



Meeting Info:

Meeting location:
8361A Dayton Pike
Soddy Daisy, TN
(Horsin' Around)
At 1:00 p.m. Sat.
Sept. 21, 2024

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Sept. Demonstrator

Rick Urban

My name is Rick Urban, and I am a Shaper of Wood. I began doing that regularly with a wood lathe in 2003, experimenting with all manner of tools, techniques, styles, and designs for the next decade and a half. At some point I realized I was spending as much time off the lathe as on the lathe, so I became a wood shaper.

Today I am as likely to find myself in my northwest Georgia shop embellishing the rim of a platter with a rotary carver, burning or branding a design on a closed form, finishing an heirloom salad bowl, adding some color to a pierced sphere, transforming a flaw into a feature, or sharing what I've learned with others through woodturning demonstrations and classes.

In any case, if my work successfully integrates the qualities in nature that resonate in all of us, I am confident you, too, will appreciate the results.

The demonstration on Sat. will be on turning Belted Balls and Hollow Spheres. This demo shows how to create a thin-wall, hollow sphere with a contrasting band near the middle (or not). Easy-to-make templates are used to gage the internal and external profiles.



Tri-State Woodturners
An official AAW chapter



The final sphere profile is turned between centers using cup chucks, also easy-to-make. Gouge grind and presentation are emphasized as well as important tips in the use of the templates to make repeatable successes relatively simple right from the beginning.



August Demonstration



Anne Ogg discussed the art of making miniatures to scale and demonstrated turning a small lidded bowl. She also talked about tools for turn miniatures.



Donation Projects



President, Doug Spohn

TSW CLUB OFFICERS

Doug Spohn President
(423)240-4386 djspohn@epbfi.com

Jerry Schnelzer Vice President
(423)280-9757 Jerry.Schnelzer@gmail.com

John Fortmiller Treasurer
(423)280-5904 Leowen@Epbfi.com

John Dekle Secretary/Newsltr Editor
(423) 364-1268 Turning411@Yahoo.com

Doug Spohn Program Director
(423) 240-4386 djspohn@epbfi.com

Most above officers are official
Tri-state Woodturner Mentors



Don't forget the opportunity to give to others by turning one of the donation projects; Beads of Courage Box, Pens for the Troops or Ornaments.



NEW MEMBER MENTOR: Are you new to wood turning or at least have an interest in it? TSW provides an opportunity for you to learn from other turners who are willing to give you personal instruction and guidance. There is no fee for this instruction for TSW members. Contact one of the listed officers who will guide you to select a helpful mentor for you.

The following sponsors give generously to Tri-State Woodturners and we want to encourage members to support them generously



5824 Brainerd Rd., Chatt. TN 373411 + (423) 710-8001

Ask about their discounts for AAW club members



Treasurer's Report



The Web

Beginning Balance August		2,378.74
Income		35.00
Raffle	35.00	
Expenses		322.00
Rent	72.00	
Demonstrator	250.00	
Ending Balance August		2,091.74
AV special contribution fund		300.00

Thanks to Jennifer Kirby for sharing this web site with me last October on making a ghost which is the Challenge for next month. It's a cute simple idea you may want to try. The size is up to you. Make it as large or small as you like.

<https://youtu.be/wZxnY5paTel?si=fpOVUHllgiote592>



2024 TSW Club Challenges

Each member that brings a "Challenge Piece" and signs it in at the meeting, for the month of the challenge, is entered into a drawing for a gift certificate. You may do what was demonstrated the previous month as well. Doing the challenges provides you with experience in trying something new and will give others ideas of what they can make. If you previously made the challenge, try making another one with some kind of improvement.

If you have questions contact John Dekle at (423)364-1268 or email - Turning411@Yahoo.com

Month	Item
January	Something from scrap wood—8
February	Heart— 5
March	Mug—5
April	Kaleidoscope—6
May	Tippe Top—5
June	Useful homemade Jig—4
July	Wig/Hat Stand—4
August	Flashlight—2
September	Natural edge Goblet -
October	Ghost -
November	Ice Pick -



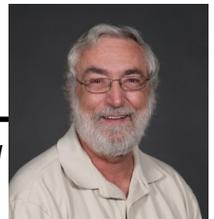


Safety Tips

Do you have a first aid kit available in your work space? When an accident happens you often do not have time to go look for supplies somewhere else. You don't need a lot of supplies but a few things in case of an emergency would be helpful to have available in you shop.



Updates



I want to thank everyone for their prayers and cards, they were greatly appreciated. I know a number of you have been asking Tim how I'm doing so I thought I'd give a quick update. I am well on the road to getting my MG stabilized. In the last week or so I have begun being able to eat some things again. First time since June I've been able to have anything by mouth, except small sips of water. I am hopeful I will be able to make the November meeting. Hope to see you all then.
 Allen Quandee

Christmas Ornaments — Special Sawdust Session

If you are interested in learning how to turn a Christmas Ornament Doug will be available at our regular meeting place with supplies to help you turn one but you **MUST** call him **by Wednesday September 18** at 423-240-4386 so he can secure the needed materials. This turning session will be on Sat. Sept. 21 prior to our meeting, starting at 9:00 a.m.

Tools, lathes and materials for the ornaments will be available but you may bring your own tools if you wish.

Move Coming Up

Horsin' Around is planning to make some changes which will mean Tri-state Woodturners will need to look for a new location for our meetings. This will be discussed at the Sept. meeting but we wanted to let you know so you can be looking into the potential of a new meeting location. We will need room for meetings and storage space. If you have suggestions please pass them along to Doug Spohn (423) 240-4386.

Show and Tell



All items on this page turned by John Dekle



Show and Tell



Jerry Schnelzer made the needle threader
Dieter Kuberg created the items below ↓



Charles Jennings made the items
on the right side of this page ↓



Show and Tell



Top 3 items created by Michael Anderson

Pens by Seth Eichenberger ↓



Tim Mehling turned the ↓ Hollow Form and the Winged Box ↓



Show and Tell



↑ 4 Bowls and Pens for the Troops all created by Les Isbell ↑

All the items below ↓ were made by Suzanne Ruckmen



Show and Tell



This is the Schaffer page—top items made by Eric

The items below were made by Kennie



Notes from Demonstrator

Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

Primary Audience: Intermediate.

Time: 1.5 to 2 hours.

Prerequisites: None. Some turning helpful.

Objective.

The objective of this demo is to show you how to turn a thin wall hollow sphere using a template. The template method is easy to use, and success is not difficult when following two key guidelines. If making a *Belted Ball* refer to variations described later in this document.

Introduction.

Have you noticed? Many of the woodturning YouTube videos leave you in the dark about *how* to do what you just saw? This demo is *different!*

Sure, I'll show you how I do it, but what I really want to do is to help you learn how *you* can do it. There are several important tips to note along the way that will go far toward success the first time you try it and every time thereafter. Look for these points as we go through the process and be sure to ask questions if you don't understand (or if I forget to mention them).

Let's start with blank selection. In the beginning I had always chucked up a spindle (end grain) blank and waded in because that was how I had always done this kind of stuff. At some point between then and now, for reasons lost to an aging memory, I began rethinking the process. Here are two reasons to start with a face grain blank.



1. Face grain glue joints are much stronger than end grain joints. In a thin wall sphere, there is not much surface area in the glue joint, and there may be considerable stress on that joint in the turning process. I have had them fail.
2. The glue joint is virtually impossible to hide when it cuts straight across grain lines, but it may come close to disappearing when closely aligned with the figure.

A thin wall wooden ball is just two concentric spheres: one of air and one of wood. Here are two points to remember to solve the concentricity problem when turning the outside wooden sphere and you cannot *see* the inside sphere of air.

1. Pay close attention to the diameter guideline on the inside circumference template. It will help you place exactly half of the inside sphere on each side of the glue joint.

Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

2. Pay close attention to the perpendicular guideline on the outside circumference template. It will help you place the outside sphere concentrically around the inside sphere.

Still *honing* your skills? Having trouble making things concentric? Give yourself some wiggle room. Do a few with a thicker wall and sneak up on your goal.

Enough of the introduction. If time permits, we'll make a template and fixtures to hold the sphere.

Start with the blank.

About 5/8" longer than wide for tenons e.g. 3 1/4" x 3 7/8" for a 3" sphere.

Option: Cut in half on band saw (while rectangular) instead of parting on the lathe for better grain matching. If the ends and center cut are not perfectly parallel the halves can slip out of alignment. Taping the joint may help the figure remain aligned, at least while tenons are cut.

- Consider grain orientation.
 - Glue joint strength.
 - Figure matching.
 - Laminations.
 - Desired final product.

Make a cylinder (or more cylindrical) between centers.

- A live center with point & cup in tailstock makes alignment during remounting easier in final steps.
- Mark center and left and right side limits. Include loss to parting kerf.

Make short (1/4") tenons to reduce mass to be removed later.

Reduce to desired outside diameter plus a little. (1/8")

Reverse mount in chuck so point & cup center marks both ends.

Part (if not cut with band saw).

Hollow chucked half.

- **This is a good place to take your time!**
- Refine face for glue joint.
 - Flat for maximum glue surface.
 - No groove on the outside.
- Define approximate inside diameter limit.
 - Make several concentric circles with a pencil.



Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

- Be aware of grain orientation, but *uphill / downhill* is not so important on the inside of a hollow sphere.
- **Turn the lathe off to measure the inside!**
- Where the template wiggles tells you where you need to cut.

Trap!

Measure the inside with the template where the nub would be but with **NO NUB!**

Chuck 2nd half and hollow.

Remember! Inside and outside spheres need to be concentric and balanced between the halves.

Glue.

- Dry align figure with point centers and mark for ease of alignment with glue. White glue is ok in many cases. I prefer to use yellow wood glue (Titebond). I may use CA glue during a demo in order to continue with the same blank.
- Apply glue, align, & apply pressure with the tailstock.
- Remove from lathe after 5 minutes but maintain pressure for curing.
- Mark the I.D. on the outside.
- Allow overnight to cure.
- Continuing before the glue is cured results in a higher glue joint failure rate.

Tip.

Rate of tool handle angle movement for hollowing a spherical profile is constant throughout the cut. This is different from many bowl forms where the curve changes slowly down the side, speeds up rapidly around the transition area, and slows down again toward the bottom.

Now that we're finished with the easy part, let's...

Shape the middle of the outside of the sphere.

- **This is a another good place to take your time!**
- Mark sphere limit near tenons to define the target.
- Be aware of grain orientation for proper tool use (when you can).
- **The middle needs to be nearly perfect so it will self center properly in the next step.**
- Use quarter circle template. (Semicircle won't fit.)
 - Imperfections here will compound problems completing a perfect sphere.
 - The centerline of the outside template must align with the glue joint and be perpendicular to the axis of rotation.

Tip.

Many will tend to bevel from somewhere near the glue joint to the center of rotation. Think about entering a parking space in a crowded parking lot.

Remount between cup chuck fixtures.

I used to half turn the sphere, rotate it 90 degrees between centers, and use a parting tool to create a groove, *witness line*, to guide completion of the sphere. (See *Witness Line Method* near the end of this document.) I now prefer to simply use the *ghost* of the half-completed sphere to guide completion.



Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

Ghost method.

- Cup chucks.
 - Use care when tightening the cup chucks. Too much pressure may fail the glue joint.
 - Padding that is too thick will interfere with self-centering.
 - The radius of the cup chuck must be equal to or less than the radius of the sphere.
- **A sharp gouge, patience, and a little extra finesse pay dividends here!**
- Placing a contrasting (dark or light) piece of material behind your view enhances visibility of the *ghost* of the half-turned sphere.
- Cut the remaining rotating ends to match the ghost sphere.
- Periodically check that you are cutting the sphere evenly.

Rotate and remount between fixtures as needed to sand.

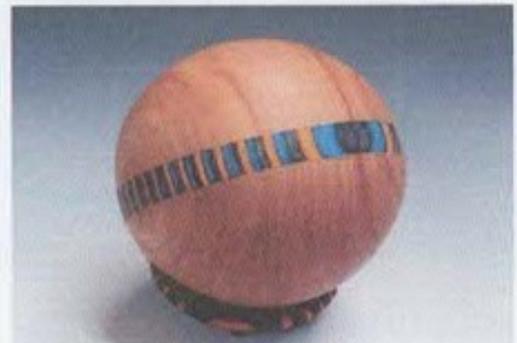
Here's a suggestion to facilitate sanding coverage.

- Find a *directional feature* on the surface of the sphere.
- Sand.
- Rotate the *directional feature* 90 degrees about the *directional feature*.
- Sand.
- Rotate the *directional feature* 90 degrees to place the *directional feature* on the axis of rotation.

Remove and marvel at what you've accomplished!

Belted Ball Option.

- Allow for the thickness of the *belt* when sizing the blank, measuring for parting, and making the inside sphere congruent with the outside sphere.
- I make the *belt* part of one hemisphere which places it slightly off center.
- After beginning to hollow one hemisphere, glue the *belt* in place after making clean surfaces for gluing.
- Use a gouge to make a tenon / foot for the stand from the center of the *belt*.
- Use a parting tool to cut the center from the *belt*.
- Hollow the hemisphere with the *belt* keeping in mind the planned position of the *belt*.
- After the sphere is complete, turn the face of the stand to cradle the sphere.

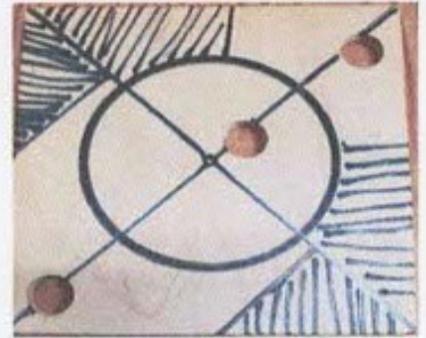


Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

Making a template.

- Refer to the illustration.
- Use 1/4" plywood or similar material.
- Holes are for hanging together on a peg.
- Mount on the lathe with a supporting plate.
- Use a point live center.
- Use a parting tool to cut the inside template.
- The parting tool gap will be the wall thickness.
- Cut a full semicircle template from the outside part.
 - The inside template must include the line through the center.
- Sand the semicircle edges.
- The outside templates (half circle and quarter circle) must have the perpendicular centerlines.
- The inside template must have the diameter line.
- Cut away the waste (shaded areas).



Reference lines are important for making exterior and interior spheres concentric !

Witness line method.

- Plain spindle or chuck jaws and cup live center with pads may be used.
- Padded cup fixtures are helpful, but very thick pads (like from a mouse pad) can interfere with centering.
- Glue joint in line with axis of rotation vertically and horizontally.
- Original axis spinning perpendicular. (Center point marks spin in line.)
- Mark the line of rotation to be able to see where to place the parting tool.
- Use a parting tool to gently and check orientation of center points.
- Continue until the witness line approaches the glue joint.
- Check for even cutting on both sides.
- Remount between centers and continue shaping to the baseline.
- Rotate and remount to remove the remaining nubs.

Let's talk about gouge grind angle.

- When hollowing a hemisphere...
 - The bottom is perpendicular to the axis of rotation.
 - The mouth (where the glue joint will be) is parallel.
 - When the cutting tip of the gouge is on the bottom (dead center) and the shaft touches the side of the mouth, it is at an angle just over 45°.
 - Therefore, the bevel will stop guiding your cut before you get to the bottom if your gouge is not ground above 45°. I typically use 60° in these situations.

Frequently Asked Questions (FAQ).

Q: What gouge and grind do you use to hollow a sphere?

Have a Ball! Turn a [thin wall hollow] Sphere.

Handout

A: (short version) The angle between the side and bottom of a hemisphere is 45 degrees relative to the axis of rotation. Therefore, the bevel angle of the gouge must be greater than 45 degrees to reach the bottom while guiding (rubbing) on the bevel before the shaft contacts the side. I use about 60 degrees.

A: (long version) In my early days of doing these spheres I had quite a sore left index finger knuckle. When I finally grew weary of the pain, I analyzed the problem and realized I was using too acute an angle on my bowl gouge. In hollowing a perfect hemisphere, when your gouge touches the side (mouth) it's cutting tip meets the center of the bottom (end of the cut) at *something more than 45 degrees* considering the thickness of the gouge itself. That means you cannot *ride the bevel* throughout the cut if your grind angle is 45 degrees or less. At some point you will lose the control the bevel provides. If that includes whizzing through the bottom, into the up-going far side of the sphere, it will take the tip of the gouge up, over the top, and down again to the tool rest. Ouch! Sore knuckle! To be able to ride the bevel to the end of the cut, it must be more than 45 degrees. I typically use 60-65 degrees. Of course, if your gouge is not sharp, you may be pushing too hard, and it may happen anyway, but that's another problem. Why not just hollow in the reverse direction or use a scraper? Those are both viable options, but they're not the usual way I do it.

Q: What kind of glue do you use?

A: I typically use yellow wood glue (like Titebond I) for a permanent bond. For demos I may use thick CA glue so we can proceed with the demo using the same blank.

Q: Do you use dry or wet (green) wood?

A: It's important to me to use dry wood because movement from the drying process could put a lot of stress on a very thin glue joint.

Q: Do you use the same size blank for a belted ball as for a regular hollow sphere?

A: I generally do use the same size blank, but that introduces extra wood that must be removed after the hollow hemispheres are glued together. If I am cutting blanks that I know will be used for "Belted Balls" I will allow for the extra mass of the "belt," and cut them appropriately shorter.

Q: Does it matter if you turn the sphere with end grain or face grain orientation?

A: It can be an important consideration for several reasons. First, end grain glue joints are not as strong as face grain, and the glue joint surfaces are typically very thin. Second, a glue joint directly across the wood fibers (grain) is virtually impossible to hide. Third, any figure alignment you wish to do is often easier if the glue joint runs with the grain.

References.

- Christian Delhon - Spherical Box – AW2004p44-49.pdf
- Frederick C Hill - Spherical Thinking – AW2504p29-32.pdf