

# CORING BOWL BLANKS

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## I Overview

- A. Use of McNaughton Center Saver to core out green wood bowl blanks for drying.
- B. Safety will be emphasized relative to tool usage and wood condition.
- C. Techniques employed by Russell and Mahoney will be compared.
- D. I will demonstrate the method I now use followed by hands on period.

## II. Preparation of blanks to be cored.

- A. Selection of coring woods.
  - 1. Woods can be green or dry.
  - 2. Woods can have bark for natural edge.
  - 3. Woods should be void of the following.
    - a. Severe end grain checking.
    - b. Wind shakes
    - c. Cracks, knotholes structural deformities
    - d. Man made metal inclusions – barbed wire fence etc.
  - 4. Wood should be structurally stable and strong.
- B. Log harvesting and slabbing for coring.
  - 1. Chainsaw logs into lengths about 2 to 4 inches longer than diameter of log.
  - 2. Block logs with wedges on each side to prevent rolling.
  - 3. Mark parallel lines to include a thin slab with the pith involved.
  - 4. Saw off outside bark areas to leave a flat on each side of log.
  - 5. Saw  $\frac{3}{4}$  of way through each rip cut on each side of pith slab.
  - 6. Roll log over by 180 degrees and finish rip cuts by bucking upward.
  - 7. Outside slabs will be for coring with inside slab and pith for boxes etc.
  - 8. Coat bare wood with end grain sealer to retard drying and checking.
- C. Band or chain saw the coring blanks into round or near round blanks
- D. Turn coring blank between centers on lathe.
  - 1. Use 1  $\frac{1}{2}$ " forstener bit to allow drive spur and revolving tail center to fully engage.
  - 2. Drive a 1  $\frac{1}{2}$ " drive spur into the front of the blank with a mallet.
  - 3. Mount the blank on the lathe between centers for turning outside of blank to shape.
    - a. Use boards or helper if necessary to raise blank to spindle height.
    - b. Turn blank into a balanced mass for safety – do not leave unbalanced.
    - c. A second banjo may be required to turn the face of the blank.
  - 4. Turn a properly sized tenon on blank bottom or tailstock end.
    - a. Tenon diameter must be at least  $\frac{1}{3}$  of outside blank diameter.
    - b. Select a sound chuck with jaws to match this diameter.
    - c. Thickness of tenon should be just shy of jaw depth to allow jaws to seat.

- d. Use a depth gauge to meter tenon thickness.
- e. Use a point tool to assure proper flat at base of turned tenon.
- E. Mount blank for coring in optimum 4-jaw chuck.
  - 1. Assure that blank is well seated in jaws and that the jaws are tight and solid.
    - a. Rotate blank by hand to test for un-true wobbling.
    - b. There is generally some un-true motion that needs truing prior to coring.
  - 2. Flatten face of blank with bowl gouge so that the face is true for marking.
    - a. Mark a good center point with tailstock revolving center or spindle gouge.

### III. Decide on which coring technique to apply.

- A. Outside in method. (Russell type method which keeps center indexed)
  - 1. Method requires that you are going to core out the middle of outside bowl.
  - 2. An internal type dovetail for a second chuck is required.
  - 3. Cored out blank is held by 2<sup>nd</sup> chuck to add a new dovetail coring tenon.
    - a. Apply same steps as in step II C 4 above for tenon.
    - b. Remove blank from chuck for remounting by the coring tenon.
  - 4. Core out the inside of the remaining outside blank to be saved.
    - a. Repeat steps 3a and 3b for each new outside bowl to be saved.
- B. Inside-out method. (Mahoney type method which cores all bowls at once)
  - 1. Initially mark out the blank where cuts are to be made.
  - 2. Add shallow recess with gouge to inside bowl.
  - 3. Core out each remaining inside bowl.
    - a. Use proper knife to core out each bowl one at a time.
    - b. Outside bowl has the only coring tenon necessary.
    - c. Method is faster by not having to change out chucks.
    - d. Center is somewhat lost but adequately found by the remaining rear tenon.
  - 4. Having only one coring tenon preserves more blank thickness.
    - a. Coring tenons are necessarily nearly as thick as the chuck jaws.
    - b. Bowl hollowing or bowl gouge smoothing tenons are not as thick.
  - 5. Coring time seems to be faster.

### IV. Inside-out method for green wood bowls.

- A. Turn roughed out blank between centers per steps II D above.
- B. Mount blank in optimum 4-jaw chuck per steps II E. Above.
  - 1. Shape and true outside profile for good balance.
- C. Flatten and true face of blank for coring.
- D. Mark bowl segments from outside to center of blank.
  - 1. Use a 3/16" parting tool to mark beginning and ending diameters of each bowl.
  - 2. Apply the 10% of diameter rule for bowl thickness.
    - a. Measure outside diameters of each bowl successively with tape.
    - b. Thickness of each bowl will be 10% of that diameter plus 1/8".

- c. 1/8" is used for cleaning on outside of coring tool for shaving ejection.
  - d. Use parting tool to mark the actual cutter width between bowls.
  - e. Continue steps a – d for each interior bowl.
  - f. Mark as many as you think possible to retrieve.
- E. Shape the interior of the innermost bowl intended to core out.
  - 1. Using a 3/8" bowl gouge, do not shape less than the 10% of thickness.
  - 2. Mark center of innermost bowl with tailstock for setting coring rest.
- F. Mount McNaughton Coring Tool Rest in banjo of lathe.
  - 1. Use knife from the intermediate set to establish height of coring rest.
    - a. Place correct intermediate knife in proper rest location.
    - b. Move rest to center position of bowl blank with knife extended.
    - c. Raise tool rest to a position right at or very slightly above center point.
    - d. Do not adjust this height for the remainder of the coring procedure!**
- G. Move banjo back to outside coring position of innermost bowl.
  - 1. Check coring knife for proper sharpness and coring blade condition.
    - a. Old style blades had a single flat edge angled outward.
    - b. New style blades have rear part of blade at about 120 degrees angled back.
    - c. New style is much tamer and less prone to catching.
    - d. New style works much better in cleaning up outside bowl behind the cut.
  - 2. Use a diamond DMT medium grit hone to sharpen the scraping edges of the blade.
    - a. This step may need repeating through the cut as you progress.
    - b. Light touchup sharpening can be done at the grinder if necessary.
    - c. Need to keep blade free of pitch buildup through out the procedure.
      - Apply a lubricant such as WD40, T-9 or Dri-Coat.
      - Clean and apply lubricant after each knife use for storage.
- H. Coring Procedure.
  - 1. Select proper knife for curvature of the bowl being cored.
  - 2. Insert knife into pre-set coring tool rest.
    - a. Assure that the knife is manually held under the trailing T-Bar of the rest.
    - b. Never let the knife fall below the T-Bar – BIG CATCH AND INJURY.**
    - c. Assure that the knife is in the proper location of the rest for its size.
  - 3. Turn on lathe at a moderate 150 to 200 rpm.
  - 4. Begin the cut allowing the knife to do the work – do not force!
  - 5. Cut in about 1 inch and extract the knife to clean out shavings.
    - a. This is to widen the cut for shavings to be extracted.
    - b. Also to clear the cut width for the blade to run cooler.
  - 6. Rotate the knife slightly and widen the cut.
  - 7. Move back to the inside bowl at the bottom of the relief cut and continue.

- a. This will allow the inside bowl profile to be honored.
- 8. Cut for an additional 1 to 2 inches and again extract to repeat 6 and 7 above.
  - a. Widening the cuts behind the main cut lets the blade run cooler.
  - b. Keeps pitch buildup down – which is caused by heat.
- 9. Continue this technique until the knife reaches a point about ½” from center.
  - a. Test the inner bowl to see if it is loose enough to break off.
  - b. If not, insert the knife and core a little further.
  - c. The bowl can just pop out on it’s own – no problem here.
  - d. Always be ready for hitting an unexpected weak spot or flaw.
- 10. **As you gain confidence, rpm can be increased to a point.**
  - a. **Listen to the sounds of the lathe and bowl rotating during the cut.**
  - b. **Changes in the sound will occur and mean additional stress.**
  - c. **Fast RPM can pull the blank from the chuck when coring outer bowls.**
  - d. **Best to play safe at lower rpm and let the bowls core out as they deem.**
  - e. **An 80-100 lb blank in your arms is not a pleasant occurrence!**
- 11. Core out all desired bowls using the above procedures.
  - a. Select the appropriate knife based on depth of cut and curvature required.
  - b. Knives of the intermediate set can be used up to about 14” diameter.
  - c. Knives beyond 14” require the large set of knives.
  - d. Clean up all knives after each use and add a lubricant.
- I. Cleaning up cored out bowls for drying.
  - 1. The largest bowl will still be on the lathe after the coring operation.
    - a. Use an interior bowl gouge to clean up the interior of that bowl.
    - b. Remove the bowl from the lathe.
  - 2. All remaining cored bowls.
    - a. Select the proper chuck for a tenon on the rear.
    - b. Mount the chuck on the headstock
    - c. Measure the jaw diameter with dividers in a near closed position.
    - d. Mark the center of the outside of the bowl with an awl or point.
    - e. Reverse position the bowl over the chuck with the tailstock inserted in the rear center point of the bowl.
    - f. Mark the diameter of the tenon required with the dividers.
    - g. Use a 3/8” bowl gouge, skew and point tool to form the smaller dovetail tenon.
      - This tenon need not be as large – not the same coring stresses.
    - h. Use a bowl gouge to rough turn the outside of the bowl.
    - i. Place the dovetail tenon in the chuck and true up the inside.

- j. Continue all bowls in this manner.
- J. Drying the bowls.
1. This is a matter of personal choices and there are several.
  2. This is the procedure I use – taught to me by Brian Liang.
    - a. Boil the bowls for at least 1 to 2 hours.
    - b. Remove the bowls from the water with tongs.
      - You can watch the interstitial water evaporate from pore expansion.
      - It is really interesting to watch – almost instantaneous.
      - Can cause the exterior of the bowls to dry to quickly without sealer.
    - c. Set bowls inside on boards overnight or until dry to touch.
    - d. Seal the bowls with end grain sealer.
    - e. Let the sealer dry overnight.
    - f. Bag the bowls in brown sacks for storage about 1 year per inch or sooner.

Hope this is useful for your applications!  
Happy Turnings and I hope to see some large bowls now.

***Bill Pottorf***