

Turning Miniatures And Small Scale Turning



Introduction & Thoughts on Design:

This handout was developed for a weekend class that I will be teaching at the John C. Campbell Folk School the weekend of Dec 2-4, 2011. The class and my demonstration are designed to introduce intermediate to advanced turners to the wonders and unlimited potential of small scale turning. Small scale turning includes but is not limited to turning jewelry, ornaments, 1" scale doll house furniture and accessories. It is also open to turning anything that the turner can create that is small in scale. Heirloom Christmas ornaments fall into this category as well as other ornamental objects like lamp or fan pulls and beads for jewelry. The object of this workshop is to provide students with some basic understanding of the concepts, techniques and tools that may be used for turning small items. Students will also be introduced to a variety of jigs and other aids that may be unique to the art of miniature turning. It may seem counter intuitive but many of the tools that I use to turn small objects are not miniature tools but are full scale tools that I have reshaped or adapted in some way to preform the necessary cuts to help make turning a particular object easier and more efficient. I have at times ground the right angled edge of an Allen Wrench and turned it into a hollowing tool to hollow out a vase or hollow form. On occasion I have seen turners use dental tools or old screw drivers that have been shaped to do a particular cut when turning small objects. Turning miniature objects sometimes requires a bit of imagination and ingenuity especially when it comes to holding the work to the lathe and in designing and creating the tools that may aid in the turning of small objects. If turning in the micro miniature scale one may need to use magnifying safety glasses to help see what is being turned or some other visual aid to help see the object that one is turning.

There are so many many possibilities of items to turn in small scale that the first step should be to choose the kind of items you would like to turn. The next step should be to decide on the scale whether micro miniature or slightly larger. If trying to impress your turning buddies try going to micro miniature and see just how tiny you can turn a Hollow Form or Goblet. Some turners will gravitate toward turning jewelry, others may prefer to turn 1" scale doll house furniture or scaled down furniture prototypes, still others may wish to focus on turning Christmas Ornaments. The weekend class will focus on turning Christmas ornaments and jewelry while my Symposium demonstration will cover the turning of 1" scale furniture and turned objects such as a Natural Edged Bowl, a typical salad Bowl and perhaps a small scale Side Table. In the weekend class we will go on to explore turning jewelry and small scale heirloom ornaments.

Tools:

Note many of the tools listed below are specialty tools and are home made, some of the tools are available for purchase from Alan Leland or can be found in some of the many turning catalogs. Alan on occasion teaches classes on tool making in his studio or in workshops sponsored by many clubs or woodworking stores.

- 1 1/4" Spindle Roughing Gouge
- 3/8" Spindle Gouge
- 1/4" Parting Tool
- 1/16" Parting Tool
- 3/4" Skew
- 1/4" Point (Pyramid)/ Skew Combination Tool
- 1/4" Square Box/Skew HSS Tool
- Allen Wrenches of various sizes
- Modified Scrapers
- Four Jaw Chuck with #1 Jaws
- Collet Chuck (optional)
- Jacobs Drill Chuck
- Bearing Center with Cone
- Double Stick Tape designed for holding wood turnings (available in the woodturning catalogs
my favorite is Permabond)

Materials:

- Scrap wood for glue blocks & other holding methods 3/4" plus X 1" x 1" plus or minus
- Wood for projects
- Small Branch for Natural Edge Bowl
- Scrap Pieces of Colorwood, Spectraply, Diamondwood
- Jewelry Findings
- Small Screw Eyes

Miniature Bowl & Miniature Natural Edge Bowl

Natural Edge Bowl 3/4" diameter

Salad Bowl 1" diameter

Procedure:

1. With the chuck on the lathe mount a scrap of maple 1" x 1" x 2" in the chuck and face the scrap off flat across the face. Double check the face with a straight edge to insure the surface is flat and ready for the double stick tape that will be used to hold the bowl blank.
2. Select a piece of wood for the bowl 1" x 1" x 2" that has been flattened on one end. Using a piece of double stick tape to attach the blank to the scrap mounted in the chuck. Use the bearing center to put pressure on the blank to help adhere it to the glue block. Wait a minute or so to let the tape set up, then proceed to the next step!
3. Once the blank has had time to set up, begin to turn the inside of the bowl with a 1/4" round nosed scraper or smaller. Sand the inside of the bowl before moving on to shaping the outside of the bowl.
4. Once a nice rounded shape has been turned for the inside of the bowl, begin to turn the outside of the bowl with a 3/8" Spindle Gouge and part it off.
5. The last step is to reverse turn the bowl by mounting it a jam chuck turned from the scrap piece that is still in the chuck. I prefer to grip the bowl from the inside as that allows me full access to the out side for sanding. I turn a tenon on the scrap in the chuck so that I can jam the bowl blank onto the tenon and finish turning and sanding the bottom of the bowl. If your design calls for a foot on the bottom of the bowl go ahead and turn it.
6. For a slight challenge let's try turning a natural edge bowl. The procedure is similar to turning a regular bowl although a small branch will be used for the bowl blank and reverse turning will be a bit more challenging.
7. Mount a small branch that is about 1" in diameter and say 1 1/2" long between centers and turn a tenon in one end for mounting in a chuck. Once mounted in the chuck, you can begin to rough turn the outside shape of the natural edge bowl. If necessary for proper visual balancing of the high and low edges, minor adjustments can be made by shifting the branch slightly toward one side in the chuck and then retightening the chuck.
8. Once you have rough shaped the outside of the natural edge bowl and are satisfied with the visual balancing of the high sides with the low sides, use a small round nose scraper to hollow out the inside of the bowl and then sand the inside of the bowl.
9. The next step is to finish shaping the outside of the Natural Edge Bowl, using a 3/8" Spindle Gouge. Then sand the out side and part the natural edged bowl off the lathe.
10. If there is enough material left you can try turning another Natural Edged Bowl form the same stick.

11. Now the tricky part is to reverse turn the Natural Edge Bowl. One method that I use is to mount a piece of scrap in the chuck and turn a rounded stub that can be placed inside the bowl. Now place the inside of the bowl on the stub and bring up the tail stock with a live bearing center to hold the bowl in place. *Be careful not to over tighten the tail stock as you might destroy your bowl!* Turn the lathe on to see if the blank is properly centered. Stop the lathe and readjust the blank as necessary to get as close to centered on the jam chuck as possible. Once the blank is centered finish turning the bottom of the bowl and sand it.

12. Remove the Natural edged bowl from the lathe and trim off the stub and hand sand the bottom.

13. The last step is to apply your preferred finish. For bowls I like to use an oil finish but sometimes I will spray them with Lacquer.

Goblet



Spectrally Goblet 1 1/4" high by 3/8" diameter

14. Mount a blank (1" x 1" x 2 1/2" plus or minus) for the goblet between centers and turn a foot on it for mounting in a chuck. If using a collet chuck this step can be skipped. Now mount the blank in the chunk and true it up.

15. I like to start turning a goblet by shaping the outside of the cup using a 3/8" Spindle Gouge. Remember not to fully shape the cup as there needs to be enough material in the stem to help support the cup when hollowing it.

16. Next I hollow the inside of the cup with a Round Nose Scraper and finish sand it.

17. Once the cup has been hollowed, I finish turning the outside of the cup and begin shaping the stem and the base once again using a 3/8" Spindle Gouge. Once I am happy with the shape and the look of the goblet and the base I finish sand it and part it off the lathe using a skew or spindle gouge. I then hand sand the bottom of the goblet and if necessary I will reverse turn it by trapping between the chuck and the tail stock.

18. For a finish I would hit with a couple of coats of lacquer.

Candle Stick Style Side Table



Side Table 2" diameter 2" tall

1. I prefer to turn the table top first. I start by selecting a piece of wood usually a scrap piece of Maple Burl (2" x 2" x 3/8" to 1/2" plus) left over from turning my ornaments. Most of the time this piece is already attached to a glue block so I can skip the first couple of steps.
2. Prepare a glue block in the chuck by facing it off flat. I use a belt sander sanding station to flatten one side of the burl blank to ready it for either gluing or double stick taping it to the glue block.
3. Glue or double stick tape the blank to the glue block and bring up the bearing center in the tail tail stock to use as a clamp to help the glue or tape to set up.
4. I turn the top side of the table top first and sand it.
5. Once sanded I then part it off leaving enough wood on the backside to allow for the turning of a base to attach the leg too using a mortice and tenon joint. With the mortice being drilled into the top



Table Top with Mortice & Table base with Tenon

6. The top is then reversed and attached to a glue block using double stick tape.
7. Once the tape has had time to set up, I begin by turning a few beads and coves to make an attractive support for attaching the base.
8. Using a skew I put a dimple into the center of the base support to help guide the drill bit that will be used for drilling the mortice.

9. I place a 3/16" or 1/4" drill bit into a Jacobs chuck mounted in the tail stock and then drill a 3/16" to 1/4" mortice into the back of the top being careful not to drill through the top.

10. Once the mortice has been drilled I sand the back side of the top.

11. The last step is too remove the finished top from the lathe and using mineral spirits clean off the residual glue from the double stick tape and set it aside.

12. Now it is time to turn the table base.

13. I select a matching piece of Maple Burl or some other complementary wood for the base. The base blank should be 2 1/2" long by about 1 3/4" in diameter. Then mount it between centers and turn a 3/16" long by 3/16" in diameter tenon on the end that will attach to the top with a bead or filet to act as a physical and a visual stop where the base spindle meets the top mortice. Next turn a decorative spindle with a base that is slightly smaller in diameter than the diameter of the top to keep the proportions visually appealing. My bases are 1 1/2" in diameter and are maybe 1/4" to 3/8" high depending upon the overall design of the table. The spindle consists of beads and coves and at least one long vase/onion shape detail see photos for inspiration.

14. Once satisfied with the design sand it and part it off. I like to under cut the bottom of the base slightly so that the base rests on the out side edge in order to minimize potential rocking. If necessary hand sand the bottom of the base.

15. Lastly glue the pedestal to the table top and apply your favorite finish. I like to spray my tables with Behlens Clear Lacquer either the Pre-catalized Gloss or their Tone Finish Clear Gloss.

16. You now have a beautiful table on which to display your miniature turnings.



Minature Bubinga Box for Inspiration & a Future Project