

# Turning a **Roman Drinking Flask**



**Presented by**

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# INTRODUCTION

## Your Presenter:

Paul has been woodturning for approximately nine years. He is a member of the American Association of Woodturners, is currently President of the Waterloo-Wellington Woodturner's Guild in Waterloo Ontario, and a member of the Thames Valley Woodturner's Guild in London, Ontario. He has demonstrated turning techniques at Guild meetings, workshops and wood shows. His turnings include bowls, vessels, lidded boxes, wine-stoppers, and art pieces.

## History

Woodturning is a craft that has been passed down through generations, with the earliest known examples being over 4000 years old. Before the metal age, and the industrial revolution, vessels for eating and drinking were mostly made of wood or ceramics. The earliest of these were carved bowls and cups. Later artisans learned to "turn" wood on early pole lathes, creating more uniform shapes. With advent of the industrial revolution, turned wood items declined in use in favour of those in metal and ceramic.



Woodturning enjoyed a resurgence beginning in the mid twentieth century, and is presently enjoying immense popularity worldwide as both a professional art form and a popular hobby. The American Association of Woodturners was formed in 1986, by a small group of American and Canadian woodturning artists. Today the AAW boasts over 15,000 members, and a network of over 350 local chapters worldwide.

## Intent of this Workshop

In this workshop we will learn the steps of woodturning a Roman Drinking Flask / Canteen. Special thanks must go to Tim Yoder (woodturning with Tim) for his inspiration in turning this piece.

Subject matter will include:

- Lathe safety
- Tools and their usage
- Tool sharpening techniques
- Basic design
- Preparing and mounting the wood
- Truing the wood and forming tenons
- Multi-axis turning
- Hollowing
- Finishing

## Tools and Materials Required:

- Wood – You will need three pieces of wood:
  - Main Body – 4<sup>3</sup>/<sub>4</sub>" x 7" x 2".
  - Inserts – 3" x 3" x 1"
  - Top – 2" x 2" x 2 1/2" long
  - Cork (3/4" btm, 1" top x 1 1/2" long)
  - 3/8" dowel approximately 1 3/4" long.
- Sharp Turning Tools
  - Spindle Roughing Gouge
  - 1/2" or 5/8" Bowl Gouge
  - 1/2" Spindle Gouge
  - Carbide tip round nose finisher
  - Carbide tip detailer
  - Carbide tip hook Hollowing Tool
  - Standard 1/4" Parting Tool
  - Thin 1/8" Parting Tool
- Safe Drive & Live Centre for mounting the wood between centres.
- 4-Jaw Scroll Chuck with appropriately sized jaw sets (#2).
- Collet Chuck with 3/8" collet.
- Wormscrew.
- Jacobs Chuck for drilling.
- 3/4" and 1 1/2" Forstner Bits.
- Vernier calipers.
- Drill for power sanding
- Glue
- Sandpaper (120 / 240 / 320 / 400 grits).
- Finish

## SAFETY GUIDELINES

### Wear Proper Attire!

- Always wear eye protection. A face shield is the best method of eye protection.

- Loose clothing and hair are dangerous because it can get caught in the spinning lathe. Tie back long hair, and wear clothing with short sleeves or roll up long sleeves. Remove jewelry and watches and rings as they can get caught up in moving parts.
- Be aware of the dangers of breathing wood dust. Wood dust is dangerous when inhaled in quantity. Prolonged exposure to wood dust can cause respiratory ailments. Wear a dust mask or respirator when sanding wood.
- Most finishes are not safe to breathe and precautions should be taken to avoid inhaling their fumes. A good respirator rated for finish-type chemicals would be a good investment in your health and future mental capacity. Be aware that chemical respirators have a limited functional shelf life so the filters should be changed when necessary.

### Keep your fingers and body parts out of harm's way.

- The toolrest on the lathe should be as close to the work as possible so that your fingers will not get caught between the toolrest and your work ( $\frac{1}{8}$ " to  $\frac{1}{4}$ " would be safe).
- Get in the habit of blowing the dust and shavings off the toolrest instead of wiping it off with your fingers. Using your fingers to clean off the toolrest might cause your fingers to get caught between the work and the toolrest.
- Always turn the lathe off before moving the toolrest. This prevents harm not only to your work but also to your body parts.
- Do not wrap sandpaper or buffing/polishing rags around your fingers or hand. If the cloth gets caught in the spinning parts of the lathe, your fingers will be pulled into the lathe.
- Use paper towels for applying finishes. Paper will tear off if caught in the lathe.
- Check to see if pieces are securely held in the lathe. Check again!
- Rotate piece by hand and check to see that it rotates freely and does not contact the tool rest.
- Pay attention to, and use the proper lathe speed.
- When in doubt, start lathe on slow speed and increase after you are sure all is OK.
- Before turning on the lathe, always double check the speed setting. Also be sure to check that the drive belt is on the proper pulley for what you are turning.
- Turn at a speed that is comfortable for you and is appropriate for the work. A good rule of thumb for proper lathe speed, (Craft Supplies Woodturning Catalogue), is that the product of the diameter of the piece times the lathe speed in rpm's should fall somewhere between 6,000 and 9,000. For example, a 10" diameter turning times a lathe speed of 800 rpm's equals 8,000, which would be a safe speed as 8,000 falls between 6,000 and 9,000.
- Larger, or more off-balanced items should be turned at slower speeds.
- Stand clear when starting up lathe.

***Listen to your inner voice – if it doesn't feel right; don't do it!***

## LET'S GET STARTED

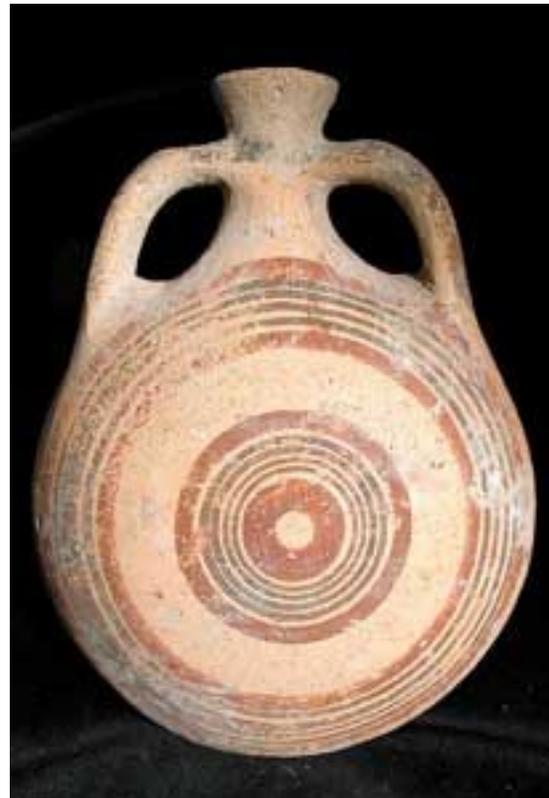
### Lathe Tools & Usage:

- Use only those tools meant for the appropriate task.
- Make sure your tools are properly ground and sharp.

- Observe the ABCs of Woodturning (Anchor – Bevel – Cut)
- Take small cuts – don't be too aggressive.
- Cut downhill – always have fibers supported.

### Design – Shape is Important to a Successful Turning

- Design should follow classic forms (study ancient drinking flask / canteen design).



- For the purposes of this seminar we will be turning a hollow Roman Style Drinking Flask.



## Step One – Prepare and Mount the Main Body Blank

- Examine the blank first; check for cracks, bark inclusions and other faults. If the wood is "punky", or contains one or more of these faults, discard it.
- Identify which will be the top, and which will be the bottom of the flask on the ends of the blank.
- Mark the centre at each end of the body, and the centre of each face.
- Drill a 19/64" diameter hole - 1" deep at the centre of one face. Use a drill press if possible, or hand drill.
- Mount the blank on a wormscrew held in a scroll chuck in the headstock. Ensure that the blank is tight and flat against the jaws of the chuck.
- Turn a 2-1/8" diameter recess approximately 1/4" deep on the face. Make the recess with slightly dovetailed sides to fit the chuck jaws.
- Using a medium Sharpie pen, mark three rings on the face; one at the edge of the blank representing the outside edge; one at 2" diameter; and the third ring at 3" from centre. Remove from the lathe.

## Step Two – Shaping Main Body Blank

- Re-mount the blank between centres using a safe drive & live centre, with the bottom closest to the headstock. Bring up the tailstock for support, and lock into place.



- Start lathe on slow speed and increase after you are sure all is secure. Increase speed to a level appropriate for the work and your skill level. Stand clear when starting up lathe.
- Set on 1200rpm speed when first starting to shape the blank. Too fast may be dangerous, but too slow may cause tear-out.

- Using a bowl gouge, begin to slowly shape the blank to the outside curve. Take small cuts. The neck and base of the flask need to be just turned to round from square. Don't turn them too small yet.
- Using a parting tool, turn a 1-7/8" to 2" diameter tenon on the base end to use when drilling the out the neck. Make sure the tenon will fit the scroll chuck.
- Once the main body is shaped, turn and shape the neck and base using the carbide tip tools. This may also be done using a spindle gouge and/or skew if so desired.



- Once shaped, you may sand the neck and base on the lathe at slow speed, but you will have to sand the main body using a power sander, with the lathe **off**. Use light touches with the power sander, keeping the sander moving constantly, taking the time to go through the grits.
- Remove the safe drive and re-mount the blank between centres using the chuck on the tenon and the tailstock for support and centering. Remove the live centre.
- Mount the Jacobs Chuck in the tailstock and drill the spout using a 3/4" Forstner bit to a depth of about 3".
- Begin shaping the inside of the spout to match the taper on the cork. Do not push the cork into the spout at this time as it may become stuck. Final shaping will come after hollowing.

### Step Three – Hollowing

- Mount the blank in the scroll chuck using expansion holding in the recess turned in the face earlier.
- Using Jacobs Chuck in the tailstock, drill the side using a 1 1/2" Forstner bit to a depth of about 1 3/4". Drill close to the back of the recess but leave about 1/4" beyond the drill. Measure carefully before you do this and do not drill too deep.

- Now using the hook hollowing tool, hollow out the interior of the flask. Go slowly and take small passes. Once you reach the spout, the possibility of a catch increases. Be cautious. Wrap a piece of tape around the stem of the tool to indicate desired depth.



- Do not sand the inside of the flask with the lathe on. This may result in serious injury. Sand by hand with the lathe turned **off**.
- Using a scraper or parting tool, increase the opening size to approximately 2". Make the edge slightly dovetailed.
- Using the round nose finisher, or a bowl gouge, finish shaping the face of the flask. Make the inner 3" flat and then slightly curve the outside edges. Using the detailer, add a decorative groove between where the insert will be, and the outer edge. Sand.



- Reverse the flask and finish the opposite face to match.

### Step Four – Turning the Inserts

- Mount the blank between centres using a safe drive & live centre. Bring up the tailstock for support, and lock into place.
- Turn the blank round.
- Measure the inside diameters of the holes made in the flask for the inserts, and turn a tenon on each side of the blank to match that diameter. Remove from the lathe and test fit. They should have a snug fit.
- Re-mount the blank, and part off down the centre using a thin parting tool. Take care to back off the tailstock slightly to relieve pressure.
- Mount each insert into the chuck and using the round nose finisher, turn the surface to a concave shape leaving a 1/8" edge.
- Using the detailer, add three decorative grooves to the insert. (At this point you may choose to add more decorative elements such as textured rings, etc.) Sand the insert. Use a handful of shavings to sand the rough edges off the grooves.
- Repeat for the other insert.

### Step Four – Turning the Stopper

- Mark the centre of one end of the stopper. Drill a 3/8" hole, 1" deep for the dowel. Ensure a tight fit. Glue the dowel into the stopper.
- Mount the stopper blank in a collet chuck. Bring up the tailstock for support, and lock into place.
- Turn a tenon to 1" diameter beside the collet chuck to match the top diameter of the cork.
- Turn the shape of the stopper, working towards the top. Remove the tailstock at the last minute. Sand and finish the top on the lathe.
- Drill the stopper to suit the depth of the dowel, and glue the stopper and cork together.
- Remount the main body of the flask in the chuck and finish turn the spout. Be careful not to "overturn" this part. Match the taper of the spout to that of the cork.



## Step Five – Assembly and Finish

- Prior to assembly, carefully cut off the tenon at the base using a bandsaw or hand saw. Sand the base flat.
- Apply glue to the tenons of the two inserts and glue into place.
- Apply a hand wiped finish such as Tung oil or Wipe-on Polyurethane to the outside of the flask. Do not finish the inside if you intend to drink from it.

## A Few Pointers – Things to Remember

- Safety First!!!
- Be sure wood is always securely held in the lathe. Check again!
- Spin the wood by hand first to check securement and toolrest position.
- Remember the ABCs (Anchor - Bevel - Cut)
- Take small cuts – don't be too aggressive.
- And most important of all .....

Have Fun!

## SUGGESTED RESOURCES

### Associations

- AAW – American Association of Woodturners [www.woodturner.org](http://www.woodturner.org)

### Videos

- Turning a Flask – Tim Yoder (YouTube)

### Local Clubs and Guilds

- Waterloo-Wellington Woodturners Guild (Waterloo) [www.wwwoodturners.com](http://www.wwwoodturners.com)
- Thames Valley Woodturners Guild (London) [www.thamesvalleywoodturners.com](http://www.thamesvalleywoodturners.com)
- Golden Horseshoe Woodturners Guild (Burlington) [www.ghwg.ca](http://www.ghwg.ca)
- Grey-Bruce Woodturners Guild (Kincardine) [www.gbwg.ca](http://www.gbwg.ca)
- Simcoe Woodturners Guild (Midhurst) [www.simcoewoodturnersguild.com](http://www.simcoewoodturnersguild.com)
- Toronto Woodturners Guild (Toronto) [www.torontowoodturnersguild.com](http://www.torontowoodturnersguild.com)
- Woodturners Guild of Ontario (Toronto) [www.wgo.ca](http://www.wgo.ca)
- Kingston Woodturners (Kingston) [www.kingstonwoodturners.com](http://www.kingstonwoodturners.com)
- Valley Woodturners (Ottawa) [www.valleywoodturners.userworld.com](http://www.valleywoodturners.userworld.com)