/16" tip. He achieved this by basically turning a cove. The chuck was then returned to the true axis and a spindle gouge used to turn the base of the finial. This was basically turning a bead. A small tenon was turned and the finial parted off.



The tip of the finial was burned and then fitted into the lid. This completed the bias box or rock-a-bye box.

For the final part of his demonstration Mark turned a Calla Lilly from green cherry. The piece was placed between centers (3" x 6" small log) on the pith and roughed into a cylinder. He turned a tenon on one end and placed the cylinder on the chuck. He trued up the face and marked the center with a skew. Then he drilled a 1/2" hole about four inches deep. Mark hollowed the interior using a hook tool thereby giving it a funnel shape. He then shaped the outside to give a wall thickness of about 1/16". Turning progressed from the opening of the flower down to the base. Unfortunately he cut the wall through and quickly turned another piece of cherry and parted it off. Then Mark carved it to give the open lily its classic shape.



He placed rubber bands around the flower have the edged overlap and to bend it. This completed the Calla Lily and also a very fast moving, interesting and often amusing demonstration. A DVD will be available in the CMW club library in March 2009.

