South Plains Woodturner's mission is to foster a wide understanding and appreciation of wood lathe-turning as a practical craft and art form by attracting new members, developing woodturning skills of all members and sharing that knowledge with the community while emphasizing an appreciation of natural resources.

Woodturning Safety 101

Woodturning is a fun and exciting hobby for people of all ages and skill levels. The number of things you can create on your lathe with a minimal amount of time and money is limited only to your imagination. When woodturning, there are a number of safety considerations that must be kept in mind so that you can have a great time turning while being safe. Woodturning Safety 101 is intended to create safety awareness so as to prevent personal injury. We hope you will find this information helpful and that you will review it from time to time. Feel free to share this information with other woodturners you know.

Personal Safety...

1. Educate yourself on proper turning techniques, chuck operation, tool use and lathe operation.
2. Always wear a full-face shield at all times. Safety glasses are not sufficient protection against flying debris.
3. Always use a dust mask or air filtration system.
4. Wear adequate hearing protection.
5. Don't wear loose clothing, gloves or jewelry as they may become tangled with the lathe.
6. Never start the lathe before checking to make sure the spindle speed is correct for the size of work being turned. Also, make sure the work clears the tool rest by rotating the hand wheel before starting the lathe.
7. Be sure the work piece is securely mounted and is free of imperfections or poor glue joints.
8. Make sure all belt guards and covers are in place before starting the lathe.
9. Make sure the tool is on the tool rest before making a cut.
10. Always know your capabilities and work within your limits.
11. Utilize the tailstock whenever possible.
12. Always remove the tool rest support before sanding and finishing. This will help prevent injuries to your hands and fingers.
13. Do Not Overreach! Although many of today's tools have long blades, this does not mean they are designed to reach long distances over the tool rest.
14. Keep your tools sharp and properly ground. Dull tools are dangerous, as they require excessive pressure to make them cut.
15. Do not use tools for purposes they are not intended for.
16. Properly dispose of rags and do not leave finish containers open.
17. Never leave the lathe running unattended.
18. Stay alert, take frequent breaks and never operate the lathe while under the influence of drugs or alcohol.
19. Use common sense at all times. If unsure at any time, seek the advice of a woodturning expert or call us at 1-800-551-8876. We are here to help you at all times.

Notes:

What's that called?

Lathe Parts and Accessories

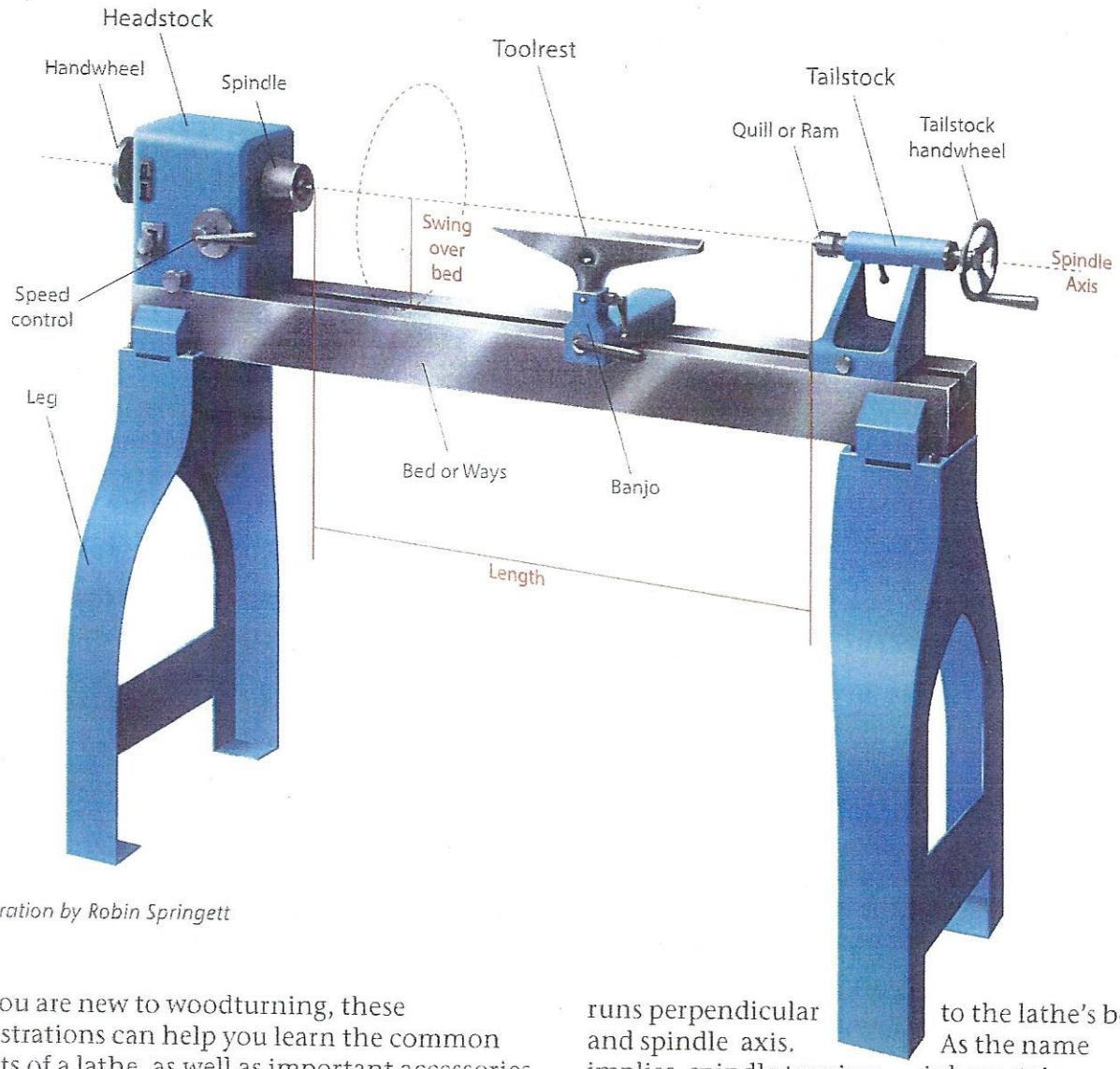


Illustration by Robin Springett

If you are new to woodturning, these illustrations can help you learn the common parts of a lathe, as well as important accessories specific to **spindle** and **faceplate** turning.

The terms spindle turning and faceplate turning refer to the orientation of the wood grain relative to the **axis** of the lathe. Spindle orientation means the wood grain runs parallel to the lathe's **bed,** or **ways,** and spindle axis. Faceplate orientation means the wood grain runs perpendicular to the lathe's bed and spindle axis. As the name implies, spindle turning is how stair balusters, chair parts, and other furniture parts are made. Bowls and platters are generally turned in faceplate orientation.

Wood can be mounted in both grain orientations using the same methods and accessories.

Lathe parts

Lathes from various manufacturers differ in some ways, such as motor systems, speed adjustments, size, and other features. But the basic premise and major components are common to all of them.

The **headstock** is the drive end of the lathe, and the **tailstock** supports the workpiece at the other end. The **banjo**, which holds the **toolrest**, slides along the ways and locks into position. The position of the toolrest can be adjusted up and down or rotated at any angle to the workpiece.

You can determine the size (or capacity) of a lathe by knowing some key dimensions. The **swing** (or swing over bed) refers to the maximum diameter workpiece that can be turned on that machine. Doubling the measurement from bed to spindle will give you the swing. **Length** refers to the maximum distance between points in the headstock and tailstock, the longest piece you can turn between centers.

Some lathes allow for outboard turning, with the workpiece mounted on the outside (**handwheel** end) of the headstock. This allows larger diameter pieces to be turned, since the limitation of swing over bed does not apply; lathes that don't allow the toolrest to swing outboard will need a floor stand for the tool rest. While workpiece diameter can be larger with outboard mounting, it should not exceed the lathe's ability to handle the extra mass.

Spindle and accessories

The **spindle** is located in the headstock and varies in size, depending on the model. The lathe **motor** drives (or turns) the spindle, typically via belts on pulleys. Spindle speed (rpm) may be controlled by mechanical pulley changes or by electronic controls. Most lathes have a spindle lock to prevent rotation while you mount wood or accessories. "Forward" means the top of the spinning wood comes toward the operator (counter-clockwise when viewed from the tailstock). Most modern lathes (but few older designs) can switch to "Reverse" for sanding and finishing.

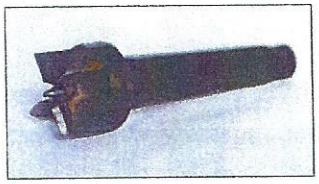
The spindle has a female Morse taper on the inside and male threads on the outside. These two features, which vary in size by make and model, allow you to mount accessories and turn wood. If a lathe spindle is noted as 1" x 8 tpi (or 1x8), that means its diameter is 1" and it has eight threads per inch. Any screw-on or Morse taper accessories will have to be compatible with this sizing.

Drive centers

Drive centers commonly have a male **Morse taper** that fits the opening in the headstock spindle, but some varieties are made to be mounted in a **four-jaw scroll chuck**. The Morse taper or chuck keeps the drive center firmly in place, along with workpiece pressure applied from the tailstock. The motor drives the spindle, which rotates the drive center, which turns the wood.

Four-prong drive center (spur drive)

Versatile drive providing positive grip in the wood; use with dry or wet wood, for turning spindles and roughing bowls and vessels.

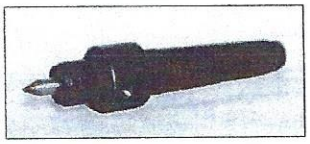


Steb center

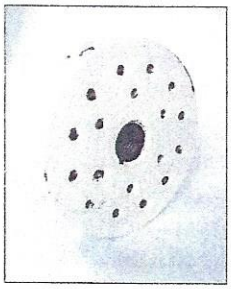
Characterized by its teeth, which bite into the wood; use with dry wood, turning spindles.

Safety center/dead center

Also called a cup (or ring) center; use with dry wood, turning spindles. Bite in wood is determined by tailstock pressure—lighter pressure between centers allows the wood to stop turning in the event of a catch.

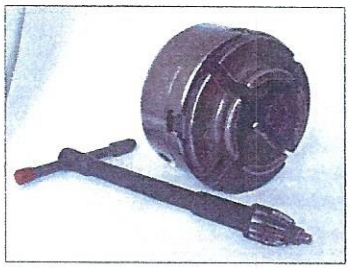


Faceplate



Faceplates have female threads so they can be screwed onto the male threads of the spindle. Holes in the surface of the faceplate allow you to screw the wood to the faceplate from the back. Faceplates come in a variety of sizes to accommodate larger or smaller workpieces; they are mostly used to mount bowls and platters in transverse, or "faceplate," orientation, and also for purpose-made chucks and jigs.

Scroll chuck



Four-jaw chucks have female threads so they can be screwed onto the threads on the spindle. When you tighten a four-jaw chuck using its key, its jaws close concentrically, so you can grip a round tenon (or spigot) as a way of mounting wood. When you loosen a four-jaw chuck, the jaws expand concentrically, so you can open the jaws into a recess in the wood as an alternate way of mounting wood. Most scroll chucks have interchangeable jaw sets for increasing their size range. Some chucks have interchangeable inserts to fit different lathes.

Scroll chuck with woodworm screw

Most scroll chucks are designed to grip a woodworm screw. A hole drilled in the turning blank can be threaded onto the screw to mount the wood on the lathe. Especially useful for roughing bowls in green or dry wood.

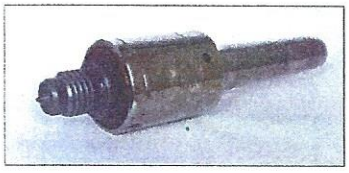
Tailstock and accessories

The **tailstock** slides and locks along the bed to suit the workpiece; for safety, it should be engaged whenever possible. The **handwheel** moves the **quill** (or ram) over a range of several inches and also locks in place, to adjust the holding pressure on the workpiece. The quill has a female Morse taper into which tailstock accessories, notably chucks for drill bits, can be inserted and held.

Revolving live center

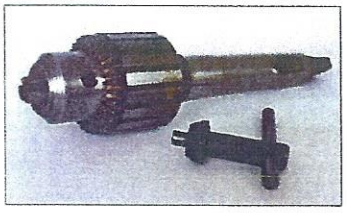
In the early days of modern turning, a dead center (or cup or ring center) was used in the tailstock. Since it does not rotate, wax had to be applied to lubricate the spinning wood. This tailstock accessory has been supplanted by the revolving live center, which spins freely on steel bearings; some models have interchangeable points in various styles and sizes. Today the tailstock dead center is obsolete, but it is still used in the headstock as a safety drive.

Revolving live center with ring and point



Revolving live center (or cone center)

Drill chuck



A drill chuck (sometimes referred to by the brand name Jacobs chuck) is the same type of chuck you'll find on any drill press. Mounted in the tailstock of a lathe, it holds drill bits horizontally for boring into wood that is mounted on the headstock. The wood rotates while the drill bit, which does not rotate, is advanced by the tailstock handwheel. Some chucks tighten with a key, while others tighten by twisting a ring. ❐

STUDENT PROJECT

AAW EDUCATION

Honey Dipper

This is a fun, simple spindle-turning project that teaches several basic skills while producing an attractive and useful gift.

NOTE: These instructions assume you have a coach or are already skilled in basic turning. If you are new at turning and on your own, there is a more detailed instruction sheet available.

Be safe.
Have fun.
Stay sharp.
A-B-C.

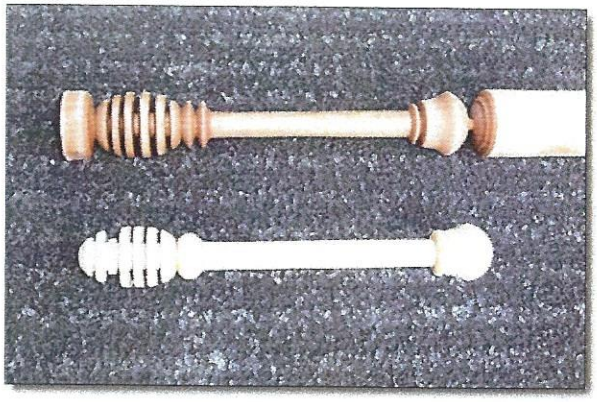
Materials Needed

- A turning blank about 1"x 1" and 6 ½"-7" long
- I like fruitwood (apple, plum, cherry) because it has a terrific natural, rustic look and seems an appropriate fit with honey. Fruitwood also splits so readily it is hard to get bowl and box blanks out of it, so this makes good use of the wood.

Note: If cured fruitwood is not readily available, hard maple, even uncured, is acceptable wood to turn honey dippers and are more widely available.

Tools/Supplies

- Safety equipment
- Pencil
- Ruler
- Sharpening equipment
- Spindle roughing gouge
- 3/8" +/- roughing gouge OR ¾" or larger skew chisel
- 1/6" parting tool
- Sandpaper (120, 180, 240, 320 grits
- Finished Honey Dippers
- Oil finish



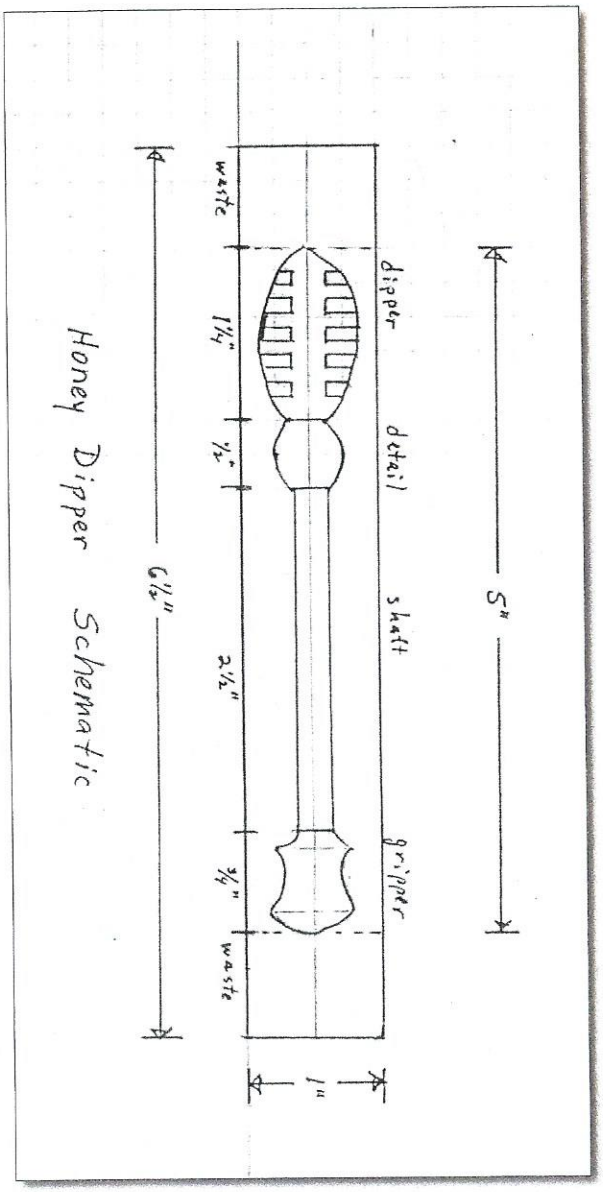
Instructions

1. Mount the blank between centers.

2. Rough turn into a cylinder with the roughing gouge, then smooth the surface with a shearing cut with the skew or spindle gouge. (Tip: Leave ½" at the headstock end unturned as the blank starts out just about the minimum diameter for the usual drive center.)

3. With the lathe off, choose the best 5" section of the blank, leaving adequate waste at the ends, and mark off the sections of the dipper. Mark 1 ¼" from whichever end you like for the dipper end, mark off the next ½" for a little detail work, and mark the ¾" at the opposite end for the gripping part of the dipper (see schematic). I like to cut a narrow V groove at each pencil mark with the long point of the skew so the marks last longer as I work. While you're at it, cut a little off the inner edges of the waste with some V cuts to give yourself some elbow room.

There are many ways to proceed from here, but I will present the steps in the order I prefer to do them. You can change the order, but they all will need to be done.

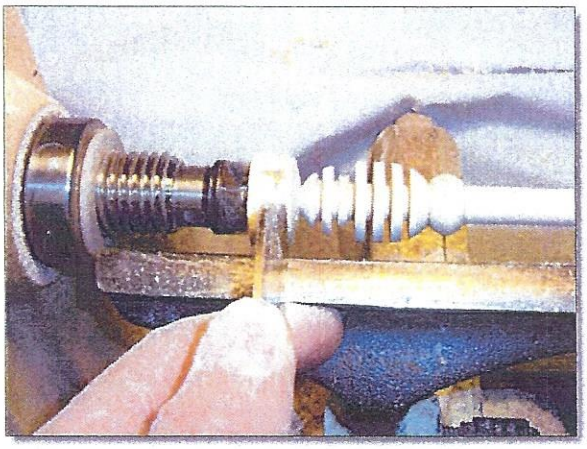


4. I generally decrease the diameter of the long middle section and the ½" and ¾" section to emphasize what I'm going to do with each part and suggest the final shape of the dipper. The ½" and ¾" long sections I make about 5/8"-3/4" diameter at this point and the long center section about ½"-5/8" (Tip: Don't make the long section too skinny or the wood will flex while you do the other steps.).

5. At the 1 ¼" section at one end, use the skew or spindle gouge to round the ends of the section. Your goal is a rugby football shape (or a solid ellipse if you remember sophomore geometry). You are rolling a very long bead.

6. At the adjacent ½" section, use the skew or spindle gouge to make whatever shape or detail suits your fancy.

7. At the ¾" section at the opposite end make a shape or detail work that pleases you, keeping in mind that this will be the grasped end of the dipper. (Tip: Don't cut the waste too thin here, yet.)

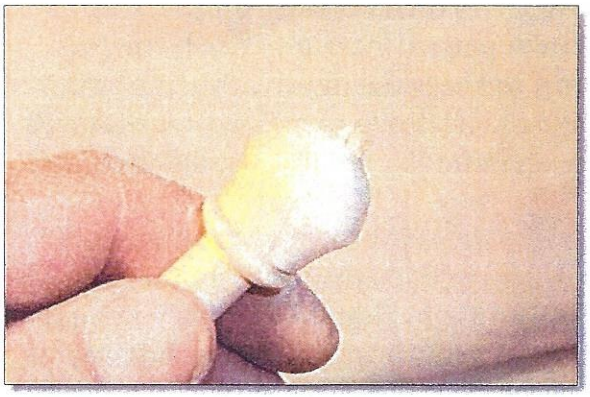


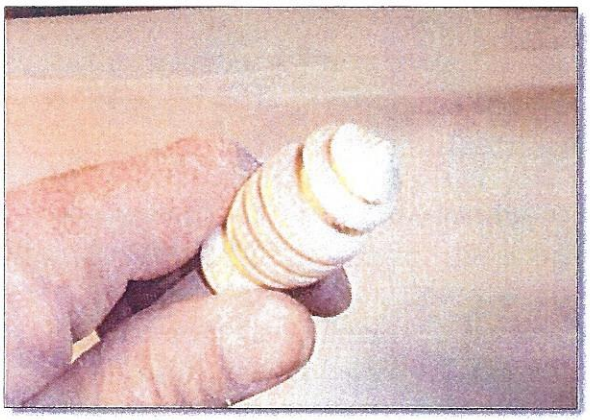
8. Returning to the rugby football section, use the 1/16" parting tool to cut the football into segments, like ribs. I think it looks best if the ribs are all the same width and narrower looks better than wider. It takes a lot of practice to judge the spacing of the cuts and have them come out looking the way you want. You might want to mark them off the first few times you do this part, or just wing it and have an excuse to turn another dipper. Cut down perpendicular to the lathe axis and to the same depth at each point. I like to cut down to a diameter that will be the same as what I'll make the shaft.

9. Use the skew or spindle gouge in a shearing cut to thin the long section to the diameter that looks good to you. I like to make it in a consistent diameter, which is challenging at first. You may prefer it tapered or shaped in some way. It's up to you what diameter to make, but I generally find ¼"-5/16" to be most pleasing.

10. Adjust your lathe to a slow speed, and sand, starting with 10-100 grit and going up stepwise to 320. If you've done a nice shearing cut, you may be able to start with a finer grit. Take care not to soften or round the sharp details you've made. (Tip: in between grits, turn off the lathe and gently sand the long section lengthwise to more effectively remove sanding marks.)

11. After sanding, wipe off your work with a paper towel moistened with alcohol or mineral spirits. Then apply your finish of choice. I like a "drying oil" for dippers (tung or walnut oil). Make sure you get finish in between the ribs at the honey end of the dipper, and also that you remove any excess as well.





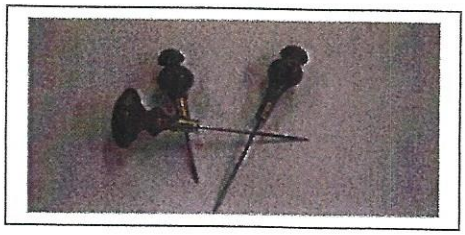
12. As the first step in parting off, I like to thin down the tailstock waste material to 1/8" or so, since I always do my final cut at the headstock end. When the tailstock end is thinned out, do the same on the waste at the headstock end, continuing to cut until the dipper is parted off. Make sure you leave a little nub on the end of the dipper, so you don't flatten the nicely rounded end you worked so hard to make.

13. Cut off the waste at the tailstock end and sand off the nubs at both ends with coarse sandpaper. Twisting the tailstock waste off tends to leave a hole in the end of the dipper. (Tip: put a piece of sandpaper in your palm and rotate the end of the dipper against it to produce a nicely rounded end.) Once the nubs are gone, move up through the sandpaper grits to 320 grit.

14. Apply some of the finish to the ends, as you did before. You may want to apply another coat of oil finish in 4 to 24 hours. The oil finish needs a week or so to cure prior to the dipper being used. If you used something other than oil finish, you will need to follow your preferred practice on recoating and time to cure.

If this is your first project, congratulations - you're a woodturner! (And there is no escape.)

Scratch Awls
With Bob Herman,

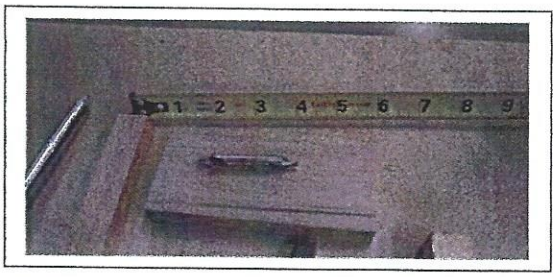


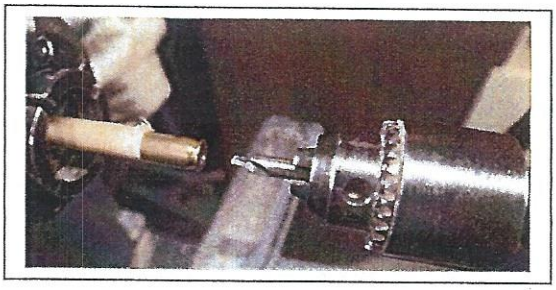
Scratch awls can be used in the Studio or Shop for a multitude of jobs that can make your work easier. The awl consists of only 3 simple parts the shaft, ferrule, and handle.

The shaft can be made out of drill rod, that can be sharpened and the point hardened, or you can use music wire that is already hardened. I generally use 1/8 in oil hardening drill rod. The ferrule is a handgun 45 caliper case and wood of your choice.

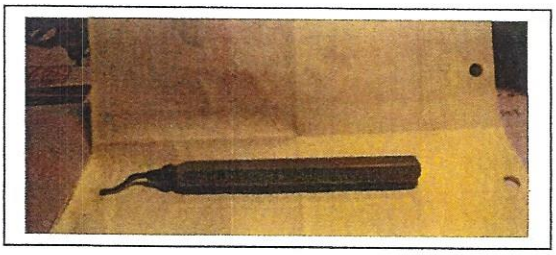
Start your scratch awl by doing the ferrule first, so that you can complete the following steps without extra tool changes.

With a small pin punch knockout the primer from the inside. Select a short length of ½ inch dowel rod and install that in your 4 jaw chuck. It will not fit real good with the inside part of the jaws but will work. Make sure that it is turning as true as possible. You will now carefully remove a small amount of the dowel long enough for the ferrule to slip all the way on, without any wobble.
Next I drill out the hole in the ferrule with a small, **drill countersink bi**t photos below. Using this drill bit I am assured that the hole will be centered. The bit I am using here has a 1/8 inch point and the rest of the drill is about 3/8 inch diameter. It is generally used in the metal working trade to drill accurate holes for centering in the tailstock of lathes.



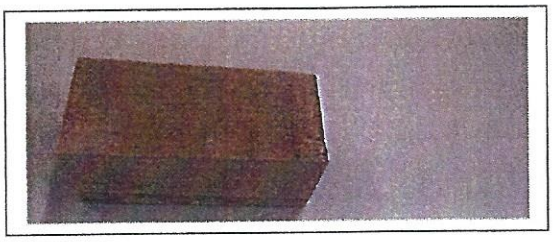


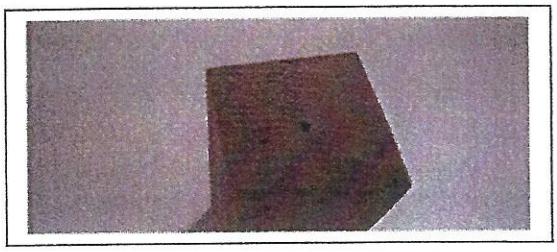
Next replace your 60 degree tailstock center and bring it up gently to the ferrule. With a turning tool cut about ¼ inch off the open end of the ferrule. I use a 1/4 inch spear point tool holding the cutter just below the centerline. Photo below left



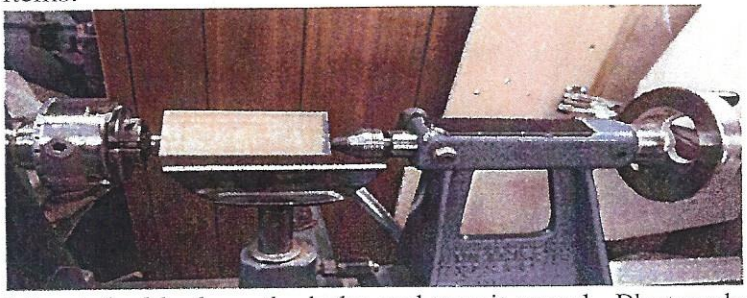
Remove ferrule from the dowel rod and clean off the burr that was made when cutting it to length. My preferred way to accomplish this is with a toolmakers deburring tool, photo above right.

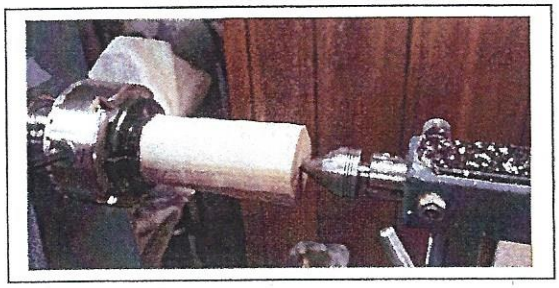
To start the handle select a nice piece of close grained hardwood. I like to use walnut, Texas ebony, cherry, and mesquite. The blank should be 2" x 2" x 4 to 5 inches in length. Photo below left





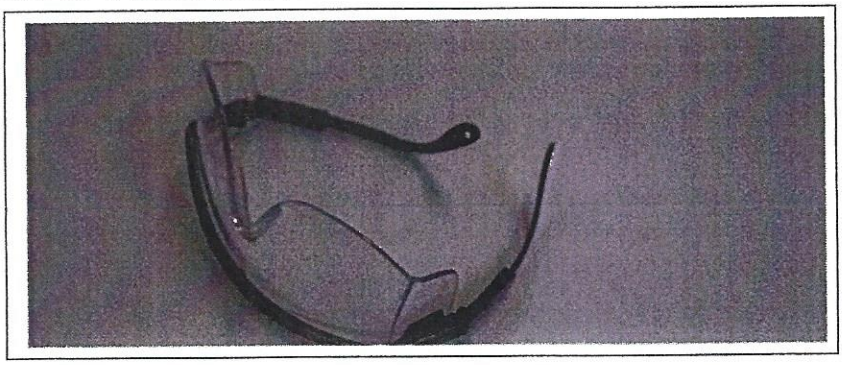
Mark the ends for center and use a center punch to establish the points for centering on the lathe. Photo above right.
I use a Stebdrive in my 4 jaw chuck, so that I do not have to take the chuck on and off when doing multiple items.



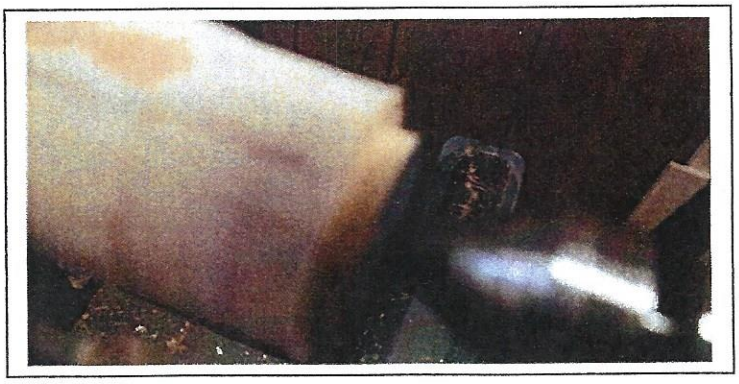


Mount the blank on the lathe and turn it round. Photos above

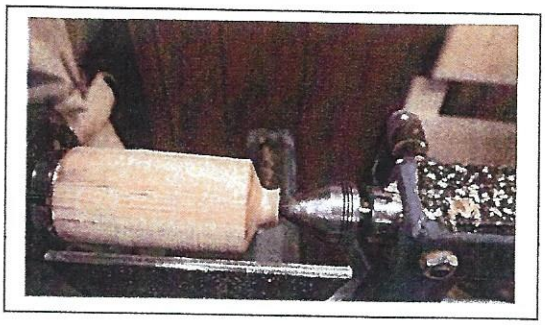
Don't forget your eye protection. Eye protection is very important and it doesn't matter how it looks on you BUT IT WILL INHANCE WHAT IS IMPORTANT "THAT YOU CAN STILL LOOK."

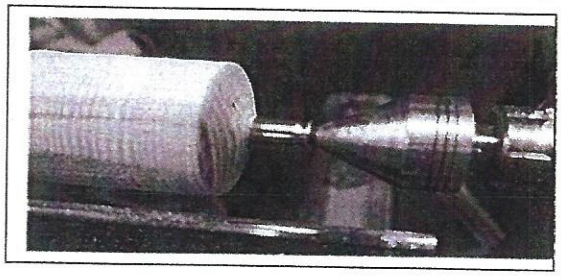


Cut a tenon on the tailstock end to fit in your 4 jaw chuck. Remember to turn the tenon to the smallest size the can be held in the chuck securely. 4 jaw chucks have the greatest holding strength when the jaws are almost at their smallest position. I make mine about 1 ½ inches this gives me a little room to work with it. Photo below.

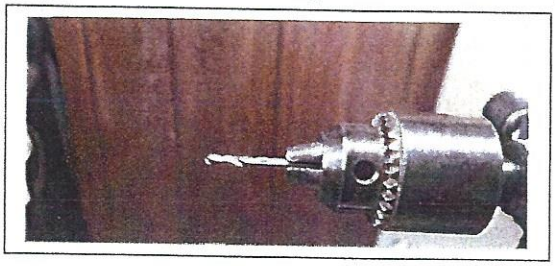


After turning the tenon, remove the blank turn it end for end and reinstall with the tenon in your 4 jaw chuck. Turn the blank down to just over ½ inch diameter and length. Use the ferrule for final diameter and length of the tenon. The end of the tenon must be tapered at about a 45 degree angle to fit the ferrule. Finish the tenon so that the ferrule fits snuggly on the tenon. Next slide the ferrule in place and drill the hole for the shaft. Drilling about 1 to1 ¼ inch deep is sufficient. After the handle is completed it will be epoxied in place





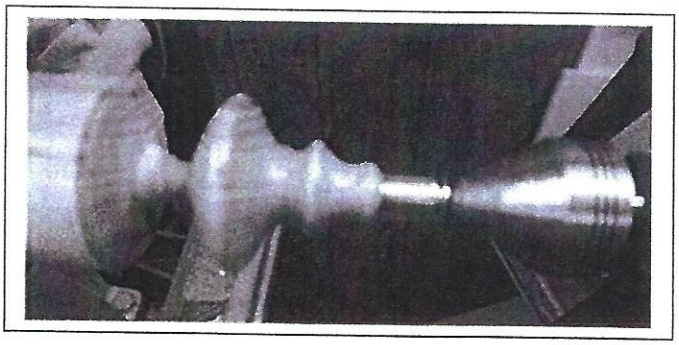
Use a Jacobs's chuck in the tailstock for drilling the hole for the awl shaft. The hole should be the same diameter as the shaft. I am using a 5/32 inch **stubby drill bit** extended 1 ¼ for drilling. Photos below.



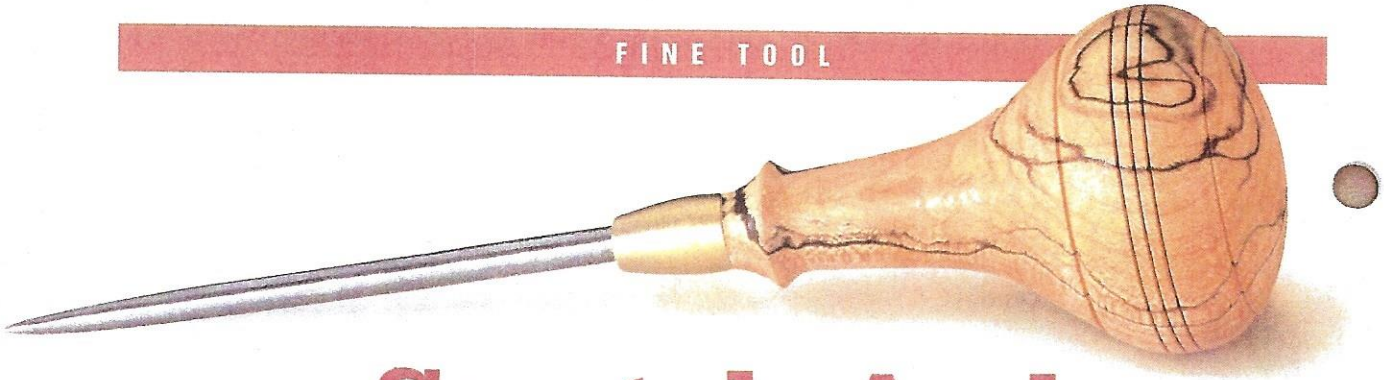
After drilling is complete reinstall the 60 degree live center in the tailstock and bring it up to support the blank, leaving the ferrule in place.

Turn the rest of the handle to your preference, taking into consideration for the diameter and length and curve of the handle top. It is best if the top fits the curve of your palm, **as this tool is used with hand pressure only (please no mallets or hammers).**

Leave about 3/8 inch diameter at the top of the handle to provide sufficient support for sanding and applying the finish. Finish is your choice; I generally use a shellac wax finish and apply it with a paper towel while the lathe is turning at a slow speed. You may need to apple 2 or 3 coats of finish. As the finish dries increase the lathe speed and buff to a high polished finish.



After the finish is completed cut the handle off using your favorite tool. Leave the live center in place with very light pressure. Sometimes I use a skew and sometimes a ¼ in spindle gouge.



Scratch Awl

A 6"-long twist bit and a brass flare nut provide two of the key ingredients for this scratch awl.

I've always enjoyed making my own hand tools. Especially when it's a tool like this scratch awl that only takes an hour or two to complete.

But the most intriguing thing about this scratch awl isn't its simplicity. It's the process of working with both wood *and* metal to create a tool that's practical and nice looking as well.

HANDLE. The wood handle of the scratch awl is turned to shape on a lathe. (I used a chunk of spalted maple I'd been saving for just this type of special project.)

BLADE. But figuring out what to use for the long metal blade of the scratch awl (and how to secure it to the handle) was more of a challenge. The solution came about in an unexpected way.

I was buying a drill bit at the local hardware store when I came across an extra-long (6") twist bit, see margin. It was long enough for a blade. But it seemed like the flutes might present a problem.

That's when it occurred to me. By filling the flutes with epoxy and "twisting" the bit into the handle, the blade would be permanently attached to the handle, see drawings below. Then I could sharpen the blunt end of the bit to a fine point.

FERRULE. Using a drill bit as a blade was one thing. But I also wanted to cover the end of the handle with a metal ferrule. As it turns out, I found the answer in the plumbing department — a brass flare nut, see margin.

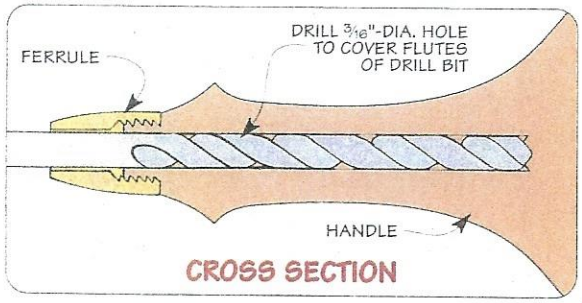
The nut would simply thread onto the handle. And since the brass is quite soft, just a little work with a file would create a smooth transition.

PALM HANDLE

The handle of this scratch awl has a gently rounded knob that fits into the palm of my hand. When I'm starting a screw hole or marking a layout line, the shape of the handle provides a comfortable grip for me, see Pattern below. But you may want to experiment with your own shape.

BLOCK. To make the handle shown below, start with a 2"-square block that's 5" long. Note: It's important that the ends of the block are square.

To accept the blade of the scratch awl, you'll need to drill a hole in one



CROSS SECTION

HALF-PATTERN (FULL SCALE)

end of the block. The diameter of this hole is sized to accept the twist bit that will be used as the blade. And it's deep enough to cover the flutes.

It's tempting to drill this hole with the long twist bit. But there's a problem. Any irregularity in the grain can "catch" the tip of a twist bit and cause it to wander.

If that happens, the blade on the scratch awl will be crooked when you put it in the handle. So to drill this hole straight into the blank, I used a brad point bit.

MOUNT BLOCK. Now you can mount the block on the lathe. It's oriented so the centerpoint on the tailstock fits into the hole in the block, see Step 1 below.

CUT TENON. After the initial roughing cuts, I turned a short tenon on the end of the block that's supported by the tailstock, see Step 2. Later, this tenon will be sized to fit the ferrule. But for now, leave it a bit thick. (I turned a ⅜"-dia. tenon that's ¼" long.)

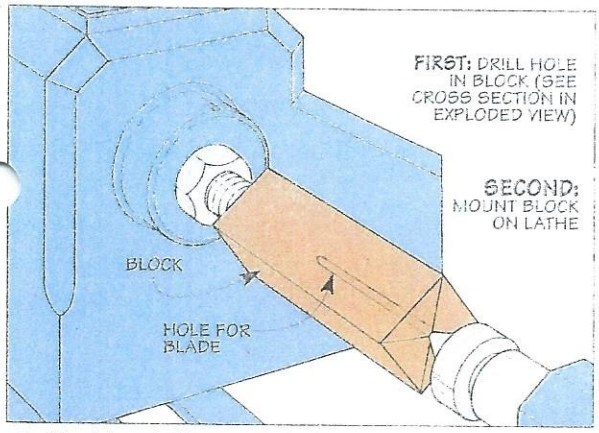
HANDLE LENGTH. To establish the overall length of the handle, the next step is to make a parting cut near the end of the block that's closest to the headstock, see Step 2. It's best to leave about a ½" of thickness here. This provides plenty of support for the spinning block.

SHAPE HANDLE. Now it's just a matter of turning the handle to shape. The thick knob on the end of the handle is formed by rolling a spindle gouge — first to one side then the other, see Step 3. Note: You'll need to waste out additional material to provide clearance for the spindle gouge, see pattern on opposite page.

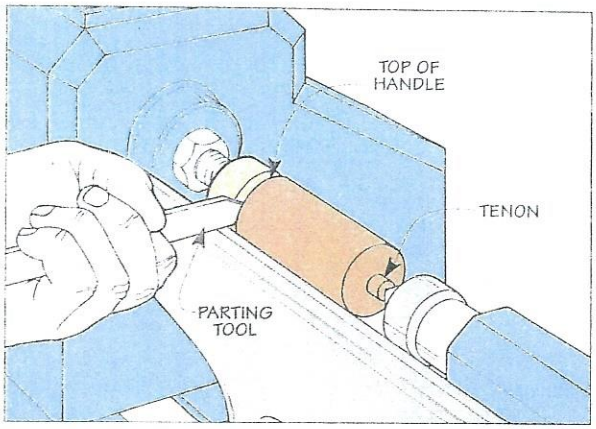
The spindle gouge also makes it easy to shape the neck of the handle. It sweeps down from the knob, flares out to create a stop for your thumb, and then tapers toward the shoulder of the tenon.

FINAL DETAILS. To complete the handle (and add some visual detail), I used a skew chisel to cut a series of V-shaped grooves, see Step 4.

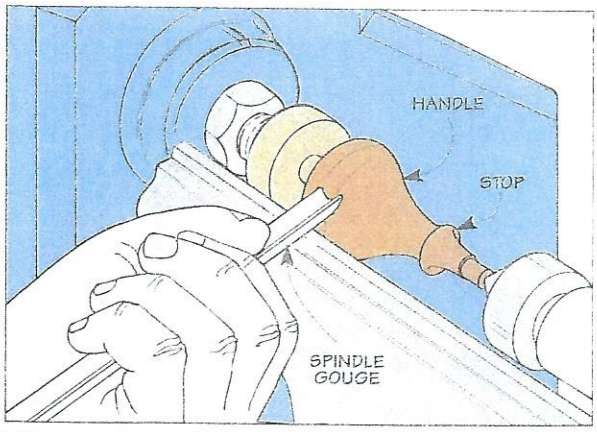
This is also a good time to lightly sand the handle and apply a finish. You don't need to remove the handle from the lathe to do this. But later, after removing the waste at the top of the handle, you'll need to complete the sanding and finishing.



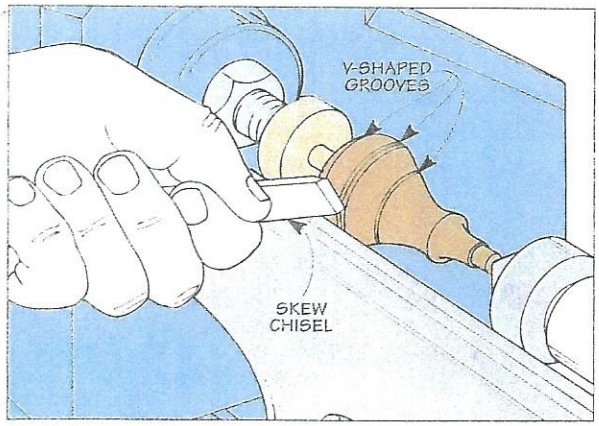
1 *Start by drilling a hole in the end of a block to accept the blade. Then mount the block on the lathe so the centerpoint of the tailstock fits in the hole.*



2 *After roughing out the block, use a parting tool, to turn a tenon on one end. Then cut in at the opposite end to define the top of the handle.*

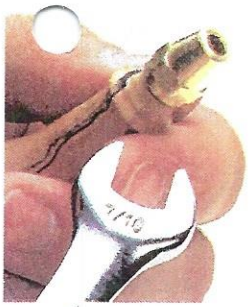


3 *Using a spindle gouge, turn the handle to shape. To ensure a comfortable grip, stop the lathe frequently and check the feel of the handle.*



4 *It's easy to add some visual detail to the thick part of the handle. Just use a skew chisel to cut a series of V-shaped grooves in the knob.*

Adding the Ferrule



After threading the flare nut onto the tenon so it's "finger tight," use a wrench to turn it the rest of the way.

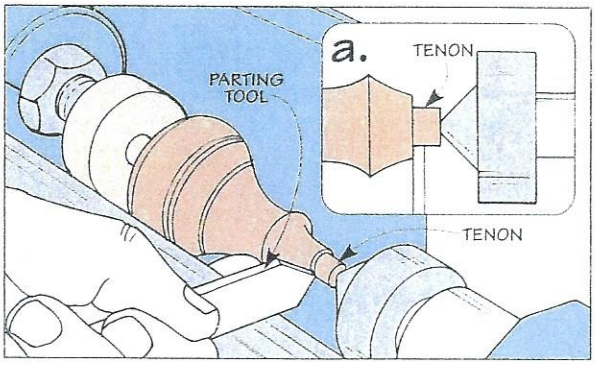
Once the finish is dry, the next step is to add the brass ferrule. It prevents the end of the handle from splitting. Plus, it creates a smooth transition between the handle and the blade.

The ferrule is made by fitting the brass flare nut onto the tenon at the end of the handle. But the tenon is still a bit thick, so you'll have to shave off a small amount of material, see Step 5.

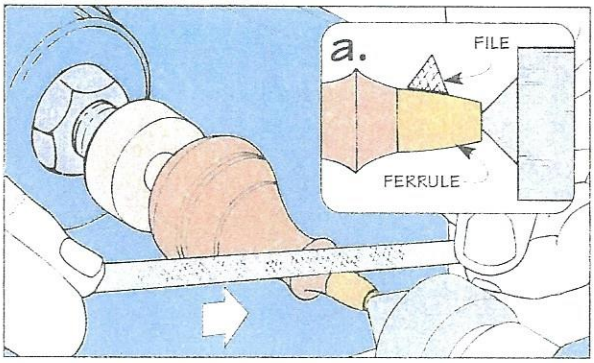
The goal here is to remove just a whisker, checking the fit frequently. Continue this process until you can tighten the nut about halfway onto the tenon with your fingers. Then complete the job with a wrench, see margin.

FILE CORNERS. Once the flare nut is in place, it's just a matter of removing the "corners." An easy way to do this is to remount the handle on the lathe and use a small triangular file, see Step 6. Note: Be sure to remove the tool rest.

One thing to be aware of is the "wall" of the nut is quite thin. So file off just enough material to round the corners. Then polish the ferrule smooth with progressively finer grits of sandpaper. (I went up to 600-grit sandpaper.)



5 To size the tenon for the flare nut, shave off a small amount of material and check the fit. Continue the process until the nut threads halfway onto the tenon.



6 Once the flare nut is installed, remove the tool rest and remount the handle. Then turn on the lathe and file the corners using smooth, even strokes.

Installing the Blade

To hold the blade of the scratch awl securely in place, fill the flutes of the twist bit with epoxy.

All that's left to complete the scratch awl is to add the long twist bit that's used as the blade.

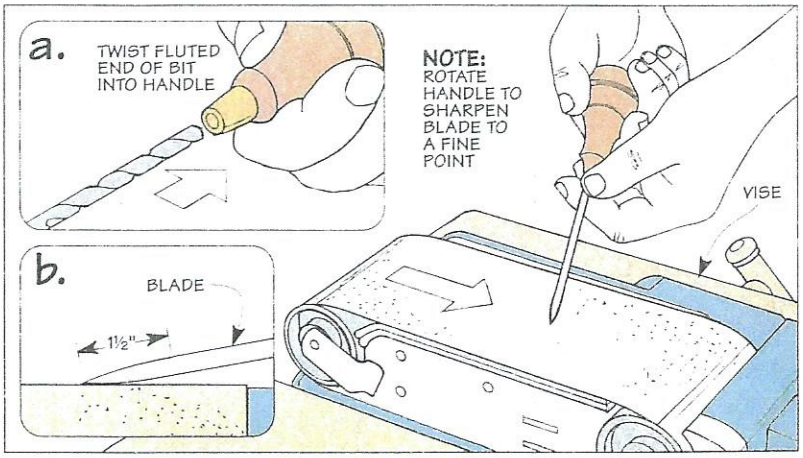
REMOVE WASTE. But first, you'll need to take the handle off the lathe and remove the waste at the top end. (I used a handsaw.)

INSTALL BIT. After sanding the rough spot left by the saw teeth (and touching it up with finish), you can install the bit. To permanently secure the bit in the handle, start by coating the flutes with epoxy, see margin. Then simply "twist" the bit into the end of the handle, see detail 'a' in Step 7.

SHARPEN BLADE. When the epoxy cures, the next step is to sharpen the blade. An easy way to do this is to use a belt sander that's clamped in a vise, see Step 7. Note: Since this will create sparks, be sure to remove the dust bag on the sander.

The idea is to hold the blade at a slight angle to the belt while you rotate the handle. What you want to accomplish here is to sand a 1½"-long taper on the end of the bit that narrows down to a fine point, see detail 'b.'

POLISH BLADE. Finally, I polished the entire length of the blade starting with 150-grit sandpaper and working my way up to 600 grit.



7 After using epoxy to secure the blade in the handle, it's easy to sharpen it to a fine point. Just clamp a belt sander in a vise and sand the end of the blade until it tapers to a sharp point.

PEN TURNING DEMO

By David Turner

- Overview
- Safety
- Pen Kits
- Pen Blanks
  - Material
  - Cutting & Sizing
  - Drilling
  - Gluing Pen Tubes
  - Squaring Ends
- Turning Blanks
  - Mandrel Setup
  - Shape of Pen
- Sanding Blanks
- Finishing Blanks
- Assembly of Pen Kit

PK-1013, 1014 Slimline Pen and Pencil Kit Assembly Instructions

KIT FEATURES

- Heavy 24kt Gold Plating with Epoxy Coating.
- Both products are designed to match as a set.
- Simplified construction, uses same tube lengths for both kits. (2-1/32" long).
- Pen Features a New Locking Mechanism.
- Pencil Features a New Trouble Free 0.7mm Lead Mechanism
- A Variety of Clip and Band Styles are Available.
- Overall Length: Pen= 5-1/8", Pencil= 5-5/8"

REQUIRED ACCESSORIES

- 7mm Long Mandrel.
- 3 Piece Bushing Set PK-1259.
- 7mm Drill Bit PK-1173.
- 7mm Barrel Trimmer PK-1125 (optional)
- 2 Part Epoxy Glue or SG-THICK Super Glue

Step 1 - Cut Wood Blanks

From 1/2" to 5/8" square stock, cut blanks to the length of the tube plus 1/16". Grain should run lengthwise.

Step 2 - Drill The Wood Blanks

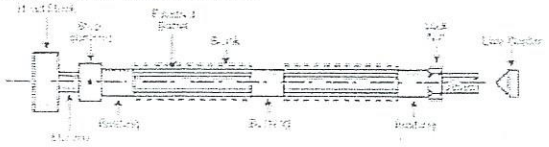
Drill a 7mm centered hole lengthwise through each blank. Excessive pressure will cause the drill bit to wander and/or split the blank. Slow the feed rate and back the bit out repeatedly for chip removal.

Step 3 - Glue The Tubes Into The Blanks

Use epoxy or a gap filling cyanoacrylate. Spread the glue on the tube. Insert into the blank with a twisting motion to spread the glue evenly inside. Center each tube lengthwise in the blank. Allow it to dry.

Step 4 - Square The Ends

With a 7mm barrel trimmer PK-1125 or other sanding device, square the ends of the blanks 90 degrees flush to the ends of the brass tubes.



Step 5 - Turning The Blanks

Place the stop bushing onto the mandrel hand tight. Place one of the other bushings onto the mandrel, slide on either blank, then another bushing.
Follow with the second blank then the last bushing. Thread on the lock nut hand tight. Bring the tail stock

snug with the mandrel (do not over tighten, it could damage the mandrel) slide the stop bushing toward the blank. Adjust to remove the space then tighten set screw and lock nut.
Turn the blanks down to a diameter slightly larger than the bushings (about 11/32" O.D.). As you approach the final size be careful since the wood is only about 1/32" thick.

Step 6 - Sand

As with any sanding, progress through a range of grits. The type of wood used and the quality of the beginning surface will dictate your selection:

- 80-100 grit if a rough surface or additional shaping is needed (overly thick)
- 120-150 grit if fairly smooth and straight
- 220-240 for final finish with most domestic woods
- 320-400 especially on dense or oily exotic woods

Scotch Brite® is helpful and doesn't tend to scratch. Sand with blank spinning. Finally sand with the grain (lathe off). For initial shaping, stick some sandpaper on a board 2" wide to remove any hills or valleys. The center ring is 21/64" in dia. The final size for a flush finish is between 5/16" & 11/32". For a little heavier look, just form a little thicker barrel.

Step 7 - Finish

Try a finish of your choice but be careful if brushing on a poly, etc. You can stick the tube, bushings, and mandrel together.
You could also use Hut Perfect Pen Polish PK-1114 & PK-1115.

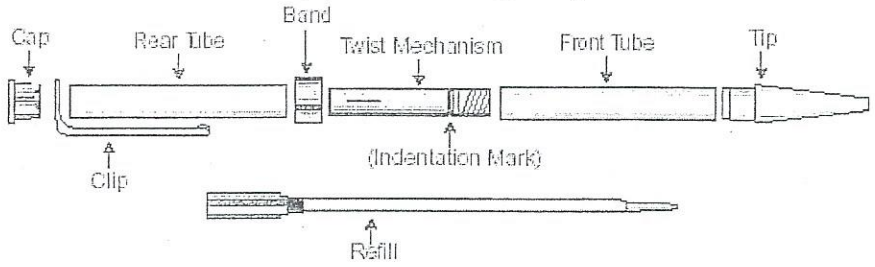
Step 8 - Touch Up

With tubes off mandrel, lay them end to end to decide which sets will look best when assembled. Remember, they will be 5/32" apart (due to center ring) so minor differences won't show. If necessary, a light sanding of the ends on a block will square the ends and improve the fit during assembly. Then repeat step 7.

General Assembly Hints:
- Use a clamp or vise to press parts together.
- Front and rear tubes are identical on both pen and pencil kits and may be mixed and matched.
- 7mm Pen Disassembler Kit, PK-1121 is available.

Diagram B - Assembly of Pen

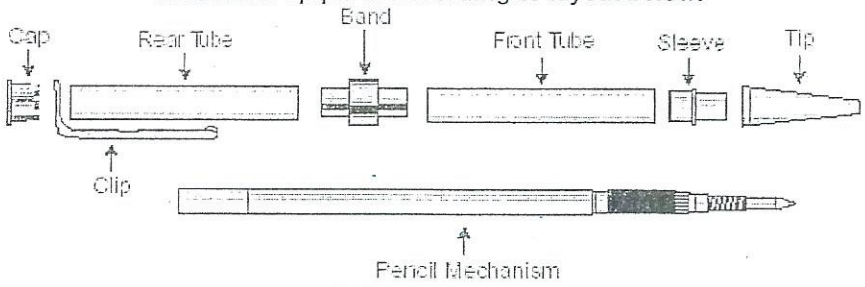
Note: Line up parts according to layout below.



A. Press the tip into the front tube.
B. Press the twist mechanism (brass end first) into opposite end of same tube (usually to the indentation mark). Don't press too far in!
C. Slide band over the exposed mechanism.
D. Press cap into the clip then onto the rear tube (clip can be left off if desired).
E. Push the two halves together aligning grain as desired. Pen is operated by twisting the halves in opposite directions to extend or retract point. Test the extension with the refill inserted. Uses Cross® type refills.

Diagram C - Assembly of Pencil

Note: Line up parts according to layout below.



A. Press the sleeve, recessed end first into the end of the front barrel until it hits the shoulder.
B. Press the band into the opposite end of the barrel.
C. Press the rear barrel onto the band.
D. Press cap into the clip then onto the rear tube (clip can be left off if desired).
E. Insert mechanism through the cap and out the opposite end.
F. Screw the tip tightly onto the threaded end of the mechanism.
G. The pencil operates by pushing down on the plunger. This clicks the lead out. The eraser and extra lead is located under the gold cap on the mechanism. Use 0.7mm lead.
Note: If lead does not advance properly or retracts when writing, gently pull exposed short piece of lead out of mechanism. Continue to pump pencil plunger until a new piece of lead is exposed.

BASIC PEN TURNING

The slimline twist pen is the most popular pen style and is excellent for learning pen-making techniques. Straight-barreled twist pens and pencils are relatively quick and easy to produce, and getting started requires a minimal financial investment.

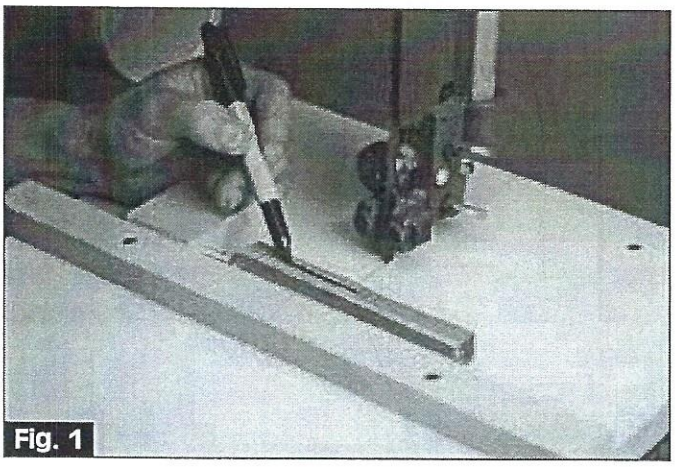


Fig. 1

CUTTING THE BLANK

Blanks for twist pens should be cut to approximately 9/16" square by at least 4 5/8" long. (i.e. 9/16" X 9/16" X 4 5/8") One feature of a quality hand-turned pen is proper grain alignment between the two halves. Once the blanks are ripped to 9/16" square, they should be marked with a strong, visible line **(see Fig 1)**. The blanks should then be cross cut into lengths of 2 1/4". Two lengths of 2 1/4" will yield one pen or pencil.

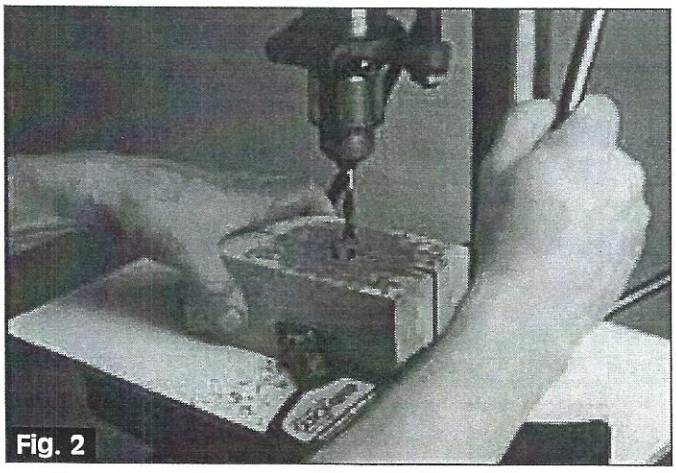


Fig. 2

DRILLING THE BLANK

The wood blank can now be drilled to receive the brass tube. A variety of methods can be used to hold the wood at a right angle to the table during drilling. A simple method is to secure the wood in a small vise or clamp and then drill using a drill press. The wood jaws shown in Figure 2 are sufficiently large to provide a solid base during drilling **(see Fig 2)**. This helps to hold the pen blank square to the table.

The feed rate and RPM of the drill press will be determined by how the wood responds to being drilled. This varies greatly between species. Generally, the feed rate is whatever the wood will allow without grabbing or "catching" while drilling. The drill bit used for standard slimline style pens is 7 mm. The drill bit should be retracted after drilling each 1/2" of increased depth. This allows the drill bit to clear itself of chips which can compact in the flute of the bit causing excess heat build up.

DRILLING TIPS:

Drilling can be one of the more difficult steps in pen making. Some woods, (particularly harder woods) are prone to crack or split as the bit passes through the bottom of the blank. To prevent this, cut each blank 3/8" longer than the tube, set the depth stop on the drill press to drill the hole 1/8" deeper than required by the tube. This will leave 1/4" of solid wood on the bottom of the blank that can be trimmed off later using a bandsaw.

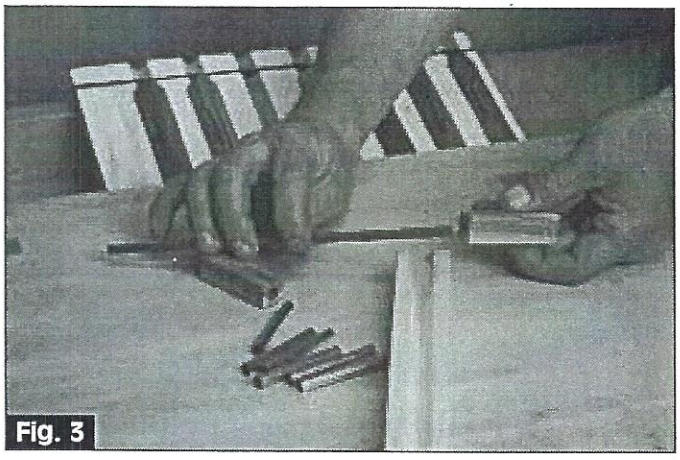


Fig. 3

GLUING IN THE BRASS TUBE

Several types of adhesives are available for gluing the brass tube in the pen blank. These include gap-filling cyanoacrylate "super glue", epoxy, and urethane glue. Here we use gap-filling cyanoacrylate (CA). With 220 grit sandpaper, slightly scuff each brass tube leaving scratches for the glue to adhere to. For best results apply glue to both the outside of the brass tube and the inside of the drilled hole. Glue can be applied to the inside of the hole using a small dowel or a plastic drinking straw **(see Fig 3)**. Insert the tube, starting at the end of the blank that

you want to match up with the opposite tube for proper grain alignment. Once the adhesive has been applied to each piece, push the tube into the wood blank, rotating the tube in a spiral motion as you go to spread the glue evenly around the brass tube and hole. If time allows, we recommend using a urethane glue as it expands while it cures filling all voids creating a complete bond between the tube and blank. Urethane glue requires several hours drying time and may require wetting non-porous materials.


Fig. 4

CLEANING AND TRIMMING

Before mounting the pen blank on the lathe to be turned, excess glue inside of the tube must be removed along with the ends of the barrel trimmed so that the is tube is clean and the wood is square to the ends of the brass tube. The best way to do this is with a barrel trimmer. Mounting the barrel trimmer in a cordless drill can do trimming barrels quickly and easily. With the pen blank clamped firmly in place, slide the shaft of the barrel trimmer into the brass tube then trim the wood blank until the cutter reaches the end of the brass tube **(see Fig 4)**. Be careful not to trim away the brass tube as this can result in the length of the brass tube being decreased significantly, which may interfere with the function of the pen mechanism.

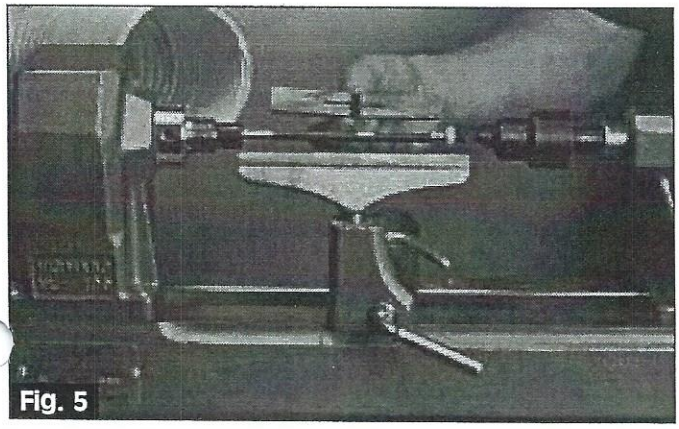


Fig. 5

MOUNTING THE BLANK

There are many types of pen mandrel systems available to woodturners. Whether held in a drill chuck or mounted in a morse taper arbor, all mandrel systems require a revolving tailstock cone center. The morse taper mandrel system consists of a morse taper arbor, a steel mandrel that will hold two barrels at a time, bushings and a tightening nut. The bushings provide a reference for the turner to use to determine the finished outside diameter of the wood **(see Fig 5)**. The pen blanks should be mounted on the double mandrel with at least one bushing at each end and one bushing between the two halves of the pen blank. Take care to line up the grain match marks.


Fig. 6

TURNING THE PEN

Use a small roughing gouge for removing the bulk of the wood **(see Fig 6)**. Make the finishing cuts with a 1/2" skew or small gouge **(see Fig 7)**. We recommend a lathe speed of between 3,000 and 3,500 rpm. This allows the turner to be more aggressive and speeds up the process of both turning and finishing.

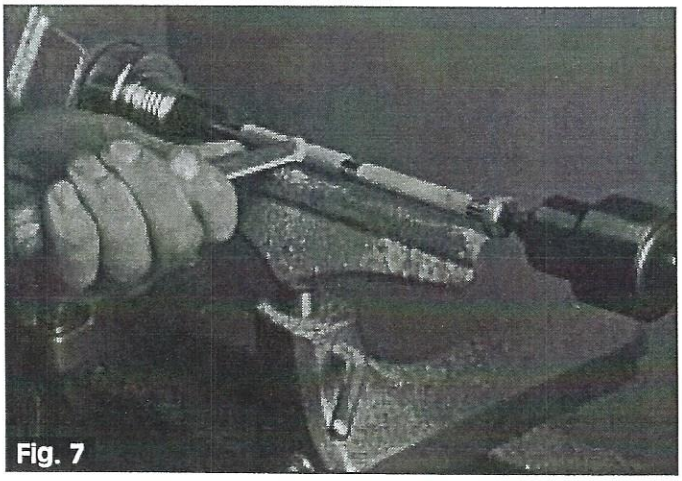


Fig. 7

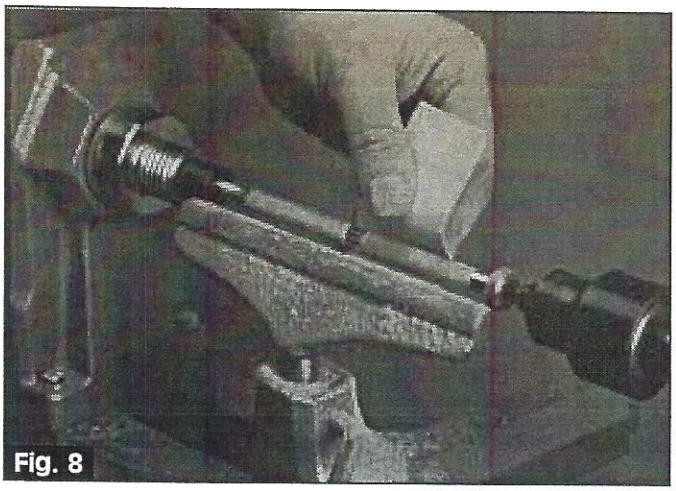


Fig. 8

SANDING AND FINISHING

Start sanding with 120 grit or finer if the surface left by the tool is sufficiently smooth. (Keep in mind while sanding that the finished diameter of the wood barrel should be the same as or slightly larger than the bushings on the mandrel. Making the barrel too small will result in a poor fit when the pen is assembled). With the lathe spinning, hold the abrasive paper against the wood; apply a moderate amount of pressure while moving the paper quickly from end to end **(see Fig 8)**. When all tool marks and torn grain are removed, progress to the next finer grit and repeat the process. After sanding with 320 grit, turn the lathe off and while rotating the spindle slowly by hand, sand lengthwise with the grain using 320 or 400 grit. This will remove cross-grain circular scratches.


Fig. 9

There are many types of finishes available for finishing pens on the lathe. Padding lacquers such as Mylands Friction Polish are very popular as it is easy to apply while the work is still on the lathe and has a short drying time. The first coat of finish should be applied with the lathe stopped. This allows the finish to penetrate into the open pores of the wood rather than glaze over them. Apply the first coat by rotating the spindle by hand and moving the rag quickly along the wood. Then turn the lathe on and continue the process. The high speed of the lathe and light hand pressure will produce heat, which helps the finish build and cure faster. Keep the rag moving constantly. Once the desired sheen is produced, the finish can be topped off with a light coat of wax **(see Fig 9)**.

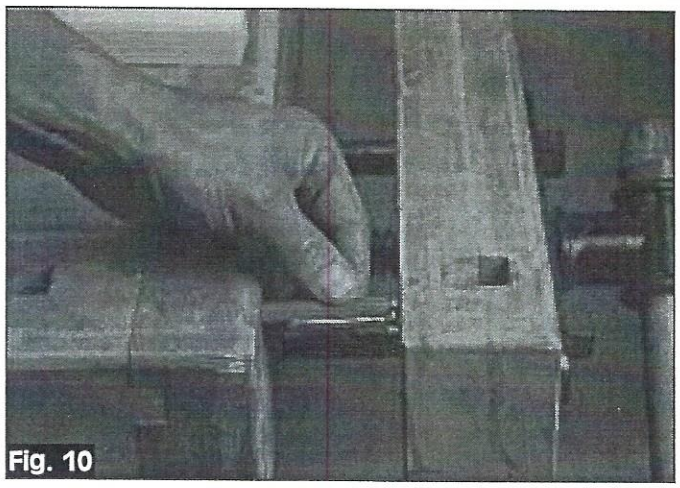


Fig. 10

ASSEMBLING THE PEN

Assembly is the final step that will complete the pen. Several methods can be used to press the pen parts together. We recommend a bench vise. The vise should have wood jaws, as metal jaws can easily damage the wood barrel as well as the plating on the pen mechanism (see Fig 10). Before beginning assembly, carefully read the assembly instructions provided with the pen kit. Assembly procedures vary with the different types of pens. Once you are familiar with the assembly process you may consider making some simple jigs or fixtures to increase efficiency. The procedure for making pens and pencils is identical until you get to the point of assembly. Finally, to assemble a pen or pencil, read and follow the instructions provided with your pen kits.

To further explore the world of pen turning, we recommend ***"Turning Pens and Pencils"*** by Rex Burningham and Kip Christensen, published by GMC Publications U.K. Information on this handout is used in part from this book.

"Bird House " Tree Ornament

by

Eugen Schlaak

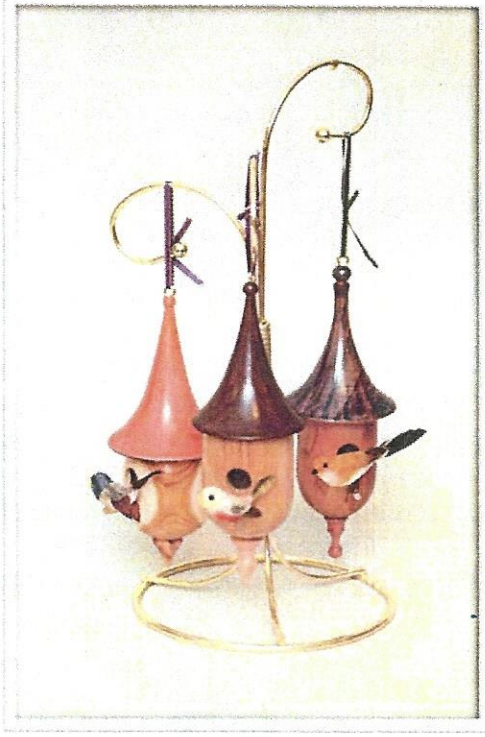


Fig. 1

For some time I have been producing many of these small Christmas tree ornaments as shown in Fig. 1 and in this article I have documented MY methods on how to produce them efficiently and at a very low cost.

There are of course many other ways to produce these and I would welcome any suggestions to that regard.
Many pieces of scrap woods can be used up, but by making these in batches , it is best to keep the basic dimensions of the raw material identical for all pieces. Fig 2 shows the two pieces of wood needed: for the body itself a blank 2" x 2" x 4" long and for the roof a blank of 2 ½" x 2 ½ " x 3" long.

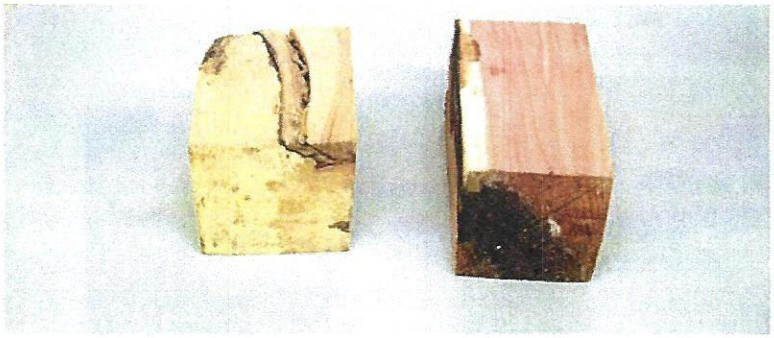


Fig. 2

The wood for the body should be square and true because it is best to pre-drill the " nesting" hole of 1" dia x 1 ¼" deep , the entry hole of ½" dia and about ¾ below the top surface and the 1/8 dia hole for the perch at 1 3/8" below the top. They are drilled in batches on the drill press after marking the centers, using a saw tooth *Forstner* bit for the nesting hole (drilling into the end) and a standard flat *Forstner* bit for the entry hole on the side, (Fig. 3).

Fig. 3

In this case I have been using some very dry pieces of aromatic eastern cedar, which had many voids and cracks. Fig 4 shows an easy way to fill gaps and voids by using thin CA glue and fine black embossing powder, which is available in many colors from most *Scrap Booking* stores. Fill the cavity partially with the powder and dribble some CA glue onto it and in seconds the stuff will be hard and ready for turning. Do this in small steps to avoid cavities and repeat this procedure for deep holes.

Caution: Avoid breathing in the resulting Smoke, it is poisoness !

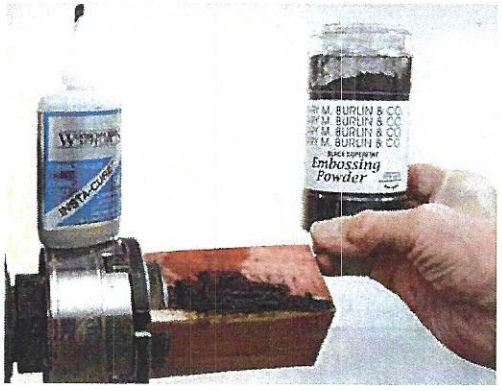


Fig. 4

The wood was mounted into a *Oneway Talon* chuck with the # 2 jaws for turning and it is best to provide some tail stock support using a revolving center, in this case using the *Oneway* live center with the small aluminum cone. This also ensures that the wood is centered and straight in the chuck for turning
(Fig. 5)

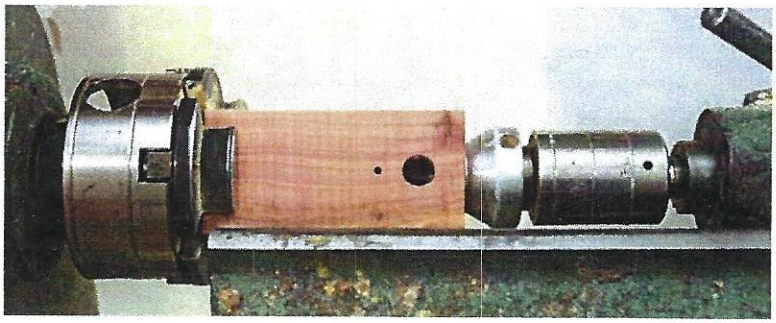


Fig. 5

Fig. 6 and 7 show the roughing of the body to a round, using a *Crown* 5/8" dia heavy roughing gouge, but the same task could also be accomplished with a skew or a standard roughing gouge.
The filler applied previously is now clearly visible and looks like a bark inclusion.


Fig. 6

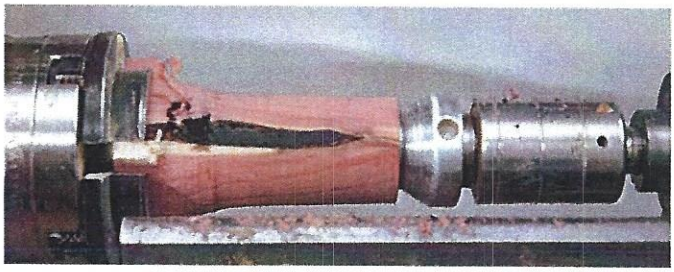


Fig. 7

In the next step, (Fig.8), a spigot of 1 ¼" dia x 1/8" long is cut at the shoulder, using a small 1/8 x ½" wide parting tool. This will be used later for centering the roof in the assembly of the ornament.

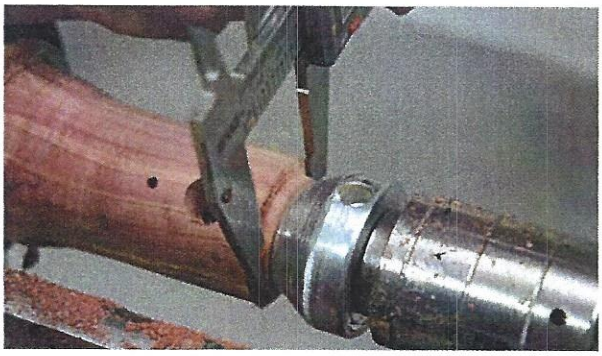


Fig. 8

A 1" wide *Sorby* oval skew makes fast work of smoothing the upper and lower part of the body, (Fig. 9). At this stage it must be decided what shape the body will be, cylindrical or egg shaped, with or without a finial.
If an egg shaped is preferred it is sometimes advantageous to enlarge the inside also to an egg shape prior to the completion of the outside to make the ornament as light as possible.

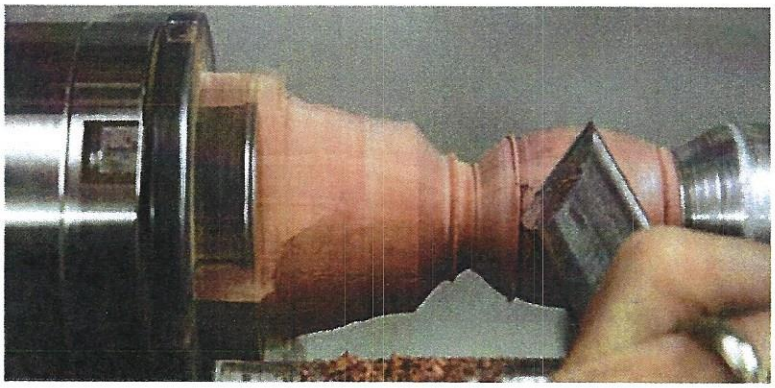


Fig. 9

In this case I wanted to provide a small finial at the bottom of the egg shaped house and used a 3/8" regular bowl gouge to turn a bit of a shape to about 3/8" diameter, (Fig. 10).

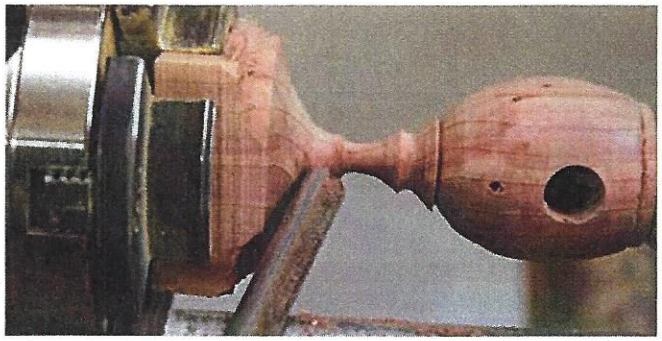


Fig. 10

The skew is used to part off the finished turned body, as shown in Fig. 11 and Fig. 12.

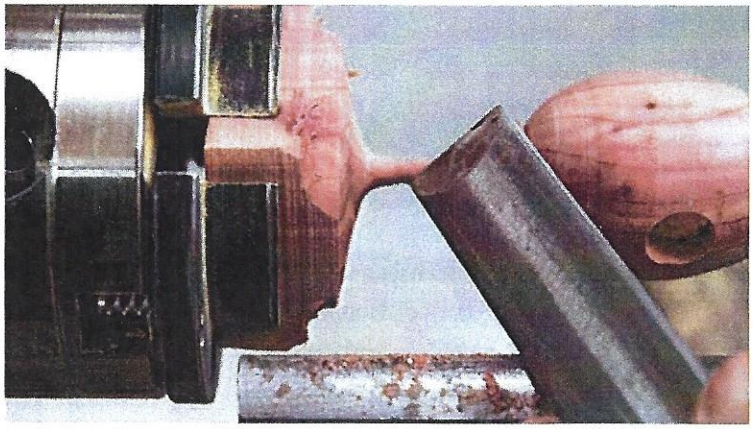


Fig 11

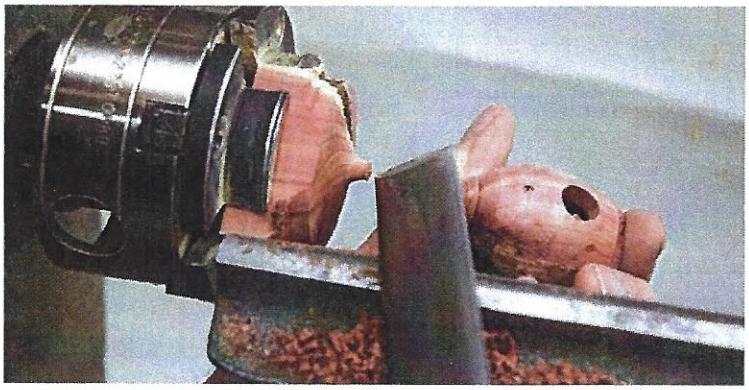


Fig. 12

Using the # 1 jaws from the *Oneway Talon* chuck the item is now reversed and very lightly held, Fig. 23, so the finial can be completed with very light cuts using the small bowl gouge, (Fig. 14).

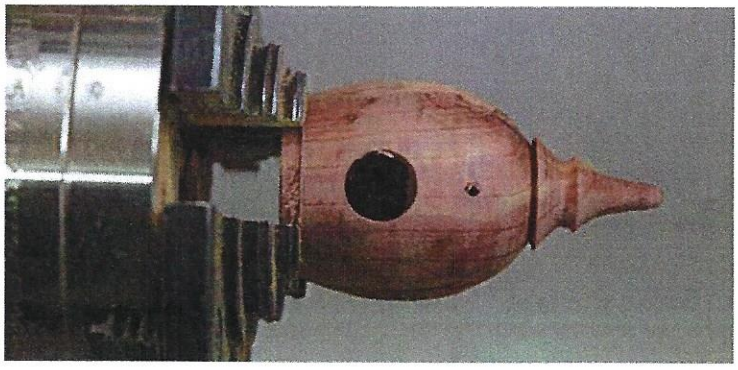


Fig. 13

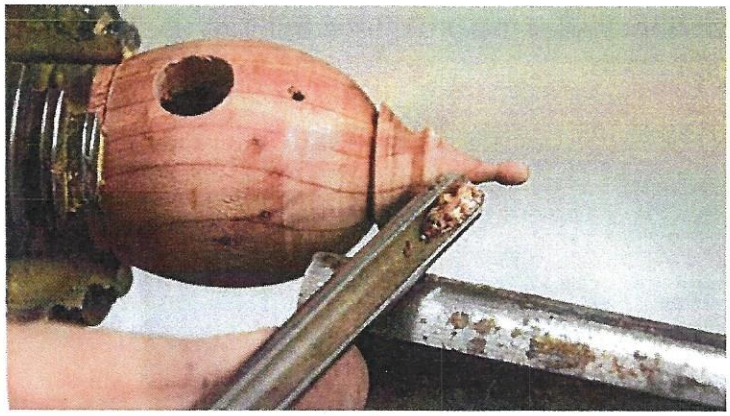


Fig. 14

Light touch up sanding, applying *Mylands* friction polish and rubbing it out to a high gloss with paper toweling are the next steps, (Fig. 15, 16, 17). To retain the fresh scent of the cedar wood used here for some time, you might not want to apply any finish at all.

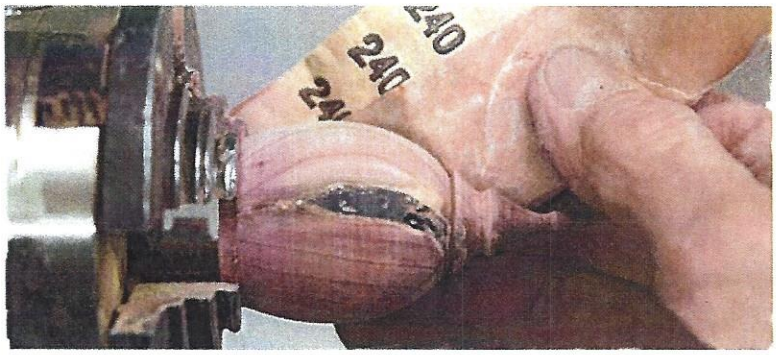


Fig. 15

Fig 16

Fig. 17

Fig. 18 shows the completed bottom half of the ornament and Fig. 19 shows this item with the 1/8" dia x ¾" long perch dowel glued into place.

Fig. 18

Fig. 19

Turning the roof is the next step. A 1 ¼" saw tooth *Forstner* bit has been used to drill a hole about 3/16" depth into the end grain of the material for the roof. Depending of the type of screw chuck you are using, a hole has to pre - drilled to suit the chuck screw. I have a home made very old screw chuck with an adjustable screw (Fig 20), but a *Oneway Woodworm* screw held in the *Talon* chuck can also be utilized, (Fig. 21)

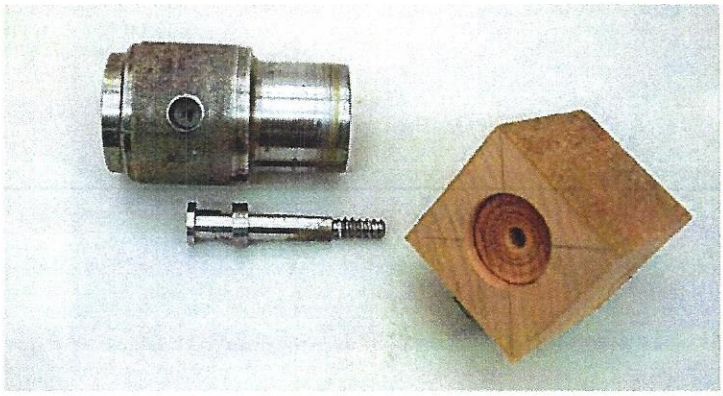


Fig. 20

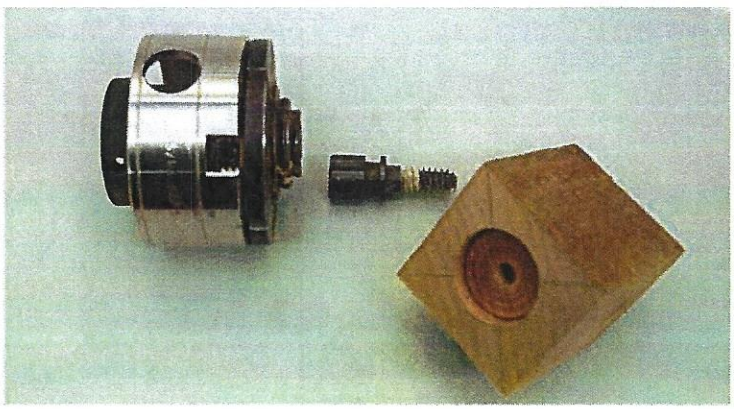


Fig. 21

The wood is now ready to be shaped into a "roof". But before you proceed, drill a small hole for the screw eye to be used for the hanger into the end of the wood, using a small hand held pin vice, Fig 22.

Use the tailstock with a revolving center as an extra support while shaping the roof using a skew, spindle gouge or a small bowl gouge. Fig 23 and Fig 24 shows the turned and sanded roof. This is also the time to add some coloring to the roof either by using *Prisma Color* markers or dyes After adding some friction polish and the small screw eye this part of the ornament is completed, (Fig 25).

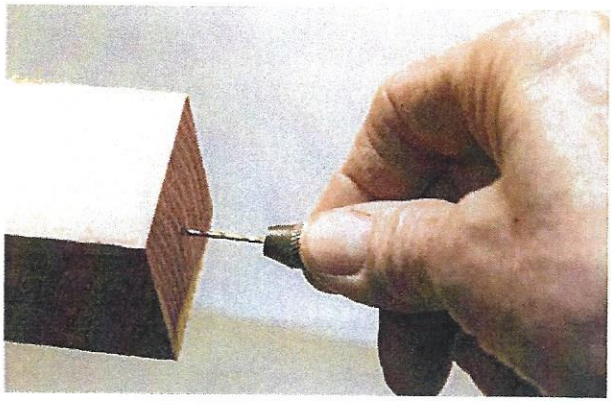


Fig. 22

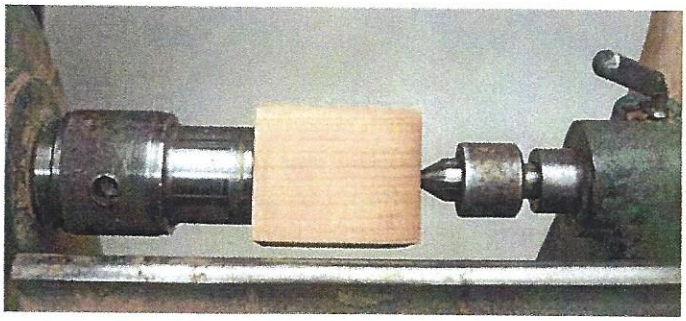


Fig. 23

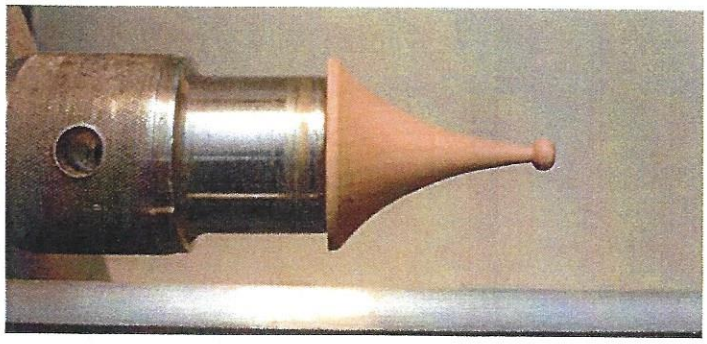


Fig 24

Fig. 25

The "fun" part of making these bird house ornaments can begin now. All roofs have been completed as shown in Fig. 26 and the roof and bottom part can be assembled, using a drop of CA glue to join these two items together .
Now you have to hunt for suitable sized and realistic looking birds, some craft stores stock them and locally we have a "Michaels" department store who stock the lowest priced ones and a large variety, "Chinese" birds, not very North American looking, other than the odd Bluejay or red Cardinal.
I find the local higher end hobby shops have the best selection, but at a higher price. Happy hunting !

Fig. 26

To fasten the little bird to the perch: first dip the end of the dowel (perch) into a small container (such as a bottle cap) of CA accelerator, put a drop of thick CA glue onto the underside of the bird and by bringing the wet dowel and the glue together, you get an instant bond. Watch your fingers !

Caution: Have the "Debonder" fluid handy at all times when working with CA Glue

A selection of some of these very delicate *"Bird House"* type Christmas tree ornaments are shown in Fig. 27 and 28.

Fig. 27

Fig 28

I hope you enjoy making these little treasures and you can change the sizes to suit the material (and birds) you have on hand. If you are offering these ornaments for sale you might also want to make a suitable display stand as shown in Fig. 28, which can be assembled in one or two tiers and has rotating acrylic discs.

Any comments and / or suggestions as to improve MY methods are welcome. Thank you.

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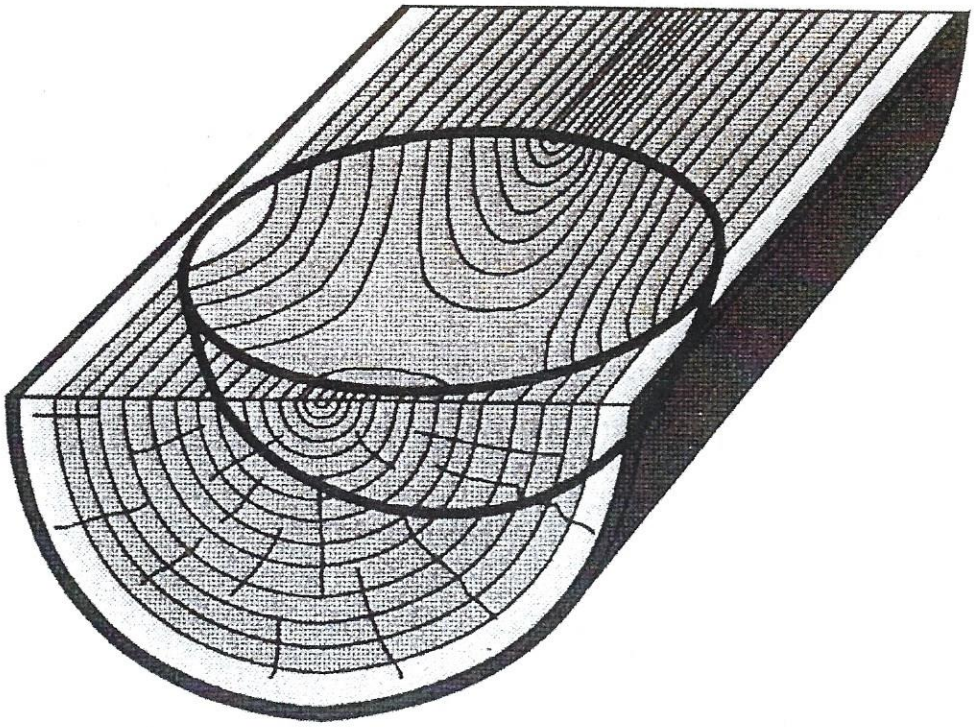
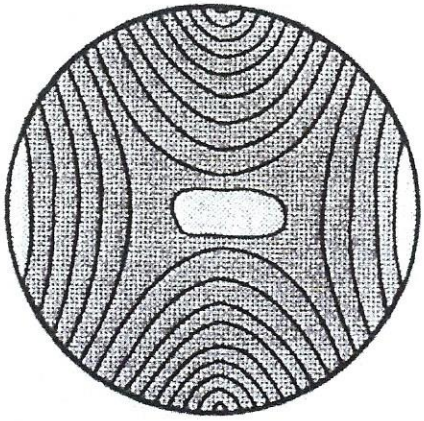
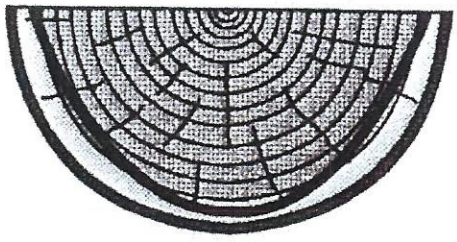
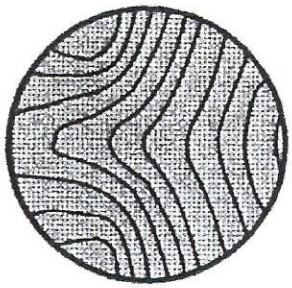


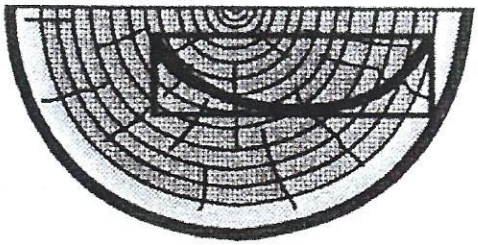
An open form turned with the pith at the rim will display a hyperbolic pattern inside.



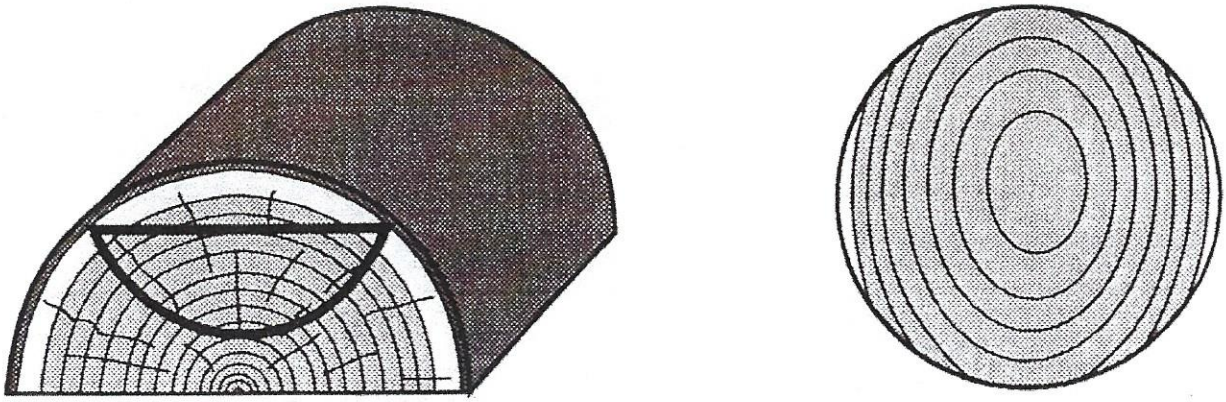


A bowl form in which the rim and bottom cut into the sapwood will show white patches at those points.

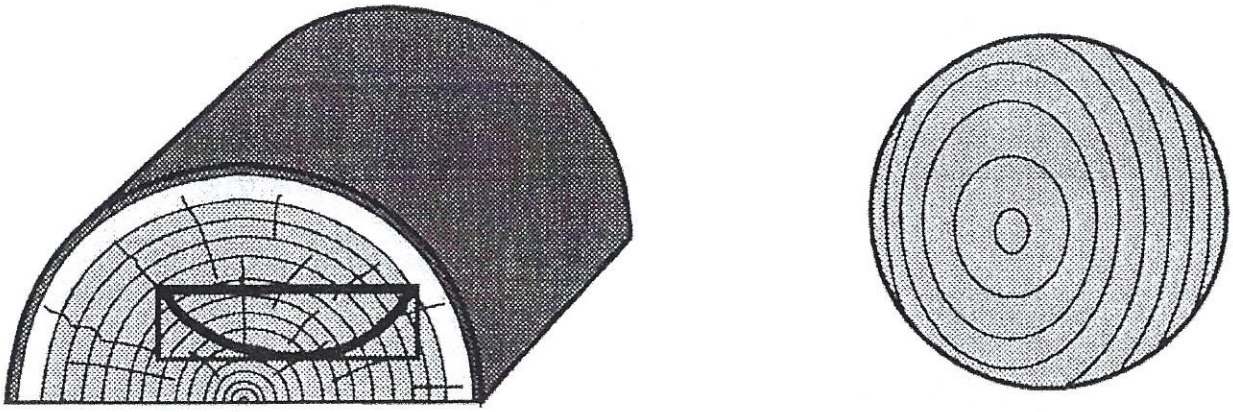




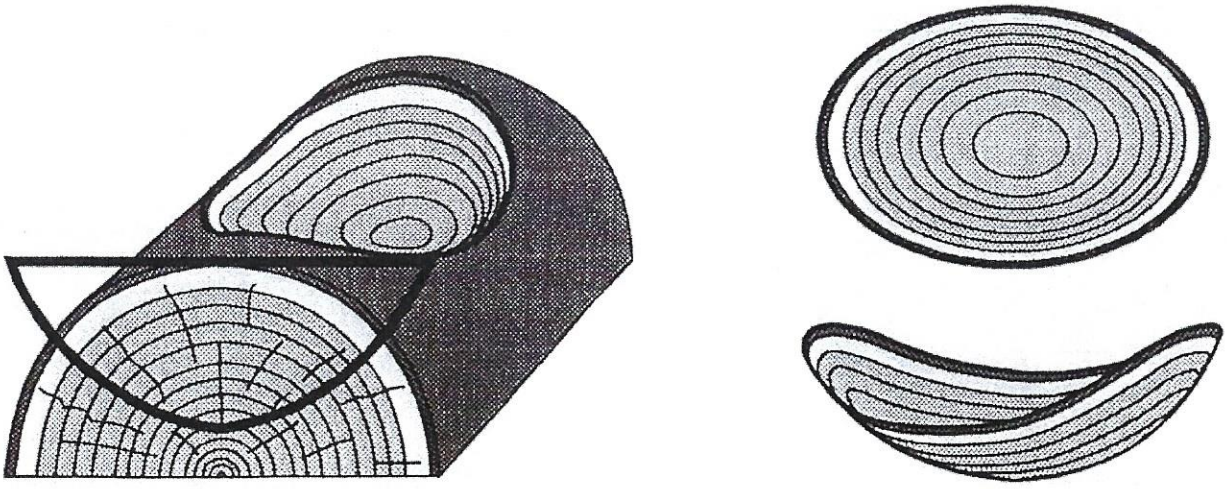
Boards in which the rings are not centered will have the pattern shift toward the pith side.



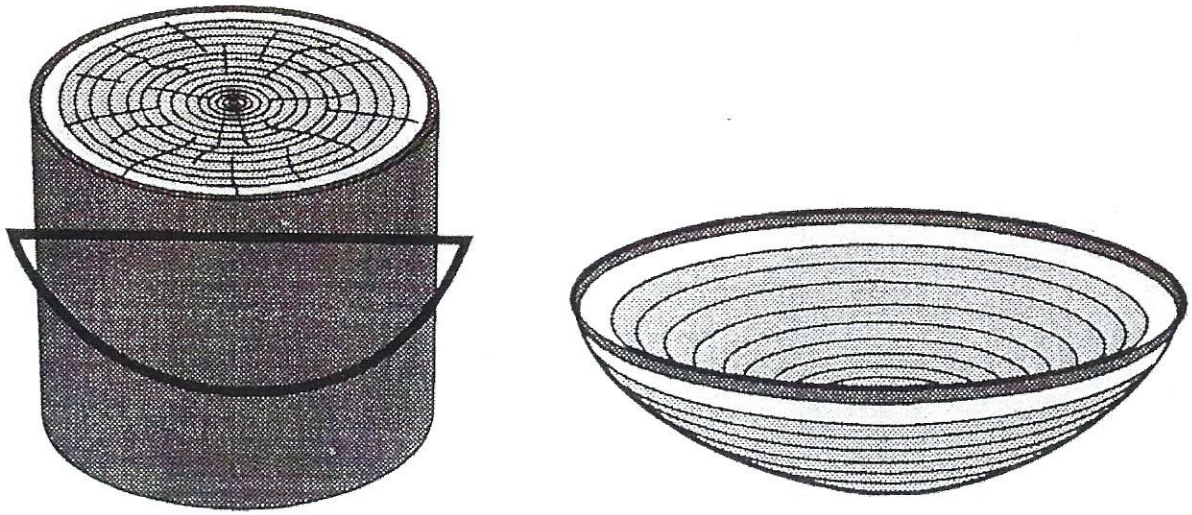
Open bowls turned with the pith at the bottom will display a concentric oval pattern. The outermost rings will be broken due to the flat rim being cut through them. If the edges cut into the sapwood, a sapwood streak will show at each edge.



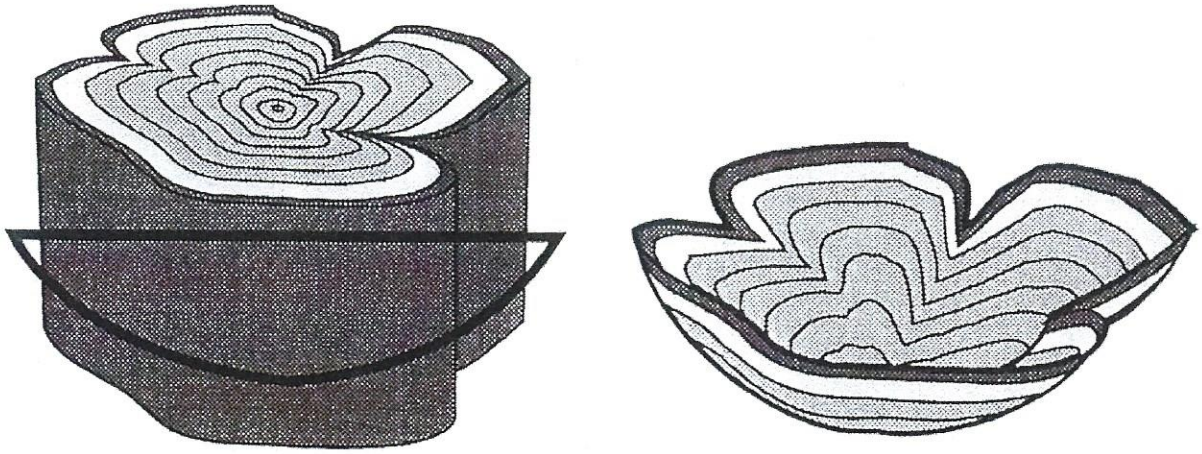
Bowls turned from boards where the pith is off centered will create an off centered pattern.



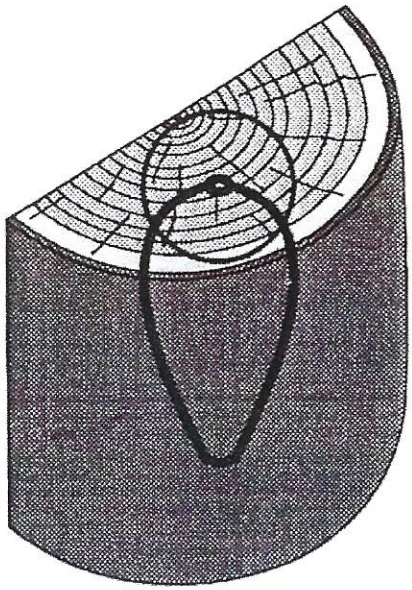
By extending the open form through the bark, an oval shaped bowl with an undulating natural rim will be produced. All the rings will be whole because none of them were cut off by the flat rim.

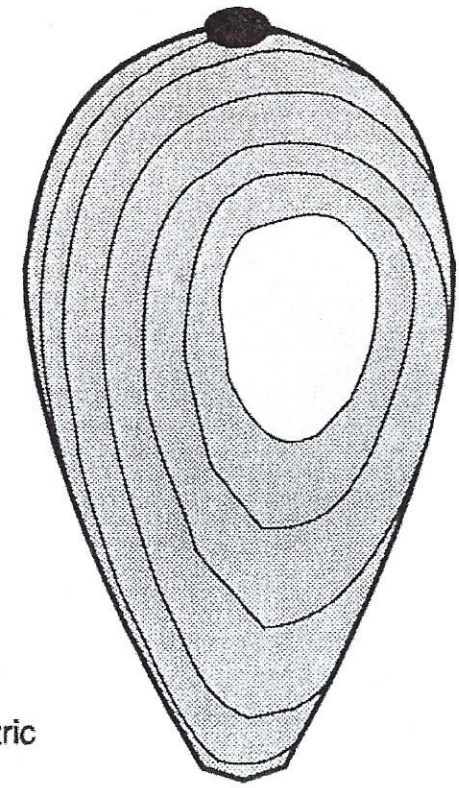


An open form turned from the whole log with the pith at the bottom will have a concentric circular pattern. If the form extends beyond the bark, there will be a natural edged bowl.

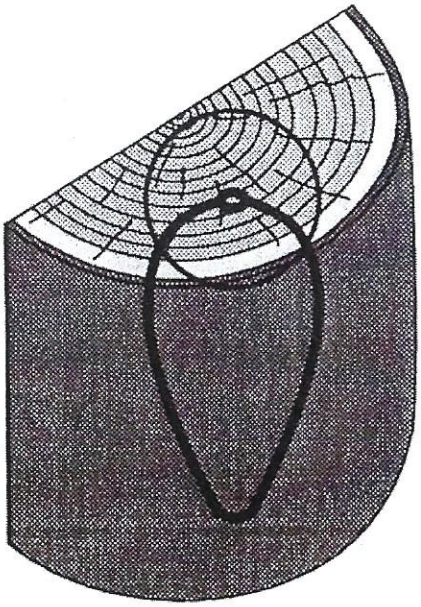


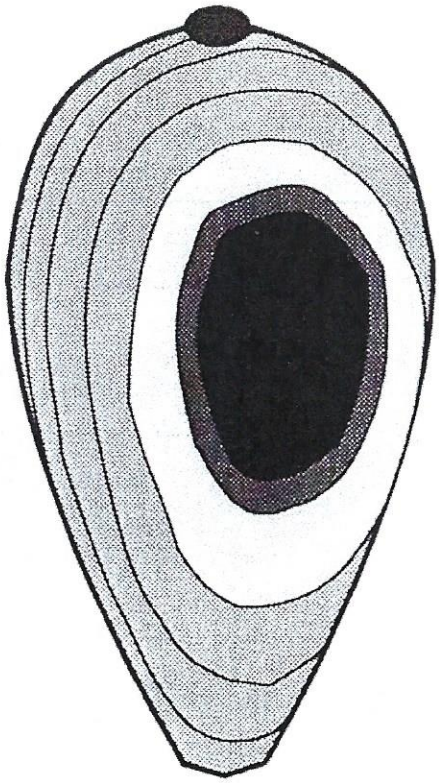
If the log is convoluted, the bowl form will have a scalloped edge.



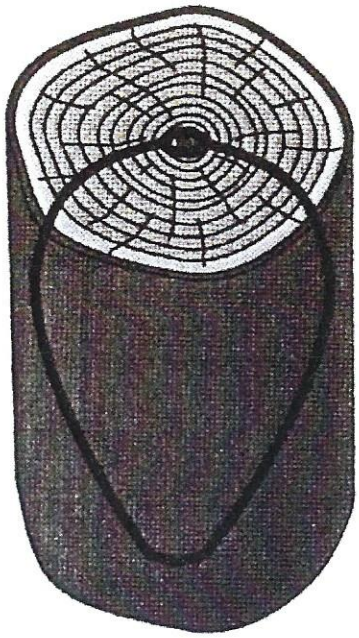


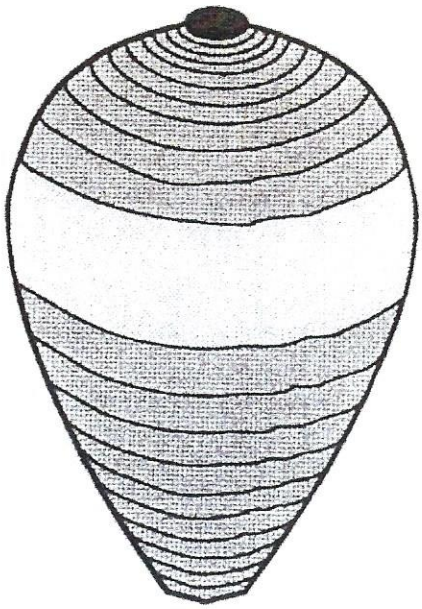
Turning a form in which the diameter extends into the sapwood will show a sapwood patch at the widest portion, surrounded with concentric ovals to the other side.



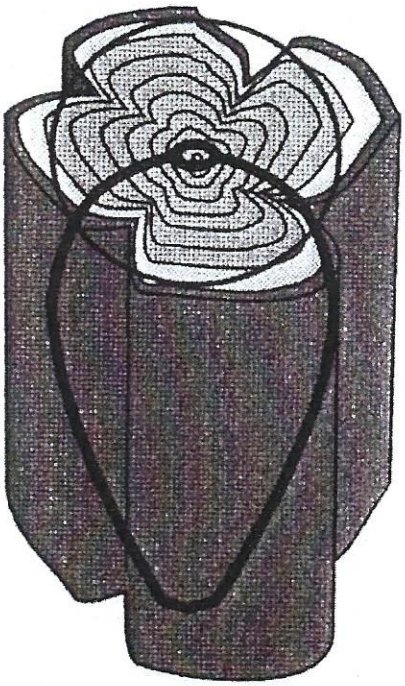


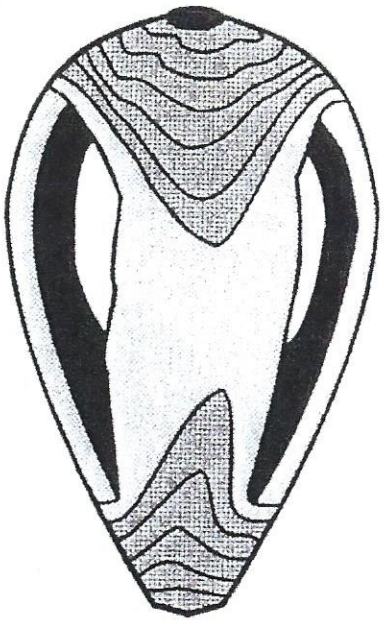
If that diameter overextends the bark, a hole will occur on the side at the widest portion, surrounded by the bark edge and sapwood.



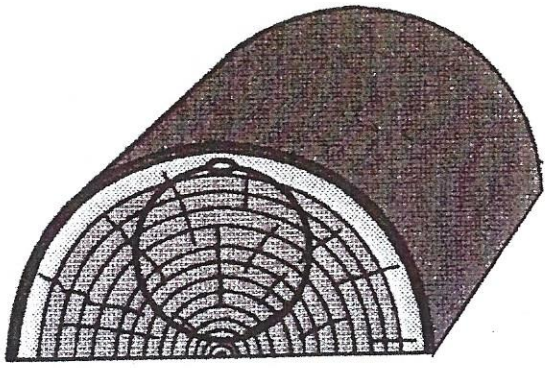


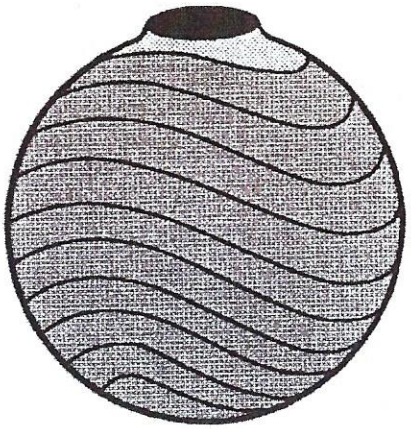
Theoretically, a form turned with the vertical axis through the pith and the larger diameter through the sapwood will have a light ring around the widest portion, with a concentric circular grain pattern.



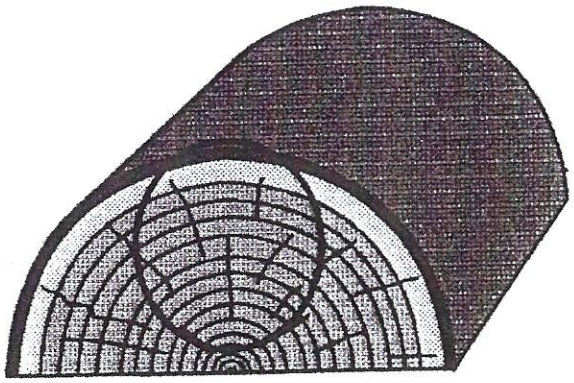


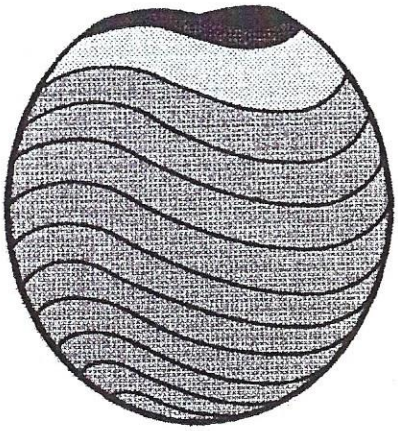
A vase form turned from a convoluted log will have openings along the sides where the wider portion of the form intersects the air.



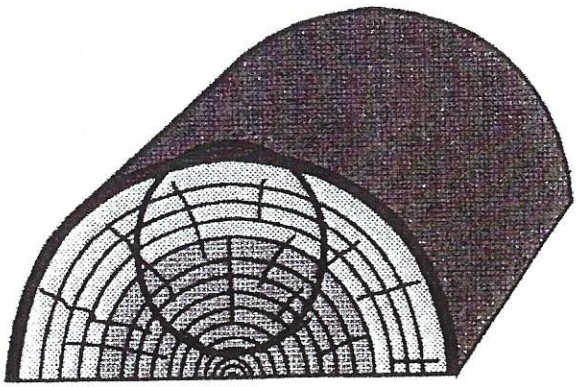


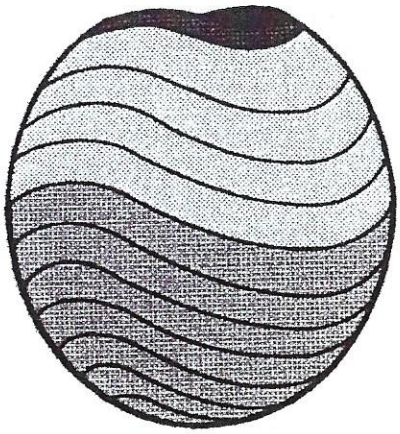
A form turned from half a log with the opening at the sapwood will have a light spot highlighting the opening and an undulating grain pattern surrounding it.



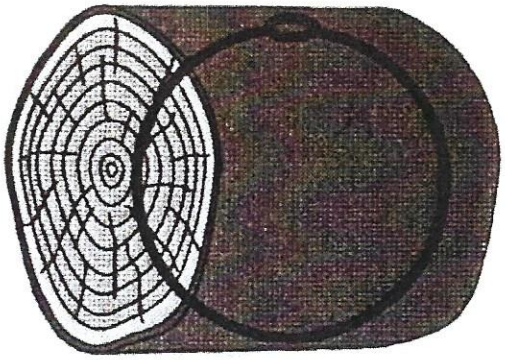


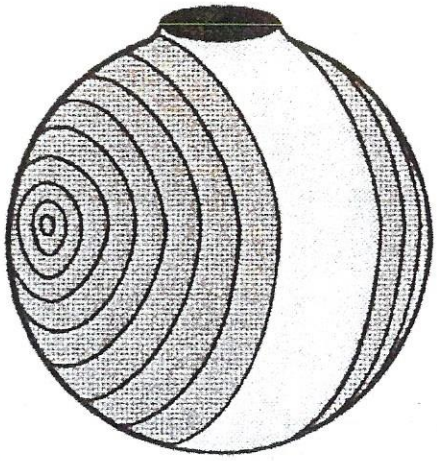
If that form is extended through the bark, a naturally undulating edge will be produced.



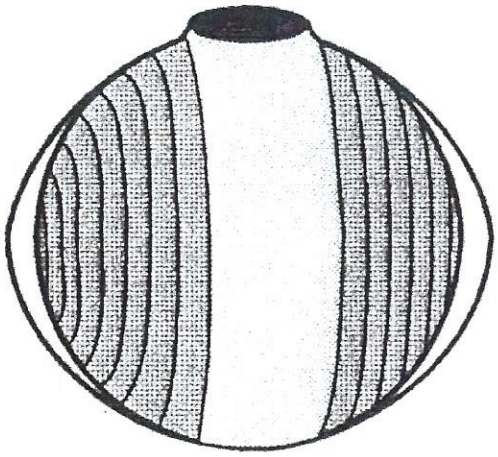


The same form turned from a log with a wide sapwood area will appear darker on the bottom and lighter on the top.

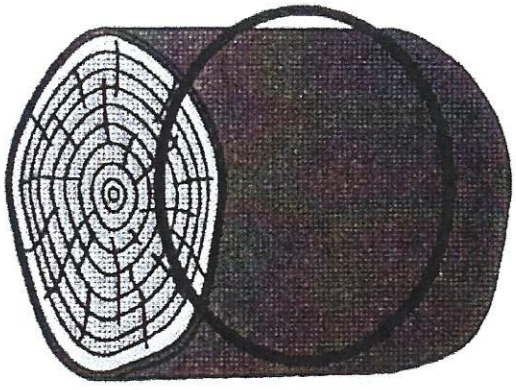


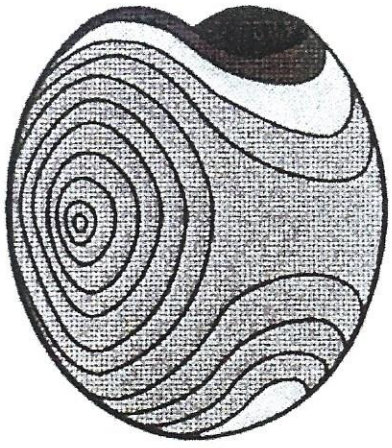


Theoretically, a round form turned with the pith running horizontally through the form will have a light band running from the rim down and around the sides. The rings of the log will show as concentric circles on both sides of the shape.

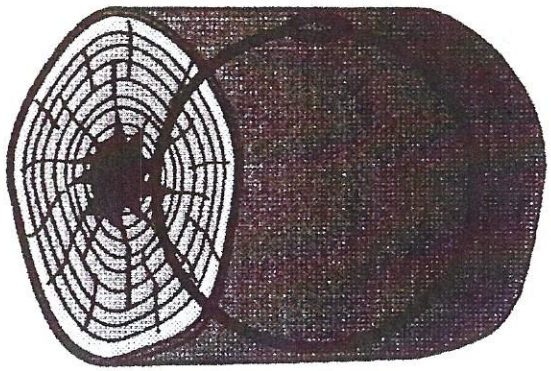


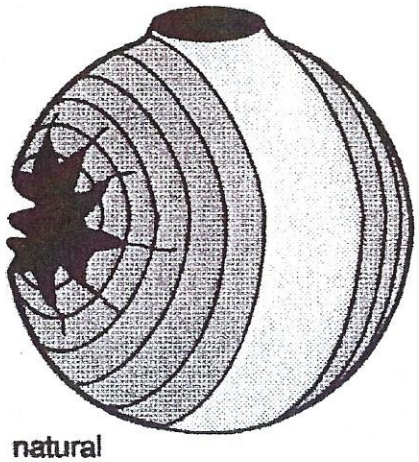
If this form is turned thin enough, the shrinking growth rings will force the pith outward into a football shape instead of cracking.



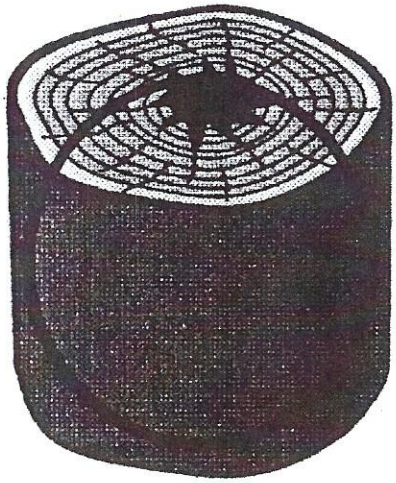


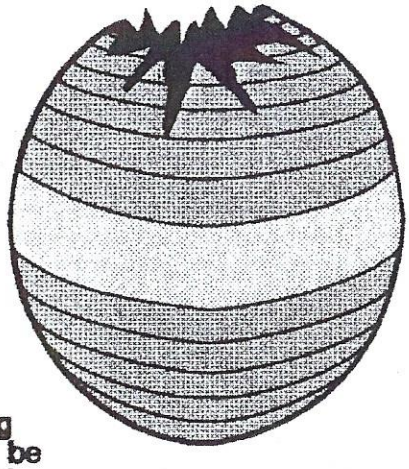
That same form, if extended through the log, will have a natural undulating rim surrounded by bark and sapwood.



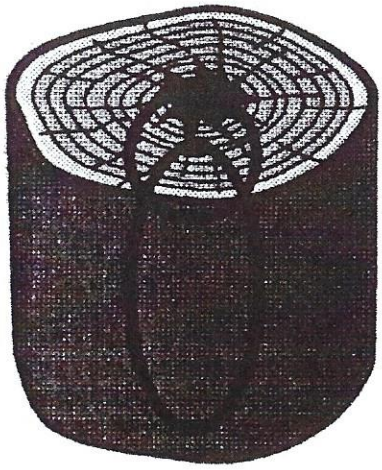


If the log has a natural hole through the pith, a natural opening will be formed on each side of the vessel.

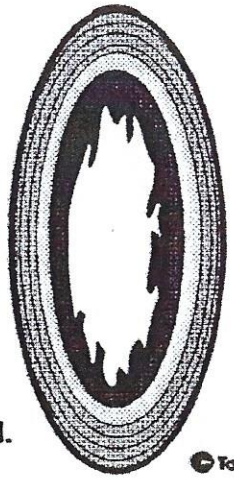




If a similar form is turned from a log that has rot in the center, there will be a naturally rotten edge on the vessel.



A tall vessel turned with the wider diameter overextending the hollow center and the outside edge will have a hollow opening extending through the vessel.



A DOZEN TRUTHS *for New Woodturners*

Kurt Hertzog

When learning the ins and outs of woodturning (or any new skill, for that matter), you might find yourself limited by preconceived notions, half-truths, myths, or misconceptions. I've compiled twelve truths that I think every new turner should understand to get started on sound footing.

Photos by Kurt Hertzog, unless otherwise noted.

1 SAFETY IS ALWAYS A WORTHWHILE ROUTINE.

Never forego safety practices for the sake of convenience, image, or complacency.

Woodturning is unique among the woodworking crafts in that the cutting edge isn't under power—the work is under power, being rotated, and you present the cutting edge, which is pointing away from you, to it. But don't let that make you complacent about safety; any powered machine can become dangerous in an instant. A stray piece of clothing or hair can become the mechanism to drag you into danger without notice. Of course, lathe tools are sharp and always capable of causing injury.

Inhaling dust and debris from turning and sanding may not seem detrimental, but the cumulative effect can be debilitating. Consider both the immediate dangers and the long-term ones.

There is no reason *not* to practice safe turning at all times. Protective equipment for your skin, eyes, face, and lungs is *always* in order. Protecting not only yourself, but anyone else in close proximity isn't being chicken or overly cautious—it is being smart and responsible.

JOURNAL ARCHIVE CONNECTION

The AAW's online archives offer plenty of safety resources included in your AAW membership. See, for example, the *Safety Guidebook for Woodturners* (a special digital publication); Hilda V. Carpenter's 2012 *AW* article, "On the Edge of Disaster: Safety in Woodturning" (vol 27, no 4, page 16); and John Kelsey's 2013 *AW* article, "Woodturning Safely: Internalize a Safety Point of View" (vol 28, no 1, page 20). Find these resources and more at woodturner.org.

2 ABILITY IS NOT DEFINED OR LIMITED BY AGE OR GENDER.

One of the joys of woodturning is that it is open to all.

Sally Ault instructs a blind turner during the 2017 AAW Symposium, Kansas City, Missouri. Woodturning has no age or gender favorites. Everyone is capable of learning and enjoying.

Regardless of whether you start as a youngster or a retiree, you'll have the same opportunities to learn and grow your skills in woodturning. Recently, manufacturers have offered lathes that are more suitable to turners with physical limitations. Tool-handling can be accomplished in various creative ways. There are turners with vision problems, missing limbs, or other challenges.

In prior decades, high school education was slanted, steering most boys to woodshop and most girls to home economics. Given cultural expectations, more men gravitated to woodturning than women. But traditional gender roles are constantly being challenged, and as people are drawn to woodturning, there are many new turners, both men and women. Capabilities are ultimately defined by training and practice—not by gender expectations.

Regardless of your background, starting point, gender, or existing challenges, you can succeed. Woodturning skills and abilities have never been predetermined by age or gender.

3 SANDPAPER IS A CUTTING TOOL.

Even the best turners use abrasives, so don't get hung up on the false stigma of "needing to use" sandpaper.

Sandpaper is indeed a cutting tool—not one that will cover up poor turning or perform significant shaping, but one that is meant to transition curves together smoothly and prepare the surface for applying a finish. Start as coarse as necessary. Don't be tempted to brag about starting at some finer grit. When sanding, slow the lathe down. If your fingers get hot, you are turning too fast. Think of the cabinetmaker, sanding with the wood not moving. Once the starting grit is completed, use a paper towel to clean off the debris. This insures that any abrasive that may have separated from the paper is gone before you start the next finer grit.

As a cutting tool, sandpaper can be sharp or dull (new or worn). Since you cannot sharpen sandpaper like you can a steel tool, throw it away as soon as it is spent. Loaded and/or worn sandpaper doesn't cut wood, it burnishes it. Follow Vic Wood's advice: "Use sandpaper like someone else is paying for it."

If your hand becomes uncomfortably warm from applying sanding pressure, you are turning too fast and not letting the abrasive do the work. Light pressure and slow speeds are the way to go.

4 NOBODY WILL KNOW IF YOU USED A SKEW.

Properly turned and well-finished turnings tell no secrets.

When you think of your end audience, or customer, is he or she buying the knowledge of which tool you used to get to the finished turning? Do they really care? If you use a spindle gouge to roll beads or make pommel cuts, nobody will know if you don't tell them.

The skew is a wonderful tool and well worth mastering. It excels at some cuts and performs many that other tools do, too. That said, the skew is a higher-risk tool in certain applications. Skew catches are usually ruinous for the work, with spiraling lines and ugly gouges on the surface. Many times, the work is not recoverable. If you are in business, you may have lost valuable stock and the time you have invested.

I am not suggesting you shouldn't learn the skew, but on projects that count, use the tool best suited to the task and which you can handle successfully. Don't be tempted to use a tool with which you are not proficient just for bragging rights. ▸

JOURNAL ARCHIVE CONNECTION

Learn more about the skew chisel by checking out these AAW resources online: Jim Scarsella's and Keith Tompkin's 2015 *AW* articles, "Build Your Skills by Understanding the Skew" and "Skew Chisel Primer: Learn the Basic Cuts" (vol 30, no 2, pages 28 and 32, respectively).

5 THERE IS NO SHAME IN JUST PRACTICING.

Every endeavor has a learning curve—practice, practice, practice.

No one starts out being an expert at what he/she does. Learning requires an understanding of the basics and then practicing them until they become second nature. At the lathe, the ability to think of the curve you want and have the muscle memory to execute it without worrying about the minute details is the goal. Like practicing the scales on a musical instrument, practicing the various lathe cuts with each of the tools in your kit will pay dividends. Not only will you become more proficient and confident, you will also speed your throughput, reduce sanding, and probably enjoy turning more.

So spend time at the lathe just practicing and not necessarily striving for a finished, presentable product. Each and every tool you use has an application. It performs one or more cuts superbly or it wouldn't exist. The kit in its entirety will let you do almost anything, once you master the tools. If you try to practice while you are creating something, you tend to focus on being successful, rather than on skill-building.

JOURNAL ARCHIVE CONNECTION

Learn how to practice at the lathe effectively. See Kip Christensen's 2017 *AW* article and accompanying video, "The Scales and Chords of Spindle Turning" (vol 32, no 1, page 14). Visit woodturner.org.

6 SHARPENING IS WORTH EVERY MOMENT YOU SPEND ON IT.

Sharp tools provide better results more quickly and more safely.

Like tuning a guitar before playing it, you must "tune," or prepare, your cutting tools for optimal performance in order to master their use. From the retailer, lathe tools are rarely at the correct grind angle or sharp. You immediately need to get to the grinder to create the proper angle and shape. Without a sharp tool, newcomers will tend to make every tool a scraper. They'll lift the tool handle and increase the clearance angle until something happens. It makes every cutter a scraper and generates dust rather than curls.

A functional sharpening system is required on day one. If you have a lathe and tools without a sharpening system available, you aren't ready to turn yet.

Sharpening, like turning skills, isn't a natural trait. It will take learning and practice. The time you spend perfecting your sharpening skills will be time well spent. Eventually, you'll be able to sharpen your tools quickly and efficiently. Once sharpening becomes easy, you'll do it often and never wait for a tool to become very dull. Touching up a tool edge is far easier and quicker than fully sharpening a dull tool.

7 PROJECTS NEEDN'T BE COMPLETED IN ONE SESSION.

Always expecting a finished project after just one turning session can shortchange results.

Woodturners are unique in the world of woodworking. Rarely can a woodworking project like a piece of furniture or cabinetry be completed in one session. For the woodturner, it is often expected. Perhaps the immediate gratification is what draws people to our craft, but this expediency can also leave creativity on the back burner.

Consider that woodworkers often divide their project time into thirds: one-third for project creation, one-third for sanding/prep for finish, and one-third for finishing and final touches. Losing the need to finish everything in one go, you won't need to hurry sanding and skimp on finishing prep. You'll also be able to inspect the work carefully and go back to fix problems. Removing the impulse to hurry, you can also evolve from quick finishes, such as friction polish, to the wider spectrum of slower-curing but more durable finishes, like varnish. You can also revisit form and creative ideas.

Sharpening skills will make your turning far more effective and enjoyable. It only takes moments to perform. Develop the skills in sharpening along with your turning.

8 ATTENTION TO DETAIL PAYS DIVIDENDS.

Attention to detail doesn't always take long—just a few extra moments to get a better fit and finish, for example.

Paying attention to detail will raise the level of your work.

Whether you are a hobby turner or a professional, your turning projects are likely to be judged in some manner—if not in a competition, then maybe as a measure of your competence or as a comparison of asking price to perceived value. A surefire way to improve overall results is to spend the extra time and care on the finer details. This can be as simple as grain orientation in a bowl to achieve the best visual end result. One detail always worth considering is preparation for finish; that errant scratch you missed during the sanding process will certainly get highlighted under the final finish.

As your skills improve and your audience changes, the scrutiny of results increases and attention to detail will only become more important. Turning structural chair parts without care as to straightness of grain and orientation is a future failure. Overheating a sensitive species during sanding is a future crack development. Lack of care during sanding erases crisp details. Selection of species for a project is an important factor, as is the actual selection of the blank. All of the materials may look the same, but paying attention to the differences in stock can lead to better results.

Make paying attention to detail a habit. It costs nothing and yields huge results.

9 PROBLEM-SOLVING IS REWARDING IN AND OF ITSELF.

Often satisfaction comes not from the finished product, but from problems solved along the way.

Don't let problems that arise derail your woodturning. You'll experience challenges at every stage of your woodturning career, and they are best seen as learning opportunities. These can be as simple as a wood species that doesn't turn well, even when you follow the "rules." Sometimes, breaking with convention can solve the problem of a troublesome workpiece. Every species can have some peculiarity that you'll need to address, and when you do, you'll know a little more for next time.

Work-holding challenges often require creative solutions. Through experience, you'll develop a useful bag of tricks, like custom jam-chucking, friction-fitting, taping, hot-melt gluing, vacuum-chucking, etc. Problem-solving brings enjoyment to the journey.

Work-holding will always offer chances to solve problems. There is a way to safely hold just about anything on the lathe. The keyword is *safely*. Sometimes it takes special jigs, chucks, adapters, fasteners, adhesives, and more. Get creative. Solving the problem shouldn't be viewed as an obstacle, but rather as the fun of learning. Much of your growth as a turner is how you embrace these challenges and add skills to your repertoire by doing so.

Challenges are not only at the lathe. The workshop can present problems needing attention. For example, dust extraction and compressed air routing for availability in the shop can be rewarding puzzles to solve. Of course, storage for tools, equipment, finishes, and wood is always in need of some creativity. As your woodturning skills progress and the woodturning portions of a project become easier, ancillary problem-solving tasks will be a refreshing departure from chip-making.

10 YOU'LL NEVER KNOW IT ALL, SO KEEP AN OPEN MIND.

One of the joys of woodturning is that the learning never ends.

Regardless of how long you've been at it or how proficient you've become, there is always something else to learn or explore. Many people specialize by turning mainly bowls or pens or lidded boxes. Every type of woodturning has its own techniques and tricks. If you ever get to the point where you feel bored because you've "mastered" woodturning, branch out ▸

One of the most rewarding aspects of woodturning is sharing it with others. In doing so, you'll continue to learn, too.

into a different facet of turning. Try your hand at various embellishing techniques or a completely different form.

Part of the joy of woodturning is the continual learning process, made easy with books, videos, live demonstrations, and classes. Video in particular is a rapidly expanding medium on the Internet. But be certain to verify the quality and safety being conveyed in online videos, many of which blatantly show unsafe practices. AAW's VideoSource vets online videos for you, so you can trust the content of videos included there. Visit tiny.cc/AAWVideoSource to check it out.

Another way to keep learning is to teach, a rewarding challenge that will expand your own skills as well as those of your students.

11 MISTAKES AND FAILURES CAN TEACH YOU WELL.

Embrace your mistakes and fumbles—determine what went wrong.

As you progress in woodturning, you will likely take on new challenges that require more time and skill. With complexity comes the greater likelihood of complications, mistakes, and mishaps. Multi-piece assemblies, inserted and friction-fit parts, complicated base material glue-ups, and more will present occasional failure, sometimes due to an error on your part and sometimes not.

Wood, a natural and organic material, is fraught with potential issues. Material flaws that become evident or problematic during a project can be design opportunities. Everyone makes mistakes, and things happen—accept this fact and live with the vagaries of working with something that grows rather than is manufactured.

From a more philosophical perspective, if you are succeeding at your turning projects 100 percent of the time, you probably aren't stretching your abilities. Taking risks in the form of new processes and techniques (always done safely) will expand your skillset. You can also take risks in the form of project design, which might ultimately fail but show you what's next.

When you've had an unrecoverable error, pitch the flawed materials. Don't throw good money after bad.

12 THE MAGIC ISN'T IN THE TOOL.

Contrary to the woodturners' joke that you are only "one tool away from greatness," acquiring that brand new tool will probably not solve your turning challenges.

You'll ultimately accept the fact that the magic isn't in the tool—it's in the turner. I know that having the latest and greatest offering in your kit can be part of the fun of woodturning. There is plenty to choose from in the way of tools and equipment, some of which is quite impressive. Manufacturers strive to offer what will sell, with continual improvement in design and materials. Those innovations can certainly help but won't replace solid learning and practice on your part.

Mostly, sharp tools, good technique, and creative ideas are behind the best woodturning. No one ever played Carnegie Hall by buying a fancy piano. They got there by mastering their skills and being able to exhibit their mastery using any piano. ■

Kurt Hertzog is a past president of the AAW, past chairman of the Rochester Woodworkers Society, and a council member of the Pen Makers Guild. He has written about woodturning and woodworking extensively for various publications, including Woodturning *and* Woodturning Design, *where he published a long-running penmaking column. You can find all of these and many additional unpublished articles at kurthertzog.com.*