

WOODTURNING

FUNdamentals

AAW
EDUCATION

Publication of the American Association of Woodturners
November 2014 vol 3, issue 6 | woodturner.org

PROJECTS

CHRISTMAS TREE FROM SCRAPS

DAVE BUCHHOLZ

TOOL HANDLES

MARK PALMA

TRIANGLES

AL HOCKENBERY

GAVEL

SHERRY AND AL HOCKENBERY

.....

TECHNIQUES & TIPS

PULL CUT HOLLOWING END GRAIN

PHIL BRENNION

GOLDEN RATIO

JIM SCHOEFFEL

CENTERING A BOWL AND BOWL BOARD

ALAN LEVIN

SANDPAPER HOLDER

PIERRE DELÉTRAZ

SHARPENING OVAL SKEW CHISELS

JOE CAVANAUGH

.....

VIDEOS

Woodturning Fundamentals

TABLE OF CONTENTS

AAW
EDUCATION

November 2014 - Volume 3: Issue 6 Features



Tom Gall

A Note from the Fundamentals Chairperson - Denis Delehanty	1
Techniques: Segmented Turning 201 - Andy Chen	2
Projects	
• Turning a Christmas Tree From Scraps - Dave Buchholz	5
• Turning Tool Handles - Mark Palma	9
• Turning Triangles - Al Hockenbery	14
• Video: Advice for First-time Turners – Al Hockenbery	17
• Turning a Gavel - Sherry & Al Hockenbery	18
Tips	
• Pull Cut Hollowing End Grain - Phil Brennon	21
• Golden Ratio - Jim Schoeffel	23
• Centering a Bowl and Bowl Board - Alan Levin	27
• Sandpaper Holder - Pierre Delétraz, Sharpening Oval Skew Chisels – Joe Cavanaugh	28
• Video: A Method for Safely Transporting Tools – Les Casteel	29
Member Gallery: Holiday Ornaments	31

Woodturning Fundamentals

a bimonthly publication by the American Association of Woodturners
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

Board of Directors

Dale Larson, President
Kurt Hertzog, VP
Cassandra Speier, Sec.
Philip Hauser, Treas.
Binh Pho
Rob Wallace
Lou Williams
Denis Delehanty
Art Liestman

Woodturning Fundamentals Committee

Denis Delehanty, Chair
Linda Ferber
Beth Ireland
Rob Wallace
John Lucas
Alan Zenreich

A Note About Safety:

An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take precautions when you turn. Safety guidelines are published online at <http://www.woodturner.org/?page=Safety>. Following them will help you continue to enjoy woodturning.

AAW | AMERICAN ASSOCIATION OF WOODTURNERS
Fundamentals

Cover photo: Alan Levin

WELCOME

A Note from the Woodturning Fundamentals Chair

In this edition, we are happy to include the second of two articles by Andy Chen, *Segmenting 201*. This type of woodturning is very popular and the article will provide you with information on the planning and preparation required for successful segmenting. Segmenting requires layout for design and form prior to starting the project. Building a segmented blank can be as complex or as simple as you desire. I would recommend starting with a simple pattern. I hope you will enjoy the article and the exposure to a new, and possibly unfamiliar, type of turning.

Speaking of deadlines, AAW will be accepting applications for Educational Opportunity Grants (EOG) through December 31, 2014. This is a great time for you, your club or organization to select educational projects that would be great candidates for EOG grants. The guidelines for grant submittals is posted on the AAW website at: <http://www.woodturner.org/default.asp?page=2015EOGGrantApp>

2014 was a great year for *Woodturning Fundamentals*. I would like to thank all who contributed in 2014, including those who have sent us articles, tips and videos. Your ideas, creativity and skills inspire us to turn more. Thank you. To our loyal readership, we know you must be sharing the value you receive from *Fundamentals* because readership numbers continue to grow with every edition. Thank you for your support. To those who layout the articles, edit the content, and prepare the magazine for publication, your contributions of time, effort, and enthusiasm are greatly appreciated. With your support, we will strive to bring you content that exceeds your expectations in 2015.

Do you have a pesky woodturning problem that just won't go away? Or, are you looking for a resource for a tool, finish or wood? Then we may be able to help. Please send a description of your problem or question to *Woodturning Fundamentals* at linda@woodturner.org. We will do our best to find a professional who can provide you with an answer. It is very likely that many others have the same question or problem. Sharing your woodturning issues through *Woodturning Fundamentals* is a great way to help everyone! Another valuable resource is the AAW Forum, <http://www.woodturner.org/?page=AAWMemberForum> which includes a photo gallery of member work, as well as discussion topics. Take a few minutes and create an account if you are not currently an AAW Forum member.

As always, I welcome your suggestions, questions or concerns.

Sincerely,
Denis Delehanty
denis@woodturner.org



SEGMENTED TURNING

Segmenting 201

Note: The last issue of *Woodturning Fundamentals* included the first part of Andy Chen's article, Segmenting 101.



Figure 1

It is relatively easy to make a segmented vessel with one species of wood, but the result would be rather bland. Using specific examples, I will show you how to build and incorporate a feature ring to make the vessel far more interesting and attractive (as shown in Figure 1). In addition, other fine design modifications such as thin layers that set things apart will also be covered.

The sky is the limit when it comes to the design possibilities of a feature ring. Geometric patterns, flowers, landscapes, and all sorts of other things can all serve as inspiration. The pattern that will be discussed in this demonstration is diamonds. Two different methods to construct diamonds are depicted in the following series of photos.

Procedure - Method 1

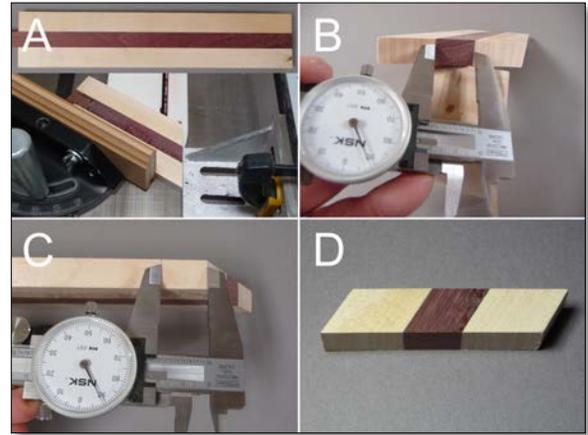


Figure 1A

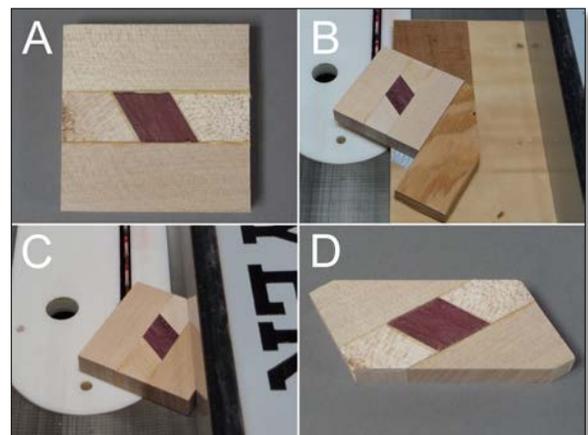


Figure 1B

As shown in Figure 1A, a strip of wood (purple heart) is laminated between two strips of wood of a contrasting color (beech) and the laminate is then cut into equal segments diagonally. Two strips of beech are then glued to each side of these segments. These pieces are then cut into rectangles with the diamond in the center (Figure 1B).

The two edges of these segments are cut to a miter angle determined by the desired number of segments, 15° for 12 segments in this example. A thin strip of another wood with contrasting color (ebony) is glued to one of the ends on each segment to form a partition between segments in this design (Figure 1C). The segments are now ready to be glued into a ring.

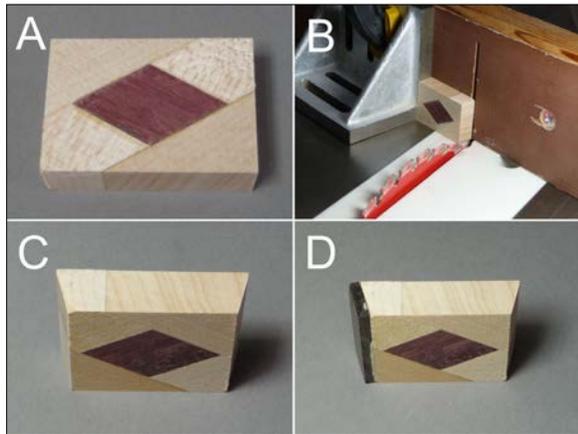


Figure 1C

The issue that arises with this method of construction is that the wood grains run at an angle from the rest of the vessel, which causes instability in the construction because of wood movement. Additionally, it is not aesthetically pleasing when members of the design are not symmetrical or mirror images of each other. The alternative method described below results in wood grains running in parallel and the pattern is symmetrical. However, this method is much more cumbersome and requires a methodical approach.

Procedure - Method 2

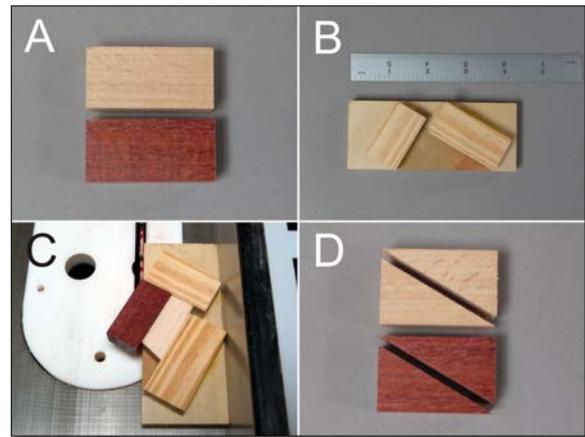


Figure 2A

Two species of wood of contrasting colors, beech and blood wood in this example, are cut into small rectangles. Each rectangle is then diagonally cut into triangles as shown in Figure 2A.

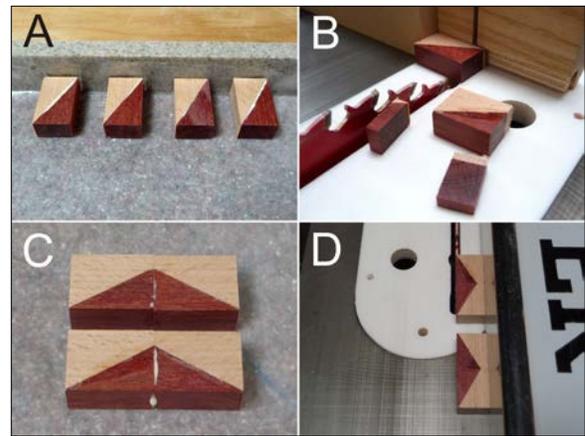


Figure 2B

Then two triangles, one of each color, are glued into a rectangle. (Four of these rectangles are required for each segment.) One end of the triangles (base of the blood wood in this example) is trimmed off to expose

some beech. Pairs of these are glued together by the trimmed end. A narrow strip along the blood wood side is ripped off to expose some beech (Figure 2B). The resulting pieces are then glued together in pairs to form a rectangle with a diamond in the middle. As in Method 1, the ends of these segments are mitered, partitions added (Figure 2C), and they are ready to be glued into a ring.

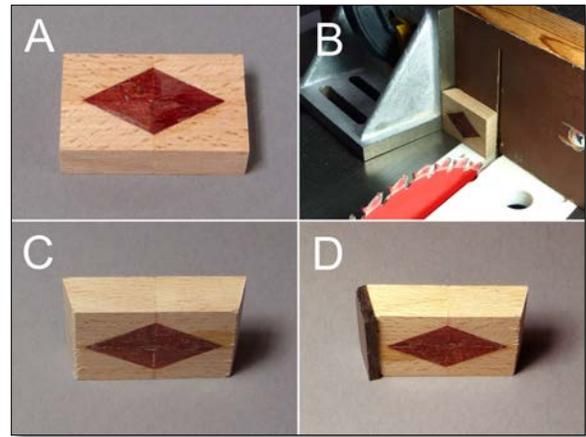


Figure 2C

Obviously, this method is much more labor-intensive but the result is much more pleasing. Depending on the size of the vessel, the size of the pieces constituting each segment could be quite small and thus require special techniques for safe operation.

~ Andy Chen
College Station, Texas

References

- Brown, E. E. and Brown, C., Polychromatic Assembly for Woodturning, 113 pp., Linden Publishing, 1982.
- Hampton, R., Segmented Turning, A Complete Guide, 151 pp., GMC Publications, 2003.
- Nish, D., Woodturning with Ray Allen, 137 pp., Fox Chapel Publishing, 2004.
- Tibbetts, M. J., The Art of Segmented Woodturning: A Step-by-Step Guide, 184 pp., Linden Publishing, 2004.
- Smith, W., Segmented Wood Turning, 64 pp., Schiffer Books, 2007.
- Keeling, D., Segmented Turning: Design, Techniques, Projects, 182 pp., Taunton Press, 2012.

Websites

- <http://www.bowlkitco.com/bowl-plans>, Bud Latven
- <http://www.turnedwood.com/>, Kevin Neeley
- <http://www.curttheobald.com/>, Curt Theobald
- <http://www.andyscustomcraft.com/>, Andy Chen
- <http://www.segmentedwoodturners.org/>

TURNING CHRISTMAS TREES

A Holiday Gift or Craft Fair Project

Making Christmas trees for craft fairs before the holiday is a good way to take advantage of people's holiday spirit and also use up small scraps of wood. I start with a piece of wood that I can make into a cylinder that can be held in my four-jaw chuck, typically a minimum of 2 1/4 inches in diameter. The length should be from 1.5 to 3 times the diameter. This project can be done by beginners who know some spindle turning.



I usually start with a piece of firewood which I turn into a cylinder about 2.5 inches in diameter and 6 inches long, held between centers. A spindle roughing gouge will reduce the rough wood to a cylinder the fastest. I form a tenon at one end that fits my four-jaw chuck. I also turn a second shoulder above the tenon which is about 1/8 inch larger in diameter and 1/8 inch high. The purpose of this shoulder is to allow the chuck to firmly hold the cylinder and also to allow me to be able to shape the wood within 1/8 inch of the chuck jaws. At this point, I also give the bottom a slight concave shape

so the base will sit flat on the outer edge. Of course I can only go as far as the live center. The wood under the live center will be sanded off after turning.



With the cylinder held firmly in the chuck and a live center in the tailstock, I shape the cylinder into a basic tree shape using a spindle roughing gouge. The shape should be conical but with a convex curve as you would expect for an evergreen green. After getting the shape, I mark with a pencil the location of the tree limbs. The distance between the limbs grows as you go from the top to the base of the form.

After getting the spacing I want, I use a thin parting tool to make an indentation where each of the limbs will be formed. The groove formed gives me a shoulder to start the cut with a detail spindle gouge when I undercut each limb.

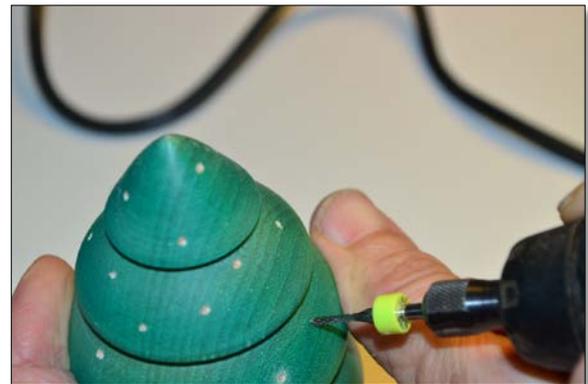


I use a detail spindle gouge to shape the tree limbs because it leaves a clean surface like a skew. Like a skew, the detail spindle gouge can produce some spectacular catches. It takes practice to use this gouge, just as it does the skew, but the clean finish you achieve is worth the effort. You can use a regular gouge to turn the tree, but it is difficult to get the undercut without using the detail spindle gouge. The formation of the limbs is a basic half-bead. I use the notation that the gouge is at 12:00 when the flute is straight up. The bead is formed with the gouge held at about 12:30 and rolled down to 2:30. To make the undercut, the gouge is held at 9:00. This is very important, since any other angle of presentation will produce the catch with spectacular results. To minimize the aggressiveness of the detail spindle gouge, I grind the gouge with a double bevel.



When finished turning, I start sanding with whatever grit is appropriate. If I am successful with the detail spindle gouge, I can usually start with 220 grit and proceed to 400. After sanding, I paint the tree green.

I find that using an airbrush is an easy way to get a uniform color on the wood. You could use a paint brush as an alternate to the airbrush. The jaws of my chuck get some of the paint on them in this process, but you can cover them with tape if this is a concern.



I add colored lights on the tree. To get uniform circular colored dots, I drill a small dimple using a Dremel-like tool with a drill bit. It is important that you support the tree and the drill so that the drill does not wander. You just want a small recess to contain the paint. The grain structure of wood tends to deform the small dimple if you don't hold the drill in a carefully controlled way. I arrange the dimples in a pseudorandom pattern around the

tree. I don't want a regular pattern, which looks unnatural.

To color the dimples, I use bright opaque acrylic paints applied with a fine paint brush. Since there is only a very small amount of paint used, don't try to be sophisticated with subtle paint shades. Bright colors work best. I have found that iridescent paints also make a good choice for the colored lights.

After the paint has dried, I apply several coats of Spar urethane varnish diluted 50% with paint thinner. I apply this with a paper towel soaked in the diluted varnish while the tree is rotating slowly on the lathe. Three or four applications of the varnish leave a shiny protective layer on the Christmas tree. Between coats I use a sheet of grey 3M buff to smooth out any dust nibs and to scuff up the varnish to better adhere to the next coat.

I paint the base of the tree with brown acrylic paint. This covers any marks left by the jaws of the chuck. I finish the tree by signing the bottom with my name, the current year, and the type of wood used.



~ **Dave Buchholz**
Keeseville, NY
dave@buchholzfamily.us

Dave Buchholz is a retired physicist living in the Adirondacks of New York State. He turns mostly local domestic woods in a variety of forms and styles with many types of embellishments.

TURNING TOOL HANDLES

Custom Fit Your Tool Handles

Turning tool handles is a project that has been part of woodturners' endeavors for centuries. Whether for utility, customization, replacement, or just aesthetic purposes, almost every turner will spin a handle from time to time.

My personal journey in handle turning has progressed through all of these phases as my turning skills have progressed.

In this article I will address:

1. To add a ferrule or not to add?
2. Ferrule materials
3. Handle materials
4. Design characteristics

To add a ferrule or not to add?

My bias is to add a ferrule to almost every handle I turn. If rotational force, leverage, or safety is in any way a factor, I use a ferrule.

When not to add a ferrule? Here are some areas where I may choose not to use a ferrule:

- File handles or other tools where longitudinal force is the only force to be exerted by the user.
- Awls and tools where the user of the tools does not cause significant forces to be exerted on the handle.

- Tools not subject to striking force (such as hammering or pounding), or rotational force (any turning tool must have a ferrule).
- Handles where the diameter of the wood where the handle meets the tool shank is at least twice the diameter of the tool shank and the handle is a resilient hardwood. (This rule does not apply to any turning tool handle, which must always have a ferrule.)
- Decorative or presentation tools that will not actually be used.

As I mentioned above, I add a ferrule to almost every tool (even in most of the above situations). My reasons are simple—(i) ferrules are cheap, (ii) they add considerable safety to a tool, (iii) they offer an opportunity for a design or an aesthetic element, and (iv) I believe use of a ferrule makes a better transition between the tool (often steel) and the wood handle itself. I find turning a tenon, fitting a ferrule, and making a transition to the handle takes only a few minutes. In return, I create something that I will not need to worry about. Properly done, it will outlast my lifetime.

Ferrule Materials

Ferrule materials are found in many different forms. Here is a partial list of materials that I have used:

- Recycled ferrules from old tools
- Thread (epoxy- or otherwise coated) - used only on tools that are subject to light forces
- Small gauge wire wrapping (same caution as for thread applies here)
- Copper tubing
- Plumbing fittings (copper bushings, brass flare nuts, and compression nuts are my personal favorites)
- Brass piping
- Any round, hollow, and strong metal band (I would not recommend using your wedding ring - it may cause issues with your spouse).



Which is the best to use for any application? I find it depends on the following factors: (i) the shape of the handle, (ii) the form and functionality of the piece, (iii) how much (or little) abuse the tool will

be subject to, and (iv) what is lying around my shop, gathering dust.



Fitting a Ferrule

Frankly, I have never had a ferrule fail! As long as the ferrule is sound, properly fitted, and it allows for sufficient wood to surround the material, I have never personally experienced a problem. I find that as long as there is a sufficient thickness of wood within the ferrule relative to the hole diameter necessary for the tool itself (my minimum safety margin is 1:1), that structural integrity is maintained.¹

I also believe drilling the correct size pilot hole is critical. Drill a test hole into a scrap of wood first! Allow space for the glue you will be using (if any) in setting the tool. If I have a sloppy or loose fit, no ferrule can solve that problem. Similarly, a fit that is too tight puts stress on the tool before it is ever put into service. You are likely to crack either the wood or the ferrule when you try to force the tool into the wood.

¹ For example, I use the minimum 1:1 ratio to mean that for a 1/2" shaft, at least 1/4" (1/2" total) of wood surrounds it.

I find that setting tools into a handle with slow-set epoxy is a great strength enhancer. Slow-set epoxy gives me time to do things right, creates a stronger joint, and seems to be a more workable adhesive for me. I stand the tool handle on end, ferrule up, and use clamps to keep the handle straight and square in this position during the glue-up. Take the time to get things straight, square, and properly fitting before you mix any epoxy. Remember, you have lived without the tool this long, so a few more minutes to do it right at this critical stage are not going to matter.



Before mixing the epoxy, I make a small dam out of masking tape. Wrap the tape around the ferrule just proud of the top to create 1/32" of space. This dam acts as a way to keep the epoxy within the ferrule as I am gluing. Mix your epoxy on a clean surface according to directions. I cut cardboard cereal boxes into 6" by 6" squares and keep a pile in a cabinet next to the glue. Coffee stirrer sticks make excellent mixing tools, so the next time you stop by a coffee shop, grab a few. With a toothpick I can

place epoxy into the hole, around the shank, and completely fill the hole. Poke out any air bubbles, be patient, and completely fill any voids. Set the tool into the epoxy and make sure the tool is properly seated, straight, and oriented as you will want it to be. Get it right as you do this because epoxy is meant to hold firmly after it dries. I wipe up any spillage, remove the masking tape, and take a final look to get everything just right before I walk away from the glue-up.

Handle Materials

Any wood you intend to use must be dry and sound. There is no way to make an accurate handle out of wet wood, nor can you make a strong handle from unsound wood. I sometimes rough turn material to determine its strength and dryness. If it is a little wet, turn it oversize as you would with a bowl, let it dry and warp, and then re-turn it later. However, my final handle is always dry wood when it goes on the lathe for final turning.



When you are examining wood for a handle, avoid the pith. This wood is inherently weak and will in all likelihood crack or give you trouble in creating a strong handle. Similarly, it is fine if your wood has character, just make sure it does not have splits or voids that will make for a dangerous handle when completed. For example, recently I had a beautiful piece of wood, but due to ring shake it was worthless.

For many handles you need to consider grain direction and any unique characteristics of the wood itself. The strongest wooden ladders have continuous grain that runs throughout a rung. Similarly, the strongest handle will have straight grain that runs from the ferrule through the end of the handle. Whether you need that much strength in an individual handle depends on the application.

In terms of species, I have had great luck with almost every hardwood species. If you have a favorite hardwood, try it! Even woods such as red oak, that isn't a favorite turning wood, make great handles. I use cherry, maple, apple, walnut, mahogany, and any dry hardwood lying around the shop.

For gifts I use my best scraps. Figured wood, unique scraps, and laminated blanks all make a treasured handle. I find that I am making an "heirloom" tool every time I make a tool handle. I find taking that extra time to choose the wood, carefully fit the ferrule, and

create an ergonomically comfortable handle makes something that the person I give it to will cherish forever.



The sizes of my tool blanks vary greatly. For small handles, such as for a file, 7/8" to 1" stock works. From there I go up in increments to stock a full 2" square. The length is determined by the type of handle; however, I find 6" is the minimum length I like to work with for all but awls or other round or bulb-shaped handles. Turning tools may have handles of 10"-12" for short tools or 16"-18" for more substantial tools.

Tool Handle Design

The design of any tool handle needs to meet one and only one criterion—what looks and feels great to the user. Beyond that the field is wide open. Unlike commercial tools where the length, diameter, surface characteristics, and shape are a compromise, by definition custom tool handles can and should be custom in design.

My process is to feel every handle I come across (whether plastic, wood, metal, or anything I can find). I constantly have my radar on for handles that feel right and meet the utility of the application.

Antique shops, images of tools from the internet, handles from other applications, commercial tool handles, and other sources provide great ideas. In many ways I find that antique tool catalogs and books (such as valuation guides) are my favorite sources. Intellectually this makes sense to me. In past years craftsmen held a tool for hours at a time. Also, since handles for tools were more individualized, there were more options. The reality of current product development is that manufacturers want to create one handle for all sizes of hands, and all applications and uses. In essence, they make a tool handle that never works perfectly and often barely adequately.

Sometimes I spin a mock-up handle out of pine to try a new design. If it feels right, that becomes my model for measuring purposes. If that works, I spin a proper handle out of hardwood. If not, I toss it in the woodstove and never admit that I turned it in the first place.

Another way to look at tool design is to just go for it and try a few different shapes to see what works best. If you make a “mistake,” give it to someone - they will probably love it anyway! (I admit that I have made some ugly tool handles from time to time.)

The bottom line on design is not to over-think the process. I find that some grooves, beads, or coves make a handle that is comfortable, easy to grip, and safe to use. Some of my “heirloom” tools have purely aesthetic features that enhance the beauty of the blank and create a beautiful tool.

Finishing a Handle

I finish my handles. Frankly, I over-finish my handles. If I make a utilitarian handle, no finish is really needed. In fact, a tool with no finish may give a great grip in many situations.

I make many of my tools to be “pretty.” Hence, I often sand to higher level of smoothness. Then I apply my finish of choice and often buff the tool. The result is beautiful, albeit overdone, and maybe more difficult to grip than a lesser finished tool.

It's your choice - pretty, plain, or in between. Experiment to find the right balance of sanding and finishing for your taste. For a minimal material cost you will be replacing all of those plastic handles with custom wooden masterpieces. **Enjoy!**

~ **Mark Palma**

Cameron, WI

marksworkshop@gmail.com

Mark Palma is a tax lawyer by day and a woodworker whenever he finds that “spare” time that isn’t spoken for. He thanks his family for allowing him to have a shop, a tool allowance, wood stash, and the time to pursue his addictive hobby.

TURNING TRIANGLES

Skill Building Project: Turning Triangles

(Part of a PowerPoint slideshow by Al Hockenbery.)

The process of turning triangles is cool and I would suggest using this for a repetitive skill builder. Turn a cylinder, mark the object lengths, part in to a diameter less than the diameter of the drill bit, make a decorative bead, cove, notch, etc. Then turn the three faces using a side-ground gouge pull cut. The amazing thing about the pull cut is that it can start right at the corner of the wood without chipping because the bevel is supported, pulling onto the wood.



Then mount in a chuck and drill through with a 1 1/2" or 1 3/8" Forstner bit. This separates the objects into napkin rings or Christmas ornament parts.

Using the pull cut on three- and two-centered turnings gives practice on the interrupted cut.

The pull cut leaves a great surface when cutting the outside of natural edge bowls and rarely pulls the bark off.

Three sides from 3 centers

Five sides from 5 centers

Two sides from 2 centers

- Lamps
- Weed Pots
- Pedestals
- Napkin Rings
- Tool Handles
- Bowls
- Legs
- Boxes
- Pepper Mills
- Ornaments



Napkin Rings

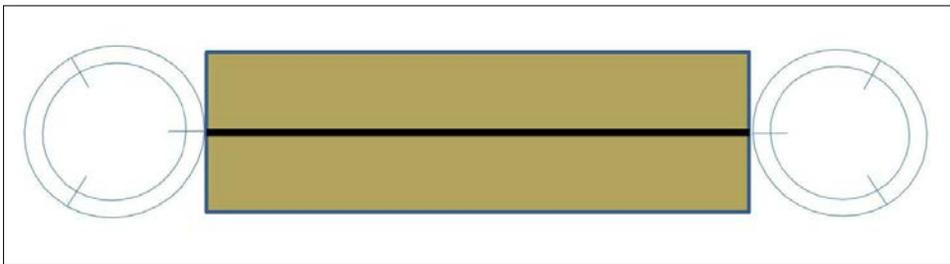
- Matching set
 - Common theme
 - Individual identifier
 - Historically napkins were not laundered between meals

Hole 1.5 inches



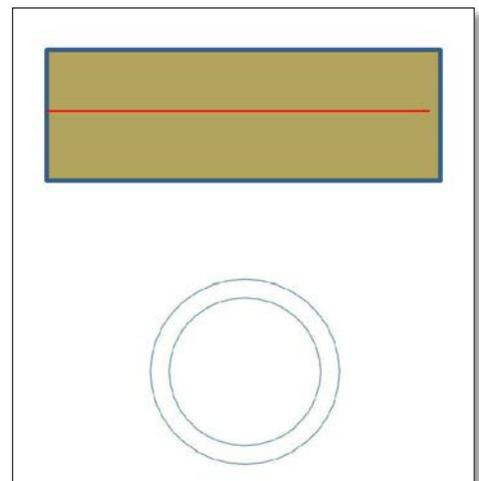
The layout goal is to have three centers marked on each end directly opposite centers on the other end.

I mark the centers on each end from lines drawn on the cylinder. These lines are where the corners will be.



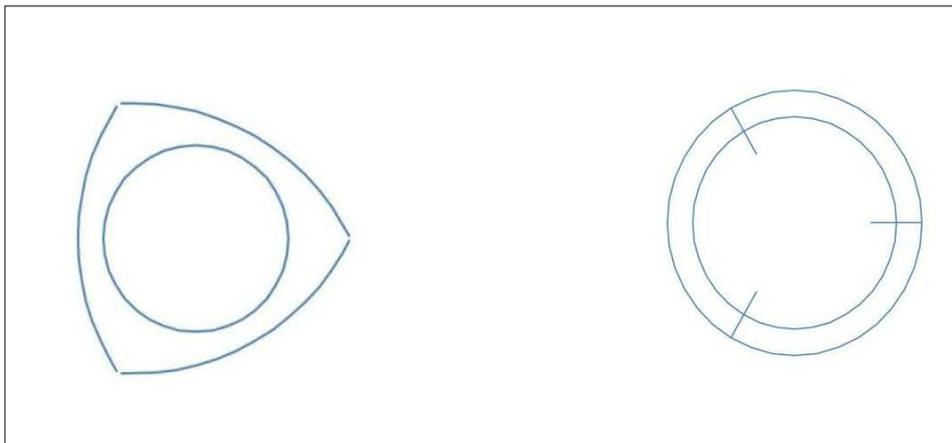
Three Center Layout

- Turn a cylinder 2.5" diameter
- Pick the grain orientation you want. I pick a face I like. Then draw a line opposite it for one corner.
- Use index wheel or trifold paper to make the other two corner lines
- Using a compass, mark a circle 2" diameter on each end.



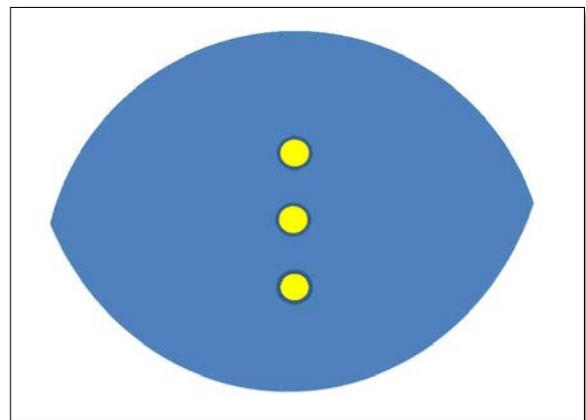
Napkin Ring Layout

- Use a straightedge from each corner line to the center of the cylinder to mark the three center points on each end.
- Using the cylinder center, part in to less than 1.5” to define the napkin rings.
- Turn using the 3 centers. Turn each face to the corner line. Be sure the faces meet at a sharp corner.
- Use ½" - 5/8" diameter cup centers (safe center) with a point in both headstock and tailstock. Steb centers work well, too.
- Be sure there is ¼" between the center point and the edge of the turning.
- Turn a tenon and mount in a chuck
- Drill 1.5” hole. This will separate the napkin rings.



Two Sided

- Turn cylinder 2.5”
- Mark two centers ½” to ¾” from the original center



~Al Hockenbery
Lakeland, FL
hockenbery@hockenbery.net
hockenbery-woodturnings.com

Video: Skill Building for New Turners



The 2014 AAW Honorary Lifetime member, Al Hockenbery, gives advice for first-time turners on skill building techniques. (TRT 1:41)

Video link: <http://vimeo.com/107331283>

(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.)

TURNING PROJECT

Gavels

This is a project woodturners of all ages love to do. As with many other projects, it can be done at all skill levels. A gavel can be turned for your chapter meetings or as a gift.



Design Considerations

Most important is a rounded edge leading to the striking face. Otherwise the head will split or chip. Symmetrical designs generally look better than asymmetrical ones.

Gavel Head Supplies

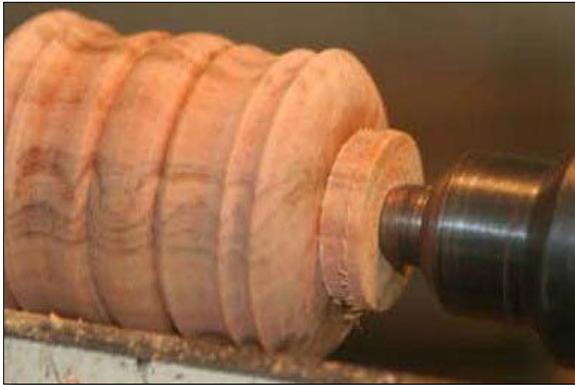
Blank size 2" x 2" x 3" of hardwood such as maple, cherry, walnut, locust

- Face Shield
- Disposable dust mask
- Spindle roughing gouge
- Parting tool
- 1/4" or 3/8" spindle gouge
- 1/2" drill bit, drill press, vee board, masking tape, or hand drill
- Ruler
- Sandpaper, walnut oil
- Hacksaw

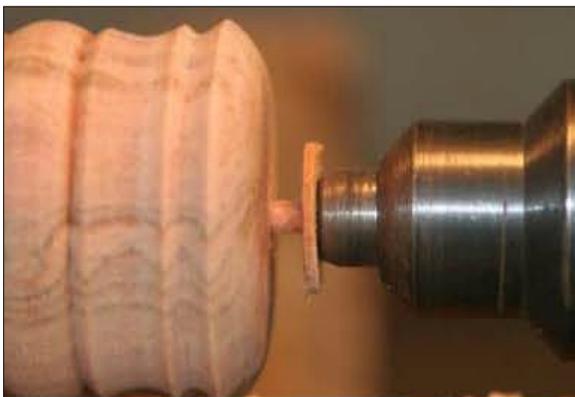


Turning

1. Mount between centers.
2. Rough to a cylinder with spindle roughing gouge
3. Part in at each end to a 1" diameter to mark off the head, leaving a 1" tenon on both ends to hold the work.



4. Lay out the design. You can design your own, using combinations of beads, coves, and flats. I show a simple design with a bead on each end and a large bead between. I extend the bead on each end over the striking face to the 1" tenon.



5. Sand the surfaces with 120 and 220 grit sandpaper.
6. Part in on the tailstock face and then on the headstock face. You need to make this slightly convex. You should part in to slightly less than a pencil diameter or take this in to 1/8 inch.



7. Remove from the lathe and saw off the tenon from each end, using a small hacksaw.
8. Sand the sawn surface. I have a 3" 120-grit disc on a drill, followed by a piece of 220 on a table.
9. Then select and mark the mortise hole to receive the handle. The handle has to go in one of the circles, face grain. At this point decide which surfaces look the prettiest, as this will be what folks see when the gavel is lying on the table, so put the hole for the handle on the other side.
10. On a drill press I mounted a vee board to position the gavel head. Put a piece of tape on the drill bit to mark the mortise hole 3/4" deep.
11. Turn on the drill press and feed the drill into the wood.



Gavel Handle Supplies

- Blank size 1" x 1" x 10" of hardwood matching the head, such as maple, cherry, walnut, locust
- Face Shield
- Disposable dust mask
- Spindle roughing gouge
- Parting tool
- 1/4" or 3/8" spindle gouge
- Ruler
- Sandpaper, walnut oil
- Hacksaw

Design considerations

A bead where the handle joins the head will hide the joint in a shadow. Also, there is a length that looks good with each head. When turning the handle, make it something that feels good in your hand.

Turning

1. Mount between centers.
2. Rough to a cylinder, using the spindle roughing gouge.

3. The tenon can be turned on either end. It is best if one of the centers is small enough to allow turning the tenon on one end. The tenon can be turned on the headstock end if you have a small cup or step center to drive the work.

4. Making the tenon begins with marking a 3/4-inch length (don't expect a 12-year-old to know how to measure 3/4 of an inch). Set the calipers on a 1/2" drill bit. Part in on the very end; stop the lathe and test with the calipers. Then part in the length of the tenon, just a bit larger in diameter. Test fit, using either the head itself or a wood strip with a 1/2"-diameter hole. Keep working with the parting tool until the oak strip just slides the full length. If the tenon is too small in diameter, you can work back in 1/4-inch lengths. The oak strip can still be used for the test fit.

5. Make a part in 1/8" to mark the length of the handle. Then turn the handle and part in to less than the thickness of a pencil. Cut the handle free with the spindle gouge. Alternatively, the waste could be sawn off.

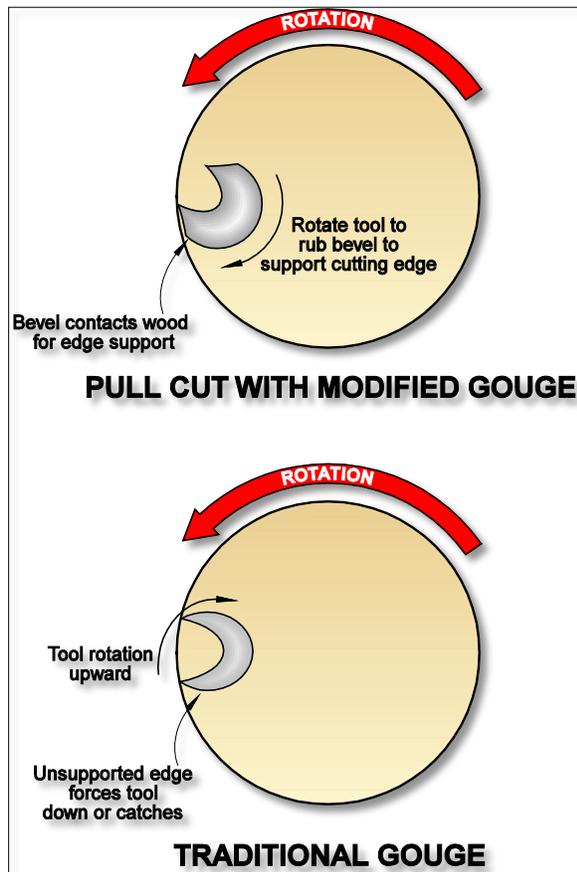
6. Test fit the handle into the head. If a tenon is loose, I put a turn of masking tape on it, being sure to leave bare wood on either side of the tape, and test fit.

8. We then glue the heads on with Titebond or something similar. Finish with walnut oil.

~ **Sherry & Al Hockenbery**
hockenbery@hockenbery.net
hockenbery-woodturnings.com

HOLLOWING END GRAIN

Pull Cut Tip

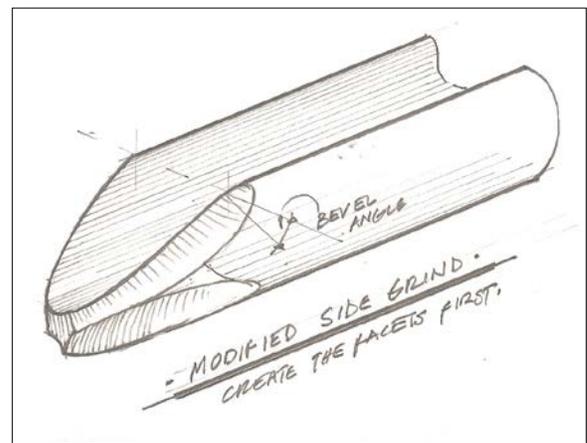


Ask a woodturner what's his or her favorite end-grain hollow turning tool, and you're most likely going to get answers like, my Ellsworth or Jordan tools. Or maybe they may be fond of a Stewart, McNaughton, Lea, or Jamieson device. But seldom will you hear "my bowl gouge." It seems few turners use the 3/8" bowl gouge to actually hollow turn.

Although this technique won't replace deep boring bars or crook-neck scrapers, with a bit of practice, pull cuts will certainly streamline the process of cleaning out the shavings.

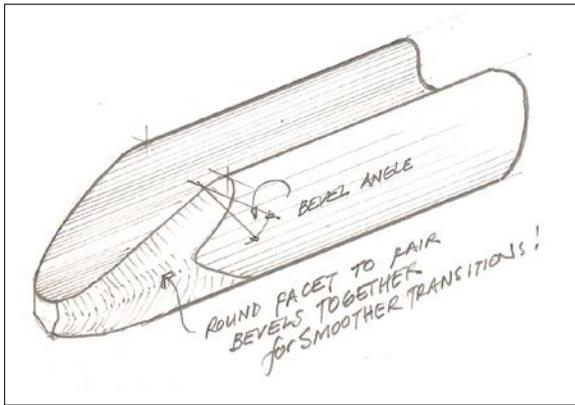
Here's what works for me.

- Modify your gouge. You need to grind over a secondary bevel on the side of a traditional gouge.
- Starting at the tip, grind a 30- to 40-degree bevel the entire length of your cutting edge as shown below. This allows the tool's bevels to instantly contact the wood when you roll the tool into position to cut.



- Start in a scraping position. If you present the tool to the wood at 90 degrees, the two edges are just scraping; this is the safe presentation mode. Start with the flute directly at 9 o'clock inside the vessel. Scrape for just an instant or you will quickly dull the edge.

- Roll the tool by turning it away from you. This immediately puts the cutting edge and bevel in contact with the wood, as shown in “Pull Cut with Modified Gouge.” The cut is instant, but rubbing the bevel helps prevent a catch.
- Back off the tool if the cut becomes too aggressive. By simply rotating the tool back toward a scraping position, you can control the aggressiveness of the cut – or completely stop cutting.



- Give the flute room to direct the shavings. As the tool cuts, shavings will pass down the flute, as shown in the photo. If the opening is small, pull the gouge part way out to allow the shavings to clear. Either method shouldn't require

you to stop that lathe, which is a drawback of other hollowing methods.



Even with hard and dry wood, this pull cut on a hollow vessel works well to remove shavings.

TIPS

It's always best to practice this technique on an open bowl to learn the mechanics of this cut.

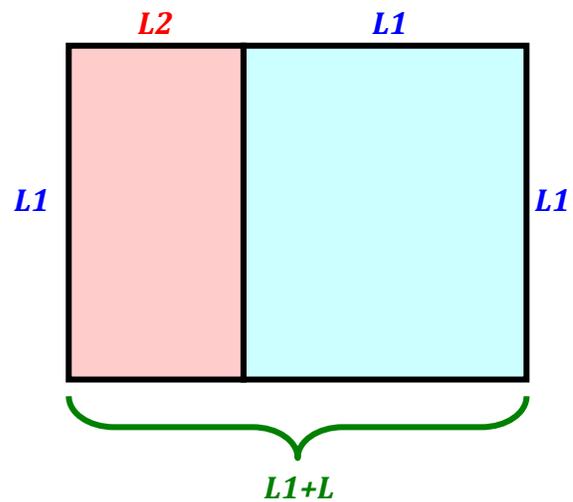
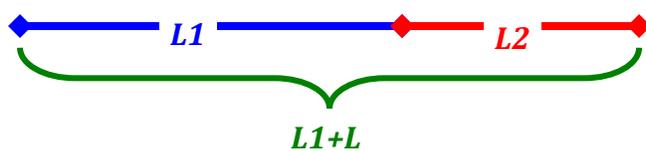
To get a reference of where the flute is and when the tool is in scraping mode, use a felt-tip marker to make a black line up the shank of your gouge and in line with the flute.

~ **Phil Brennon**

WHAT IS THE GOLDEN RATIO?

How the Golden Ratio Can Be Used

The “golden ratio” (also called the “golden mean”) is the relationship between two quantities when the ratio of the larger one to the smaller one is equal to the ratio of the sum of the two to the larger one. Consider two line segments of lengths $L1$ and $L2$, with $L1$ longer than $L2$.



They are in the “golden ratio” if

$$\frac{L1+L2}{L1} = \frac{L1}{L2} \equiv \varphi,$$

where the Greek letter phi (φ) represents the golden ratio. Solving this algebraic equation reveals the value of the golden ratio to be:

$$\varphi = \frac{1+\sqrt{5}}{2} = 1.6180339887\dots$$

A rectangle with long side $L1$ and short side $L2$ is a “golden rectangle” if the ratio of $L1$ to $L2$ is the golden ratio 1.6180339887... An interesting property of a golden rectangle is that if it is placed next to a square with sides $L1$, the resulting larger rectangle is also a golden rectangle. And, if you place a square with sides $L1+L2$ next to this rectangle, the resulting larger rectangle will be another golden rectangle.

In actual practice, it is sometimes more convenient to use the reciprocal of φ , i.e., $1/\varphi = 0.6180339887\dots$. You’ll notice that this is close to $2/3$ (0.666667), which is often suggested to be used because it is much easier to remember and makes for an easy starting point for our shapes. Of course, once we start turning, we adjust the shape of our piece so it is pleasing to our eye, and I venture to say that when we finalize the shape it is probably closer to 0.618 than it is to 0.667.

Another way to look at this is to take a line segment and label its two endpoints A and C. Now put a point B between A and C, so that the ratio of the short part of the segment (AB) to the long part (BC) equals the ratio of the long part (BC) to the entire segment (AC):

$$\frac{AB}{BC} = \frac{BC}{AC}$$

The ratio of the lengths of the two parts of this segment is the Golden Ratio. In an equation, we have

$$\frac{AB}{BC} = \frac{BC}{AC}$$

The Golden Ratio is the ratio of BC to AB. If we set the value of AB to be 1, and use x to represent the length of BC, then

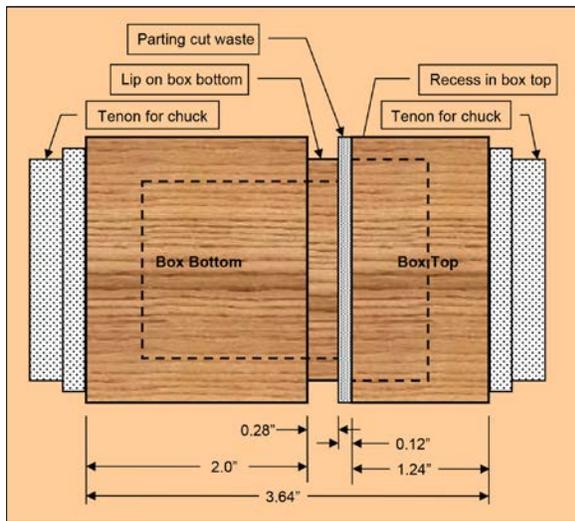
$$\frac{1}{x} = \frac{x}{1+x}$$

If we solve this equation for x, we find that it is $(1 + \sqrt{5})/2$, which is about 1.62.

How the Golden Ratio can be used.

Regardless of whether we are a creative thinker or an analytical thinker, most of us probably don't consciously use the "golden ratio." We just put a piece of wood on the lathe, form a general idea of what we want the finished piece to look like, and start turning. As the shavings fly we continue to refine the shape until it "looks right." If we happen to remove a little more in one area than looks right, we remove some elsewhere to regain the shape that "looks right." Of course, the piece may turn out smaller than we originally intended, but so what. However, when making a piece that has a fixed feature (such as the joint between the lid and the bottom of a lidded box), or when making matching pieces (such as sets of salt and pepper mills, wine glasses, bowls, etc.) we lose some flexibility in refining the shape of the piece. In these cases it may be beneficial to make a dimensioned drawing of the piece, and use the golden ratio to determine relative dimensions and locations of features.

For example, if I want to make a lidded box with the height of the lid and the height of the bottom in the golden ratio, and the bottom taller than the lid, I decide what total box height I want (say 3.24"), and multiple this by 0.6180339887 – all right, I really use 0.618 – to give me the finished height of the bottom of the box (2.0"). I subtract this from the desired total height to give me the finished height of the box lid (1.24"). Then I add the length of the lip on the box bottom (0.28") and the width of the parting tool (0.12") I will use to separate the lid from the bottom to give me the minimum length for the blank (3.64"). Of course the blank needs to be longer than this for the tenons necessary to chuck the parts in the lathe.



Does the golden rule matter?

Consider the two lidded boxes in the figure below. One of them uses the golden ratio to determine the proportions of the bottom height ($L1$) relative to the overall height ($L1+L2$), the lid height ($L2$) relative to the bottom height ($L1$), and the decorative band width (DB) relative to the lid height ($L2$). That is,

$$L1 = \frac{L1 + L2}{1.618}$$

$$L2 = \frac{L1}{1.618}$$

and

$$DB = L2 - \frac{L2}{1.618}$$

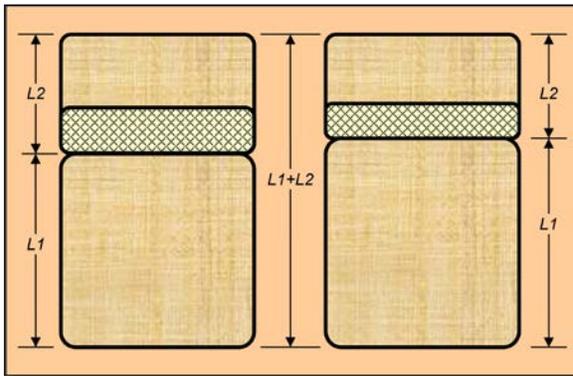
The other uses the 1/3 to 2/3 rule of thumb where the bottom is 2/3 the overall height of the box, the lid is 1/3 the overall height, and the decorative band is 1/3 the height of the lid. That is,

$$\frac{L1}{L1 + L2} = \frac{2}{3} = 0.667$$

$$\frac{L2}{L1 + L2} = \frac{1}{3} = 0.333$$

and

$$\frac{DB}{L2} = \frac{1}{3} = 0.333$$



Which is which, and which looks better to you?

~ **Jim Schoeffel**
 Northwest Woodturners
 Portland, OR
northwestwoodturners.com

Here are the top five reasons you won't want to miss our 2015 symposium!



SYMPOSIUM

TOP 5 REASONS YOU'LL WANT TO ATTEND AAW'S 29TH ANNUAL INTERNATIONAL SYMPOSIUM

PITTSBURGH, PENNSYLVANIA
JUNE 25–28, 2015

- 1

SOMETHING FOR WOODTURNERS OF ALL SKILL LEVELS
 Expert woodturner? Just getting started? Regardless of your skill level or interests, the AAW symposium will offer something for you. You'll be able to select from the broad range of demonstrations and panel discussions to focus on sessions that will enhance your woodturning experience the most. Watch for "Top Picks" from Al Hockenbery and others to help you identify the perfect rotations for your skill level.
- 2

WORLD-CLASS DEMONSTRATIONS
 No other event offers you as many opportunities to learn from the world's best turners. We'll have eleven rotations and sixteen rooms (more than ever before) featuring demonstrations by some of the most talented and inspirational turners around. With 176 sessions to choose from over three and a half days, you'll have more opportunities to observe and interact with top experts than anywhere else.
- 3

THE LARGEST WOODTURNING TRADESHOW ANYWHERE
 You'll be able to examine and purchase the newest woodturning products, visit with tool and lathe manufacturers, peruse a huge selection of turning wood from suppliers, and more in our enormous tradeshow. Enjoy ongoing demonstrations and see tools and machinery up close and in action. There is no substitute for holding tools in your own hands and having experts demonstrate tricks and techniques. Kick some tires.
- 4

EXCELLENT VALUE
 The AAW symposium packs in more high-quality learning opportunities for woodturners than any other event. Sign up early for discounted registration and special hotel group rates. You'll receive a full-color 150+ page handout book loaded with information, techniques, and insights from demonstrators. Plus, the symposium Guidebook app for mobile devices will be available again this year so you can have the rotations, demonstrators, floor plans, and messaging at your fingertips.
- 5

SOCIALIZE WITH LIKE-MINDED PEOPLE
 Step out of your shop and tap into the vast network of the AAW woodturning community. You'll be able to make and renew lasting connections with people who share your passion for woodturning.

SEE YOU IN PITTSBURGH! For more information, visit our symposium page at <http://www.woodturner.org/?page=2015Pittsburgh>

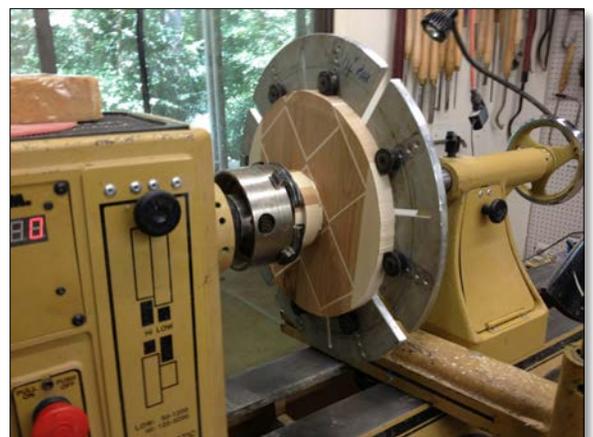
SHOP TIPS

Centering a Bowl on a Vacuum Chuck & Centering a Board for a Bowl



live center and the insert is screwed to the headstock drive. Remove the united piece from the headstock.

4. When you're ready to finish the bottom of the bowl, transfer the chuck with bowl attached, and attach to the live center with the hex nut/insert combination.
5. Attach the vacuum chuck to the headstock.



1. Connect a 3/4" 10 hex nut to the insert that you use for your chuck and lathe, using epoxy. (You will need a live center with a removable cone and hex nut must match the threads on your live center.)
2. Remove the cone point from the live center and any chuck on the lathe.
3. Connect the hex nut and the insert while the hex nut is screwed to the

6. Bring up the tailstock with bowl attached to the vacuum chuck and activate the vacuum.

This hex nut/insert setup also works for centering a "Board for a Bowl," as well.

1. Mount a round "Board for a Bowl" in Oneway jumbo or similar chuck jaws.
2. Attach the chuck to the tailstock using the previously described hex nut/insert combination.
3. Mount a waste board with a tenon onto your chuck in the headstock.
4. Add yellow wood glue to the face of the waste board and bring the tailstock-mounted "Board for a Bowl" up to the waste board to connect the waste board to the Bowl Board. It is now centered and mounted on the chuck in the headstock.

~**Alan Levin**
Atlanta, GA

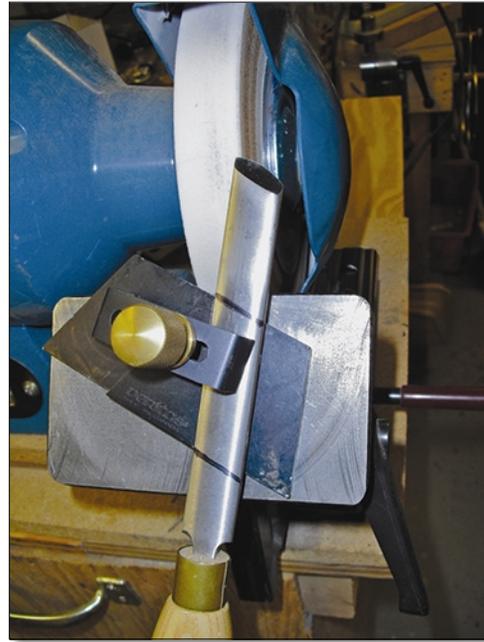
docal1@comcast.net



Shop Tip: Sandpaper Holder

Clothespins epoxied to a board work great for holding strips of sandpaper. Write the grit number on each clothespin to keep the different grits separated and within easy reach.

~ **Pierre Delétraz**
Ancy/Moselle, France



Shop Tip: Sharpening Oval Skew Chisels

Dress your grinding wheel to get it clean and straight across. Mark the bevel of the skew chisel with a black marker so that you can easily see if the entire cutting edge has been sharpened. Use a Veritas grinding jig for skew chisels and attach two small magnets under the oval skew chisel to keep it from rocking side to side. A small mirror can be used to view the bevel from underneath as the edge is being sharpened.

~ **Joe Cavanaugh**
Vienna, VA

WOODTURNING FUN VIDEO

Safety Video



This video clip features Les Casteel explaining a method for safely transporting tools. (TRT 4:42)

Video link: <http://vimeo.com/107388859> (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

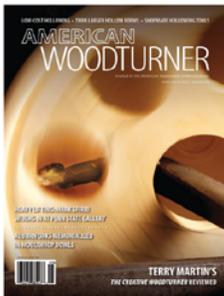
An accident at the lathe can happen with blinding suddenness. Respiratory and other problems can build over years. Take the appropriate precautions when you turn. Among the most important of these is the use of face shields, safety glasses, and dust masks. It is important to observe all manufacturers'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

RENEW YOUR MEMBERSHIP

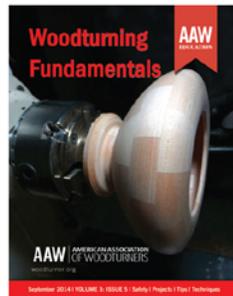
Membership

Turn to the **AAW** for inspiration, education, and information about woodturning tools, techniques, projects, safety, and more.

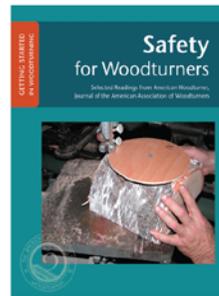
More than \$120 of educational resources included with each \$55 general membership.



American Woodturner journal, six issues annually, each packed with woodturning-related articles, projects, photos, tips, techniques, and news. Plus, a comprehensive library of all past issues dating back to 1986, with a searchable, online index. Newsstand price: **\$53.70**



Woodturning FUNDamentals six digital issues annually, filled with projects, tips, videos, and information on tools and techniques to build basic skills. Non-member price: **\$26.94**



Safety for Woodturners this 64-page digital book will help you build strong skills at the lathe while helping you learn safe woodturning practices. Non-member price for printed book: **\$14.95**



Let's Go for a Spin a digital seven part lesson plan for instructors designed to provide beginning and advanced students with a wellrounded set of turning skills. Non-member price: **\$87.70**



Photo: Andi Wolke

Community

Being part of a dynamic community of more than 15,000 enthusiasts worldwide: **Priceless**

You'll want to join or renew your membership today so that you don't miss a single issue of *American Woodturner* or *Woodturning FUNDamentals*!

MEMBER GALLERY

Ornament Gallery



Frank Lench



Todd Williams



Bernie Hrytzak



Malcolm Tibbetts



Lee Tourtelette



Kevin Barb



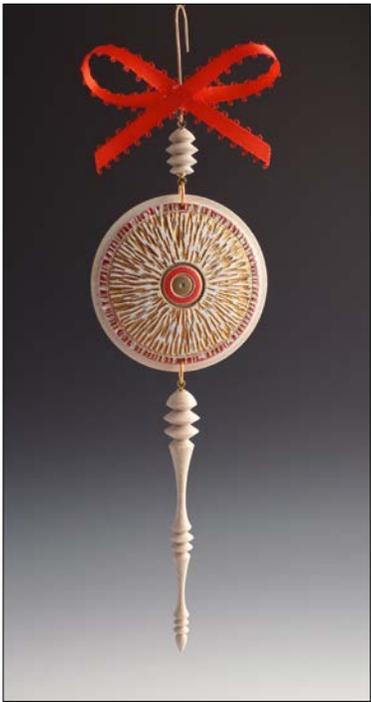
Glenn McCallough



Jerome Ritter



Hal Taylor



Tom Gall



Jim Jacobs



William Lewis



Edward Weber



Greg Just



27th Annual Woodturning Symposium
January 30-31, 2015
Franklin, Tennessee

Marriott Hotel & Convention Center

Featured Demonstrators

- Nick Cook • J. Paul Fennell
- Ashley Harwood • Todd Hoyer
- Dennis Paullus

Other Events

- Instant Gallery • People's Choice Award
- Critique Session • Banquet • Auction

Visit us at tnwoodturners.org

Click this ad for details!

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 November issue of *Woodturning Fundamentals* is October 10, 2014.

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

[Expand your resources!](#)

AAW EDUCATION **Where to turn for Woodturning**

- ✓ **AAW** is the organization with global membership that professionals and hobbyists turn to for inspiration, education and information about woodturning tools, techniques, projects, safety and more.
- ✓ **We're your source for expert, shop-tested materials.** As publisher of the *American Woodturner* journal, we offer practical and reliable educational resources for woodturners written by woodturners. Our books are available individually in soft cover or digital download, and as soft cover sets.
- ✓ **Join the AAW member community** and get six issues of *American Woodturner* annually, free digital downloads of special publications, and access to the largest collection of woodturning information anywhere in the world. What's more, you'll be able to tap into the expertise of more than 15,000 members globally who share your passion for woodturning.

AAW | AMERICAN ASSOCIATION OF WOODTURNERS

Expand your resources. JOIN US.
Woodturner.org or call 651-484-9094