WOODTURNING FUNdamentals

AAW EDUCATION

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PROJECTS AND TECHNIQUES

VIDEO

TIPS

AAW | AMERICAN ASSOCIATION OF WOODTURNERS

Woodturning FUNdamentals
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Woodturning FUNdamentals
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222 Landmark Ctr.
75 5th St W
St. Paul, MN 55102
phone 651-484-9094
website woodturner.org
Exec. Director: Phil McDonald
phil@woodturner.org
Program Director:
Linda Ferber
linda@woodturner.org

SAFE TURNING IS FUN TURNING.

An accident at the lathe can occur with blinding suddenness. Respiratory and health problems can develop over time. Take appropriate precautions when you turn. Use face shields, safety glasses, and dust masks. Follow all manufacturers' safety guidelines. For more about woodturning safety, visit AAW's website at **woodturner.org.**

AAW | AMERICAN ASSOCIATION OF WOODTURNERS Fundamentals

Cover photo: Barbara Dill

WELCOME

A Note from the Executive Director

2016 marks the the AAW's 30th anniversary. I believe this is excellent time to both reflect on the past and embrace the future. The AAW has worked hard over the years to meet the changing needs of woodturners. Additionally, many of the articles and information offered in AAW publications, such as Woodturning FUNdamentals and our Tips library, have been contributed by members for members. By nature, woodturners are eternally generous people who delight in sharing knowledge and expertise with others.

AAW has always been the "go to" organization for woodturning. For AAW to continue to be relevant into the future, it's critical that we embrace new strategies and technologies to meet the changing needs of our ever-growing membership. AAW's current strategic plan, VISION 2020, will help propel our educational offerings, services, and resources into a 21st century experience. You'll see positive changes in the coming months as we begin to implement some of the preliminary initiatives.

Did you know? Our award-winning premier publication, *American Woodturner,* is offered in three formats: print, downloadable pdf, interactive digital format, and via the AAW App.

As always, *Woodturning FUNdamentals* invites you to submit your questions, tips, projects, and problems. Every turner develops techniques that work and also runs into frustrating obstacles from time to time. You're not alone. Please send your submissions to us at linda@woodturner.org.

I welcome your suggestions and concerns.

Respectfully,
Phil McDonald
Executive Director
phil@woodturner.org

Click here or above to read Bill Folger's profile.

Click here to read other AAW 30th Anniversary member profiles.

MULTI-AXIS SPINDLES

Who can do this work?

The skills required to make multi-axis turnings are the same skills needed to turn regular spindles. In my opinion, there is no “right tool” to use for spindle work. Whatever tool you use to cut a profile reliably is the correct tool to use for multi-axis work.

I prefer using a half-inch spindle gouge for creating beads and v-cuts. The bevel of the spindle gouge rides on the wood, keeping the tip high on the wood and the tool pointed slightly in the direction of the turn. When rolling to the right when making a bead, the right tip is used and the tool is pointing to the right; the left tip is used when cutting to the left and the tool is pointed to the left as seen below. The wood is cut with the tip. The bevel must ride on the wood to create the utmost control and success of the cut. For better control of a cut, the tip must be fairly close to the tool rest.

Having the skill to turn beads and coves and v-cuts on one axis makes turning on multiple axes more fun and more successful!

Photo 1

Photo 2

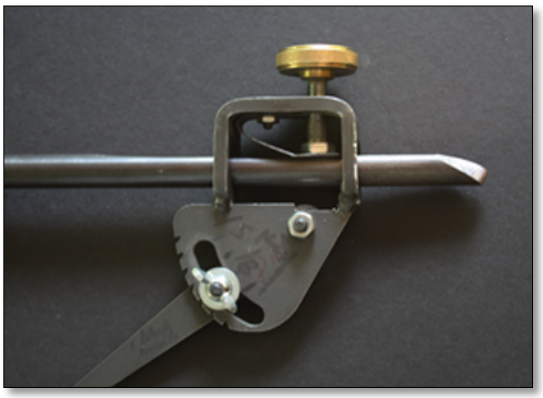


Photo 3

Photo 4

These images show the way I sharpen the 1/2-inch spindle gouge and the 1/2-inch bowl gouge that I use for a roughing gouge and for making long coves. These are the tools that I use 99 percent of the time. The spindle gouge is sharpened to about 30 degrees off of the tool bar (see photo 2) and the bowl gouge is sharpened to about 40-45 degrees off of the tool bar (see photo 1). Remember that these angles are merely a starting point. I often change the angles depending on the cut I'm making.

Notice that the sharpening jig is set at a different angle when sharpening a bowl gouge versus a spindle gouge (photo 3 is a bowl gouge, photo 4 is a spindle gouge).

I suggest that creating spindles with beads, coves, and v-cuts ON ONE AXIS is the first step to creating multi-axis spindles. Once this can be done reliably and once the cuts are smooth, then making cuts that are interrupted by air will be easier.

HOW DO I START THINKING ABOUT CHANGING THE AXIS?

For years I was intrigued with the multi-axis forms that others were creating. I attended demos but could not understand how a person found the form that was being turned. So I turned many spindles by randomly changing the axes. Occasionally I found forms that were pleasing to me. I had no language to describe them and no idea how to really plan a design. So I knew that I had to figure this out by turning many spindles and finding the things they had in common with each other. I found some things that made so much sense in the spring of 2006 and have been playing with these concepts since then.

THE ESSENCE

The basis of unraveling this confusing method of turning wood is quite simple:

Only two results occur when an axis is moved when turning a spindle.... either the new profile is cut on the new "solid wood," creating a circular-type outcome, OR the new profile is cut on the "air wood," creating an arc-type outcome.

Does the chisel stay in the wood (or not) at the end of its cut?

There are only two ways that the new axis can be moved relative to the center axis: it is either parallel to the center axis or any line parallel to that axis, or it is not parallel, or twisted, referring to the visual outcome of a non-parallel axis.

Are the axes parallel to the lathe bed (or not)?

These two observations are critical in formulating a way to organize the many variables and outcomes into a systematic way to understand multi-axis spindle turning. This is the essence of these ideas.

OUTCOME/RESULTS:

VARIABLES:

PARALLEL AXIS
(DOES NOT CROSS THE CENTER AXIS)

OTHER VARIABLES INCLUDE:

PROFILE : (straight, curved or v-cut) symmetry, depth of cut;

AXES: number of axes used, the many options of axis placement; distance of new axis from center; various ways to connect the axes; the axes used to finish the project.

WOOD: size and shape of wood

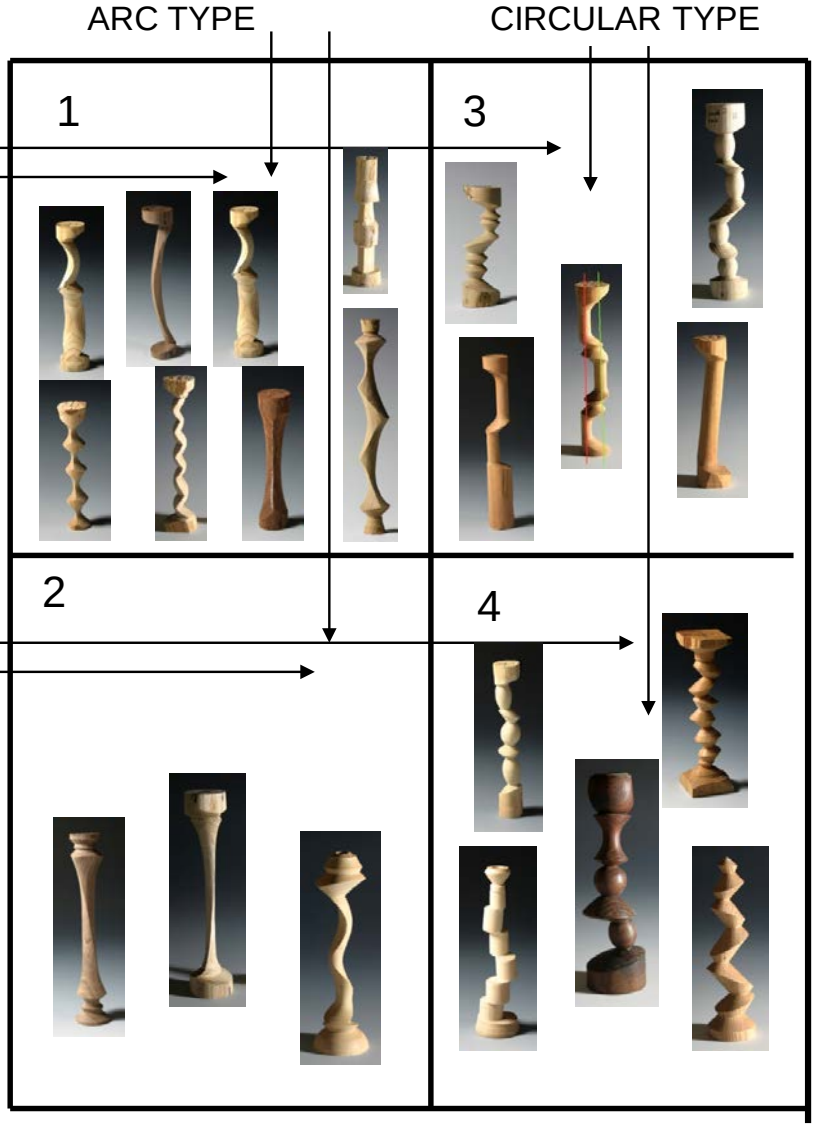
TWISTED AXIS
(CROSSES THE CENTER AXIS OR ANY LINE PARALLEL TO THE CENTER AXIS)

OTHER VARIABLES INCLUDE:

PROFILE : (straight, curved or v-cut) symmetry, depth of cut;

AXES: number of axes used, the many options of axis placement; distance of new axis from center; various ways to connect the axes;

WOOD: size and shape of wood; orientation of wood to lathe.

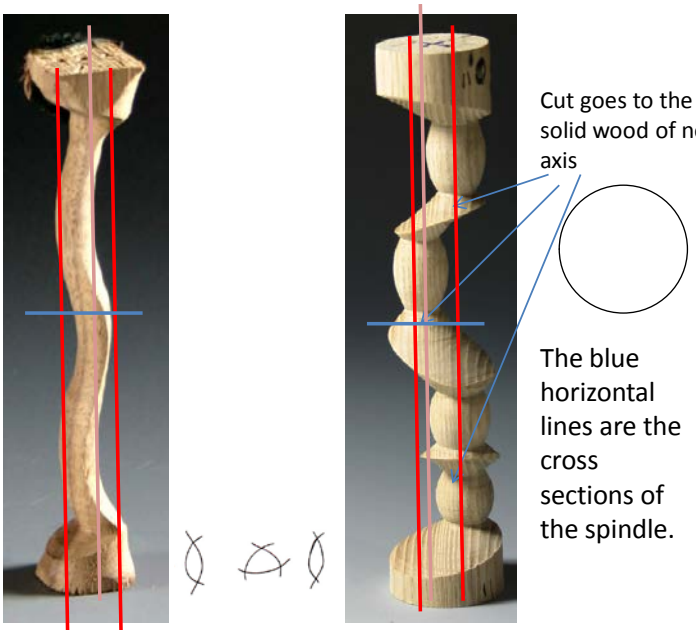


The four basic families are the consequence of two considerations: are the axes parallel to the lathe bed (or not); and does the chisel stay in the wood (or not) at the end of its cut. Understanding the four families helps one envision an outcome. And those outcomes are hardly limited: each family comprises <u>countless</u> variations including type/size of wood used, the placement of the new axes, and the curvature of the cut.

THERE ARE ONLY 2 RESULTS THAT CAN HAPPEN WHEN THE AXIS IS MOVED FROM THE CENTER AXIS TO A NEW AXIS

THE OUTCOMES (RESULTS):

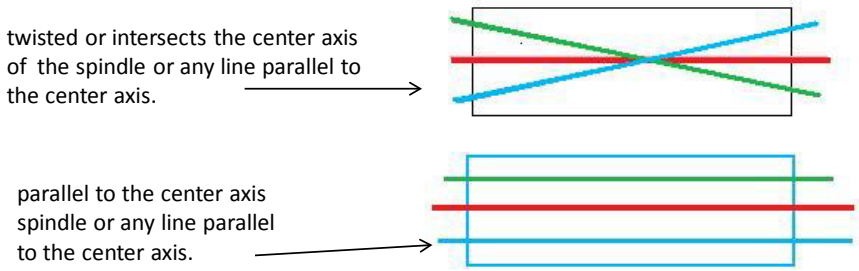
After turning many spindles, I started noticing that the cross sections on some spindles were round and on others, were not round. WOW!! There are only 2 results that happen when the axis is changed.
Arc types occur when the new profile is cut into the air wood or ghost wood, never reaching the solid wood of the new axis.
Circular types occur when the new profile is cut on the cylinder of the new solid wood of the new axis.
(The red lines represent the new axes used to create each spindle).



Ending the cut with the chisel in the wood produces a turned cylinder (obviously). The alternative, the chisel making an 'interrupted cut' or cutting in 'ghost wood', produces a segment of a cylinder.

AXIS PLACEMENT: THE 2 OPTIONS

And the placement of the axis also defines the form that results. There are only 2 ways the axis can be changed relative to the axis of the lathe. It will be either parallel or not parallel (twisted) to the center axis. (It is called “twisted” due to the resulting twist.)



Each type of axis placement is found in either type of outcome..arc type and circular type!!

With this information, I start folks with a simple form in quadrant 1. Start with 2 or 3 axes that are parallel with the center axis and on each axis, turn a long cove. Number the axes clearly with a permanent marker for future reference. And keep a form if you really like it so you can make it again. And now the fun begins!!!!

~Barbara Dill has turned and carved wood since 1987. She has investigated multi-axis turning since 2006 and has written articles and taught at symposiums and clubs in the US and Canada. For more information, visit www.barbaradill.com.

ARE YOU READY TO SELL?

Think awesome
Is your inventory of bowls overloaded?

Have you overloaded your inventory of bowls, platters, cups, candlesticks, whistles, calls, ornaments, hollow forms, and other turnings? Running out of space in your workshop? Has your spouse completely filled up your home with your work and finding it hard to get more display space? You may be ready to go to a show!

When I first started turning, it was a small dream of mine to be able to sell a bowl and pay for sandpaper, finish, a new turning tool, or possibly ... turn my hobby into a new business. I created a pile of bowls and took them to a small hobby show my church was hosting. I went in with 25 bowls and left with 4. I was amazed! Since then, I've sold bowls to people who received the first ones as gifts and wanted to give someone else a unique gift. My bowls live in about 15 states and have been sent overseas! I have been able to sell approximately 85% of the items I create through simple channels, like Facebook, Instagram, and word of mouth. I have a list of people interested in purchasing a bowl and offer them "first dibs" on new bowls I make. I have specific orders for bowl sizes and wood types on a regular basis.

Figure 1: Hotstuff

Figure 2: Rosebowl

Figure 3: Saturn

If you're ready to sell your items, I discovered a few things that may help you make the decision and to avoid some mistakes I made along the way.

1. **Decide if you are selling for profit, for fun, or for necessity.** Pricing your items is the hardest thing to do. I've been to craft shows where some turners are selling items for WAY more than I think they're worth and they still have a table full if items when the show is over. While I don't judge people on what they think their work is worth, I have a different philosophy on how I price my items. In most cases, I sell for fun. This is my hobby. I really just need enough money to keep up my stock on sandpaper, finish, tools, and possibly a milkshake here and there. I get most of my wood free, so there isn't that much overhead to worry about. When I sell for fun, I price it reasonably so someone will buy the item because it's not too expensive. I'd rather get a bowl in their hands and let them show and tell someone else about it than have them tell me it's too expensive and they can't justify the cost. Most of my bowls sell between $35 and $70 per bowl in this case. The price depends on the size, the type of wood, the look of the wood, and how I feel that day. I found a good price point of $35 to $45 works for most bowls. That buys a lot of sandpaper! There are times when I sell for profit and prices are more than my "sell for fun" prices. I may come across a very unique piece of wood or feel extremely proud of a certain item. Those prices can be as high as $125 per bowl and it's my way of telling myself, "Let's see how good people think this is" and allows me to test pricing to see if I might be selling items too low. There are times when "selling for necessity" happens. Near the end of a show, I may offer select items for $20 to $30 because I don't want to take them home. I might have made enough money at the show to buy my new tools, or the prices for the show may be too high for the geographic area, so I reduce pricing. In my opinion, I'd rather have the bowls in someone's hands than sitting on my shelf at home. My philosophy is for me. It may not be for everyone.

2. **Follow your local laws, federal laws, etc. on retail.** Make sure you understand things like sales tax, how it may affect your income taxes, etc. If you are unfamiliar with those things, talk to a tax preparer, accountant, or your local or state tax office.

3. **Use Social Media effectively.** If you haven't shown your work on Facebook or Instagram, you are missing out on a huge opportunity to quickly sell your work. I usually post photos of bowls I think I can sell immediately on both Instagram and Facebook. My personal record of selling a bowl is 10 minutes. I sold the bowl to an old high school friend whom I haven't seen in 20 years! My Facebook feed is filled with photos of bowls, cutting boards, and other projects I've completed. I recently

received three consignment projects from posting one cutting board online. I was able to land a project making 145 cutting boards for a local business which would give them away as a Christmas gift.

4. **Consider selling online.** In today's digital age, selling online isn't as difficult as it used to be. There are some "do it yourself" options such as eBAY and Etsy. You create your account, post your items, price your items, and sit back and wait. You can also contact a local web designer to create an online shop for you. Consider using Paypal as a service to accept credit cards. They'll take a small service fee as part of the sale, but it's easier than establishing your own merchant account if you only sell periodically. When selling online, you'll have to consider the "hidden" costs of online sales. Packaging costs, shipping costs, shipping insurance, and time to manage the store will add up and cause you to reconsider how you price those items. I don't have to sell online yet, but am slowly building an inventory to create my own store. I'm a web designer, so I'll create my own store and use Paypal to receive payments. My online items will cost approximately 20% more than my craft show prices to absorb those hidden costs.

5. **Don't get frustrated.** I've been there. You may think your work is worth a certain price. You've spent hours getting the tool marks out. The finish is perfect. Someone comes along, picks it up, puts it down, and keeps walking. Maybe they comment on the small crack that you know, as a turner, is a character crack and not a structural crack. "Too expensive for me" might be a comment you hear. "What would I do with that?" could be another comment you hear. RELAX. It's part of the sales game. You won't sell everything you make. I have a bowl that I think is awesome. I have tried several price points. It has been online, has been taken to several shows, and displayed center of the table. Never sold. It's now a goal of mine to sell that bowl. I don't know why that specific bowl hasn't sold. I'm soon going to call that bowl "Grandfather" just because it's the oldest bowl I have that hasn't sold.

6. **Have a strategy.** Since this is my hobby, I like to make it fun. I give each of my bowls a name. The names might be decided because of a character item in the bowl, like "Shattered," which was named because of the cracks along a knot on the side. "Picasso" is a poplar bowl at shows. It isn't for sale, but I bring it to each show just to get the reaction from people. The grain pattern is all over the place and it's a bowl to start a conversation with, hopefully leading into the purchase of a different bowl. People laugh at the fact I name my bowls. It helps loosen them up. I try to explain where the wood came from. I once sold a bowl just because the wood came from a local road where

someone once lived. I have wood from a tree struck by lightning. Very interesting conversation starter.

7. **Have a business card.** Give a card to each person you meet. Put your name, phone number, email, website (if you have one), and put on the types of items you make. My card also includes a list of things my products are good for to remind people they can be used for a variety of purposes. There are many places online to create simple business cards at a low cost.

8. **Discover your market.** Friends and family will probably be your first sales. Keep in mind, however, that you will eventually need to spread out from that customer base to get a true sense of what your items are worth and, if there is a good market, to make more money. I started out making bowls almost exclusively. One customer told me they needed a wedding present a week before the wedding, and asked if I could do something else besides a bowl since they already gave the bride a bowl as a bridal shower gift. I offered to make a cutting board. I posted the cutting board online, and that turned into the 145-cutting-board project. Since then, local restaurants have asked me about doing cutting boards for them! After meeting with them, I was able to show them some bowls I've created and will now be providing bread bowls for them along with cutting boards! I have already started discussions with my 145-cutting-board client about supplying 145 small bowls or ornaments this Christmas.

With these tips and tricks, you may decide to try selling your items. You may have instant success. You may not sell your first item for a few months. Keep trying. Don't get frustrated. Keep it fun. If your items don't sell, ask people to give an opinion of your work. Listen to what they say. Perhaps your pricing is too high. Perhaps your finish needs work. Maybe there are too many tool marks left on your item. Everyone has a reason they buy something or don't buy it. You won't meet everyone's approval. It's OK.

My long-term goal with my hobby is to turn it into a small business. I'd like to retire in a few years and let my hobby take over. Testing the waters with new items is opening up more doors for me and getting me into new opportunities to sell my bowls.

I hope you consider selling your items and helping spread the joy of turning to new people. The more people that learn about turning, the more people will buy from other turners! Good Luck!

~ Dave Schell
Schell's Web Design
524 Peace Avenue
Mount Joy, PA 17552
717-653--2573 office
717-538-7137 cell
dave@imakewebpages.com
www.imakewebpages.com

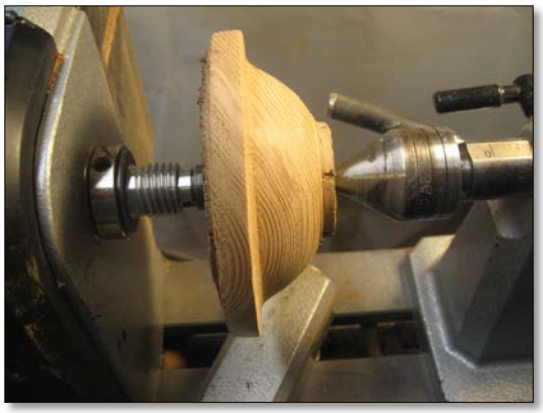
SCRABBLE ANYONE?

Bring the joy of scrabble to your woodturnings!

Part of the joy of playing Scrabble is handling the tiles, just as part of the reason I am a woodturner is enjoying the textures of the wood. Therefore, it was natural for me to put the two together and use Scrabble tiles in my woodturning.

My most common design is to inlay the tiles around the rim of a bowl or platter. Tiles have been placed at random with all letters facing up, or they have been placed to spell out words. Tiles laid upside down provide "spaces" between words.

Upside down tiles can also be used as a pallet for design by burning, embossing, texturing, coloring, etc. Tiles on this large platter had designs burned with my Burnmaster:



To turn a Scrabble bowl, begin by shaping your blank into the bowl or platter of your design and making a tenon on the bottom to hold it into your chuck.

Grasp the tenon with your chuck and smooth the face of the blank. I turn the groove for the Scrabble tiles first and then complete the design of the rim and hollowing of the bowl. Using a wide parting tool, I begin turning the groove,

measuring the width with an actual tile. After the proper width is achieved, complete the proper depth. Remember when shaping the bowl and rim to allow adequate depth for the tiles.

This bowl is 5 ½" in diameter so there is not room for additional embellishment on the rim. However, with a wide-rimmed platter or bowl you can let your imagination run wild.

After the groove is completed, the bowl can be hollowed. Because of this bowl's narrow rim, the inside of the bowl was slightly undercut beneath the rim. It could also have had a wider rim and a smaller bowl.

I like to paint the bottom of the groove black to provide visual contrast between the bowl and the Scrabble tiles.

(Older tiles are a bit darker in color than the newer ones. I read some years back that to save money, the manufacturing of Scrabble tiles was sent to China and at that time the tiles changed to a lighter color wood without the nicely rounded corners. Now I see tiles on line that look like they are made of pine. You can get your Scrabble tiles through the official Scrabble website, from old games found in a second-hand store, or from numerous other websites. You probably won't want to raid your personal Scrabble game.

Now you can place your tiles and arrange them to fit in the space provided. Once you are happy with your arrangement, glue each tile down with wood glue, being careful not to let it ooze out around the edges of the tiles.

I have only begun to experiment with Scrabble tiles. I have already learned that it is critical to use wood that is dry for your turned piece so that the tiles will stay where you put them.
My friend George Daughtry took this idea and made a Beads of Courage box, spelling out words on the lid. To accommodate more words, he sanded an angle on the side of each tile, larger at bottom, tapering to the top. This allowed the tiles to nestle together.

So, I encourage you to "think outside the tile" and have fun.

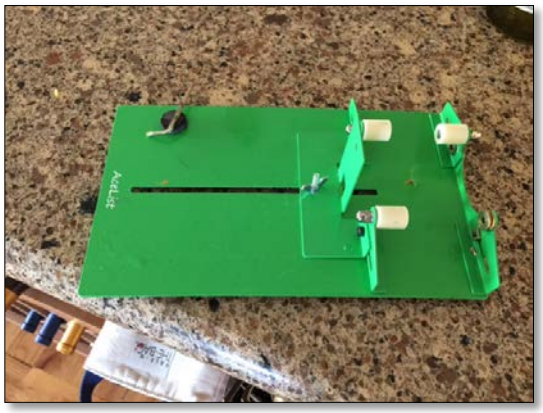
~ Pat Thobe
Carolina Mountain Woodturners, Asheville, NC
Member of AAW and WIT

SOMETHING FROM NOTHING

The joy of using all those scraps - or waste not, want not!

Waste not, want not. These words play well, especially if you are trying to make your hobby pay off (or at least pay for itself). A rather large pile of small blanks had accumulated in the corner of the wood shop, all off-cut from other projects. There was an equally large collection of wine bottles from a recent wedding that we hosted at our home, waiting to go to the recycling center. It was a move-it-or-lose-it moment.

I have always loved to "make stuff." And this past Christmas I was given one of those glass cutters that makes drinking glasses from wine bottles. A very simple tool costing no more than $25.



Well, drinking glasses had no real appeal, but those glasses as jars seemed like a useful end product. A simple glass jar with a turned lid was the solution. The bottle did not end up in the waste bin and the smaller wood bits did not end their lives as firewood. And they are cute.

The process for cutting the bottles cleanly took a little experimentation, but once you get the hang of it, there is very little effort.

First remove all of the paper label by soaking it in hot, soapy water. Make sure that you fill the interior of the bottle with hot water as well, for the heat softens the glue from the inside as well as keeping the bottle submerged. Once the label is gone and the bottle is clean and dry, turn it on its side in the cradle of the glass cutter and, using as little force as possible, twist the bottle until you have made one revolution only. There will be just the faintest of scratches showing. If you just let the bottle sit like that for about an hour, it will actually continue to crack all on its

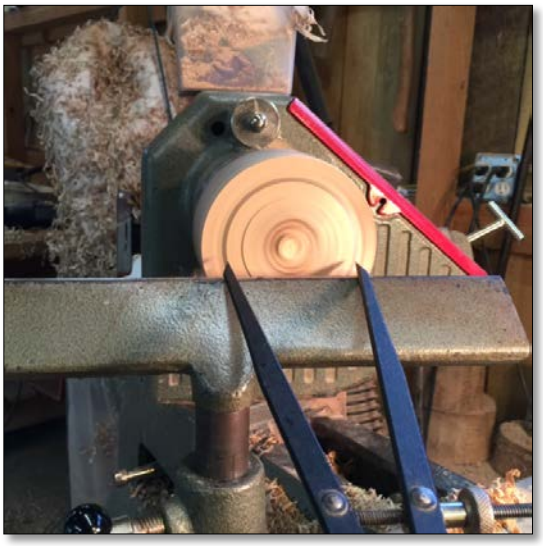
own and this makes for a much cleaner break. Have a very large pot of simmering water and an equally large container of ice water ready. Both pots need to be deep enough to reach at least to the point where you want the bottle to separate at your cut line. Placing the bottle alternately in the hot and then the ice bath in 10-second intervals, you will see that crack deepen, and if done right, the bottom will just fall off the bottle. Nice clean break.

All that's left is to clean up the edge. I used a sanding wheel from a Dremel inserted in a chuck mounted in the Morse taper. The lathe allowed me to use both hands to steady the work. It takes about 30 seconds to clean the edges.

There are two main sizes of wine bottles, the large, which is 1 1/2 liter and the small, which is 750 ml. The inside diameter of the smaller bottle can vary, but mostly they are between 2 5/8" and 2 7/8".The larger bottle diameter can be between 3 1/4" and 3 7/8" in diameter. So depending upon which bottle you use, add about 1" more to that measurement to create the blank. I make a blank about 6" tall and 3 1/2" in diameter for the smaller bottle and 4" in diameter for the larger ones. I can get at least three lids and maybe even five from each blank, depending upon the embellishments used on the top.

Using calipers, measure the inside diameter of your bottle.

Make a mark on the end of the blank to match.

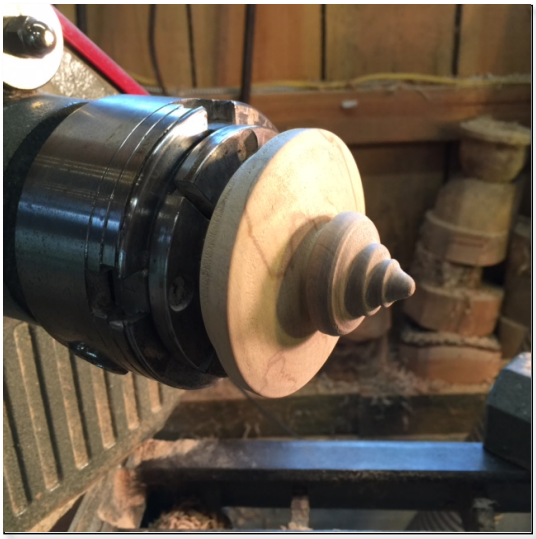


Make a tenon about 1/4" deep, creating a nice interior seat for the lip.

At this point turn off the lathe and see how good a fit you have.

It need not be tight. I want to be able to twist it easily. I prefer the lid to be not much larger than the bottle, and most bottles are only about 1/8" thick, so keep the distance from the tenon to the lip edge about 1/4". Sand the portion of the lid that fits inside the bottle. At this point decide whether you want a smooth, flat lid or one with a button or finial and, using your parting tool, remove it from the blank.

Proceed to use the rest of the blank. Once all the lids are cut from the blank, reverse turn the tops and add any flourishes to make the lid unique.



Since I am never sure what use these jars will have, I prefer not to use finishes that have distillates. If the end use is for salt or spices, these products can impart an off taste. Mostly, I use butcher block oil or beeswax.

I am not trying to make sets, so all my jars are different heights, and all the lids are different woods, some have knobs, finials, or are just plain flat. But as a grouping they are great fun to make and to look at.

The jars are a great (and profitable) way to use up those bits of wood, as well as bottles that otherwise would end up at the curb. So you have made something from nothing... And had fun doing it.

~ Melissa Russell, a retired graphic artist living in White Springs, Florida. On a whim her husband Randy bought her a lathe 4 years ago, thinking that she would enjoy it. A lifetime of making stuff included welding, basket making, and pottery, so a lathe seemed like the last big toy she lacked. His judgement proved correct and she now spends many joyful hours making shavings. Her feeling is that woodurning is about as much fun as you can have standing up.

TURNING MINIATURES

Turning an Advanced Bowl

INTRODUCTION

When I first started turning, the bowls I turned were very basic. No frills, no special accents. I imagine, like most turners, that the first few bowls had flat bottoms, the shape was very heavy looking, and the wall thickness was probably much thicker near the base than it was near the rim. But that was okay. It was a bowl, it was recognizable as a bowl, and my friends were impressed that I had made it!

As I became more familiar with the tools and techniques, my skills improved, and so did the quality of my bowls. Soon, I was able to obtain a consistent wall thickness all the way through the depth of the bowl. The final shape came out the way I intended. And the bottoms of the bowls were as carefully shaped and finished as the rest of the bowl. But it was still just a basic bowl, and I was becoming bored with making them. I started paying attention to other turners' bowls, trying to determine what made one bowl more interesting than another. I started to notice the details that make bowls stand out. Often it's a fancy rim, or a foot, or both.

Photo 1

In this article – the third in my *Turning Miniatures* series – I focus on turning an advanced bowl, like the one shown in Photo 1. This maple bowl measures 5/8" diameter by 3/8" tall. The wall thickness is less than 1/16", and a couple of delicate beads have been added at the rim, and another one has been added at the base. Adding these features to the bowl is pretty easy, and doesn't take a lot of time. Yet these little differences go a long way towards turning a basic bowl into a spectacular one. And most importantly, you can typically sell a bowl like this for a lot more money than a basic one!

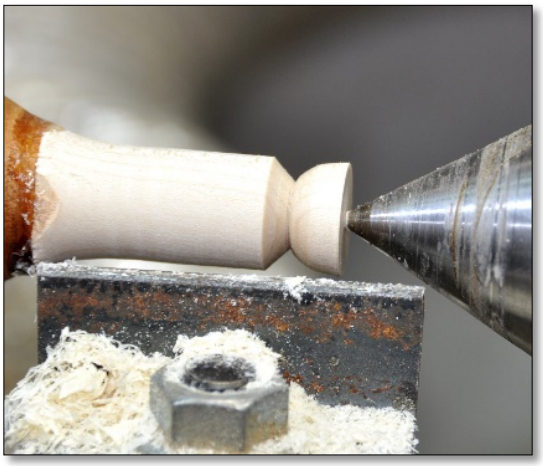


Photo 2

GETTING STARTED

Most of the steps for this advanced bowl will be the same as they were for the basic bowl (described in *Turning a Miniature Bowl,* Woodturning Fundamentals, Jan 2016, vol 5, issue 1):

- Attach a glue block to the spindle of the lathe. Use a parting tool or skew to cut the face of the glue block flat. Lay a straightedge across the face to verify it's perfectly flat. If not, repeat the steps until it is.
- Cut a blank from a piece of fine-grained hardwood (such as maple, or any fruitwood, such as cherry, apple, or pear), approximately 3/4" x 3/4" x 2" long. Since bowls are usually oriented with the grain running across the face, cut the blank with the grain running sideways (rather than lengthwise).
- Sand one end of the blank smooth.
- Smear thick CA glue generously on the smooth end of the blank. Position the glued end against the glue block, being careful to align and center it as accurately as possible. Bring the tailstock up to apply pressure against the other end.
- Spray the joint with accelerator to prevent the glue from dripping onto the bed of the lathe. Allow the glue to dry for approximately 10 to 15 minutes before proceeding to the next step.
- With the tailstock still supporting the blank, use a spindle gouge to shape the top 2/3 of your bowl. You can refine the shape and cut the bottom 1/3 later, after the inside of the bowl is finished. Photo 2 shows what your bowl should look like at this point.

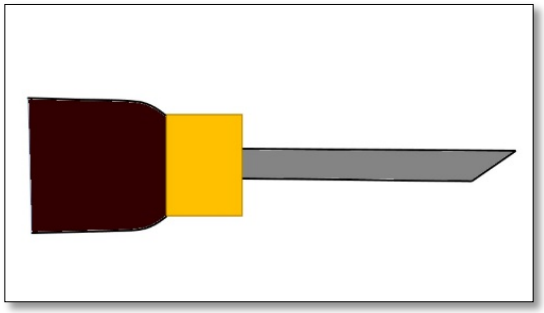


Figure 1

CREATING THE BEADED RIM

The next couple of steps will require some new tools. First will be a 1/16" parting tool, or a small square-nosed scraper. These tools are easily made; any standard straight-blade screwdriver can be ground into the shape of a parting tool. I have several of them, ranging in widths from paper-thin to 1/8". Square-nosed scrapers can be made from any hardened square stock. You can even use an Allen

wrench – just grind the top flat, grind the sides with a slight downward angle (perhaps 5 – 10 degrees). Then grind a tapered bevel, roughly 10 – 15 degrees, like the one shown in Figure 1.

Photo 3

Once the bowl is rough-turned and shaped, use the scraper or parting tool to cut into the wood about 1/16" away from the top of the rim (*Photo 3*). Use light pressure – especially until you know how well it will cut. Don't go too deep. We're only trying to remove about 1/32" of material.

Photo 4

Move the tool to the left, twisting it slightly to the left as you go. The idea is to remove the material below the rim following the same contour of the bowl as you had before. Swing the handle to the left as you move, to keep the nose of the scraper in contact with the wood (*Photo 4*). Take a couple of passes, if necessary, until you have a shape that you're happy with. This will be the final shape of the outside of the bowl, so take your time, and make sure you get it the way you like it.

We next want to bisect the ridge, to make it appear as if there are two round beads running around the rim. For this, we'll use something called a "pyramid" tool. This is nothing more than a piece of round rod, such as a Phillips-head screwdriver, with the end ground into a pyramid shape.

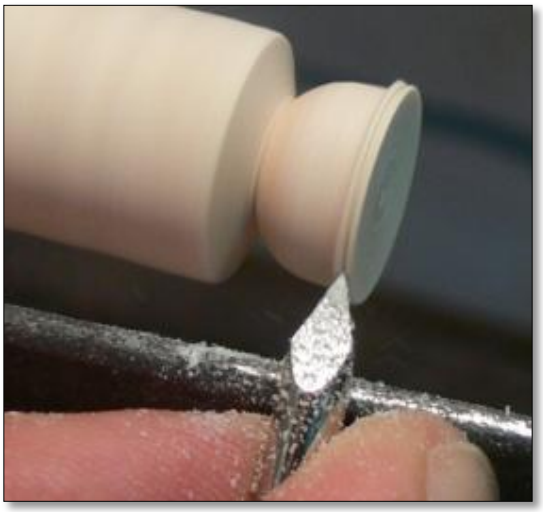


Photo 5

To make the cut, hold the pyramid tool with one of the flat sides facing up. Press lightly into the center of the ridge (*Photo 5*).
This will cut a dissecting line. Don't go too deep! The idea is to divide the ridge in half. Don't go deeper than the height of the ridge. Otherwise, when you hollow out the inside, the top rim is likely to come flying right off.

Photo 6

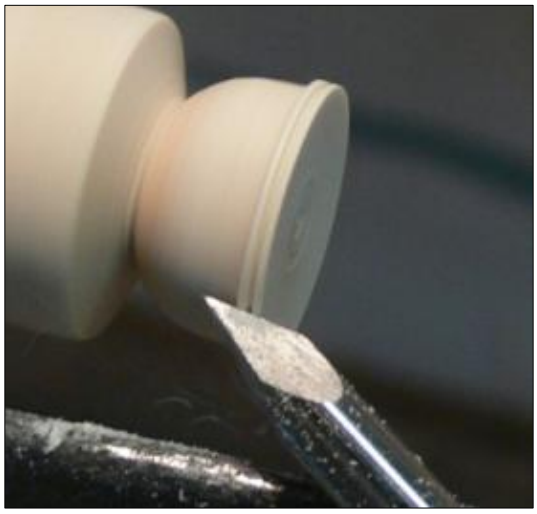


Photo 7

Roll the handle of the tool slightly to the left and to the right, to round over the edges of the ridges (*Photo 6*). Do the same on the top and bottom edges of the ridges as well. Try to make the ridges as round as possible, and make sure they are the same size and shape. Use the pyramid point and/or the square-nosed scraper to touch up the intersection where the ridge and the side meet. You can also use the side edge of the pyramid tool as a scraper, to lightly scrape the outer surface of the ridges, as shown in Photo 7. The goal is to refine the surfaces, to make them as perfect as possible before moving on to the next stage.

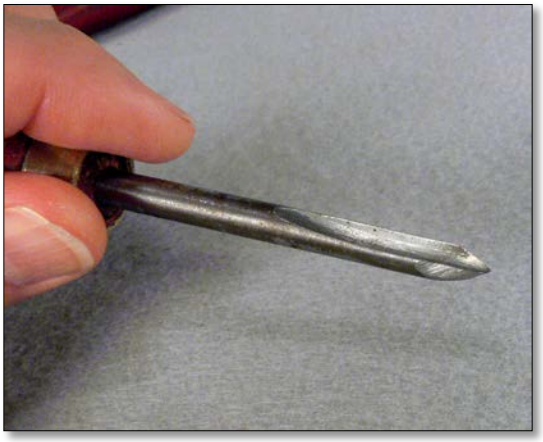


Photo 8

HOLLOWING THE INSIDE

You can use a hex wrench hollowing tool to hollow the inside of the bowl, as demonstrated in my first article, *Turning a Basic Bowl.* Or you can use a 1/4" bowl gouge, like the one shown in Photo 8.

There are a lot of kits available that include small, 1/4" gouges. In an upcoming article, I'll discuss how to sharpen these tools.

Position the toolrest parallel with the top of the bowl and about 1/4" away, with the top about 1/8" below the center of the bowl. Notice that I switched to my 6" toolrest for this part. This is because the smaller toolrest didn't provide enough support for me on my lathe. I could have made a new toolrest top that is slightly longer, but since I have the 6" toolrest, I chose to use it instead.

Photo 9

Photo 10

Photo 11

Hold the bowl gouge with the flute facing towards the bowl (*Photo 9*). Pay close attention to the bevel at the tip. Notice in Photo 10 that it is pointing in the direction of the cut. Push the gouge into the wood carefully. The start of the cut is critical. If held at an angle, the tip may "skate" (slide off in one direction or another). Once the tool starts to cut, you can confidently continue the cut without fear of skating. If you experience problems with skating, you can always use the pyramid tool to cut a starting groove, then switch to the bowl gouge to continue the cut.

For the hollowing cut, pivot the handle towards you, while simultaneously pivoting the tip into the wood. The tool pivots at the point where it rests on the toolrest. Normally, I would position my thumb behind this point to support and help guide the tool, as shown in Photo 11. However, for Photos 9 and 10, I removed my left hand for photographic clarity.

When the cut is completed, the gouge should be in line with the bed of the lathe, with the tip of the tool at the center of the bowl (*Photo 11*).

Photo 12

Photo 13

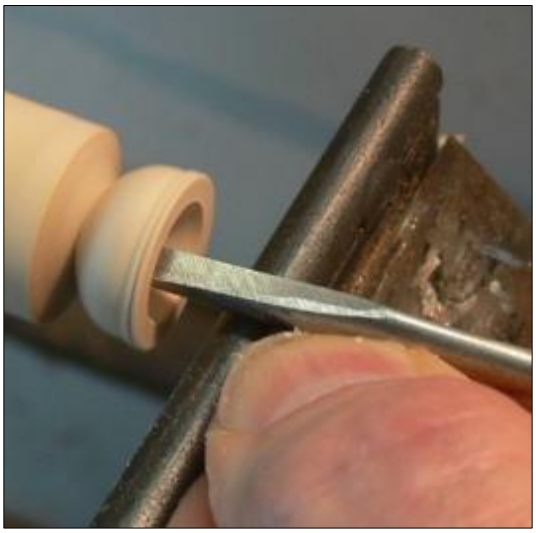


Photo 14

Notice that this pass removed only a small amount of wood from the center of the bowl. It will take several passes like this to hollow the bowl completely. Start in the center, take a shallow cut, then make another pass that cuts a little deeper (*Photos 12-14)*.

Repeat this process several times, removing a little more material each time. Pay close attention to the depth of the cut, as well as the remaining thickness of the rim. Ideally, you want to obtain a consistent wall thickness from the rim all the way to the bottom of the bowl. Use a depth gauge to check the depth of the bowl. If you find that the bowl isn't deep enough, try another pass that goes deeper without removing as much near the rim. If you find you're going too deep, try removing more from the rim area, and not cutting as deeply into the bowl.

Keep in mind that the bottom portion of the bowl's base hasn't been cut yet, and as you shape the inside, try to picture where the base will be and account for that. The depth gauge is good for gauging how deep the bowl is, but it really doesn't help much in determining the consistency of the wall thickness. For this, you need a different tool.

Photo 15

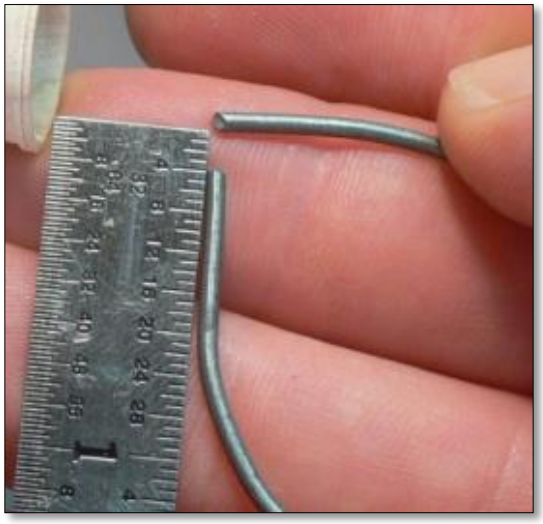


Photo 16

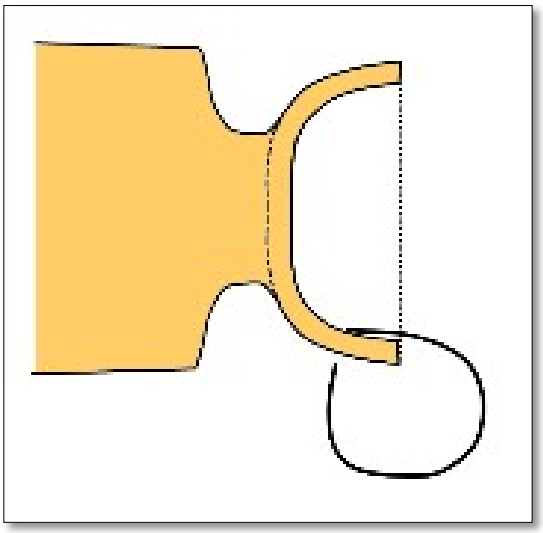


Figure 2

Photo 15 shows a close-up view of a miniature version of a measuring gauge that David Ellsworth made famous. It's a simple piece of stiff wire (in this case, 18 gauge), bent into a loop. Notice that the ends have been rounded off, to prevent scratching the surface of the bowl, and that the lower point aims exactly at the tip of the upper point. This is critical. Photo 16 shows that the distance between the two points is 1/8" (4/32"). The actual distance is up to you. But you want the gap to be something easy to remember, and easy to work with.

To use this gauge, insert the straight end into the mouth of the bowl, as shown in Figure 2, and hold the gauge so that the other point aims straight at the first point. Measure the distance between the second point and the outside wall of the bowl. Subtract that distance from the original gap to determine the thickness of the wall. In Photo 17, you can see the gauge in use.

Since the starting gap was 4/32", and the gap between the second point and the wall is 3/32", that says the bowl's wall thickness is approximately 1/32".

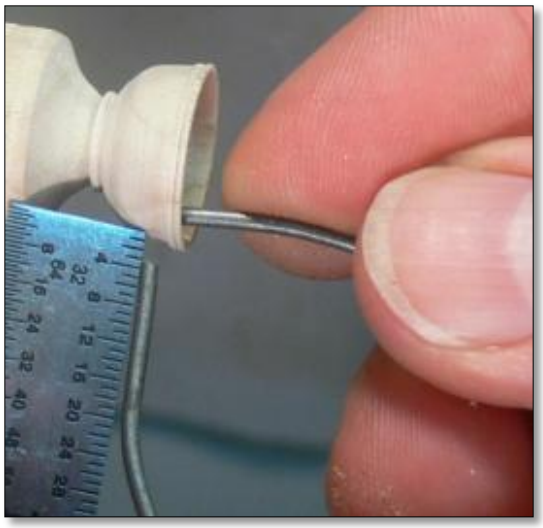


Photo 17

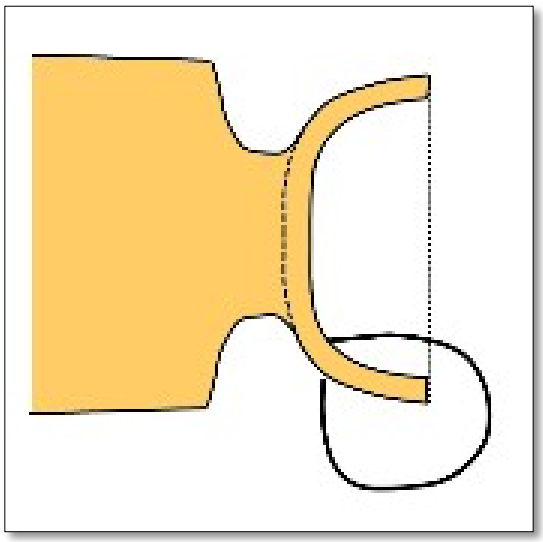


Figure 3

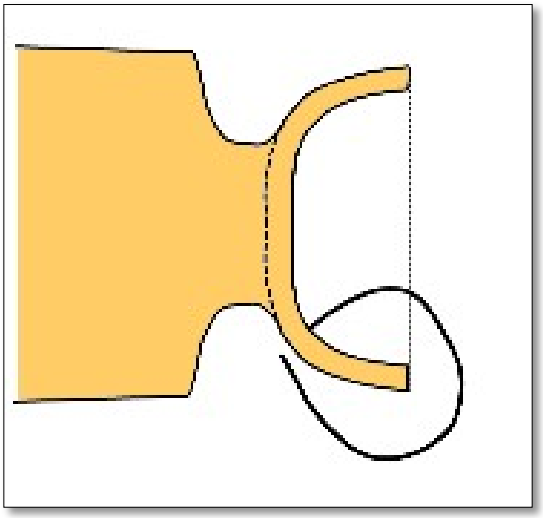


Figure 4

Photo 18

Make sure the wire is oriented correctly. In Figure 3, you can see that the bent end isn't perpendicular to the surface of the wood, so the measurement won't be accurate. Always hold it so the bent end is perpendicular to the side, as shown in Photo 17 and Figure 2, and NOT as shown in Figure 3.

If necessary, flip the wire over and use the bent end on the inside, as shown in Figure 4. Sometimes it's necessary to re-bend the wire to a shape that will work. Just make sure that the second point aims directly at the first point (*Figure 2*), and to re-measure the starting gap (*Figure 4*), so you know the distance you're starting with.

Photo 19

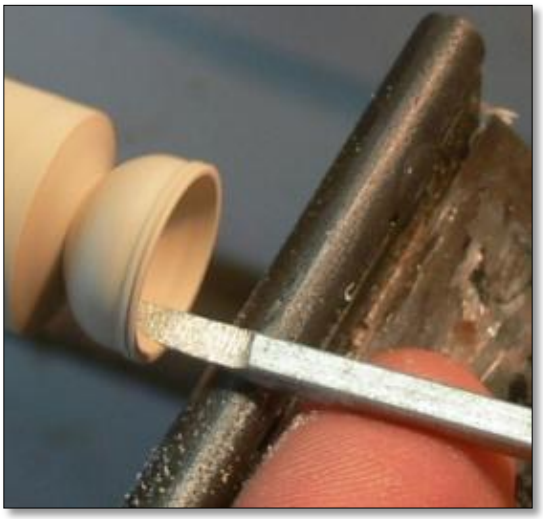


Photo 20

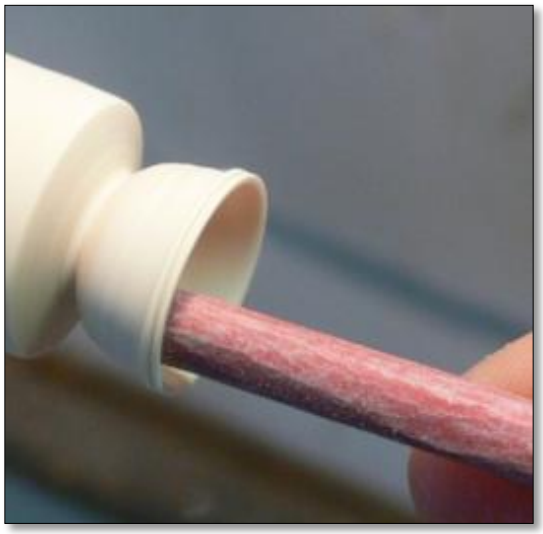


Photo 21

Photo 18 shows yet another technique. Turn the lights off, and hold a small, bright flashlight against the side of the bowl. Notice how the light shines right through the side. The thinner the wall, the brighter the light will be. If there are thick areas, they will show darker.

You can use a round-nosed scraper to refine the inside surface and to finalize the depth and wall thickness. Use the scraper to round over the inside edge of the rim, as well. You want a smooth transition around the top of the rim (*Photo 19*). Photo 20 shows a smaller scraper which I made from 1/8" steel bar. Sometimes, the larger scrapers are just too big to work on the size and shape of the items you're turning. It's good to have several sizes available.

Photo 22

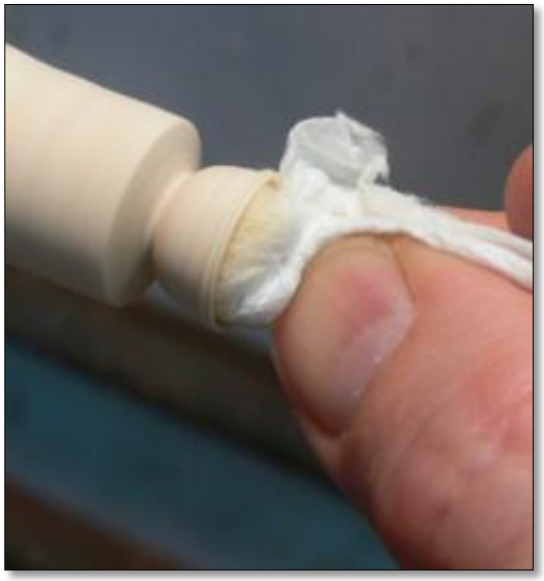


Photo 23

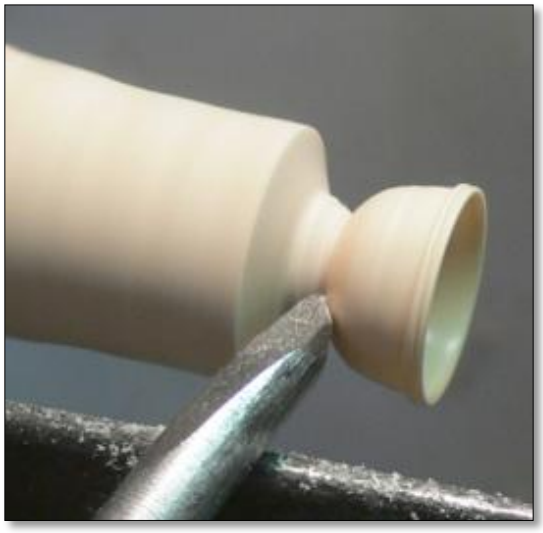


Photo 24

Don't forget to remove the nib from the bottom of the bowl. This may seem difficult to do at first, but will become routine with practice. Shine a flashlight into the bowl, and look at the surface carefully. It is frustrating to find out after the bowl is completed that you left a little nib in the bottom! Also look for any scratches, rough surfaces, or imperfections. This is your last chance to fix them, so make sure it's perfect before continuing on.

When you're happy with the inside, use sanding sticks (*Photo 21*) and Abralon pads (*Photo 22*) to sand the inside, as. Don't forget to sand the top of the rim.

Apply friction polish on the inside (*Photo 23*). Buff well; be sure the inside is finished to your satisfaction. This is the last chance you'll have to do this.

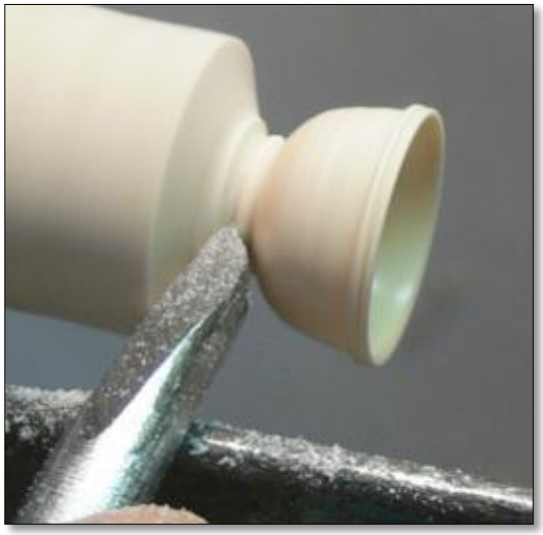


Photo 25

Photo 26

Photo 27

Use the detail gouge and cut the sides of the bowl down farther, towards the area where the foot will be. Also remove some of the wood below the base, to provide room for the tools to move around (*Photo 24*). Use the tip of the gouge to define a round foot, as in Photo 25. Use the pyramid tool to refine this shape, as in Photo 26. Ideally, you want this to look like the bowl is sitting on top of a round ring when it is completed. You don't want the foot to be too large. The ring of the foot should accent the rings on the rim. Photo 27 shows what your bowl should look like at this point.

Photo 28

Photo 29

Photo 30

Use thin strips of sandpaper to start sanding the outside of the bowl (*Photo 28*). Be very careful! The sandpaper can easily ruin the details that you worked so hard to define. Take your time, and be sure to sand every part of the bowl's outside surfaces. It is important to sand the details, plus the area as close to the details as you can get, without wearing them down. It is best to use a fine-grit sandpaper. Coarse sandpaper will remove too much wood and wear away the details.

Photo 31

Photo 32

Photo 33

Hold the edge of the sandpaper against the edges of the details, as shown in Photos 29 and 30. Similarly, insert the edges into the creases, as shown in Photo 31. Don't forget to sand with the Abralon pads! Apply friction polish to the outside and buff well. Be sure to get the finish into the creases. In Photo 32, you can see how I use my thumbnail to press the paper towel into the crease.

When the outside is completed, use the thin parting tool to part it off just below the foot. In my case, once again, I used the curved parting tool, to give the bottom a slight undercut (*Photo 33*). You can see in Photos 34 and 35 that the bottom is recessed slightly.

Make a jam chuck, and use double-sided tape to mount the bowl to it (*Photo35*).

Photo 34

Photo 35

Photo 36

Photo 37

Photo 38

Use the detail gouge in the scraping mode to shape the bottom of the bowl (*Photo 36*). Be careful not to go too deep, or else you might go through the bottom. If you need to do any additional shaping or to touch up the foot, do it now. Sand the bottom with sandpaper (*Photo 37*) and Abralon pads

(*Photo 38*). Apply friction polish and buff as usual (*Photo 39*).

Photo 39

Photo 40

Photo 41

Use a fingernail to pull the bowl off of the tape (*Photo 40*). Be careful on the rim, it's fragile! Wipe off any residue from the tape, and you've completed the bowl! (*Photo 41*).

Notice the detail the ridges and foot lend to this otherwise boring wood. Notice how the shape of the foot accents the shape of the rim. Notice the proportion of the width and the height. These are all things to consider as you shape the bowl. Ask yourself: Would this bowl look right if it were twelve times this size?

~ Thomas W. Jones
116 Geralds Way
Conowingo, Md 21918
732-693-1547
twjones109@gmail.com

SHOP TIP

Why should I use sanding sealer?

1. As the name implies it is a sealer that is formulated to fill micro pores and to be sanded.
2. The best advantage is it will show up defects like the finish will, but gives you a second chance.
3. Sanded wood has micro fibers that are so thin and flexible they don't sand off until you harden them with the sealer.

DO NOT use steel wool or Scotch Bright on the sanding sealer! These will instantly dull everything. Tt will look good and feel good until you spray another coat and the ripples are back!

DO USE sandpaper and hand sand! When sanding, the high spots will dull first so you keep sanding until all the shine is gone.

I like to take a ¼ sheet, fold in thirds and use a slow circular motion with 400-800 grit paper.
I am seldom spraying sanding sealer to cut down on waste and fumes in the air. I was using Deft Sanding sealer which is hard to get now.
I use Sherwin Williams Hi-Build Lacquer Sealer B44 FT4 clear, cut 50% with lacquer thinner and put it in a clear bottle I purchased from Family Dollar for $1 and apply with a 2" square of paper towel.

Notice the separation in the bottle at right so be sure to shake it up each time. Using the towel, I can spread extra where it is soaking in and wipe down the excess and toss the towel in the trash.

~ Jack Morse, Lawrenceville, Georgia
Growing up in my father's wood shop nurtured a love of wood my entire life, and a background in residential construction, antique furniture repair, and refinishing helped me develop many valuable skills.

SHOP TIP

Repairing small cracks and checks with CA glue

You've selected a beautiful piece of wood and at the beginning of the turning process, or part way through it, the wood begins to show small checks. Don't throw it out! Those checks can be easily filled and will barely be noticeable in the end product.

- With the lathe off, use a paper towel to dab the check with a small amount of the oil that you will use for your final finish—Waterlox, tung oil, mineral oil or other oil finish.
- Wipe away the excess.
- Apply a small amount of thin cyanoacrylate (CA) glue to the check.
- Use 220 grit sandpaper and sand the area, creating a slurry to fill in the crack.
- It may be necessary to repeat the process two or three times before the small check is completely filled.
- You are now ready to sand the entire piece and apply the oil finish you used earlier.

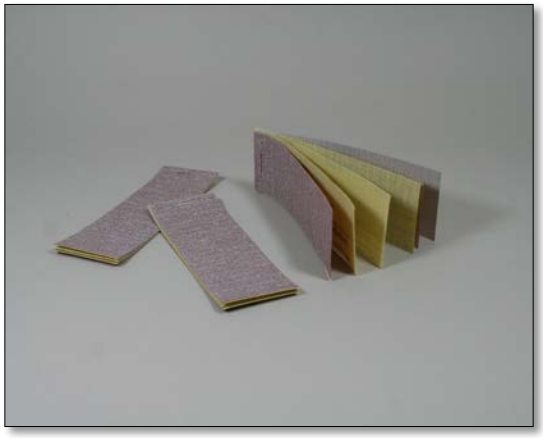
Applying a dab of the oil finish to the checked area before applying CA glue keeps the glue from staining the wood.

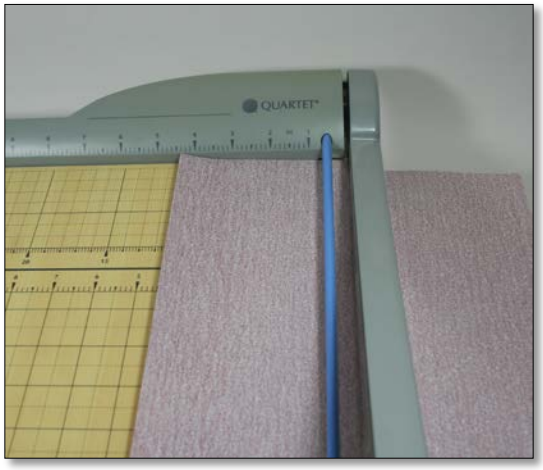
~ Janice Levi, based on tip from
Linda Bohl-Berry
Gulf Coast Woodturners Association
Houston, TX

SHOP TIP

Preparing Sandpaper Packets

If you turn a lot of small items like pens, ornaments, small boxes, or jewelry pieces, and the item is really too small to power sand, yet fumbling through stacks of little pieces of sandpaper is driving you crazy, then try this. Select the sheets of grits that you would normally use—120, 180, 220, 320, 400, 600—and cut the sheets in half length-wise. Then divide those halves into 1 1/2"-wide sections. (The last section will be a bit wider.) Now set up an assembly line with the 600 grit paper laid out face up on a table. Then add the 400 grit paper and so on until the 120 grit paper is on top. Finally, staple each packet together.





You now have about twelve sandpaper packets ready to use. The task of sanding is so much easier when all you have to do is flip through each grit. No more fumbling for individual sheets, no more confusing one grit with another. Do remember to use a paper towel to wipe away the sanding dust before going on to the next grit.

~ Janice Levi
Groesbeck, TX

ASK THE EXPERT

Help! I've got a question for the expert!

Q: Twice turned bowl question.

When going from faceplate to a chuck, the bowls do not seem to run true afterwards and I have to return it. I often times have the same trouble when final turning rough turned bowls using a chuck. Anyone have tips to make sure they run true?

~ Darrell
AAW member

A: Shaping the tenon.

There are a couple of things that can easily cause this. One you may not be able to correct because it's the nature of wood but I'll give it a try. The others are the shape of the tenon, the size of the tenon and the length of the tenon.

I assume you are turning the outside with a faceplate and then turning a tenon, or rebate on the bottom. The first thing to do is to make the tenon the right size for the jaws you're using. If you make a large tenon and the jaws have to open up, they are only being held by the eight corners of the jaws. These bite into the wood unevenly because of the difference in end grain vs side grain hardness. Wood compresses very little against the end grain and will compress more against the side grain. So the first thing to do is to choose jaws that will only have a small gap when fully closed over the tenon. This will tend to compress the wood more evenly and has more grip surface.

The next thing is to properly shape the tenon. If you have dovetail jaws, the shape of the dovetail can be a factor. Many turners custom grind a tool that will cut the tenon the exact shape of the dovetail jaws. If the jaws close on only the bottom or the top of the dovetail, they can crush the wood unevenly and make it shift off center.

The tenon should be shorter than the jaws are deep so that the wood rests on a flat area at the bottom of the tenon. This helps register the bowl square and also helps prevent the bowl from rocking and coming out of the chuck when you're turning.

How you orient the wood in the chuck can cause problems. Let's imagine the wood grain is running from 12 o'clock to 6 o'clock. If I mount the wood in the chuck with one jaw at 12, one at 3 one at 6 and one at 9, you will have end grain at 12 and 6 and side grain at 3 and 9. The side grain will compress differently than end grain and can easily throw it off. Rotate the grain about 45 degrees so it's at 1:30, 4:30, 7:30 and 10:30 or close to that. This will give each jaw a little end grain and a little side grain and can help with the compression problem. I'm assuming you have solid sound wood. If it's punky, it may compress unevenly no matter how you orient it but the next tip may help.

I start all of my bowls between centers so there is a center mark in the face of the bowl. When I remount it in the chuck, I always bring up the tailstock and push the bowl against the chuck while tightening. That can go a long way toward keeping the bowl aligning while tightening the chuck. If you don't have that centering hole, here's what you can do. I built a gadget on someone else's tip that goes into the threaded hole of my faceplate and fits snugly. It has a center hole. I put a long sharpened steel rod down that center hole and punch a mark in the wood exactly centered on the faceplate. I can use this to punch a mark that my live center will go into to align the bowl. If your faceplates are solid, simply drill a hole in the center while they are on the lathe using your drill chuck in the tailstock.

~ John Lucas, a retired photographer, has been working in wood for about 35 years and also dabbles in metalworking. He also enjoys modifying machines, making tools, and sharing his knowledge through written articles and videos. He has taught classes at John C. Campbell Folk School, Arrowmont, and The Appalachian Center for Crafts.

ASK THE EXPERT

Help! I've got a question for the expert!

Q: How do I turn legs to be the same?

~Ronald Hitchcock
Regina, Saskatchewan

A: Duplicating Spindles

There are several things you can do to help insure that your turned table legs will look similar. Perhaps the most important thing to do is to create a pattern or story stick to follow and guide you in turning duplicates. I create my pattern when I draw the piece I am building and I draw the turned leg full size to make sure I am happy with the curves and design. I then transfer the pattern to 1/8" thick plywood that is cut about 1" wider and 1" longer than the finished dimensions of the turning. I only transfer one half the pattern, placing the center line of the turning on the straight edge of the plywood. I draw square lines from the edge at critical points of the turning. These critical points would be the largest diameters such as tops of beads, and smallest diameters such as bottoms of coves.

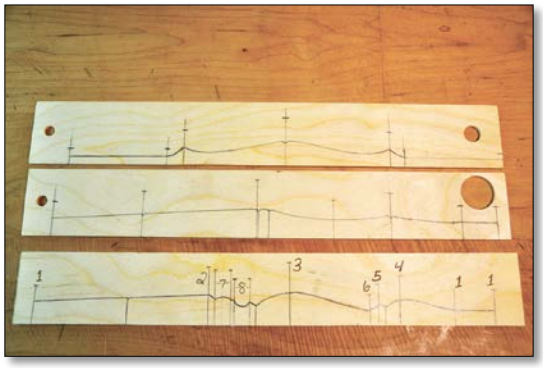


Photo 1

These square marks also indicate transition points from concave to convex shapes. Note that you can place as many or as few of these points as you want if that will help you recreate the design over and over. With time you will find that you need fewer of these transition or location points. The full diameter of each transition point is marked from the edge with a pencil line, this would be exactly twice the dimension from the edge. These marks allow for an easy way to size the calipers for that specific location.

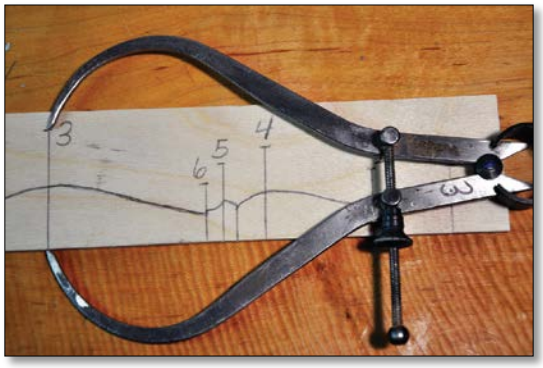


Photo 2

If possible, have several sets of calipers to keep set at a specific “numbered” diameter. In my opinion as a spindle turner, you can never have too many sets of calipers! That way you are not changing the calipers allowing error to creep into the turning. Number the marks on your pattern and set the numbered calipers to match the finished dimension.

Prepare your wood carefully, making sure the blanks are all exactly the same length (I always cut them to the finished length before turning) and insure they are square in dimension. Having the blank square in dimension will help insure the transition or pommel, from the square section, where the aprons are attached, to the round section of the turning, will have even and uniform shape. The pommel will also appear consistent on all four corners when you get the blank exactly centered on the lathe.

Plan on milling up a few extra blanks if you are just getting started in spindle turning. Then you can pick the best of them for the table project. I also think it is smart to practice turning in the wood you plan on using for the project. That way, you will become very familiar as to how that species cuts, etc.

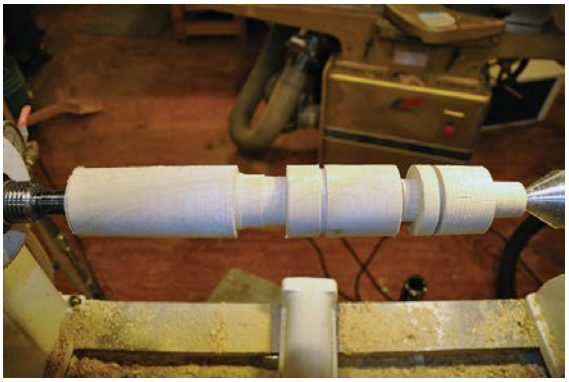


Photo 3

After turning the pommels or transition from square to round area, turn the blank to the largest diameter cylinder that your pattern calls for. Once the pommels are done, use your pattern to lay out or mark the locations of the shaping points. See Photo 2. Using a parting tool and your “numbered” calipers part, down to the appropriate diameter. I usually set the calipers about 1/32" larger to allow for final shaping cuts and/or sanding. From here it is just connecting the dots, creating the beads, coves and tapers. I once heard this referred to as “point to point” turning. See photos 4 and 5.

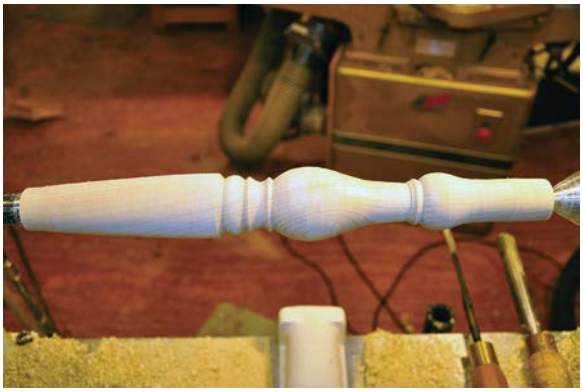


Photo 4

Photo 5

You may have to practice a bit to get the similar legs you need for the project, especially if you are new to spindle turning. Once you do get the first leg that is exactly what you want, keep it nearby to reinforce the shapes you are trying to recreate. In the end, the legs will look similar enough to pass as duplicates. Your eye sees the similar shapes and makes them look the same. Also, if you place them side by side, you definitely will notice subtle differences. However, when you place them on the floor, as they will be when they are supporting your table, you will not see those subtle differences! The only way to get exact duplicates in turning is to have them done on a duplicator lathe. But what fun is that, when you can train yourself to be the duplicator!

~Janet Collins has been a furniture maker, woodturner, and teacher since graduating from the North Bennet Street School furniture-making program in the mid-1990s. Her shop is located in a barn at her home in Ryegate, Vermont, and she teaches woodworking full time at Dartmouth College in Hanover, New Hampshire. Janet's work can be seen at her website: greenmountainwoodturning.com.

VIDEO: NATURAL EDGE BOWL

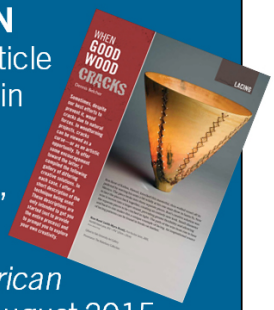
Demonstration: Making a Natural Edge Bowl with a Stitch

- Making a Natural Edge Bowl with a Stitch with Jerry Kermode (TRT 1:16:40).
- Video link: https://vimeo.com/156364798
- Tip: If you have trouble accessing the video directly from this document, you may copy the video link and paste it directly into your browser.

A Note About Safety

An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take the appropriate precautions when you turn. Among the most important of these is the use of face shields, safety glasses, and dust masks. It is important to observe all manufacturers' safety guidelines. Following manufacturer's safety guidelines and information will help you continue to enjoy woodturning years into the future.

JOURNAL ARCHIVE CONNECTION



To read the article Jerry refers to in his video see, "When Good Wood Cracks," by Dennis Belcher (*American Woodturner*, August 2015, vol 30, no 4, page 20). AAW members can access all past journal articles online at woodturner.org.

MEMBER GALLERY

Daryl Rickard
Peachtree City, GA

Daryl Rickard has been woodturning since the early 1990s. Using primarily native hardwoods, he combines woodturning with carving, woodburning, texturing, and painting to create whimsical and unique pieces.

Active in local turning clubs, Daryl has attended several woodturning symposiums throughout the country and has had the privilege of seeing and meeting many of the best woodturners in the world. They have all had their influence on his turnings. He is currently a member of the Georgia Association of Woodturners and the American Association of Woodturners. Daryl has shown his work in various galleries and has won multiple ribbons.

Daryl lives in Peachtree City and when not in his wood studio, he works as a small animal veterinarian.





Harvey Meyer
Dunwoody, GA

Originally from Brooklyn, NY, and now residing in the Atlanta, GA area, I'm retired from a 43+ year career as a telecommunications engineer. I've been turning for sixteen years and I turn just about everything, but my main focus had been on hollow forms. I also like to embellish my turnings by piercing, burning, coloring, carving, and texturing. For the last several years, I've been focused almost exclusively on the "basket illusion," where a turned piece attempts to resemble woven basketry. I enjoy demonstrating at woodturning clubs and teaching. All in all, I'm just having fun. I work in my studio located in the basement of my home in Dunwoody, GA. I'm an active member of the Georgia Association of Woodturners, Atlanta Woodturners Guild, and the American Association of Woodturners.

Wes Jones
Lawrenceville, GA

Wes Jones lives in Lawrenceville, Georgia and has been a lifelong woodturner and woodworker. His turned work has been displayed at many museums and galleries and he has received over forty awards for his work.

Wes is active in three woodturning chapters and has served in many officer positions including President and Vice President. He has demonstrated for many chapters and woodturning symposia in the Southeast. In his spare time, Wes teaches woodturning in schools and privately in his studio.





Steve Pritchard
Atlanta, GA

I started turning in 2000 and since then I've tried my hand at about every aspect of turning except segmented and ornamental. My first love is vessels and I enjoy carving, burning and coloring my work. My favorite wood is Bradford Pear. It turns beautifully. It is like a blank canvas for embellishment and every time we have a wind storm, there is plenty of it available.

In addition to turning, I enjoy teaching and demonstrating. I also enjoy doing arts and crafts shows around the Southeast.

I am a two-time past president of the Georgia Association of Woodturners and I am currently the local liaison for the AAW International Symposium in Atlanta this year.

Submissions

Want to share your work in *Woodturning FUNdamentals*? Please send your high-resolution images along with title, size, and materials used to linda@woodturner.org.

Want to "pay it forward"? *Woodturning FUNdamentals* welcomes other content including tips, projects, and informational articles. Please send your content ideas to linda@woodturner.org. The deadline for submissions for the July issue of *Woodturning FUNdamentals* is May 20, 2016.

Please note: All content submitted may be subject to edit.