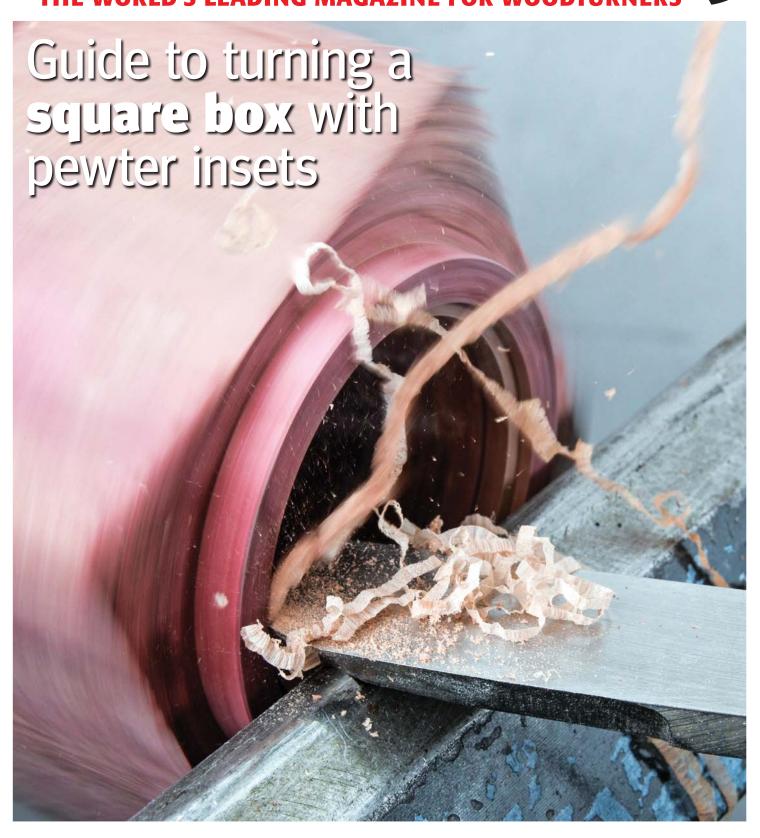
# Woodturning THE WORLD'S LEADING MAGAZINE FOR WOODTURNERS



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# Happy accidents





Inadvertent decorative effects

We all have times when things don't go as planned. It could be a nasty experience that we need to learn quickly from, but there are other experiences that leave you pondering on how they actually occurred. The latter happened to me recently and left me smiling and frustrated at the same time.

I was trying out some tools and various cuts on end grain and, while using a spindle gouge, I inadvertently created two wonderfully detailed patterns during the cut when it should have been a smooth, clean cut. You can see the two patterns in the lead images.

In each case, the toolrest was 8mm away from the work and parallel to the cylinder/lathe bed bars, the wood was 200mm long held in a chuck and secured properly. The lathe speed was 1600rpm and the spindle gouge, which was constructed from 10mm bar, had a fingernail profile on it with a bevel angle of 35°. It was presented to the end of the cylinder entering the timber above centre, cutting on the lower wing of the gouge and arced and moved forward across the timber until the tip finished

dead on centre at the end of the cut.

I noticed during the cut that there was a slight vibration and a little noise, but nothing untoward and when I stopped the lathe and looked the diminishing spiral pattern was evident. Not only is it a spiral, it has a spiral within a spiral. I loved it and thought it had potential. Me being me, I wondered what had happened and set about trying to replicate the cut. My second attempt had a totally different outcome. Both are attractive and would benefit from being a band of decoration contrasting against plain areas of wood.

But here is the rub. Despite my trying many times to create similar patterns to these two again, I have failed miserably. These two pictures are like smirking faces to me, knowing that I have failed to get close to them again. I have to admit that they are likely one-offs and I will have to put up with happy accidents that will intrigue me for many years to come with a follow up, though, of 'if only I could...'.

So these patterns came about as a result of many factors - lathe speed, pressure, traverse rate, timber projection from the chuck and density, security of

hold, spigot form and so on. Replicating anything like this is a long shot by hand, but I have been wondering if I can create a jig of some sort that might enable me to experiment more and get repeatability of such patterns. I am pondering that, but doubt I will have the time and patience with all the experimentation required.

I cannot be alone in having such adventures and would be intrigued to hear about your workshop tales of coming so close to creating something wonderful or doing it once and never being able to repeat it.

I am wondering if the only way to achieve this is to look at ornamental turning. It is a fascinating subject, but one that I could no doubt spend a lot time and money on.

Have fun and let me know what you have been making.

Mark

markb@thegmcgroup.com



Cover image: Pat Carroll (see page 45)

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#### **NEWS, LATEST PRODUCTS, MAGAZINE UPLOADS & EVENTS**

can all be found on www.woodworkersinstitute.com. These all appear on the magazine homepage and you can see a bigger selection by scrolling down the page and clicking on the individual stories. We also have an extensive online archive for you to browse, or see us on Facebook & Twitter.



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#### **HEALTH AND SAFETY**

Woodturning is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines. All readers should observe current safety legislation when turning and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE).









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# Creating resin infusion castings

Keith Lackner shows, step by step, how he makes his one-of-a-kind resin and wood castings



When people think about turning, they mostly consider some kind of wood, whether it's a nice piece of maple to make a bowl, or maybe a highly figured piece of burl to make a hollow form. Most people don't think about pouring resin over a piece of wood. When I started turning back in 2012, resin casting was the furthest thing from my mind. It wasn't until I took a trip out to the David Marks Woodworking School that my life as a

woodturner would take a completely different path. I love working with highly figured woods, but living in Illinois it's very hard for me to get my hands on burls that are not loaded with cracks, have bark inclusion, or any other defect making them unsafe to turn. One night I was turning a pen that was half wood and half resin when I had the idea. Why can't I do this on a large scale and cast large,

unusable burls into blanks to safely turn? One problem was that back in 2013 there was almost no information on casting, let alone how to cast anything larger than a duck call. I had to develop a lot of the knowledge on my own through trial and error – there is a lot of error in the beginning – to make my one-of-a-kind resin infusion works of art. Following are the processes that I use to make my wood/resin blanks.

#### Safety

As with any making processes, you are likely to encounter potential risks. In this article there is information on working with wood, cutting and cleaning it up, use of multi-part resin, using hot-melt adhesive for creating moulds and potentially hot timber to name but a few potential hazards. Please make sure you are wearing the appropriate personal and respiratory protective equipment and undertake other procedures as required to make sure you are minimising risks to yourself.

#### Wood preparation

The most important element of casting is the preparation of the material - if the wood is not properly prepped there is a very high chance of failure. Make sure you remove all dirt, dust and loose bark from the surface before beginning. Wire brushing helps remove the waste debris, bark and such like.

In terms of casting resins, I use Alumilite but other products are available. The wood needs to be very dry. As woodworkers we think of dry wood as having a moisture rate of between 8%-12%, but in casting that is way too much moisture in the wood and will lead to a failure to bond or shrinkage of the wood and joint failures. When casting, your wood needs to be at 0% moisture.

To achieve this, place your wood in an oven at 220°F/104°C until all the moisture is gone, checking with a moisture meter. Once your wood is at a true o% moisture you are ready for casting. Use gloves and tongs when removing wood from the oven and check it regularly. You need it dry, not burnt. Preparing the wood ready for casting





#### Making a mould

Moulds can be made from any material. You can use medium density fibreboard (MDF) as I am in pictures, hardboard and other such inexpensive materials available at any hardware store. This material is great to use for a one time mould. Just cut the mould to size and use hot-melt glue to glue the side. If you're planning on casting a repeatable size (pen blanks, duck calls, etc.) then I recommend investing in a plastic mould. Plastic moulds can be made from PVC pipe, or ultrahigh-molecular-weight polyethylene (UHMW). Both PVC and UHMW materials can be used over and over again, unlike the hardboard/MDF moulds. Perfect accuracy is rarely required when making moulds, but do not make them too big for the project being undertaken. Make them just a tiny bit oversized to allow you to turn just a small amount of waste away to end up with the size you require, or you will end up wasting resin and that is not going to help the bank balance.



Make moulds from any material strong enough to turn into a suitable mould



Medium density fibreboard (MDF) is useful for making moulds



When making a mould, make sure all of the relevant joints are bonded together with no leaks

#### Getting ready for resin

On smaller castings, hot-melt glue can be used to secure the wood to the mould. But on larger pieces the glue will fail due to the amount of heat generated by the resin, so I recommend using a mechanical fastener. Once the wood is in place in the

mould, you will need to know how much resin to mix up. The easiest way I have found is to pour rice over the wood and fill it to the desired volume line, then measure the volume of rice it took to fill the voids.









TOP LEFT: Once you have your mould made, bond the wood to the mould to keep it in place during the casting process

TOP MIDDLE: If using large sections of wood, use a screw or other mechanical fastening to keep the wood in place

ABOVE: Rice is a cheap and easy way to figure out how much resin is needed to complete your project. LEFT: Once you have the rice filled to the level required, transfer it to a measuring jug to see how much resin mix is required

#### Mixing and pouring resin

Once you know the amount of resin needed it is important to properly weigh out both 'A' and 'B parts of the Alumilite clear resin in equal parts. To do this I use a digital scale that measures in gram weights, but any scale will work.

Once both parts are evenly weighed out, they need to be thoroughly mixed together. For this I prefer a paddle bit on the end of my power drill. This ensures both parts are thoroughly mixed in a very short period of time. Once both parts have been combined this is the time when coloured pigments and dye powders can be added. It is very important to NEVER



Make sure you add the resin and hardener mixes in the right proportions

use any water-based colour, as you will have a catastrophic failure. I use the Alumilite dyes and Pearl-Ex mica powders, but do experiment to see what works for you. After adding the colour, mix again and then pour it into the mould.



Mix the resin well to ensure an even outcome



Add colours following the manufacturer's recommended guidlinse



Pour the resin and colour mix into the mould

#### Pressure pots

Once the mix has been poured in, place the mould with the resin and wood mix into your pressure chamber and then let the casting set under pressure. Following are a few things you need to know to help ensure effective casting of resins to wood and using a pressure chamber.



A homemade transporter to help load work properly

#### **VACUUM VS PRESSURE**

- One question that gets asked a lot is are we using vacuum or pressure, and when do we use either one? Stabilising will use vacuum, and casting will use pressure.
- Simply said, when you are stabilising your wooden blanks you are removing all the trapped oxygen from inside the wood and replacing it with stabilising resin. For this process vacuum is needed. I recommend Cactus Juice stabilising resin, available at turntex.com. A vacuum chamber pot is needed and turn key systems also available at turntex.com. Once the wood has been completely absorbed with stabilising resin via the vacuum process it will need to harden. The wood will need to be placed in an oven so the resin can activate and harden. I recommend buying a toaster oven that is only used for this process. Once the resin has hardened the wood is stable and the resin has actually created a barrier, not allowing moisture to enter and not allowing the wood to either expand or contract any longer.
- I tend to stabilise almost all of my blanks, especially timbers such as figured maples (*Acer* spp.), walnut (*Juglans* spp.), cherry (*Prunus* spp.), all burls and spalted woods. Woods that I do not stabilise are more of the exotic timbers that are already very stable. These timbers are, for example, the dense Australian burls (*Eucalyptus* spp.), cocobola (*Dalbergia retusa*) and African blackwood (*Dalbergia melanoxylon*).
- When casting we are using the positive pressures of the pressure pot to apply pressure to the resin, pushing down on the resin and pulverising all the bubbles that are in it. The resin will also be pushed into any exposed cracks. Unlike stabilising when mixing together the



I tighten down both sides at the same time to ensure an even seal

Alumilite casting resin, an external heat source is not needed to activate as a chemical reaction occurs bringing the resin up to temp, causing it to harden.

#### PRESSURE POT RATINGS

It is important to do your research as to what pressure pot works best for what you're trying to achieve as all pressure pots are not created equal. It is very important to pay close attention to the certified maximum pressure of the pot. All casting that I do is done at 8opsi and

the pressure pots that I have in my shop have certified ratings higher than 8opsi. On the internet you will find makers offer turn key pressure pots ready for casting resin blanks and the conversion from a painter's pot to a resin pot is not necessary. A couple of links for some of those available are listed below.

- In the UK www.pressurepots.co.uk/ resin-moulding-tanks.html
- In the US www.artmolds.com/pressurepot.html and http://finishsystems.com/ resincastingpressurepots.html

10

#### Avoiding bubbles

One of the biggest failures that casters experience in the beginning is the presence of bubbles in the finished product. Bubbles can be broken down into two categories - moisture bubbles and processing bubbles. The most common are moisture bubbles. These occur when wood is not properly dried out in the oven, and the wood is not at o% at the time of casting.

One way to eliminate this on smaller pieces is to stabilise your wood with Cactus Juice (www.turntex.com). Cactus Juice seals the wood, preventing moisture from penetrating. It is safe to store on a shelf for casting.



This picture shows a piece of walnut that was not dried and was cast at 12% moisture. As you can see, the blue resin turns white everywhere the resin comes into contact with the wood. This is called foaming and happens when moisture comes into contact with the resin. To avoid this, dry out the wood in your oven and cast as soon as it comes out. If you cannot cast right away, wrap the wood in plastic wrap to avoid the moisture in the air from getting back into the wood.



The other kinds of bubbles are processing bubbles. You will see a walnut piece that is completely covered in bubbles. This piece was not placed in a pressure pot and was allowed to harden with no pressure at all. A pressure pot is absolutely 100% needed when casting Alumilite Clear and Alumilite Water Clear. You can still have processing bubbles in the finished product and have your piece go through a pressure pot. The common cause of this situation is not getting your piece in the pressure pot so the pressure can pulverise it in time before the resin starts to set up. Remember, once you start to pour the two parts together when weighing them the clock has started. To help with this I recommend keeping a stopwatch in front of you at all times so you know where you are on time. Another hint is if the resin begins to feel warm that is a good indicator that you will not have enough time to get the blank in the pressure pot and get it up to pressure in time to pulverise the bubbles before the resin begins to set.



A turned resin infusion hollow form. Note how there are no gaps in any part of the join to the wood and how the wood wall and the resin surface are perfectly in line. You have a lot of scope to experiment with the colour, or colour swirls, of the resin. To find out what works best for you, create a sample board so you have a quick identifier as to what colours work with what timber.



#### **End results**

All manner of shapes and sizes of wood can be bonded to resin. It will take some practice to perfect the process but the time and effort are well worth it. When the process goes well, you will end up with some wonderful resin infusion castings ready for turning.





As satisfying as Belgian beer and chocolates - but even better to own

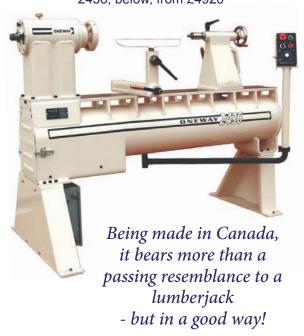




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sharing expertise

# Drop leaf table

In the first of a two-part series, Colwin Way shows how to turn this stylish table



I thought I might start my first project of 2018 with something a little more challenging. I'm not going to use the word difficult because that puts people off. So, as with every other creation we've made together, break the piece down to its component parts then each individual piece becomes achievable even for a novice.

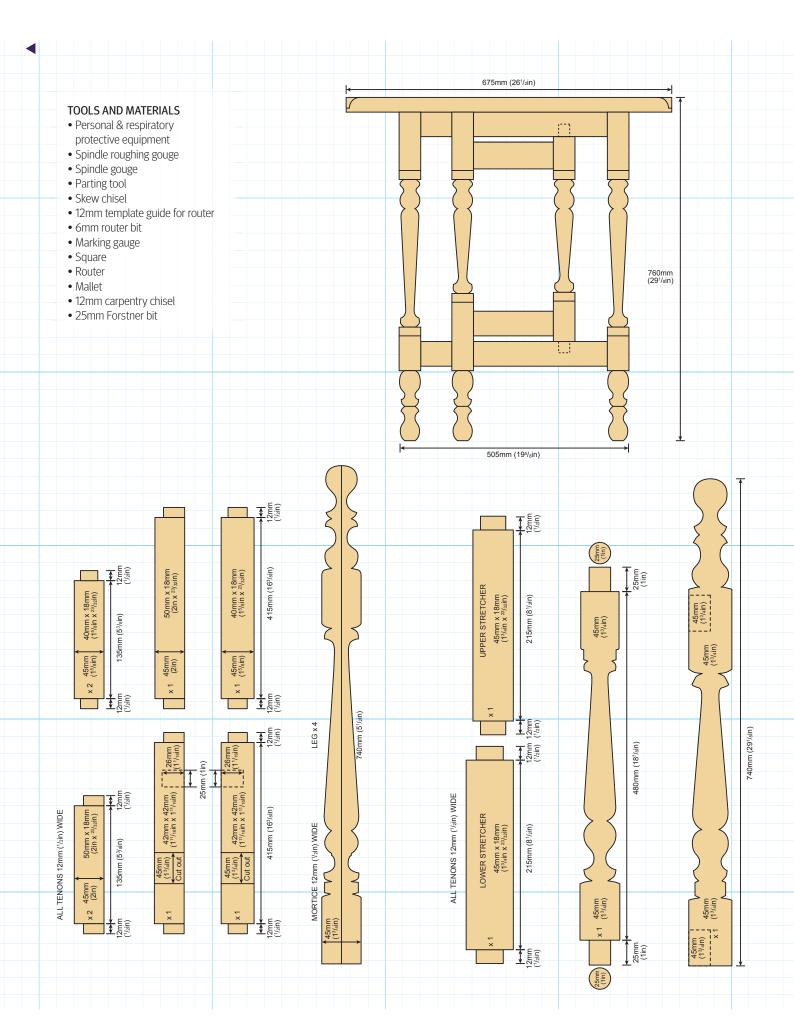
This sweet little table can be customised to suit the space you want it to fit and instead of only one flap folding you can make a double drop leaf in exactly the same way.

There are some bits of joinery on this piece but it's all schoolboy stuff - no need to be a pro joiner - and I'm going

to give you some options to suit your toolkit. Remember this is a guide to get you started. Be free with your design, especially when it comes to the turning, to make the table reflect your own style and tastes.

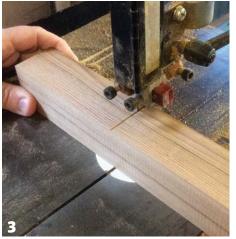
One other thing to consider would be timber selection. Use what's available to you even if that means a trip to the DIY store for some cheap pine – it will still make a nice table.

So here goes. Take your time with this one. I've split the table into two issues - first the main frame with most of the turnings then next month the tabletop and support leg.



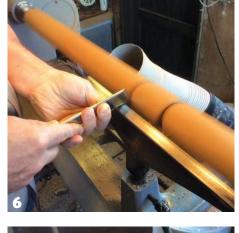


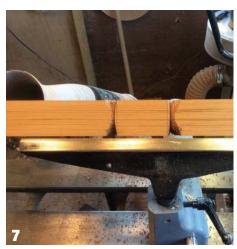








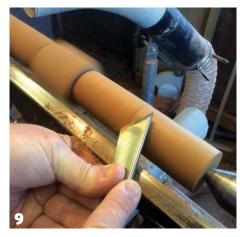






- 1 The best place to start is with the timber. I wanted kiln-dried timber because its destination is my entrance hall, fairly close to a radiator. It's also worth noting that with kiln-dried timber you stand a better chance of getting straight grain to your boards, again giving you a bit more stability. These lovely boards are western red cedar (Thuja plicata) which smells amazing.
- 2 Your first job is to machine down all the boards for your first parts of the assembly. This comprises the legs and stretchers. I've added a cutting list on the line drawings to make this first section easier to follow. First surface plane then rip the individual pieces, allowing enough extra to firstly edge then thickness to the correct size.
- **3** It seems logical to start with the legs of a table so machine these down to 45mm square sections. Then cut them to length. To give yourself a nice square cut when using the bandsaw, measure the length then make a small cut on your mark. Now turn the section over and use the cut line as a reference point to cut along.
- 4 Once you have all the leg sections cut, you'll need five in total, with one being for the drop leaf support. Mark the centre on the ends. I use a marking gauge to do this and mark off all four sides to give a dead centre. This is very important as the square section, or pommel, must be dead centre to the turning.
- **5** Now mark your pommel positions. Place four of your five legs on a flat surface and use a square to draw a line across, marking the point at which vou want your stretchers to be attached. See the dimensioned line drawings for the actual position. This can be customised to suit your design of table. The fifth leg will be used for the support leg and has a slightly different design.
- **6** Now you are ready to start woodturning. Make sure you spend time centring the leg on your marks. The timber being used is quite soft so I have set the speed at about 1500rpm and will make gentle cuts. However, don't compromise your safety. If you are uncomfortable with this speed, turn it down. Start cutting in your pommels with a skew. This can be tricky if you are unfamiliar with the skew. It's worth practising on some scrap wood. Start about 12mm away from your drawn line and make progressive cuts, working deeper and closer to your line with each one.
- **7** Ensure your bevel is rubbing and you cut with the longest point of the skew, which is placed down towards the toolrest. Keep the handle in line with the cutting edge as it is arcing into and slightly around the curve of the pommel.
- **8** After the pommels have been cut, rough the rest of the leg down to a cylinder. You may find, as I have with this timber, that the finish left by the spindle roughing gouge needs some tidying up, so move on to the skew chisel.

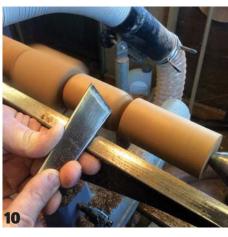
- **9** To clean up the roughened surface, rest the skew on the toolrest with the shortest point of the skew near the rest, and, using the bottom half of the cutting edge at 45° to the timber, rub the bevel and slide the tool along the surface.
  - **10** Once smooth you can move on to the shaping. This time use the corner of the skew and roll it over to create the first half bead. If you get a catch here it will spiral up the bead. This is caused when straying away from the point of the shortest edge corner. If you get it right you will end up with a nice, shiny, burnished bead. If you are afraid of using the skew, use a spindle gouge to shape the ends and then...
  - **11** ...use a spindle gouge to shape the coves/ concave sections. Make sure you get everything as even as possible.
  - **12** Here's the finished leg. This timber was extremely soft and had to support the length with a centre steady when turning to prevent whip/bounce. You may find on harder timbers you could sand straight off a fine cut from a spindle roughing gouge, avoiding potential vibration marks from the skew. I would say, however, don't be too proud and if there are some rough areas or tooling marks so what? Just sand them away.
  - **13** With all four of the legs turned, it's time to cut the mortises for the side stretchers. I use a router to save time. As you can see, I have quickly knocked together a jig which can be dismantled after the job's done. Start by securing one of the legs down to the bench on some ply or chipboard, then tack scrap pieces of timber to the sides and each end to stop the leg from slipping.
  - 14 Now, using another piece of ply or chipboard, cut a slot through the length around 75mm long using a router with its fence attached. It is fairly easy to find centre cutting from both sides of the plywood. This slot is used along with a template guide attached to the router to guide the cutter centrally along the table leg. You can see from this picture that I've added a pair of stops to limit the length of the mortise. After cutting the first slot, mark the positions of the slot on the plywood so you can position the guide in the same place each time.
  - **15** Here are the finished mortises. The ply template is held centrally by two pieces of scrap wood running parallel, thereby sandwiching the leg. Everything is securely clamped to the bench. This was a quick way of fixing the leg in position, but if you wanted to repeat this joint many more times it would be best to make a router box.
  - **16** If you don't own a router and prefer to cut your mortises by hand, you could use a drill to bore initial holes, then use a chisel and cut them old school-style. This is a very satisfying way of cutting mortises its only drawback is that it's a bit more time consuming.









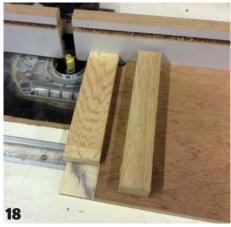




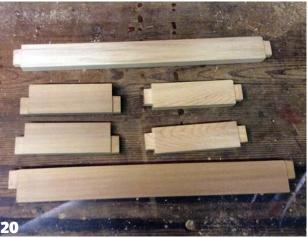








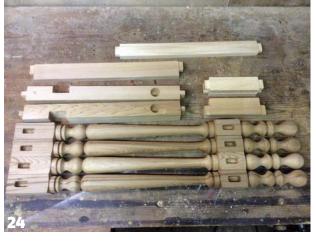






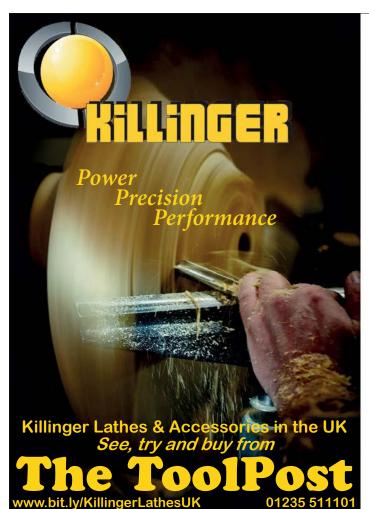






- 17 Now you've made the legs and cut the mortises, turn your attention to the stretchers and tenons. The picture shows another jig I made to speed up some of the cuts. It is called a sled. It's very simple and comprises a few pieces of ply with a straight edge which runs along your rip fence and has a routed relief running along the front face at 90° to the rip fence. A push-stick is used as a handle. You can accurately cut all the short stretchers to length using this or a similar jig.
- 18 Here I'm using the same sled to run the stretchers along a router table to form the tenons. This leaves a really clean finish. You can do all the stretchers this way, including the long ones. Just take note that the tenons aren't always central, so refer to the line drawings for exact positions.
- **19** As an alternative to the router you can also use your bandsaw or a hand tenon saw to create these tenons. I'm using the rip fence on the bandsaw to accurately cut the tenon, first cutting the cheeks or length of the tenon across the grain then ripping down to this line. Always set the rip fence of a piece of scrap wood rather than experimenting on one of your actual stretchers.
- **20** Here are the finished stretchers note that the upper stretchers have an offset tenon. This doesn't have to be done but I wanted to have these stretchers flush with the tabletop and the cedar was very soft, so my intention was to offset the tenon, leaving more timber above the mortise.
- 21 This table is going to have a drop leaf, so vou need to make a cut-out on the lower and upper stretcher to half the depth of the timber. This cut will be repeated when you make the support legs in the next issue. Again I'm using my sled jig to make a series of cuts which can be cut out easily afterwards. If you look behind the sled I've clamped a piece of timber to act as a stop so my cuts are all the same depth.
- **22** The front upper and front lower stretchers are thicker to allow for the swivel leg of the support structure. These stretchers need to be drilled out to 25mm. Here I've clamped the stretcher down to the table of my pillar drill to keep everything secure when drilling.
- **23** You can see the finished cut-outs and how they operate, slotting neatly into each other when the leaf of your table is folded down. Also note how the support leg differs from the other four legs, but this is something we will look at in the next issue.
- **24** So there you are. Not a bad start to your table - all four legs and eight stretchers. This project, more than any other, can be customised to suit your needs, so use the design and sizes as a guide.

**NEXT MONTH** we will work on the support structure for the drop leaf, the tabletop and finish. Happy turning.





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Two Technologies Giving Unequalled Performance

# Turning end-grain vessels

Mark Sanger explores the processes involved in turning unseasoned end-grain vessels from start to finish in one session



Following my previous article on processing wood, I am going to show how I turn spindle-grain oriented/end-grain vessels using unseasoned wood. Finding, processing and turning wood is very satisfying, with most of my work being produced as end-grain vessels, in that they are mounted and turned on the lathe with the grain parallel to the spindle axis of the lathe. When I started turning I assumed that, due to the availability of seasoned cross-grain blanks, bowls are only turned with the grain oriented perpendicular to the lathe and that end-grain turning was for chair spindles and similar. It was not until I started to explore that I realised bowls, pots, vases, boxes and hollow forms can all, and often are, better turned from spindle-grain oriented

wood, especially if being turned from unseasoned wood. Here I am going to show how I turn and finish an end-grain open form from a log with the pith included, through its centre to a thin wall, finished in one go. I will also show the turning of a similar form in unseasoned wood using a blank processed to exclude the pith, the consideration when finishing this in one go to a thin wall, and rough turning and how to re-mount and finish once seasoned. It really is a fun way to work, so give it a go — with found logs you don't have to worry about the cost. But always remember to work safely, wearing appropriate personal and respiratory protective equipment as well as taking other measures to minimise risk of injury.

#### Selecting logs including pith

Turners always aim for optimum wood selection for turning, so if you want to turn unseasoned wood, choose a section to turn that is without any inclusions such as knots, bark, cracks and other defects. When choosing a section for turning or a log with the pith included, choose what is known as 'normal wood' with the pith central and the growth rings concentric. Do not opt for reaction wood, which is where the pith is greatly offset and the growth rings eccentric.

The photo shows two slices from an ash (*Fraxinus excelsior*) log. The one on the left, being normal wood, will shrink and move consistently when seasoning, resulting in minimum movement — often such a small amount that it





The log on the left shows normal wood and the one on the right shows reaction wood

cannot be seen unless spun on the lathe. With regards to reaction wood, my advice is to steer clear of it for this type of work, unless you want things to move erratically, as the movement will be excessive.

#### Turning an end-grain vessel from log

This method is probably the simplest due to it requiring little, if any, processing other than cutting an end off a branch, or cutting a branch or log to length. The log needs to be mounted with the pith central and in line with a drive spur and revolving tailstock centre.

Once mounted between centres, turn it to a cylinder. If the log is encased in bark then check for any loose bark and remove using a screwdriver or similar. You could use a spindle roughing gouge here but one consideration for this, especially if the log has been cut from a freshly felled tree with a high sap level, is that a spindle roughing gouge can, on occasions, lift the bark up away from the log with the centrifugal force spinning it off and into us. A way of greatly reducing



A bowl gouge being used to rough down a cylinder of wood

the chance of this is to cut in at short steps with a bowl gouge. By doing this we are cutting through the bark with the wood fibres below being supported. This is my preferred method for the roughing



Spindle roughing gouge roughing down a cylinder.

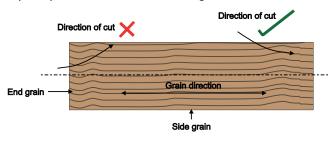
Note the fingers are not blocking the exit route of the shavings/wood chips along the flute

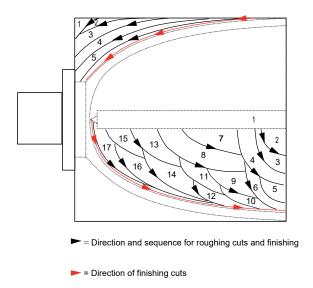
down of all such logs and sections that still include some areas of bark. If a large section has been cut excluding the pith and is void of any bark then a spindle roughing gouge is my go-to tool.

#### Direction of cut

When cutting wood with any tool it is best to cut with the direction of the grain to achieve ease of working and the best finish from the tool. Wood typically has a grain direction which is made up of elongated cells aligned in the direction of the pith and the millions of these put together is what we see when the wood is cut. If you try to cut into the cells

end-on, the cut is strong and resistant. If you cut it downhill/ diagonally down through and across the grain, then the fibres of the wood are being cut how it wants to be cut and efficiently. I always say to my students that the wood will let you know if you are cutting it correctly as it will be easy to cut, sound smooth off the tool and produce a good finish.





LEFT: Representation of cutting with and against the grain ABOVE: Representation of an end-grain form with the sequence and direction of roughing and finishing cuts

#### Cutting the spigot

Once the blank has been roughed to the round, you need to shape the spigot. As with all turning techniques there is more than one way we can approach this. The standard method for cutting a spigot on to an end-grain project is to use a parting tool to cut from the outside in with the toolrest parallel to the edge of the blank. There can be a small issue of the fibres lifting up and breaking out on the edge if not careful, which may or may not be of concern, depending on the project turned. But if you are turning a blank much over 100mm in diameter then this method can mean that the overhang of the cutting edge from the toolrest can become excessive. For larger forms





Cutting a spigot with a parting tool and cutting a spigot with a gouge

consider a bowl gouge with the toolrest across the face of the blank to turn in for shaping the spigot. There is minimal fibre lift and no matter the size of the blank the distance from the toolrest to the cutting edge is constant for the entire cut.

#### SHAPING THE OUTSIDE

The outside of the form is shaped with a bowl gouge, cutting from large diameter to small which is, on this spindle-grain oriented piece of wood, cutting with the grain. Create the form of the vessel close to the shape required. You don't have to be that precise yet as you can make refinements a little bit later once the piece is mounted into a chuck so the inside can be turned. Once you have your rough shape, remove the wood from between centres and mount it in the chuck on

the spigot cut earlier. Now clean up the front face with the gouge. Once completed, make a few passes with a bowl gouge and/or skew to refine the external form.

The inside will now be hollowed and all finished inside with abrasive without removing the piece from the chuck. With the chuck being the datum, it removes any chance of the piece running out of true which, with a thin wall, will be seen and have a direct result on the piece seasoning and moving inconsistently.



Using a bowl gouge to rough shape the form



The piece mounted in the chuck and the top of the vessel cleaned up with a gouge



Refine the external shape with a gouge or skew

#### **DRILLING OUT**

Before hollowing it is helpful to drill out to depth so that the tool can cut from inside out diagonally across the grain to cut with the grain. If you try to cut in and out with the tool, which can be done with experience, the process becomes a whole lot harder and time consuming, so it is much simper to just drill out with a Forstner bit. First the internal depth is measured with a rule or Vernier callipers to where you want the inside to finish. Since this is being turned thin it needs to be accurate. Visualise where the curve will continue into the waste section which, in turn, needs to be accurately marked on to the drill bit, taking note of the point of the bit within the measurement. When hollowing out and you only have the point of the drill hole left, you know you only have a few more passes to cut to final depth.



Measuring the depth and drilling a central hole



A piece cut in half after drilling. Note how the pith was centrally aligned

#### HOLLOWING/SPINDLE GOUGE

There is a plethora of hollowing tools on the market and it is not within the scope of this article to go into enough depth to show them all and how to use them, but many small end grain vessels with an open end, not semi-enclosed with shoulders, such as boxes, goblets and small bowls/vases, can be hollowed with nothing more than a 13mm spindle gouge with fingernail/sweptback profile or a 10mm 3 bowl gouge with long grind profile. Hooks, ring tools, scrapers of various types and dedicated hollowing tools can also be used to good effect, depending upon the depth and specific form being turned.

> A small selection of the many tools that could be used to hollow out the inside of end-grain vessels



#### **HOLLOWING**

For forms up to a depth of 100mm a 13mm spindle gouge can be used to remove the waste. For this, set the toolrest so that the tip of the gouge is dead on centre height with the tool shaft horizontal, or have the handle high with the tip trailing down to cut on centre. Rotate the flute of the gouge anticlockwise to point toward 10 o'clock. The gouge is then entered into the hole. Make a cut of around 6mm or so deep, using the lower wing of the gouge, arcing the edge cutting outwards and stopping a millimetre or so from the desired wall thickness. Continue to work

down in stages, making multiple light cuts and working in steps of 25-30mm deep, then blending the just-cut section with the previous cut one prior to moving on to the next section down. Blend/finishing each stage to finished wall thickness as you work down the vessel with a roundnose or French-curve scraper to refine the surface prior to sanding. If you do not cut sections to finished thickness as you work down inside the vessel, the wall may warp/move and you might not be able to get a uniform wall thickness if you leave everything to the end.



The gouge tip aligned with the centre and flute pointing at the 10 o'clock position ready for cutting



The gouge is arced from centre out towards the inner edge of the vessel, stopping just shy of the final thickness required



Using a scraper to blend in cut areas prior to moving on to the next area to be cut with a gouge



A form cut in half with the first two cut areas having been finished to thickness ready to move on to the next area

#### HOLLOWING/BOWL GOUGE

For deeper vessels – say, up to a depth of 150mm-200mm - a 13mm long grind bowl gouge can be used in the same way as the spindle gouge. However, due to the depth of the flutes the cut is more aggressive if tool presentation is not correctly maintained. The bowl gouge is typically more aggressive than the spindle gouge, so use a lower lathe speed than you would for a spindle gouge. Also, maintain the downward trail of the tool shaft into the form so the tip cuts on centre and never below it, and do not allow the flute to rotate clockwise above the 10 o'clock position.

Only take cuts that you can control. You can make the cuts gentler by closing off the flute and positioning it at the 9.30 or



An aggressive and a gentle cut with a bowl gouge

A ring-tool variant with shielded cutter being used

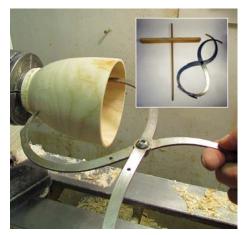
even the 9 o'clock position if you want a scraping cut. It is not a race and often smaller, controlled cuts are far more efficient than heavy cuts that cause excess stress to the wrist and elbow.

You can, of course, forgo the use of gouges and use dedicated hollowing tools, which may be more efficient and produce a superior finish when compared to the scraping cuts used to refine a surface.

#### MEASURING WALL THICKNESS

It is imperative when turning thin-wall unseasoned vessels to maintain as consistent a wall thickness as possible. Between 3mm-6mm is fine, as below 6mm the wall has enough flexibility to be seasoned rapidly, compared to a thicker section, without cracking. A variety of callipers and depth gauges are available but I use a simple homemade depth gauge and pair of callipers. You can also use light to help judge wall thickness on wet timber. The simplest and least time consuming is to use a low

heat and power LED light. When the light shines through the wall at equal brightness then the wall is of consistent thickness. If it is still a bit thick just continue to refine until the light is equal. There can be a slight variation in light penetration from end grain to side grain, but it is only slight and something I never concern myself with. Be careful if the wood is drying unevenly as this affects the light transmission and you might get a false reading.



A depth and wall gauge are helpful to assess what is happening with the wall thickness and depth of the inside



Light transmission through the bowl



The wet wood fibres are flexible, as can be seen here with me crushing the wall of the form. It shows just how much the wood can move without fracture

#### **FINISHING**

Now all the surfaces must be sanded. For this I abrade from 100 grit, which is coarse and initially cleans up the wet fibres while a finer abrasive will clog quickly. To prevent excess moisture loss from the fibres through natural drying and from the friction heat generated by sanding, soak the project with lemon oil or water. I like lemon oil because it is very thin and not only soaks deep into the fibres, slowing the moisture evaporation, but also acts as a lubricant, so reducing the heat build-up, which if excessive, can cause the wood to crack. Lemon oil also has the advantage that it will dry and evaporate with no remaining residue, so you can use any finish you choose. If you do not have lemon oil simply keep the surface of the wood moist with a fine mist of tap water from a plant sprayer.

SAFETY! Make sure you do not spray water or any liquid finish over any electrical equipment. You can use a brush to apply liquids rather than sprays.

Keep handy a small bronze brush to clean out the abrasives as they become clogged. To finish the inside, a long reach inertia sander can be used, beginning with 100 grit and working down through the grit grades. If you do not have one of these then a strong piece of dowel with abrasive wrapped around the top works well, or a sanding ball on an extension rod. On smaller open-ended forms you can reach in with hand-held abrasives, but do



Wet sanding with water and a thin oil and cleaning up the abrasive

not do that on deep items or ones with shoulders and a restricted opening.

#### REVERSING FOR FINISHING BASE

Remove the form from the chuck, mount a friction drive in the chuck and mount the vessel between the friction drive and tailstock revolving centre. The log was turned between centres to start with, leaving an indent in the base, which allows you to line it up perfectly with the tailstock centre. Due to the weakness of the walls, Cole jaws or jam chucking methods are not options to hold this type of work as any excess force during turning will crack the wood or it will flex and ping loose.

All my friction drives are homemade

from waste wood to fit into the jaws of my chuck, from flat plates to various length spindles that have flat, convex or concave surfaces, on to which non-marking neoprene or another anti-slip surface is glued. Often I will use just a simple flat disk to drive as the thin wall sinks into the rubber with it being encapsulated sufficiently to drive without flexing. Longer drives can be created that fit into the form and support the work right at the bottom and sandwich the internal base directly to the tail centre, removing all stresses from the walls. This option is best used on deeper forms where the walls tend to buckle under even light pressure.



work is reversed and mounted between centres to deal with the base

#### FINISHING FOOT

The foot and base areas now need to be refined. The underside also needs to be hollowed out so the base thickness and walls of the foot are as thin as the rest of the form. My preference with such forms is to have a foot as this gives a bit of leeway in case the hole drilled out is a millimetre or so too deep. To hollow out the foot area, I use a 6mm spindle gouge with the lathe speed turned down to a slow speed and taking fine cuts. If the shape doesn't allow me to get into the corners I use a small, swan-neck scraper. Check the base thickness with the light and relocate it for further adjustment as required until you end up with a little stub of support timber under the tailstock



Refine the foot areas to leave an even wall thickness as much as practicable

centre. Before removing from the lathe, sand and finish, as before, with the lemon oil. Finally, remove the piece from the lathe then snip or delicately chisel off the



As you refine the foot, remove it from the lathe regularly to check the wall thickness using callipers and light as appropriate

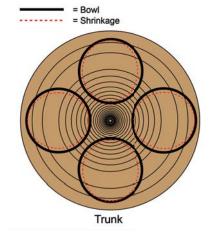
waste. Sand the hollowed-out area using a small sanding arbor. Lemon oil or a thin finishing oil is then applied to the whole form and the piece set aside to season.

#### PITH EXCLUDED

Unseasoned blanks processed from a large section of trunk or log too big for the lathe to exclude the pith, can be turned, finished and seasoned in exactly the same way. The positive aspect of this method is that it totally removes the chance of the form cracking from the pith. However, the form will go slightly oval due to the shrinkage that occurs during seasoning in line with the grain (see my article on cutting and seasoning wood in the previous issue *WT* 316). The amount of movement will, with correct wood selection and processing, be minimal.

#### **ROUGH TURNING**

Rough turning is a process I adopt if I want to fit a lid to the project once seasoned and all movement has finished. The only difference to what has been covered in the process to rough turn is I mostly use pith-excluded processed blanks and leave the wall thickness between 20mm-25mm thick or larger, depending on the size of the form being turned. Once seasoned, the forms are



simply mounted between a friction drive and tail centre to true up the spigot with a spindle gouge. After this the piece is placed in the chuck and turned exactly as before, except now the wall thickness is not critical as the wood is dry and all movement finished.

#### **SEASONING**

Seasoning a thin-wall oiled form can be as simple as placing in a draught-free location and weighing it weekly on digital scales until the weight has stabilised for two weeks. At this point it can be taken into a warmer location, such as your home, to settle before finishing. This method, however, requires a totally draught-free and cool location and is not suitable for thicker or roughed vessels. A more forgiving method is to wrap the form in several layers of paper, such as a large white paper bag. Do not use newspaper or similar as the print can leech out and stain the wood. Weigh the piece in the paper and make a note of the weight - this method greatly slows down the loss of moisture from the form, preventing cracking if placed in a cool, draught-free location. Once the weight has stabilised for two weeks the moisture content is in equilibrium with the environment, so it can be taken out of the paper and placed in a cool place in your home for a week or two to settle, after which your chosen finish can be applied. I often use an oil finish, which is left to dry and then buffed by hand with a soft cloth.

#### CONCLUSION

Turning unseasoned wood is a joy and opens many possibilities for turning small logs and other sections that we may find or be given, while removing the need to seal and store for, on occasions, many years. Each species you turn will have its own characteristics when seasoning and moving so experiment with as many species as you can and make a note of how they react, this way you will soon build up much valuable experience that cannot be explained in a hundred articles. Remember though, work safely and have fun.



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# Community news

We bring you the latest news from the world of woodturning and important dates for your diary

We try to give accurate details on forthcoming events. Please check with organisers for up-to-date information if you are planning to attend any of the events mentioned.

# Largest woodturning competitions in Europe launched

The Worshipful Company of Turners has announced the launch of its 2018 competitions, which will take place on Monday 26 November. The competitions are the largest in Europe and attract a wide range of entries from amateur and professional woodturners of all ages from across the UK and other countries.

There are more than a dozen competitions, which are organised with the Association of Woodturners of Great Britain, Society of Ornamental Turners and the Association of Pole Lathe Turners and Greenwood Workers.

These competitions are held every two years. The theme of the 2016 Open Competition was the Great Fire of London and it attracted a record number of entries.

The results and winners of the 2016 Competitions are on the Turners Company website: https://turnersco.com/turningcompetitions-2016



This year the Company of Turners' special Open Competition has a theme which marks the 100th anniversary of the Armistice.

Woodturners are asked to create works which reflect their personal style,

techniques and response to the 1918 Armistice and the 100th anniversary on 11 November.

For full information visit: https://turnersco.com/turning-competitions-2018

# **AWGB** club competition

The Association of Woodturners of Great Britain (AWGB) will be running a club collaboration competition at the 2018 International Woodturning Seminar.

This is the first of its kind for the AWGB and is designed to get clubs more involved with collaborative work and competitions.

First prize for the winning club will be £250, second prize will be £150 and third prize will be £100.

- The Collaboration Competition is open to both Affiliated and Associate Clubs and judging will take place at the AWGB 2018 International Seminar to be held at Yarnfield Training and Conference Centre in Staffordshire.
- Club teams should comprise a minimum of five club members and each club may submit one entry.
- **3.** The theme for the competition is

- a tractor. The judging emphasis will be on as many working/moving parts as possible. Battery powered moving components are not permitted.
- **4.** The maximum dimensions are 40cm long x 30cm wide x 25cm high.
- **5.** The tractor must be made solely from wood, which may be any variety.
- **6.** Preference in judging will be given to turning techniques as opposed to other disciplines such as carving or pyrography.
- 7. Clubs must submit a materials list with their entry, together with any supplementary plans or techniques that may assist the judges with their decision.
- Judging is blind and therefore any documentation should NOT contain information that will identify the club or individuals.

- **9.** However, the AWGB competition co-ordinator WILL require a separate, full list of participants in the collaboration together with photographs of the participants and of the entry, during production.
- 10. The judges' decision is final.

## For further information visit: www.awgb.co.uk



www.woodworkersinstitute.com

26

**New Editor of Woodturning FUNdamentals** 



The American Association of Woodturners (AAW) is pleased to announce that its board of directors has rededicated Woodturning FUNdamentals.

AAW's digital publication for new and beginning woodturners, and appointed John Kelsey as its new editor. The online periodical will continue to help newer turners build foundational woodturning expertise and skills. The editorship of American Woodturner, AAW's journal, remains unchanged.

John Kelsey will produce four issues of Woodturning FUNdamentals during 2018. He succeeds Linda Ferber, who founded

Woodturning FUNdamentals and served as its editor since WOODTURNI its inception.

John, based in Pennsylvania, is a journalist specialising in crafts and design. In his long career he has been editor of Fine Woodworking magazine. editor and publisher at Cambium Press, and editorial director at Fox Chapel publishing. He has worked as a freelance writer, photographer, and editor since 1992.

'Linda Ferber led the way for AAW's Woodturning FUNdamentals,' stated Joshua Friend, editor of American Woodturner, 'She saw a need and worked tirelessly to fill it. Her work ethic and dedication to the AAW are remarkable.'

'John Kelsey's impressive experience in woodworking journalism is a boon. The AAW is extremely fortunate to have him,' he added

FUNDAMENTALS

To learn more visit: www.woodturner.org

# **Promoting turning**

Lincolnshire Wolds Woodturning Association is actively encouraging younger individuals to take up a new hobby and learn woodturning techniques so that this craft is not lost.

It has identified that the internet is one way forward to reach a wider younger audience and the club has recently launched a website by which the latest information is automatically sent to subscribing members and published on Facebook. There is also a club Instagram feed, which is regularly updated and reaches out to the world, showing ongoing projects and providing ideas and inspiration to others. In addition, professionally designed club flyers, which include an invitation for a first free night, are given out at craft fairs and shows or are downloadable from the website to those interested in trying a new hobby. All have proved to be very successful.

In January 2018, Coningsby Young Farmers Club (YFC)



SUMBLANCE

was invited to a special 'hands-on' night where it had the opportunity to try turning and make something to take away. All of the YFC members thoroughly enjoyed the night and are recommending other YFC to do the same.

For more information, visit: http://lincswoldswoodturning.co.uk

#### SHOWS AND EVENTS

#### Forest of Bere Woodturners' open day

When: 14 April 2018 Where: St. John Ambulance Hall, Fraser Road, Havant, Hants. PO9 3EI Web: www.forestofberewoodturners.com

#### Yandles & Sons woodworking show

When: 13-14 April 2018 Where: Hurst Works, Hurst, Martock, Somerset, TA12 6JU

Web: www.yandles.co.uk/event/1-yandles-

woodworking-show

#### **Makers Central**

When: 5-6 May 2018 Where: National Exhibition Centre, Marston Green, Birmingham, B40 1NT Web: www.makerscentral.co.uk

#### **Utah Woodturning Symposium**

When: 10-12 May 2018 Where: UCCU Events Centre, 800 W University Parkway Orem, UT Web: utahwoodturning.com

#### Woodworks@Daventry 2018

When: 11-12 May 2018 Where: Daventry Leisure Centre, Lodge Road, Daventry, NN11 4FP Web: www.tudor-rose-turners.co.uk

#### Weird & Wonderful Wood

When: 19-20 May 2018 Where: Haughley Park, Wetherden, Nr Stowmarket, Suffolk, IP14 3JY Web: www.weirdandwonderfulwood.co.uk

#### The Toolpost Open House

When: 2-3 June 2018 Where: Unit 7, Hawksworth, Southmead Industrial Park, Didcot, Oxfordshire,

OX11 7HR

Web: www.toolpost.co.uk

#### **UK & Ireland Woodturning Symposium**

When: 30 June-1 July 2018 Where: Doubletree by Hilton hotel, Paradise Way, Walsgrave Triangle,

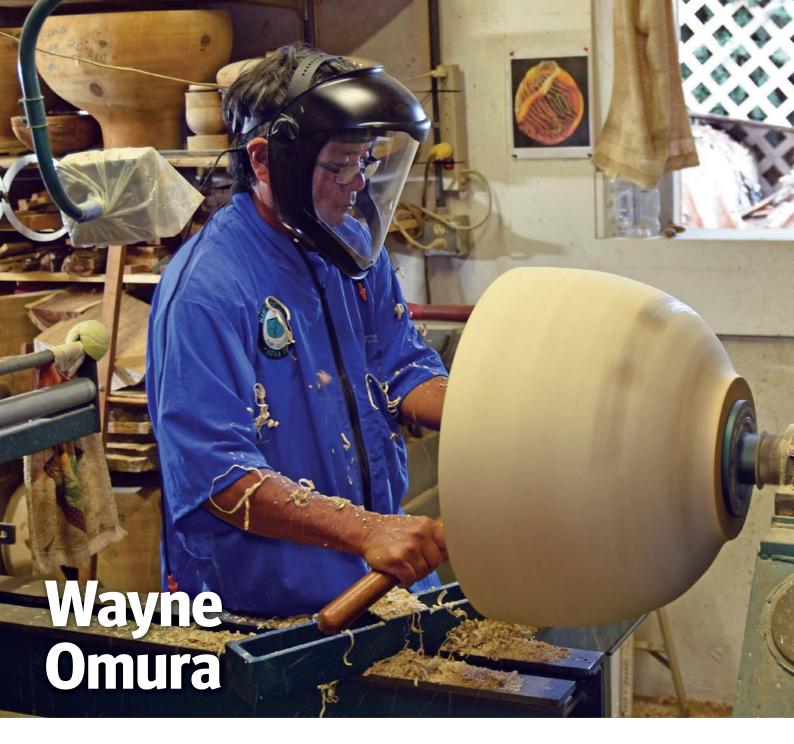
Coventry, CV2 2ST Web: www.ukiws.co.uk

#### **Woodfest Wales**

When: 28-29 July 2018 Where: Caerwys, North Wales

CH7 5BP (A55, J31, signposted from J31)

Web: http://bit.ly/2FRTu8S



#### Emiliano Achaval talks to Wayne Omura about his work and how he started turning

We are blessed here in the Hawaiian islands with some amazing woodworkers. Wayne Omura is a highly skilled turner who lives on the island of Maui. We spent time together with the smell of freshly cut acacia koa shavings and started to discuss his love of turning and how he got started.

I met Wayne when I started calling fellow woodturners to see what they thought about establishing an American Association of Woodturners chapter club. The most enthusiastic, positive and energetic of them all was Wayne Omura, who is currently the club treasurer and a key contributor in the island's organisation. He comments: 'Woodturning has enhanced camaraderie

and has become a venue for the sharing of ideas.' Wayne is a retiree from the Department of Education with more than 35 years of woodturning experience. He is a softly-spoken, gentle person with an amazing talent who is reluctant to seek the limelight.

He works out of his studio behind his home in the Kula area of Maui, a town high up on the slopes of the dormant volcano Haleakala. His workshop has every available space racked with shelves full of drying roughed-turned bowls, mainly Norfolk Island pine (*Araucaria heterophylla*) and Cook pine (*Araucaria columnaris*). His rough-turned bowls sometimes start out as huge log bolts, 635-760mm in diameter,

requiring a commercial hoist bolted to the floor to mount them on his legendary Nichols lathe.

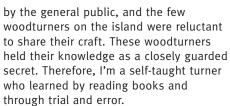
#### Starting turning

Wayne says: 'My interest in woodturning was sparked while I was in college at the University of Hawaii at Manoa, Oahu. I remember visiting an arts & crafts store and seeing a large turned platter made out of Norfolk Island pine. I was amazed by the natural colours and wondered how this beautiful piece was made. My strong inner voice told me that I would, some day, be able to do this.

'My journey in woodturning began in 1980, when resources were limited. The internet was yet to be accessed



Turning one of my latest bowls



'I have always strived to create pieces that would inspire others. In order to finance my hobby, to afford the tools and equipment that I needed, I began making small items such as candle lamps, bud vases, paper weights, along with koa boxes and hand mirrors that I sold at local crafts stores and craft fairs.

'I was employed with the Department of Education, so time spent on my lathe was reserved to nights and weekends.'



Norfolk Island pine, 405 wide x 380mm high



Cook pine platter with resin and tamarind (*Tamarindus indica*) koi inlay design, 535mm wide by 413mm high

#### **Influences**

'I admired and was influenced by the works of two influential artists. The large bowls made by Ed Moulthrop and the hollow forms by David Ellsworth, who I met on Maui in the mid 1980s at a woodturning demonstration. But, being from Hawaii and a pine turner, I have to say that my biggest influence has been our local hero, Ron Kent. A few years ago I got a call from a client. Ron was not turning so much now. The client told me that Ron Kent recommended me. It was truly an honour, something I'll never forget.

'I recently had the opportunity to spend the day with Ron, I was surprised he remembered meeting me long ago. For finishing my work I use a homemade concoction of oils, inspired by Ron's teachings, to this day. I have a drying rack and I soak my pieces several times. But I have cut the process by at least half, through experimentation, trial and error.

'As I developed my turnings skills and forms I eventually began entering Art Maui, a local prestigious juried art show. Selected pieces have been showcased in Art Maui for the past 25 years. The Hawaii State Foundation on Culture and the Arts has also purchased several of my works for its collection.'

#### Doughnut chuck

'One of our most famous turners ever out of Hawaii, Jack Strakka, from Hilo, the Big Island, showed us his method for reverse chucking well over 30 years ago. We didn't know what to call it, then the doughnut name stuck for obvious reasons I don't know why it took so long to come to market. Last month, I finally upgraded with a vacuum chuck, I believe I can get used to this, new for me, way of finishing the bottom.'

#### Favourite timbers

'A big part of my enjoyment of woodturning is going out on wood hunting excursions. You never know what you are going to find. I definitely don't need any more wood, but I have a hard time saying no to going out to parts of the island that no one goes to, looking for the next great curly piece. Even if you just come back with one small good piece it's worth the effort. I hate to call the wood that I get "free". It takes a lot of work to bring loads of giant logs home, sometimes from the other side of the island. Yes, I don't pay for it, but it's definitely not labour and equipment-free.

'I turn a variety of local woods such as koa, kou (*Cordia subcordata*), milo (*Thespesia populnea*), pheasant wood



Pheasant wood (Cassia siamea) bowl with pyrography decoration, 250mm wide by 150mm high



Cook & Norfolk Island pine rough turned bowls drying on racks

(Senna siamea), mango (Mangifera indica) and tamarind (Tamarindus indica). However, my favourite woods are the Norfolk Island and Cook pine. One of the reasons as to why I have become a Norfolk Island and Cook pine turner is because the wood is free and abundant. Another reason is that, when I started, it just made more sense to me to use NIP. It's already almost perfectly round. I don't have to go to the bandsaw or chainsaw, I just put it on the Nichols and go at it. Also, that's why I do mostly end grain.

'I love the other native woods here, but they are much harder to come by. My favourite local wood other than pine is kamani (*Calophyllum inophyllum*).

#### Challenges

'My biggest challenge was that I had no one to rely on except myself to figure things out on how to turn and do fine work. When I was unsure about turning techniques, I could not search or turn to the internet. Mistakes came early on and I had to quickly figure out the whys and understand the hows to avoid making those mistakes again.

'Questions that came up were along the lines of: How did a catch happen? What caused vibration in a thinly turned piece? While the biggest challenge is the completion of a creative concept, it is ironically what makes woodturning stimulating. When a project is not turning out, I place it on a shelf as a reminder.



NIP bowl, 510mm wide x 200mm high, star pattern on the bottom



Natural edge mango (Mangifera indica)bowl, 405mm wide by 230mm high



Norfolk Island pine hollow form, 405mm wide x 280mm high



Wayne in his carving area working on a Cook pine vessel

The project is kept on hold until I am ready and motivated to see it completed.

'I also wish I had planned and designed my shop better. The most boring part of the day, but an important one for safety issues, is clean-up time. I'm designing a system to be able to just vacuum up all chips, dust and shavings outside. I'll never have to shovel wheelbarrow loads out of the shop. I have to make some modifications now — if only I had I known this when I built the shop.'

#### **Favourite lathes**

'I have three lathes now. My primary workhorse is my old but trusty General 260 extended lathe, from the early 1990s. My new American Beauty Robust lathe I use primarily to do finishing turning in pieces under 560mm wide.

'I do all my roughing on my giant Nichols lathe. There is no limit as to what I can throw at that lathe — no log is too big. It's an amazing lathe that has given me years of work. I used to do some finishing work on her too, but now I prefer to do that on the Robust.'

#### Advice

'My biggest advice to anyone wanting to do woodturning is to spend time behind the lathe. If you want to become skilled, you need to persevere and put in the time. You can also advance by critically thinking, reviewing and evaluating your process. Join a woodturning club and be open to

constructive criticism. Focus on developing an eye for form and follow your vision. While woodturning fulfils and rewards the creative soul, it requires full concentration and patience. Without attention to these elements, safety may be compromised.'

#### Top tips

'In all of my years of turning bowls, the number one tip that I encourage people to do is to study the form of the bowl design. Look at ancient pottery, Japanese ceramics, American Indian pottery in books for ideas on form. Backlight your own piece on the lathe so that you can see only the black silhouette and study the form. In my opinion, form is what will draw the viewer to look more closely at your work.'

#### Hobbies

'Aside from woodturning, I enjoy going on wood gathering exploration trips, golf, farming, fishing, and travelling.'

#### Likes

- When I oil my bowls and the colours pop out in orange, reds and black.
- 2. When long ribbons of wood come off the gouge.
- 3. When fine shavings come off a shear cut.
- When I see curls and fiddle back grain appearing on a piece.
- 5. When a concept comes to life.
- **6.** Some of the things I like about woodturning now are having the internet, which allows me to see all the creative artists doing amazing work. The internet opens up an entire new world of woodturning with just a push of a button.
- 7. I also like being retired as it has given me the freedom of time to do my woodturning.
- 8 I enjoy promoting woodturning and sharing knowledge.

#### **Dislikes**

- 1. Finding a centipede in my wood pile.
- **2.** Not having a store to purchase specialised metals and tool bits required for tool fabrication.
- 3. Sudden distractions while working in the shop.
- 4. Mosquitos in the shop.
- 5. Rotten wood.

#### The future

'I will continue turning translucent bowls and other forms and, for my next step, I'd like to explore and incorporate other techniques, such as piercing, carving and using airbrushed colours to develop a personal style of artistic expression.'



Norfolk Island pine platter, 585mm wide x 150mm high



Norfolk Island pine bowl, 66omm wide x 293mm high





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### Types of leaf

The malleability of metals used to make the leaf determines the characteristics of the leaf. Generally, the more expensive metals, such as gold and silver, are very malleable and modern machinery consistently rolls and beats these to extremely thin sheets. Less expensive metals such as brass or copper cannot be rolled this thin so make thicker leaves. Real gold leaf looks gorgeous but is extremely thin and takes a lot of practice to use, so I advise starting with the less expensive pure metals such as brass (gold in colour and often sold as imitation gold) aluminium (silver in colour) or, my favourite, copper. It has a beautiful tone which sits well with most woods, is nice

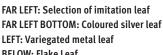
to apply and inexpensive. But buy your leaf from reputable companies as cheaper options often have a plasticity or flaws which make them frustrating to apply.

Coloured leaf is available in a jawdropping range of colours and can generate either striking contrast or harmonious tones in our work. It's thicker because of the process to add colour, which makes it easier to handle but more brittle, especially when applied to curved surfaces. However, it's definitely worth the effort.

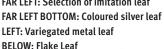
Variegated metal leaf is treated to create an incredible variety of patterns and colours but can be used in the same way as a pure metal leaf. Leaf selection

is critical, randomised patterns blend well and look homogenous but the bolder patterns create a patchwork effect on the gilded surface.

Flake leaf is finely shredded leaf, often in a variety of colours which create stunning creative effects. Transfer leaf is metal leaf pressed on to tissue paper - it's easily placed over the surface requiring gilding. Rubbing the back of the tissue paper creates contact with the sticky surface which is to be gilded and the leaf comes away from the paper, or is 'transferred' - hence the name. It's designed for flat surfaces and as most turned surfaces are curved this article will concentrate on applying loose leaf.









### **Suppliers**

Suppliers of metal leaf are many and varied. For this article, I have worked with Gold Leaf Supplies. www.goldleafsupplies.co.uk







### Equipment

Metal leaf likes to stick to skin - this will tear it and ruin that piece. The secret to leafing effectively is handling it with leaf tools - a gilder's cushion, 25mm gilder's tip, gilder's knife and acrylic size simplify the task.

In addition, you will need metal leaf of your choice, acrylic paint, painter's gesso, paintbrushes (makeup brushes are inexpensive and perfect), gilder's mop (I use a makeup blusher brush to burnish) and acrylic aerosol sealer.

Woodturner's gilding kit



### Design

Even when lacquered, metal leaf is a delicate material. If your finished piece is to be regularly handled you need to consider carefully where you place your leaf. I gild the inside of my work – the theory being I'm making something to be looked at so the inside won't be used. If you want to gild a small area, either a recess, bead or a cove, it will receive less contact. It's also important to have a clear delineation between the gilding and wood.

### Preparing the piece

Gilding needs to be the last process when making your piece as protecting gilded surfaces during turning is very difficult. Once everything is shaped and sanded, seal the area to be gilded with a non-oil-based sealer and finish the rest of the piece with anything but oils that don't harden or wax. The area to be gilded will not accept gilding if contaminated with these non-hardening oils or waxes. Also, if you buff your work do it now.

# Providing a base colour beneath the gilding

Traditionalists use a deep red behind gold and black or dark blue behind silver - it's said to provide depth to the leaf's colour. Learning from painters I mix gesso with metallic-effect acrylic paint to create the same colour as the metal. I argue that our predecessors didn't have access to the incredible paints we do and believe if they did they'd have used them. Also, if a customer chips the gilding the flaw doesn't stand out as the layer beneath is the same colour. Make sure you brush out any lines of paint, allow to dry fully, then gently rub back any visible nibs or paint lines. Any imperfections will be highlighted by leafing and re-coat if the colour isn't consistent. You can create textures with the paint but make sure you rub back any sharp areas as they will pierce the leaf.



Base colour added



Transition between wood and gilding

### Gilding only the desired area

Before you start gilding it's critical to apply the leaf in a clean, dust and draught-free area – an errant breeze can cause it to fly off or tear and a speck of dust will show on the finished surface. The kitchen table is perfect, but do protect it or you'll have a colourful table and potentially angry partner.

The area you've chosen to gild will border polished wood and it's the devil's own job to stop small pieces adhering where you don't want them. This destroys the sharp transition between the gilded surface and polished wood – getting this right will lift your work to another level. What you need is a resist. A resist is a neutral, fine powder dusted all over the piece using a makeup pad. I strongly suggest speaking to anyone you borrow one from – in my experience the

discovery of this alternative use doesn't go down well! This application leaves the piece looking dusty, but don't panic, it brushes off easily leaving no trace and when size is painted on to the areas being gilded it's absorbed by the glue. This has the added benefit of clearly indicating the sized areas. You can buy branded resists, or some people use talcum powder but that contains chemicals to deodorise. perfume etc. I don't know how these additional ingredients impact so don't use it. I use fine white kaolin (clay) powder, as used in makeup and face masks. It's inert, white and has no added chemicals. It's also cheap. However, it is a fine powder and you don't want it in your lungs, so apply using appropriate PPE and RPE.



Resist added

### **PROTECT YOUR LUNGS**

Always use an appropriately rated fine particle respirator when applying the resist and burnishing. Also, if you undertake this process outside you won't introduce unnecessary fine particles into the house.

### ■ Sizing – applying the metal leaf glue

I use acrylic size because it's so simple. Pour a little into a milk bottle top and apply a thin, even layer with a flat brush. The smoother and more even the better the gilding will look. If you slip and get it on an unwanted area use a damp cloth to remove it, dry and reapply the resist. The area being gilded will be white, it's sealed so won't soak immediately into the grain and disappear. Now wait 15 minutes for it to reach tack. Should

you forget to time this don't worry as at around 15 minutes the size changes from white to clear. If it's clear, it's ready to leaf.

The size will remain open/tacky indefinitely, but the longer you leave it the more airborne particles, hair, fluff and dust will adhere, reducing the quality of the bond, and may introduce unwanted textures. Don't forget to wash out your brush in clean water immediately.



Sized and ready to be leafed

Freshly sized

### Transferring the leaf on to the pad

Open a pad of leaf, carefully exposing one side of the leaf – the other side will be attached to tissue paper separating each piece of leaf (usually 25 in a pad). Place the piece of exposed leaf on to the pad with the remaining book on top of it. With practice, when you lift the pad away the layer of leaf will be flat on the pad. This is what you want every time. Don't be frustrated if it ends up in a crumpled heap – it happens.

If the leaf isn't flat use your knife to spread it out, sliding it flat under the leaf. Don't use fingers, the leaf will stick to them – a brush can be used in conjunction with the knife. Once you've done the best you can, lean over the leaf, being careful to hold your breath, position your mouth 6-8in directly above the leaf and expel a short, sharp



Crumpled leaf

puff of air toward the centre of the leaf
– as though you were blowing out a small
candle the wax of which you don't want
to blow everywhere. Like magic it flattens



Moving leaf around the pad

the leaf. If your leaf blows off and ends in a crumpled heap, you weren't directly above it. We've all done it, just reposition and try again.

### Cutting the leaf

Hold the knife parallel to the leaf approx 10mm above, press directly down and then pull it back 30mm toward you and lift the blade away. The leaf will be cleanly cut but still flat on the pad. The rest of the sheet can be divided in the same way into the desired sizes. I start cutting mine into 30x30mm pieces.



**Cutting leaf** 

### Picking up the leaf

The gilder's tip is an historic tool and still the best at its job – but it doesn't pick up the leaf by magic. Previous generations would have brushed the tip lightly against a greasy part of their body, such as the forehead – this imparts a small amount of grease on to the tip. It provides sufficient tack to lift and move the leaf, but as soon as it touches the much stronger tack of the size the tip will pull free with ease. I advise keeping a small pot of Vaseline with your gilding equipment.

Gently touch the surface of the jelly with a fingertip, place a small amount

on to the fleshy lower part of your thumb on your non-dominant hand and rub in well.

Take your tip and brush the last 5-10mm of each side against the pre-greased part of your non-dominant hand. Your tip is ready to use.

Take the tip to your pre-cut pieces of leaf and place the end of the tip against an outer 10mm section of the cut leaf. Now gently lift and move toward the work. At this point take note of the leaf's movement through the air, how it's forced to flow behind the tip and when you stop the leaf swings in

the opposite direction because of momentum. This is important as it allows you to judge the speed at which to take the leaf to your work – because once the leaf touches size you have zero chance to reposition and just have to gild around it.

The tip won't pick up heavier types of leaf, such as coloured silver, so you need to use the knife. This takes practice and will necessitate placing the surface to be gilded on the same horizontal plane as the knife. Otherwise, when you dip the knife the leaf will just slide off and stick where it lands.



Putting Vaseline on a hand



Preparing the tip



Lifting up the cut metal leaf on a brush



Moving the leaf with the knife

### Where to start and why

If it's a large area such as the inside of a bowl, gild around the rim then work down the bowl – this way you reduce the time the leaf is over a sized area and therefore the likelihood of slipping and it sticking where you don't want it. If you're leafing a small area such as a cove, systematically move around the feature.

If a piece touches the size in the wrong place there is nothing you can do – leave it where it is, systematically leaf down towards and around it.



**Getting started** 



When it goes wrong

RIGHT: Lapping the leaf

### Lapping leaf

Overlap each piece of leaf by about 5mm, working systematically around the area and then down into it. Try to cover all the sized area with the leaf. Where small areas have been missed, cut a piece to roughly the same shape but twice the size and place over the area missed. If it's too small to be picked up with your tip use a small makeup brush charged with petroleum jelly, as you did with the tip. Once the entire surface is covered you'll be left with an untidy, flapping, patchwork – fear not.







Visible joins

### Burnishing

Gently press the surface down using a soft cotton cloth to ensure all the leaf is in contact with the size and therefore held securely. Don't be tempted to rub the surface to remove the overlapped edges - a cotton cloth is too abrasive. Remove the superfluous leaf using a blusher brush to sweep gently over the surface in circular motions. As bits break off they will settle over small misses.

At first it will look like crazy paving - as the overlapping pieces fall away the joins will be visible. But as you continue to burnish with your brush these will blend and disappear. You'll be left with lots of small bits of leaf removed during burnishing. Collect these and store for future projects as when small pieces are combined with other colours they create striking effects.

### Faulting/sealing

Faulting is the process of covering any 'holidays' (an old gilding term for areas missed with leaf). Dust the gilded surface to remove any loose particles using a soft cotton cloth or a clean paintbrush to reach into textured areas. Closely examine the gilded surface for holidays and reapply acrylic size to that area and a few millimetres beyond. Cut leaf twice the size of the holiday and apply to the area with tip or small brush if small and repeat the burnishing process. Then use masking tape to cover the polished wood and seal the leaf with an acrylic aerosol lacquer to prevent tarnishing and protect the gilding. So the resized areas could be seen in the photo I added a tint of colour to the size.

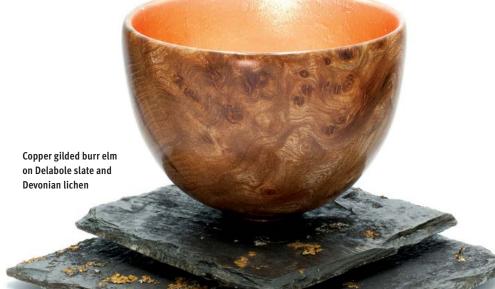


Re-sized areas

### Finished surface

Notice how it catches and reflects light within the room. It always pleases me when people crane to look inside for the light source and are surprised when I explain it's just the metal leaf reflecting the available light.

In my opinion this figured elm is as beautiful as any glazed ceramic or sculpted bronze so is given its own plinth.





Finished gilded surface

### Problems and solutions

- Gilder's pad contaminated with different-coloured leaf – gently brush off with a clothes brush.
- Tip clogged with small pieces of gilding - vigorously brush both sides against a piece of cotton until they all fall out.
- Any damage to the timber will be highlighted when gilded – closely inspect the area to be gilded while sanding. When sealing always check for dark marks in the wood, which often indicate damaged areas, and resolve at this stage.
- Tip contaminated with size wash with warm water and gently dry with a hair dryer.
- Leaf sticks to your knife wipe clean with a cotton cloth and occasionally clean with acetone (nail polish remover)
- Tip won't lift leaf it either needs charging with Vaseline or the leaf is too heavy, so use a gilding knife.
- Leaf on polished areas of wood is best removed with ultra-fine abrasive, 0000 wire wool or carefully buffed.

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# Community letters

Here are some letters the Editor has received from you, the readers



### Fun project

Mark,

You recently asked what people were making. I have attached an example of one of my projects that I make and sell throughout the year, but that sells exceptionally well during the holidays.

It involves fridge magnets in the shape of small weed vases made from coloured plywood and small pieces of various woods.

The sizes range from 63mm to 90mm and are approx. 35mm in diameter. I drill a small hole down the centre, sand a flat on one side and inset two small magnets. I finish with lacquer and a light buffing.

These pieces give me an opportunity to experiment with various shapes without committing to a large piece of wood.

Ken Haines

### Classes

Good morning Mark,

I just read your Editor's column in the most recent *Woodturning*, which posed the question: 'Should we teach basic skills to allow the new woodturner to increase their knowledge base, or just guide them in making the one item, knowing they will likely not turn another one?'

I've been teaching woodturning since 2007, first at local woodworking speciality

stores (Woodcraft, Rockler Woodworking) and now I teach one-on-one private students in my own studio. The courses I teach are primarily basic bowl turning, basic spindle turning and sharpening. I will also provide individual instruction on particular skills or techniques. The students are woodturners who have basic skills, but they can't accomplish, for example, the shear cut with a swept-back bowl gouge, or the translucent thin-walled bowl or vessel.

In all my classes (group and private), I find out in the very beginning whether the student wants to learn turning or if they just want to go home with a finished piece. In the group classes at the stores, roughly half of the students only wanted the turning at the end of the class. And, more often than not, I turned 90% of it, with their grateful permission. 'It wasn't as easy as... I thought it would be... others made it look...'

In my private sessions in my studio, I will still get those students, but the ratio is less than 10%. I get paid more for one-on-one instruction, and many of my students return to me for more instruction. So I think there is a 'market', at least here in the US, for speciality course instruction. How specialised, I'm not sure. Regular instructors at the more popular craft schools (Arrowmont, Anderson Ranch, etc.) may be able to offer more insight.

Looking forward to seeing you at Totally Turning, where we're both demonstrating.

Take care and turn safe, Donna Zils Banfield www.livealifelessordinary.com

### Courses

Hi Mark,

In your recent editorial you ask whether a tailor-made course would be practicable for someone wanting to make a specific piece of work, or whether they should be steered towards learning the general skills first.

Initially, one might suspect that this would depend on the depths of the novice's pocket when it comes to pricing the tuition. To provide the support necessary to produce only a specific piece of work will require very much more instruction and assistance from the tutor, with the set-up for virtually every task having to be explained in

detail and then checked and verified before being carried out. If the work requires more than just machining, there will also be time spent on demonstrating and supervising the manual skills and techniques and, inevitably, some remaking when a part is spoiled by unskilled effort.

On the other hand, teaching the wide range of skills that a craftsman needs would most probably take considerably longer for the novice to acquire an appropriate standard of competence. Since tuition inevitably comes at a cost - not just in fees but in materials, time and travel - it is quite likely that such a broad-based approach would cost even more. But the point I believe we should not lose sight of is that if the novice is willing to pay for a bespoke course then it is quite probable, in my opinion, that they might develop an interest in taking things further - producing more work, acquiring more knowledge and skills and thereby becoming a welcome addition to the woodworking fraternity.

Tony Nicol

### **Timber**

Hi Mark.

I had intended to reply to an earlier editorial re. sources and supply timber. I recently had a call from an acquaintance who had had a large ash felled and wanted me to turn two souvenir bowls for her daughters. She also asked if I could write on the bottom of the bowls. So far, so good. The tree surgeon knew exactly what I needed and would put the pieces to one side. A few days later I arrived, saw the huge stump of the tree and started licking my lips in anticipation.

I then was introduced to the saved 'ideal' chunks of timber. Branch wood about 300mm diameter and about 230mm long. The stump was at least 1m across.

On the most recent editorial, years ago a colleague of mine announced that he was going on a three-day course on charcoal making. He had no intention of using the knowledge, just wanted to know how.

He had previously done a course on coppicing and hurdle-making for the same reason. So if a person wants to learn, help them if you can. I recall some of the things that I had to learn as a schoolboy 60-plus years ago, I'm sure they will come in sometime.

Regards, Richard Bennett



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# Square box with pewter inserts

Pat Carroll shows it's hip to be square

Using a combination of colour, texture and pewter makes for an interesting project. The timber required is a dense, close-grained wood which would take texture well, so purpleheart (*Peltogyne* spp.) was selected for just these qualities. The original idea was to have ebony or dark wood discs inserted into the purple exterior, and that is another possible variant for this project. The texture added enhancement to the exterior of this box, and the addition of the six textured pewter discs created a feel of elegance. The interior purple colour added a further dimension of interest, and continuing a similar texture to the interior of the lid, as displayed on the pewter discs, adds a further area to explore.

To cut the holes for the pewter insets, I use a multifunctional homemade jig (see diagram over) to hold the cube so I can turn the holes. An alternative would be to accurately mark the positions and use a pillar drill to bore holes.

If you use a pillar drill, use a Forstner/saw-tooth bit that does not self-wind into the wood while cutting. Since holding the cube by hand when drilling is not safe, you

will need a suitable clamping device to hold the blank securely while you drill the holes.

Being able to buy wood in pre-cut sizes, such as a disc for a bowl or square stock for lamps or similar projects, is very much appreciated by people who don't have access to the tools or machinery to harvest their own timber. So, having this piece of pre-cut and kiln-dried purpleheart was a great time saver.

Square items require that one retains crisp corners, which can be tricky. To help, keep your tools sharp and go gently when cutting into the square edges. Other issues concerning this project include that of accurately marking the centres for turning, texturing and drilling. The joint of the box where the lid meets the body was never going to be invisible but by paying careful attention, you can minimise the visibility of the intersection between the base and lid. Also, as this piece has six matching sides with decoration and drilled holes for the pewter, there are a lot of repeat processes that require careful marking to ensure you get as good a match on each side as possible.



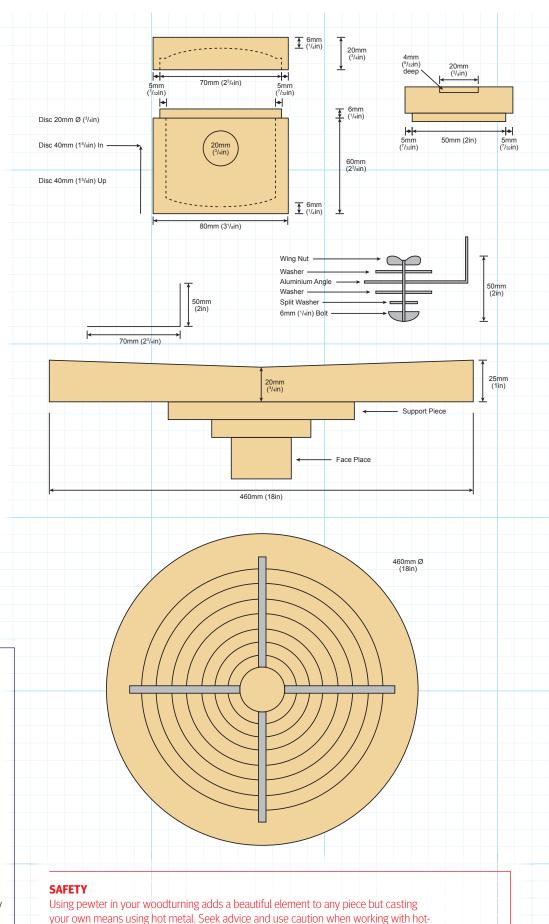
Woodturning 317 **45** 

### **TOOLS AND MATERIALS**

- Personal and respiratory protective equipment
- 25mm spindle roughing gouge
- 13mm spindle gouge
- 6mm parting tool
- 4mm parting tool
- Texturing/knurling tool
- Detail/pointed tool
- 25mm square-end scraper
- 25mm round-nose scraper
- Revolving centres
- Drive spur
- Chuck
- Drill chuck
- 20mm Forstner bit
- 50mm Forstner bit
- Mini angle grinder
- Arbotech industrial 50mm TCT cutter with two teeth (alternatively, hand-carve or use a rotary carving tool with appropriate cutter for the texture you want to create)
- Saw
- Ruler
- Divider
- Finishing oil
- Black lacquer
- Cyanoacrylate
- Epoxy resin
- Pewter
- Purpleheart (Peltogyne spp.)
- Beech (Fagus sylvatica)

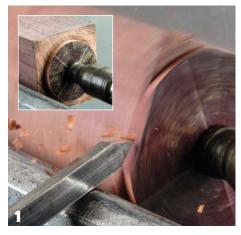
### Jig for square box

Diagram No.2, Diagram No.3 MDF was used for the jig with aluminium angle to hold the work in place. Velcro neoprene is cut oversize to cover all corners so as not to damage the piece. Using 25mm MDF provided strength and rigidity to the jig, and a support backing piece was added to fix the faceplate to. When the disc is trued up on the lathe it is tapered towards the centre, going from 25mm at the outside to approx. 20mm at the centre. This means that when the wing nuts are tightened the angle pulls the piece into the centre. Tighten each nut gradually. As with any turning use the tailstock for support when possible. This jig is only intended for finishing or light enhancement.



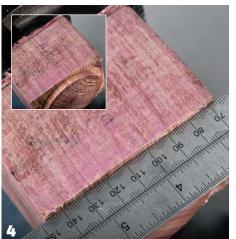
melted metals and only use lead-free pewter. Remember, be sure to wear and use all PPE

to protect yourself and only heat and cast pewter outside, not in your workshop.

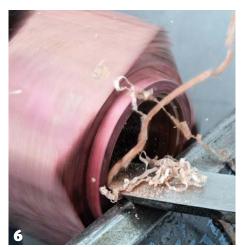


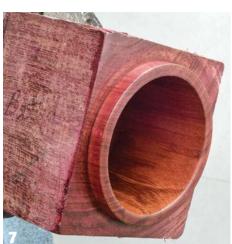


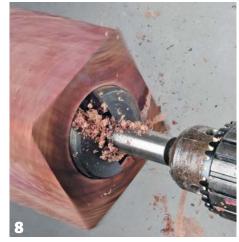






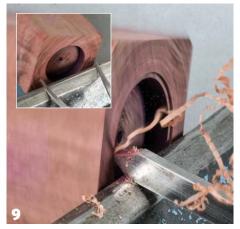






- 1 Mount your selected wood between centres, select an appropriate lathe speed and use a parting tool to cut a spigot on the tailstock end of the wood to suit your chuck jaws. It is worth noting that the faster the speed the less time the tool is in negative space. However, caution is advised when increasing speed beyond safety levels appropriate for the size and condition of timber being used. Take light, 1mm cuts working from the outside of the piece inwards towards the tailstock centre. The chuck I used for this project has parallel serrated-jaws.
- **2** Remove the wood from the lathe and place it in the chuck, lightly gripping the tenon just cut. Now bring up the tailstock revolving centre to align the centres to keep the piece running as true as possible and tighten up the piece in the chuck. Cut a spigot at the tailstock end with a parting tool and then mark to length a section of wood slightly longer than needed on the base section of the box at the chuck end. Use a parting tool to cut almost all the way though the timber, then stop the lathe and saw though the final bit.
- **3** Now, face off the piece with a spindle gouge. Then, use a parting tool to create a tenon to suit your chuck jaws, being mindful not to damage the corners of the wood as you cut. Pay attention to the square section of the rim of the box.
- **4** Check frequently with a rule or straight edge as this edge must be straight to help conceal the joint.
- **5** Now mount a drill chuck in the tailstock end of the lathe and fit a 50mm Forstner bit into it. Drill out the waste to just short of the finished internal depth required, making sure you take into account the depth of the bit point/spur when you drill. I wanted the base to be a final overall thickness of 6mm.
- **6** Now refine the sidewall to size using a squareend scraper, taking into account the drilling of the side wall for the pewter inserts later. Then, radius the inner bottom section of the box with a roundnose scraper and blend this into the side wall.
- **7** Now sand the inside with 180-400 grit abrasives. Then apply the first of three coats of oil. Note that further hand-sanding is required for the flat, square section.
- **8** Remove the base section from the chuck and secure the top section in the chuck. Once again, true up the meeting face of wood with the spindle gouge until the flat area is straight for a clean transition line-fit between the top and bottom of the box sections. Now, use the 50mm Forstner bit in the drill chuck to remove the waste to a depth allowing enough material to refine the inside of the lid.

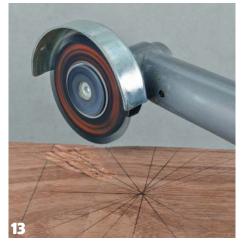
- 9 Measure the size of the tenon cut on the bottom section of the box and, using dividers, transfer this size to the flat section on the lid. Cut a recess using fine cuts with a combination of flat scraper and parting tool, working towards the indicator line. Check frequently to ensure a tight-fitting lid.
  - **10** The inside of the lid is turned and sanded through the grits for the inner base section. For a point of interest it is a nice touch to add a bit of decoration on a lid. A texturing tool can be used to add a little pattern, framed with detail lines or V-cuts. Once done apply the first of three coats of oil to the inner section.
  - **11** Fit the base section to the lid and bring up the revolving tailstock centre to align and secure everything. Check the grain alignment is OK too. Now sand the piece on all sides to a fine grit grade.
  - **12** Mark out the overall height of the box and place gridlines on the work to help with achieving a uniform hand-applied texture.
  - power carved to any design and pattern you choose. But adding a pattern adds an extra tactile and visual element to the work. Use your indexing or spindle lock to keep everything in place while cutting the pattern. I am using a long-neck mini angle grinder fitted with an Arbortech industrial 50mm TCT (tungsten carbide tooth) two-toothed cutter to create the textured pattern. This small grinder can be used one or two-handed two-handed gives more control and the two small TCT teeth can be used to create small grooves of any length I choose.
  - 14 I wanted these narrow grooves to be small in length and follow the direction of the marked lines. Whatever texture you create, use gentle cuts and minimise grain tear-out as much as you can. Once you have the primary lines textured, fill in the gaps. Repeat the processes until all four sides are complete. Then use micro-abrasive to remove any whiskers and either leave the piece natural or, as I have, apply coats of black paint or spray.
  - 15 Now turn away as much of the spigot at the bottom section as possible with a spindle gouge. But once into the solid section of timber past the square sections undercut the base very slightly so it will sit level on the surface it will be placed on. Keep tailstock in place for as much of the cutting as possible. Then stop the lathe and check the fit of the base to lid section. If there is a tight fit, use a slow lathe speed and turn the remaining pip of timber away. If not, saw the pip off then sand the bottom.
  - **16** Once sanded clean, mark out the texturing grid lines exactly the same as on the sides earlier and texture as before. Then lightly sand with micro-fine abrasives to remove any errant fibres and wood whiskers before applying the black colouring.

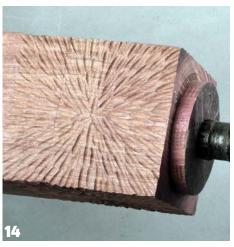












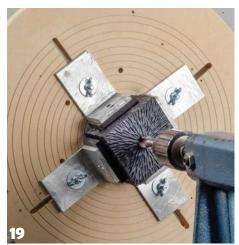


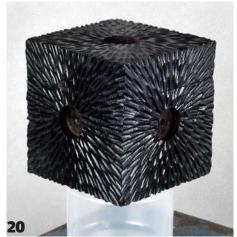


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- **17** Drill the first of six holes centrally in the base, 4mm deep using a 20mm Forstner bit in a drill chuck, ready for the pewter. Then spray it black.
- 18 Remove the base section from the lid and part and saw off the lid section leaving a bit of waste wood for cleaning up later. Cut a tenon on the scrap piece of wood to suit the internal opening of the lid, making a secure jam chuck. Fit the lid on the jam chuck. Bring up the revolving tailstock centre to support the lid and turn off the spigot and cut a clean, flat face. Sand it and lay out the pattern grid and texture the surface. Clean up and apply colour as before. As with the base, drill a 20mm hole 4mm deep and apply colour. The piece can now be removed from the scroll chuck.
- 19 You now need to hold the cube to drill the other four sides centrally. You can use a jam chuck or glue chuck or, as I have, make up a chuck. Follow the pattern provided earlier .The picture shows clearly what I use. Of course, as with any chucks with projecting holding points, you have to be careful to steer clear of those projections when the lathe spindle is rotating. With the homemade jig fitted to the lathe, mark the centre of the remaining four sides and fit the cube loosely in the chuck. Use the tailstock centre to centre the cube. The jaws are gradually tightened around the piece. Now, selecting a low lathe speed, use the drill chuck and 20mm bit to drill a 4mm deep hole and apply colour.
- **20** Repeat the holding, drilling and colouring process for the other sides. All areas are touched up with paint and the walls of the holes painted black.
- 21 Mount a piece of beech about 75mm x 75mm x 200mm long between centres and turn it to a cylinder. Cut a spigot one end and mount it in a chuck. Face off the end so it is flat and drill a 20mm hole in it, 4mm deep. Then, about 30mm down from the end of the cylinder, cut a spigot to suit your chuck and part this section off from the rest of the cylinder. Repeat this process six more times, creating an extra mould in case of errors.
- **22** The moulds are taken outside and lead-free pewter is melted in a pan on a heater. Once molten, some is carefully poured into each mould until it just overflows the hole. As the discs cool they contract and become too loose for turning. When the discs are cold fix them back in the moulds with cyanoacrylate. Each mould is then placed in a chuck and the face of each disc is turned flush with the wood and sanded.
- **23** Texture is required. I used a knurling tool. Once done, set a low lathe speed and use a parting tool to remove the wood surrounding the disc, being careful not to remove any pewter. The pieces are then removed from the wood and glued in place with a small amount of two-part epoxy, ensuring no squeeze out.
- **24** Here is the finished result.







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# Spoons, scoops and ladles

Andy Coates looks at techniques for making spoons, scoops and ladles on the lathe



After utility bowls and drinking vessels, spoons, scoops and ladles seemed an obvious conclusion to this short series on utility ware. Wooden spoons and ladles are currently undergoing something of a cultural resurgence thanks in the main to the concerted efforts of the spoon carvers, green woodworkers and followers of the hygge revolution that has gripped the Instagram set and much of social and print media.

There seems to be growing desire for the simple, the beautiful and the natural. And once again the words of William Morris are doing the rounds: 'Have nothing in your house that you do not know to be useful, or believe to be beautiful.' Wooden utility ware seems to fit well in this

ethos, and spoons are no exception.

Wooden spoons are traditionally hand carved from green wood, but if hand carving is not for you there is no reason to deprive yourself, family or friends of the joy of a wooden spoon. There are methods we can adopt and adapt to produce a wide range of spoons and ladles on the woodturning lathe. The techniques are quite similar for a wide range of styles, and in some cases it is just a matter of scale.

Wood species used should be food safe, or coated with an impermeable finish in order to make them safe. Polyurethane finishes work well, but curing times need to be adhered to, and this can often run into a number of days before the finish is fully cured. Check the instructions on the packaging to be assured that they are safe to use.

Safety, as ever, is a major consideration, and where long-handled objects are concerned the main issue is related to having a handle whirring around at 1000rpm. With some applied common sense and focus on the task at hand this is not an issue which should preclude attempting them. 'Never let your fingers be over the toolrest' is a sensible mantra to adopt. Providing the handle is not fouling the toolrest, or banjo, and your fingers are on the opposite side of the toolrest everything will be fine. Think, plan, focus, enjoy.

### Basic tools and peripheral equipment

- 10mm long-grind spindle gouge
- 15mm long-grind bowl gouge
- Round-nosed scraper
- Parting tool
- Bandsaw
- Four-jaw scroll chuck with wood jaws mounted on carriers
- Carving or bench chisel
- Carving or craft knife
- 10mm spoon bit gouge or a 10mm bent gouge are ideal carving tools to use
- A spoon carving knife is handy but not essential.

It should not need stating, but all tools should be freshly ground to the keenest edge possible, and the edges must be kept sharp throughout the turning process.

### **Basic considerations**

Ideally the wood you use should be green wood. This allows for easier working and provides the opportunity to get the basic shape created while the wood can be cut easily and cleanly then refined later once the wood has properly dried out. If only dry wood is available you can still make the spoons but the hollowing will be noticeably more difficult to achieve if using gouges or spoon knives.

Turning spoons on one axis presents virtually no safety concerns over and above those normally applying to turning wood, but spoons turned on more than one axis require a little more attention to safety, although the risks are easily mitigated.

Spoons, scoops and ladles can be task specific. Is your spoon for eating, decanting or measuring a specific volume of something? Having the intended use clearly in mind will help you to design a spoon for a specific task that works well and looks great.

Eating spoons are generally shallower, with a shape that tapers towards the nose. Scoops and ladles tend to be deeper, rounder and may have much longer handles. Noodle spoons are almost a composite of each of these; deep bowl, shorter, curved handle – each of these features dictated by their usage.

Plan your spoon by looking at commercially available versions in metal, plastic or ceramics. Direct copying is never a satisfying methodology so take the time to design your own.



Blank turned to shape

### A simple two-axis ladle

Turning a spoon in only one access is a relatively simple process, and after reading through this article it should be easy to figure out how by using a combination of techniques discussed here for the more complex methods – so we can skip forward a little.

A branchwood section of sycamore (*Acer pseudoplatanus*) was mounted on the lathe and turned to a 'ball on a handle' shape. In order to ensure the walls of the ladle bowl are of even thickness it is important to make the ball as spherical as possible. A card template can help you to achieve this. Abrade, seal and apply tung oil, mineral oil or boiled linseed oil (BLO) to the piece then part off as cleanly as possible. Remember that there will be a degree of off-lathe finishing, so don't be overly concerned if the parting points are not perfect at this stage.

The easiest way to hollow the bowl section is to mount the ladle on a custom-turned set of wood jaws. Four quadrants of scrap wood - solid wood or commercially available polypropylene jaws are better than composite wood-based materials, which can de-laminate in use are attached to jaw carriers and mounted on the chuck. The wood jaws should be trued up for balance and then a central hemispherical recess turned to a depth equal to the diameter of the ball. You may need to manually cut a recess to take the handle section. Do this off the lathe using a tenon saw or similar tool. The ladle can then be mounted in the



Ladle mounted in wood jaws



Removing the top to form the bowl

wood jaws and locked down to a snug fit. Position the toolrest and banjo so that the handle rotates freely with sufficient clearance. Always ensure that your hands/fingers are on the opposite side of the toolrest when the lathe is running. If you have a remote speed control make sure it is accessible. Always start the lathe on a slow speed and gently ramp it up. Slower working speeds may be advisable if this is your first time using wood jaws and a projecting workpiece.

You can turn off the whole of the top section, usually a third of the diameter, of the ball, or make a holding jig and take the top off with a bandsaw to reduce the time the workpiece is on the lathe. Once mounted on the lathe scribe a pencil line at your desired wall thickness and use a long-ground bowl gouge to carefully hollow the bowl section. Take lighter cuts than for a conventional turning, and using a scraper to finish the inside often helps.

Abrading the inside of the bowl is best achieved off the lathe using a small rotary arbor carrying the abrasive.

If you do not have the facility of wood jaws another option is to mount the ball section between centres – taking the same safety steps as above – and turn a shallow tenon on one face. The ladle can then be mounted directly on the chuck to hollow the interior. The tenon can be carved or abraded away later. This does mean that your ladle has a flat base, but this can be viewed as a feature for sitting the ladle down on the counter top when in use.

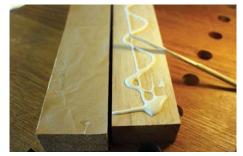


Turning a tenon to remount

### Make one, get one free

Split turning is a useful process for spoon making. Two identically-sized blanks are prepared. A piece of thick brown paper is cut to size and glued to one face of one blank. Apply glue to one face of the second blank and join and clamp the block up to cure. An additional and useful step is to cut two end caps from MDF, plywood, or scrap board stock and glue these on the ends. This will enable you to mount the laminated blank between centres without worrying about splitting the blank.

Draw a spoon shape on one face and turn the whole blank to that shape. Once complete, abraded, sealed and finished, part off the workpiece. Using a sharp



Brown paper glued to one face of two identicallysized blanks

bench chisel on the glue joint line and giving it a sharp rap with a mallet, the blank will split in to two partially finished spoons. Create the bowl with a carving



Glue applied to second blank prior to joining

gouge or spoon knife, shape the upper handle section using a carving knife, abrade the top of the spoons to a finish and you have a pair of matching spoons.

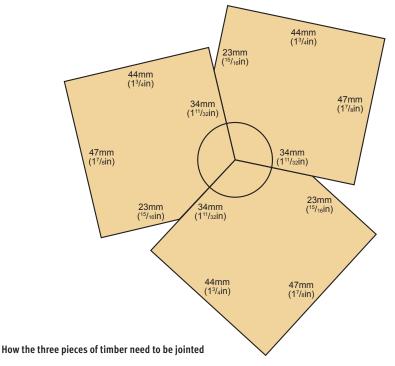
### Make one, get two free





Aligned paper glue joints

Split turning can be taken to extremes for spoons and scoops. Taking three identically-sized blanks, use the template [diagram 1] to mark off diagonal waste sections on each of the three blanks. This section can be taken off using a tablesaw or bandsaw (if your machines have the facility for angled cutting) or simply by planing the angles off. You can scale this idea up or down as required. You can alter

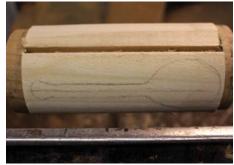




Clamping required for curing

the angle removed to suit your specific requirements. The only consideration is the size of the area left on the outer face. By adjusting the angle you can alter this. Just ensure that it still allows for two mating faces for each of the three paper joints.

Use the brown paper glue joint technique once again, but here you will form three paper/glue joints. Cut and glue on two end pieces to facilitate worry-free spindle



Tri-blank turned down to a cylinder

mounting, clamp up and allow to fully cure - overnight is always preferable.

Mount the laminated blank and turn to a cylinder. (NB: the wider and thicker the individual blanks are the deeper the eventual spoon bowl can/will be. Smaller blanks for spoons, larger for scoops.) Draw a spoon shape on one face and proceed to turn the shape. Abrade, seal and finish the surfaces.

### Forming the scoops

Part off the completed workpiece and, using a sharp bench chisel or heavy knife, split the paper joints to produce three part-completed scoops. Carving the bowl and handle can be achieved a number of ways. You might use a combination of techniques or only one, whichever suits you. A carving chisel or spoon carving knife are the easiest tools with which to carve the bowl out, and a flat carving chisel for the handle section, but you might also use any other tool you can manage with. Abrade,

seal and finish as you did on the exterior. The processes are illustrated in the 'three spoons' threes stages' picture below.

This technique is useful for small production runs or simply to make single scoops more quickly. It has the obvious advantage of resulting in more uniform scoops than when produced individually. This particular shaped spoon is ideal as a noodle spoon. Try the same technique with four laminated pieces to produce flatter spoons for use as eating spoons.



The finished shape



Splitting the paper glue joint



Carving the interior bowl with a carving chisel



Three spoons, three stages

### Kitchen scoops

You will find various methodologies to make scoops, but this one is widely used and tested, so is a good beginning. You can achieve the turning part of this scoop entirely between centres, or turn a tenon and mount in the scroll chuck. Here I use the chuck method to make photographing the process simpler.

Mount a suitably sized blank between

centres and true up to a cylinder. Leave a little excess length to allow for errors in shaping. Measure the diameter with callipers and transfer the diameter to the cylinder. Mark the halfway point with another pencil line.

Begin to form the spherical end. Using a template will help and ensure a perfect sphere is formed. A simple template can be made by cutting a hole to the required diameter in a piece of wood and cutting the wood in half through the hole. Turn the handle shape to suit. With some thought you can turn a shape which can be modified later to make a less obviously turned shape. Abrade, seal and finish as desired. Part the workpiece off the lathe.



Preparing to size the scoop



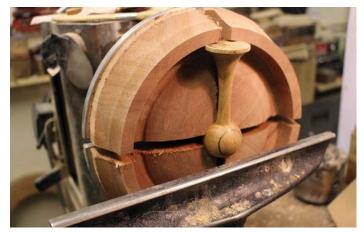
Forming the sphere



Parting off the scoop

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### Second stage of making the scoop



Mounting in wood jaws for hollowing



Checking for depth/wall thickness



Reshaping the handle



Reshaping another way

Using the wood jaws is the easiest way to hollow out the scoop. The advantage of using wood jaws is that they can be turned to suit a specific project of a specific size at little cost other than scrap wood and time. The recess is turned to the maximum diameter (equator) of the scoop with the jaws slightly opened. Once this is done the jaws will locate snugly around the equator of the sphere and hold it securely. You may need to remove material to accommodate the handle as before.

Begin by turning away about one-third of the top of the sphere, then begin to hollow. On smaller scoops it is often easier to use a small round-nosed scraper to hollow out. Use a depth gauge to check how deep you have gone. This will help to ensure even wall thickness. Abrading the interior is best achieved off the lathe.

The handle would do just as it is, but it would be rather large and cumbersome. A simple solution is to use a belt sander to remove material and form a lighter, more pleasing shape to the handle. An alternative method is to use a cheap drum sander attachment on a pillar drill or in a Jacob's chuck in the headstock of the lathe. (NB: If using on the lathe the drum sander should be locked in with either a drawbar or by bringing a revolving

tail centre up to constrain the Jacob's chuck in the headstock mandrel. The act of sanding can result in the Jacob's chuck being ejected from the headstock while the lathe is running.)

Shape the handle and finish by hand. You can make this kind of scoop to hold a specific volume of material, so objects such as teaspoons or coffee scoops can be made to size, and if any of these methods are not for you, then you can also turn them in two parts – spindle section and bowl – and glue the handle into the bowl section.

Spoons, scoops and ladles are fun to make and useful to own or give as presents. Remember to keep focused, consider the safety implications, and before long you should be having fun making a range of varied and appealing objects.



# Sharper Tools: Superior Turning

If you're going to be the best turner you can, you need to consider your sharpening - and to practise it - and to make it quick, easy and accurate. For that you need best sharpening jig too. For very good reason, many folk get more than a little anxious when it comes to sharpening their turning tools. They have seen experts and heard them extolling their own ability to sharpen "freehand" and are frequenty left with the impression that this is the 'proper' way to sharpen. Nonsense! The 'correct' way to sharpen is the one that enables you to get the best edge, quickly, accurately and repeatably.

That way, there's nothing to fear and nothing to discourage you from sharpening as often as neccessary to keep your tools turning-sharp - and that can mean as frequently as every few minutes. Without sharp tools, you can never be a sharp turner, so it is important to get this particular little trick under your belt as soon as possible.

So make it easy: always sharpen using a jig - and use the best jig available for bench grinders: the Oneway Wolverine.



This is a jig developed by turners for the benefit of turners and produced by one of the most respected engineering companies in the business. The basic system all standard turning sharpening needs but accessories are also available to complement the system and to meet virtually any turning tool sharpening requirement - including really precise wheel dressing. Standard system with long arm and platform (above), including setup and operation DVD: £85.67. Varigrind jig accessory for Celtic profiles (right): £51.18.



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# Bar stool with curved backrest

Richard Findley uses traditional Windsor chair-making techniques to start making a bar stool which will eventually have a curved backrest

I developed an interest in Windsor chairs a couple of years ago when I joined Instagram. Until then Windsor chairs had, at least to my mind, been the ugly and uncomfortable chairs used in village pubs across the country. While browsing images on Instagram I came across pictures of Windsor chairs like I had never seen before, with elegant turnings and beautifully shaped seats with almost impossibly thin spindles.

The chairs I was seeing were American Windsor chairs and seemed a world away from what I was used to. Since then I have bought a number of books on the subject and researched the various techniques involved. I just love the simplicity yet complexity of them.

I have made a number of small stools using techniques associated with Windsor chairs, which make great christening or first birthday presents for children. I have even developed a demo on the subject, where I make a three-legged stool in an evening, sharing the techniques, but until now I have never made anything bigger than these small children's stools. This series of articles, looking at turning for furniture, is a perfect opportunity for me to have a go at making something larger using these techniques.



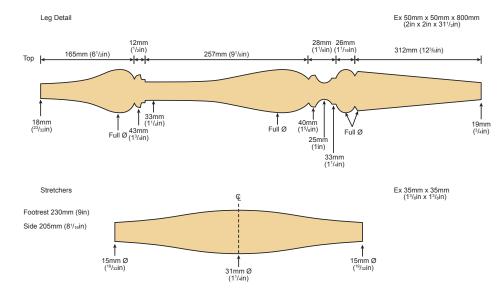
### The plan

My intention is to make a tall workshop stool, something like a barstool, using some lovely quarter-sawn European oak I have in stock. This stool will have some added design features for interest and for the challenge. This will be a two-part article, the first focusing on making the stool itself, the second looking at techniques for making a turned and curved backrest – which will be completely new territory for me and so may or may not be entirely successful.

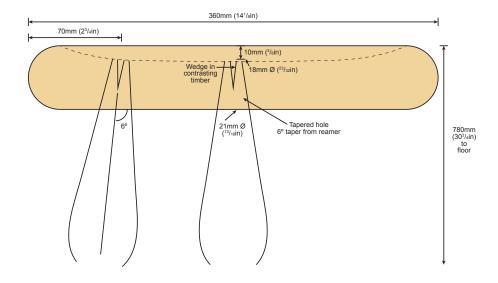
My starting point is to draw out the stool full size. Until now, this design has been entirely in my head, so the drawing exercise will help to iron out a few ideas and try to get dimensions and angles sorted.



Drawing out the stool on MDF



### Stretchers and leg diagrams



Seat diagram

I use a sheet of MDF to draw out the design and to help me answer some questions, the first being how tall should it be? I know I want it fairly high, so I can perch myself on it. I take a two-pronged approach to working it out. First I Google 'barstool height' and the results suggest anything in the range of 730mm-820mm, depending on bar height. As I'm six feet tall I'm looking to the upper end of this scale. My second approach is a little more hands-on: I go around my workshop sitting on things, including my planerthicknesser (which is a little too high at 860mm) and my office desk (a little too low at 740mm). I decide to aim for 800mm and, as I will be adjusting the legs at the end to level the stool, I can always drop it down a little at this stage.

The seat diameter is my next decision. 300mm is common for a plain stool but as mine will have the backrest I decide it will need to be a little larger and settle on 360mm.

These two dimensions allow me to draw a rectangle on the MDF, which is the basis for my design. I usually use around 15° of splay for the little children's stools I make, but on a tall stool this is far too much. In Keith Rowley's book: Woodturning, A Foundation Course he describes making an English-style Windsor stool and uses 7° for the angle of his legs.

After drawing out a couple of versions I settle on 6°, mine being 150mm taller than Keith's. I want to try to keep the legs from splaying too far outside the footprint of the seat, which becomes a trip hazard. We'll see how this looks later.

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### Seat

I usually start with the seat. This will have mortises drilled into it to take the legs and the usual rule when forming mortise and tenon joints is to cut the mortise first as it's easier to adjust a tenon. For my children's stools I will usually hold the seat on a recess and turn a contrasting piece of timber to fill it, with an inscription laser engraved on to it. For this stool I don't want to leave any kind of chucking mark so I initially mount it using the pressure of the tailstock live centre holding against the chuck.



Turning the underside of the seat

Neither a screw chuck nor faceplate is suitable as I don't want screw holes in my seat, so this method works well. I find the pressure of the live centre is enough to safely hold it in place while I true up the edge and form a chucking spigot on the underside.

Once I have a spigot cut, I mount it properly in the chuck and true up the blank with a bowl gouge. I use a 13mm spindle gouge to turn a simple radius on to the edge and switch back to the bowl gouge to flatten the seat.



Rounding the edge

### Drilling

I like to drill the seat before final turning just in case there is any blowout or spelching around the holes, as this can easily be tidied up on the lathe. There are a few options as to exactly how you go about drilling the holes or mortises for the legs. You could set up a jig or tilt the table of a pillar drill, or make up a drilling jig to fit your lathe, but the way I like to do it is popular among American Windsor chair-makers, who do it by hand using a technique they call 'the mirror trick'. Upon first reading the description of the mirror trick you will think I'm quite mad, but once you try it for yourself the technique is so good you will want to find other uses for it.

I use a compass to set out the positions for the four legs and lay a scrap piece

of MDF to protect the bench and help minimise spelching. I use an electric drill but traditionalists prefer a brace and bit. With the seat upside down on the bench and clamped down firmly I position a mirror directly in front of me with a try square standing up on the bench.

To my right is another mirror and a sliding bevel set at 6°. The mirrors work like having two workshop assistants watching the drill and helping to keep it at the correct angles.

By correctly positioning the mirrors I am able to see that the drill is held perfectly straight and square vertically and at my required 6°, just by turning my head. I use an 18mm lip and spur drill bit which gives me a controlled entry and a very clean hole.

### Wedged, tapered, through tenons

Chairs take a lot of abuse in their lifespan. There are forces subjected to the joints of chairs that other pieces of furniture never experience. On mass-produced Windsors that are commonly found in this country, the legs are glued into a straight, blind hole, which is fine, but over time the forces applied to it will loosen it, leading to a common repair job that turners undertake. The traditional joint that I'm using is a tapered tenon that goes through the seat and is wedged on the other side, which means that, by being sat on, the joint is being driven tighter and the wedge and a little glue (although this is a mechanical joint that works without glue) make this incredibly strong and reliable. By using a wedge in contrasting timber it also makes it very attractive.



**Drilling in action** 



My view in the mirror to my right



My view in the mirror in front of me

### ■ Tapering the holes

Traditionally tapered holes could be made with a tapered auger bit, but I use a tapered cello reamer to form the mortises. This tool is designed for making musical instruments but works perfectly for this job. I press the reamer into the drilled hole and, while pushing downwards, turn it using the handle. It gradually opens up the hole, producing a clean taper at an ideal angle to give a strong joint. I use the mirrors, still set up from drilling, to ensure I am maintaining the desired angles. I put a pencil line on the reamer to give me a guide as to how deep I need to go, although it isn't too critical as each leg will be fitted to its own mortise and the legs will be levelled at the end.



Using the cello reamer



Cello reamer with bored holes

### Finishing the seat

With the mortises drilled and reamed I take the seat back to the lathe and turn the slight dip in the top. A 10mm hollow is formed in a gradual curve using a push cut with a 13mm bowl gouge (16mm bar diameter). The speed of the lathe means the gouge cuts cleanly over the mortises, leaving lovely crisp edges. I then sand the seat with a combination of power and hand sanding up to 320 grit.

With the edge and seat turned I reverse it on a piece of MDF fixed to a faceplate and bring up the tailstock. I then turn the chucking spigot down to a small nib and sand the rest as before, finishing it off on the bench with a belt sander and hand sanding to 320 grit the same as the other side.



Turning the hollow of the seat

### Turning the legs

With the seat finished I can move on to the legs. I draw out the design on another piece of thin MDF to use as a storyboard and, once roughed down to a cylinder, transfer the details on to the spinning timber. I use Vernier callipers to size the diameters of the first leg before setting my duplicating fingers for the rest. Starting at the bottom of the leg, I turn the lower taper and roll the bead. At 800mm long the legs vibrate a little so I use my front hand to offer support. Next is the cove, but it's almost exactly halfway along the leg so I only part-turn it to set its position before continuing along the spindle. A combination of my roughing gouge and beading and parting tool produce the rest of the flowing curves and rough out the tapered tenon which needs to match the corresponding mortise in the seat. I hold the first leg up in front of each of the other legs to help match the curves before I finish the central cove and sand to 320 grit. I test fit each leg in the seat. By twisting the leg in the mortise it marks the tenon, showing exactly where I need to remove a shaving. I repeat this several times, using a planing cut to achieve a smooth surface and perfect fit. With all four legs turned I can assemble it and mark out the stretchers.



Marking out the leg with a storyboard



Duplicating fingers in action



Matching curves to the first leg



Planing cuts using my front hand to support the work



Turning the cove is left until near the end of the turning



Test fitting the leg shows a witness mark

### Mistake

With the stool dry assembled I notice that the legs seem a little less splayed than I had intended. I check my drawing and my work, thinking through what may have gone wrong and then I realise. The 6° angle is set radiating out from the centre of the seat. To show this properly on a drawing I should have

drawn it showing three legs, but I drew it from a straight frontal elevation only showing two legs, which gives a false reading on the drawing. It means that my angle is more like 3° when viewed straight on. I could make a new seat with a revised angle but, as this is a workshop stool, the reduced splay will

take up less space. Live and learn is the saying. I decide to carry on because, although I would have preferred more splay, it looks OK and the legs are neatly within the footprint of the seat. The seat is also a lovely piece of quartersawn which shows off the rays beautifully. Next time I'll go for more splay.

### Marking the stretchers

Due to the design of the legs, there are two obvious places to fit the stretchers: at the bulge of the centre section and at the top of the lower taper, with the latter being an ideal height for a footrest. The higher stretchers will be entirely for strength. My challenge is to make sure the stretchers work visually, so my first job is to make sure the stool is standing level. I clear off my saw bench as it is the largest flat surface I have. I use a wedge to make sure it stands flat and level and use a spirit level to double check. From here I can set about taking measurements and marking the stretcher positions. A tip I picked up during my research is to tie some cord around the

legs – this gives a visual reference of the line of the stretcher. Because the seat is level to the table surface, the most accurate measurement is from the underside of the seat to the point where I want the stretcher. The footrest will sit 510mm from the



Marking the positions of the stretchers



Using the loop of the cord to find the centre of the legs

seat, the side stretcher will sit at 355mm. The cord confirms that my measurements look right but also has a secondary purpose: by measuring the space between the loop of cord, I can easily find the centre of the leg, making marking-out a breeze.

### **Drilling for stretchers**

As with the seat, there are several options for drilling the mortises in the stretchers and, like the seat, I opt for drilling by hand with the help of my mirrors. I have a V-shaped support block which I use for all sorts of supporting jobs, such as cutting cylinders on the bandsaw. I rest the leg in the V-block and it sits flat and level because there are three points close together which are full diameter. If there weren't then I would need to pack the leg out until it did sit level. This time I use a 15mm lip and spur drill and position my sliding bevel in front of me, with my square to my right. I wrap some masking tape around the drill bit to show me when I reach my desired 20mm depth. The first mortise is always a little nerve racking, but the drilling goes perfectly to plan.

With the mortises drilled I reassemble the stool. I need to measure the exact length of my stretchers. I use another trick I picked up from my research to measure their length. I use an elastic band to fix two pencils together side by side, allowing them to slide, forming a rudimentary measuring stick. I sit them in the position of a stretcher, touching the bottoms of each mortise and mark a line on the two

pencils. I then remove them from the legs and lay them on a ruler, lining up the marks to get the measurement I need for the stretcher.

Turning the stretcher is a straightforward job of sizing the spindle to 32mm diameter with 15mm ends and joining the two points with a flowing curve, using a roughing



Drilling the mortises for the stretchers using 'the mirror trick'



Comparing the marked length to a ruler

gouge and beading and parting tool like a skew in a planing cut. As with the legs, each is test fitted in its corresponding mortise and adjusted for a perfect fit. With everything together dry, I label each joint so I know I can get it all back together again in the right order when I glue it up.



Using my pencil jig to measure the length of the stretchers



Turning the stretchers

### ◆ Glue-up

Glue-ups are always slightly stressful, but with everything labelled and laid out in front of me it is as straightforward as it can be. The tapered joints into the seat need wedges, which is a simple job of cutting some 18mm-thick walnut (Juglans nigra), which will contrast nicely with the oak (Quercus robur), into tapered wedges on the bandsaw. The tops of the legs also receive a saw kerf cut on the bandsaw to about 34 the depth of the seat. This is where the wedges will be driven to lock the legs to the seat.

The main points to note are that glue is always applied into the mortises to minimise messy squeeze out and the grain should always be oriented to best allow the wood to move without it damaging the joints.

I begin by gluing the mortises in the legs and pushing the stretchers into place so I have the 'undercarriage' assembled. I then add glue to the seat mortises and push each leg into place. I put some softwood blocks under the seat and tap the bottom of each leg with my hammer until I can hear that each is fully engaged in place – there is a definite change in sound once they are in place. The last job is to stand the stool the correct way round and drive in the wedges, locking the legs to the seat. A little glue and several taps on each with my hammer and they are done.



Tapping the legs home into the seat mortises



Driving in the wedges



A bandsaw cut will give enough room for the wedge to be driven into the top of the leg



The glue-up begins



The stool all glued-up and ready for cleaning down

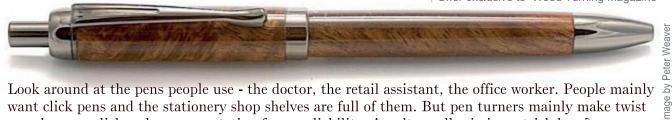
# The click pen that keeps on clicking

"What a breath of fresh air. Finally a well designed click pen with a flawless mechanism. A winner!" David Rodgers



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Look around at the pens people use - the doctor, the retail assistant, the office worker. People mainly want click pens and the stationery shop shelves are full of them. But pen turners mainly make twist pens because clickers have a reputation for unreliability. Aren't we all missing a trick here?

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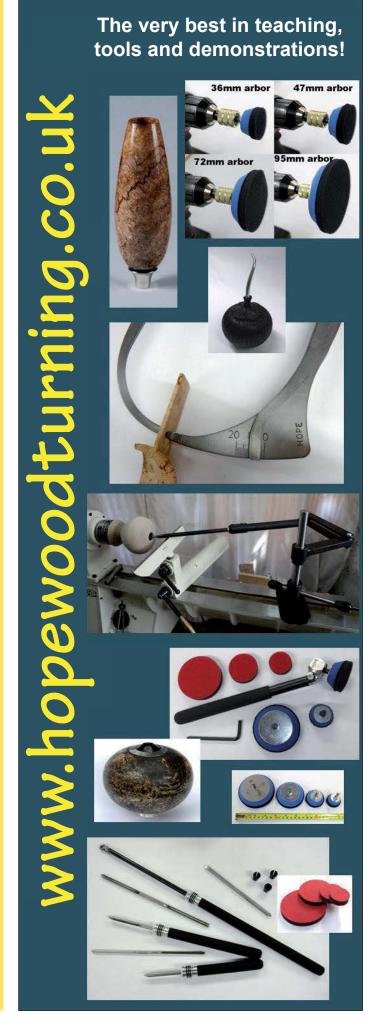
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# OUR CONTRIBUTORS



**ANDY COATES** 

Andy is a professional woodturner and has a workshop and gallery in Suffolk. He mostly makes one-off pieces, but is just as likely to be doing smallbatch runs, antique restorations or any number of strange commissions. He also demonstrates and teaches turning. cobwebcrafts@ btinternet.com cobwebcrafts.co.uk



**ADAM CORNISH** 

Adam Cornish creates contemporary vessels from highly figured native timber. He uses simple forms which let the wood do the talking but often incorporates metal to provide contrast and colour. http;//

acwoodturning.co.uk



### **CHRIS WEST**

Chris has spent a good deal of his time designing, turning and writing on the subject of salt and pepper mills. His latest book, Adding Spice to Woodturning: 20 Salt, Pepper & Spice Shaker Projects for Woodturners, was published in 2017 by Artisan Ideas in North America.

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### **GEOFFREY LAYCOCK**

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### **IOHN PLATER**

John has woodturned in the UK since his schooldays but in a more meaningful way since taking early retirement 10 years ago. He likes making decorative hollowed pieces from interesting woods with holes. sap and bark. He thinks that he's OK with a bowl gouge but useless with a skew. www.johnplater.



### **KEITH LACKNER**

Keith is a self-taught woodworker and turner, whether it was through watching DVDs, going on courses or visiting different symposiums and asking as many questions as he could. He is well-known for his resin/woodturnings. keith.lackner@yahoo. com

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### **MARK SANGER**

Mark pursued woodturning full-time in 2004, making oneoff sculptural pieces that include colour and texture as well as pure woodturned forms. He demonstrates and teaches in the UK and abroad and is the author of *Turning* Hollow Forms from GMC Publications. www.marksanger. co.uk



### **PAT CARROLL**

As a builder/carpenter. Pat has always loved working with wood. In 2002 he took a woodturning class and was very quickly hooked. With the influence of many great artists he is keen to explore the combination of texture and colour in his work. slievebhui woodturning@



### **RICHARD FINDLEY**

Richard discovered woodturning while working for his father as a joiner. He makes all kinds of work to commission, and offers demonstrations and a range of woodturning supplies. richard@turners workshop.co.uk turnersworkshop. co.uk



### STUART THOMAS

Stuart has been woodturning for more than 25 years, doing work for joinery and kitchen firms and the National Trust as well as demonstrating. Living with his wife Patricia in Mold, North Wales, he now spends time turning smaller items involving thread-chasing. crowngreen1@yahoo.

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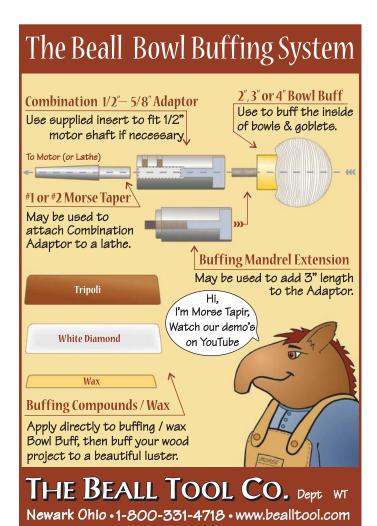
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1 Cut'n'Polish is a special blend of soft waxes with an ultrafine abrasive suspended within it. Use it on bare wood sanded to 240 grit to give a dust-free, final finish whilst imparting a wax finish at the same time.



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2 Apply Cut'n'Polish with the lathe stationary, wiping it over the entire surface. You'll hear the abrasive working on the surface straight away.



3 Leave the Cut'n'Polish thirty seconds to partially dry, then turn the lathe on and polish up using Safety Cloth. The cutting action of the abrasive will smooth the surface at the same time. Use a new area of the cloth as buffing proceeds until a satisfactory shine is achieved.



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Chris West provides some inspiration and plans for you

### TOOLS & MATERIALS

- Spindle roughing gouge
- 6mm & 13mm spindle gouges
- Parting tool
- 13mm round-nose scraper
- 10mm skew chisel
- Any attractive, light-coloured hardwood like beech (Fagus spp.) or maple (Acer spp.).

All credit for this project goes to lan Woodford. It is his design, one which I admire very much and feel I could not improve on. So with his permission, here it is.

### **PESTLE**

### Blank 51 x 51 x 147mm.

The blank is mounted between centres, rough turned and a spigot added to fit your compression jaws.

Hold the spigot in your chuck and initially bring the tailstock up for support. Turn the handle's top dome using a 10mm gouge.

Measure and mark the key dimensions before shaping the underside of the handle being careful not to reduce the diameter required for the bead.

The central part is shaped using a skew chisel. For the dome at the base of the pestle use a 10mm spindle gouge. Turn the dome. The two ends can be cleaned up and sanded off the lathe.

### MORTAR

### Blank 83 x 83 x 57mm.

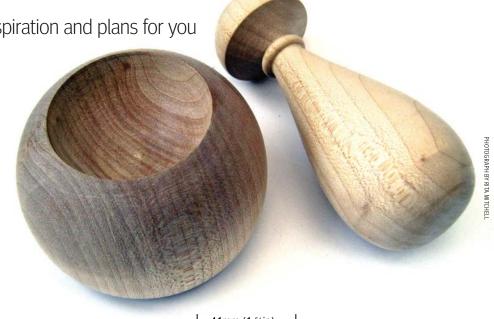
Begin by drilling recess A on a pillar drill. Mount the blank by holding the recess A in expansion jaws.

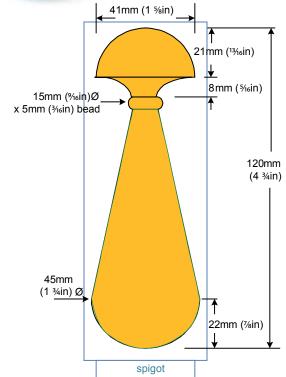
Clean up the base, turning it slightly concave. Form an internal dovetail in the base as shown. Sand the base to 400 grit.

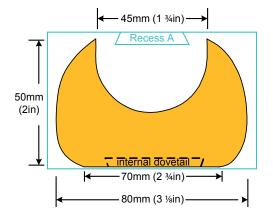
Begin turning the outside base curve using a spindle gouge. Reverse the blank, gripping the base recess in expansion jaws. Begin hollowing out the mortar to get the shape.

To finish the inside shaping use a round-nose scraper until the shape is as shown in the diagram.

Finally, the rest of the mortar needs to be sanded. No finish needs to be applied although a food-safe finish can be used.









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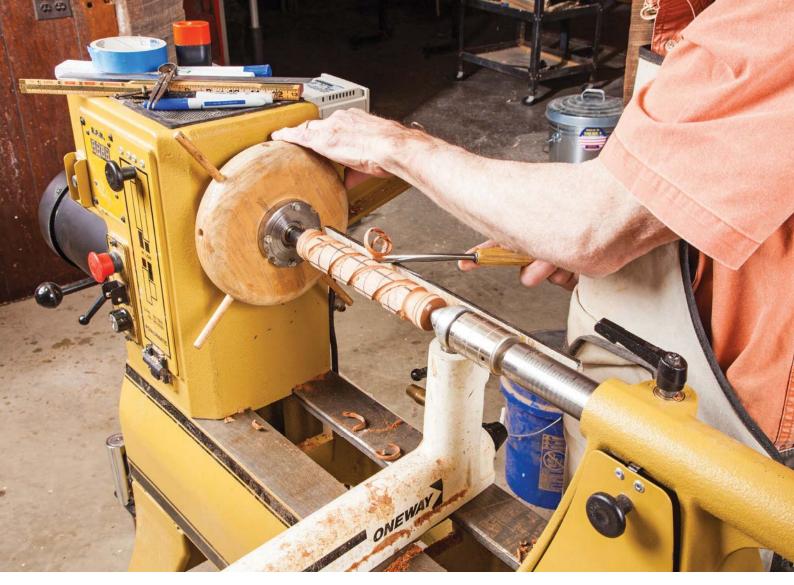








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## Hand-cut open spirals

Ernie Conover explores using traditional manual methods, not a router, to cut barley twists

Spiral flutes in turnings date to the 1600s, arriving on the continent midcentury and in England about 1660. Often called rope turnings, they were widely incorporated in 17th and early 18th-century architecture and furniture. Rope turnings were an architectural element in balustrades, both as balusters and as newel posts. They are also seen as chair legs and bedposts, usually with opposing spirals. They went out of vogue for much of the 18th century but reappeared in Federal and Empire furniture.

A variation on rope turnings was to drill the centre of the spindle out and carve the roots of the spiral through to the centre, creating an open twist. A very popular use of this motif was barley-twist candlesticks, again with one left spiral and one right spiral in a set. The turning and carving lent itself well to a spring pole lathe. The idea was also incorporated into newel posts, with an open spiral around a central rope turning which

provided the true strength of the post. The name barley-twist comes from a type of rope-twisted English candy.

Rope and open spiral turnings differ from most common metal threads in that they are multiple start, with two or more parallel threads. Multiple start threads are known in metal, most notably in lens barrels to facilitate focusing. The more starts in the thread the faster the twist has to be and the more axial the moving half will remain. The result is a lens barrel that will smoothly move generous distances while staying on the optical axis of the lenses contained in the barrel.

Another analogy is that of rifling in artillery tubes or rifle barrels. Multiple grooves are broached in the barrel, leaving lands in between. In open spiral turnings, the spirals can be thought of as the lands and the open space as the grooves. Barley-twist candlesticks generally have two starts with newel posts, bedposts and chair legs having four and more.

This all brings us to some machinist's nomenclature. Two engineers will talk of the crest and root of a thread. In an outside thread the crest is the highest outside point, the major diameter of the cylinder the thread is cut into. The root would be the lowest point in the thread. However, for inside threads (such as a nut) the two now reverse with the minor diameter (the smallest diameter through the nut) being the crest and the major diameter of the thread being the root. With open spiral woodturnings, the spiral is the crest and the space between is the root. With a rope turning the ropes are the crest and the space between them the root. This is the terminology I shall use hereafter.

If we turn a cylinder in a wood lathe, place a jackknife down on it at a specific angle and turn the lathe by hand, the knife edge will inscribe a spiral line on the turning at the lead angle of the knife. This is the principal that Henry Maudslay

employed around 1800 to produce the first leadscrew for a screw-cutting lathe. He designed a floating carriage which presented a tool to a cylinder at the desired lead angle of the desired thread and tangent to the root diameter of this thread. The lathe would now generate a perfect thread by simply presenting the tool to the metal cylinder.

The turner emulates this by placing the toolrest high, presenting a gouge at the desired angle and touching the work. The lathe is not powered - in fact it is best to unplug it. The work is turned by hand and using the average hand wheel, if present at all, is tiring and does nothing for carpal tunnel syndrome. I solved this long ago by drilling the centre of a 38-50mm thick disk of wood with a Forstner bit to a diameter just larger than the hub of a faceplate. I mount the faceplate the wrong way around so that the hub of the faceplate is inside the wood disk. I drill 13mm holes at 90° spacing around the periphery and glue four 13mm dowels as levers to create a capstan. This greatly aids in obtaining the proper leverage for clean cuts and happy hands.

Making a set of barley-twist candlesticks is easy to do but a time-consuming project. One would be hard pushed to make a living making them by the traditional hand methods I outline here. They were traditionally made from oak but I suggest using an easier-to-carve wood such as mahogany, basswood (*Tilia* spp.) or walnut (*Juglans* spp.), at least for the first few.

## Making barley-twist candlesticks

In this article I show the key stages to creating barley twists. I carve a left-handed twist which I do from the back side of the lathe after doing all the turning from the front in the normal way. If you are right-handed do a right-hand twist first and vice versa.

## **CUTTING LIST**

- 2 x spiral sections 38mm high x 38mm wide and 200mm long
- 2 x wax cup head 38mm high x 38mm wide and 70mm long
- 2 x base 25mm high x 98mm diameter
- 2 x bowel 10mm high x 10mm wide x 25mm long

### Extra equipment

 2 x metal insets for the wax caps to provide a flame barrier between the wood and candlestick

## **Carving chisels**

- No.8, 10mm and No.9, 20mm sweep outcannel gouges
- No.8, 18mm in-cannel gouge



Turn the 38mm square by 200mm long blank just round. I like to put a small bead at each end (sometimes I even make it an astragal by putting a shoulder on each side. Inboard of this turn a gentle cove. This detail is most important as it allows the entry and exit of the chisel in the carving of the thread roots. Now is probably the most important part of this project — laying out the thread roots. Use a dark pencil or even a felt marker. Divide the area between the coves into quadrants. You do not need indexing, you can simply use the lines you drew to find centre and use the toolrest as a straight edge. Put a dot in the coves on two of the quadrant lines, 180° apart, at each end. This will help immensely to not carve on the wrong line at the beginning. Now mark a band every 19mm around the cylinder, starting at the bottom cove. This measurement is one radius, so if you decide to use a larger or smaller blank use that radius for the spacing.



Our ancestors would have used string for the next step but we are today blessed with masking tape. Starting at one of the dotted lines, wrap tape around the cylinder such that the edge of the tape crosses each intersection of a quadrant line and a band. Now ink a line along the edge of the tape and repeat the process for the root that is 180° away. I am using blue ink for one root and black for the other to add clarity to this essay. Reverse the blank and put enough tailstock pressure on the piece to make the drive centre leave an indentation. This is important to allow constant reversing of the piece during carving.



The next step is to drill a 10mm hole through the turning. I chuck a drill in the headstock and push the turning against the drill with the live centre. Drill half way and then reverse the piece and complete the hole by the same process. The process of boring through a piece can be done by using a long-hole boring device with appropriate drives and centres through the tailstock or headstock, or, when working on small pieces, the old-fashioned but equally effective way shown here. Using a low lathe speed, the wood is pressed against the revolving work on centre and regularly removed to clear debris. Once the piece is drilled to just over half way, remove the piece, reverse it and drill to meet the already drilled hole on the other end. If boring square stock you can create a cradle or bring up the rest to prevent the work rotating. With this round piece, the lathe speed is low, about 35orpm or so, and if the cutter jams the work spins gently without coming free, so risk of an accident is low. But, as with all turning processes, be aware of what is happening and go gently.



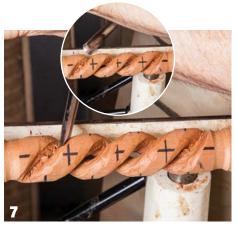
Unplug the lathe and install the capstan. Re-chuck between centres being careful to pick up original centre marks. Use a backsaw to cut a kerf down the middle of each root line. Cut to a depth of about 6mm. This step is critical to prevent the wood from tearing during carving. You chisel to the side of the line that allows you to cut downhill on the grain.



Place the toolrest high so that the handle of the gouge is comfortable when the blade is almost tangent to the turning. Starting with the No.8, 10mm carving gouge cut on the right-hand side of the saw kerf by turning the capstan. If you keep the handle at the same angle the cut self-generates. I try to get the bevel of the gouge rubbing on the far edge of the kerf. Do this for both roots. Reverse the piece and carve the opposite side of the kerf in the same way. You are now cutting downhill on that side too.



Remove the toolrest and backsaw a bit deeper. Go to progressively bigger gouges as the root deepens. Try not to break through to the middle until you have removed the bulk of the material in each root.



Breakout is always a point of anxiety. You must lighten pressure and use razor-sharp gouges. Go back to the No.8, 10mm carving gouge because you put less pressure on the piece. Keep the cyanoacrylate and accelerator handy. Once through, remove material and carefully carve until you have an equal width gap the length of the spiral. A rasp can be a great help here and I used one on my first few sets but quickly got skilled enough to do with carving alone.



You can now reverse a gouge of appropriate width to bring the outside of each crest round but you cannot carve the inside without cutting through a crest. Therefore, a better plan is to switch to an in-cannel gouge. Happily, this gouge will do the final outside clean-up of the spiral better as well. I use one of about No.8, 20mm. It is hard to find in-cannel gouges these days — at least in the US. I ended up finding an outcannel of appropriate width and sweep and regrinding it in-cannel.



How much clean-up you have to do largely depends on your carving ability. Again, on my first few sets I used rasps extensively but now carve well enough to go straight to sandpaper. This is the only time I use cloth baked paper around a lathe, tearing it into 6mm strips and shoe ragging the inside and outside of each spiral.



It takes about an hour to sand everything smooth.

Apply finish. I generally apply one coat of oil finish to bring out the colour and then French polish.



Turn another and walk to the other side of the lathe and start carving again in the opposite direction.



Turn the base wax cup, dowel from the other pieces in the cut list and finish in the same way. Glue the parts together, insert a metal heatshield in the wax cup and enjoy a candlelight dinner at home.





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## All the gear but no idea

John Plater ponders the relationship between the kit and the concept

This magazine is full of advertisements for woodturning equipment. There are lathes, turning tools and a range of gizmos all designed to make our craft more productive or enjoyable - and more costly. A more difficult thing to acquire and on which there is arguably little or no price, is the idea for the piece to work on. Again, the magazine is full of ideas which you could follow. Or sometimes a commission will arrive with a design, a piece of timber and a request to make it. In each case, someone else has done the thinking for you. No need to come up with an idea. All that is needed is the skill and the kit to make it.

Woodturning can be done in a simple way. Last year I spent a couple of days in the woods with pole lathe bowl turners. A simple lathe with straightforward chucking and with turning tools which were home forged (but which did portray a high degree of sophistication in their design). Two days, two bowls and fond memories of an alternative way of working. Not for me on a regular basis but a worthwhile experience. Essentially the tooling and the making processes gave rise to pleasing but relatively straightforward outcomes. Some of what I make requires nothing more than the lathe to spin the timber, suitable chucking and a bowl gouge to fashion the piece. I like making large, hollowed forms so yes, I do need the deep hollowing toolrest and the heavy-duty tooling with long handles. I have worked pieces without them but they took appreciably longer to make and I was pushing the bounds of safe practice. My expectations of a piece used to be greater than the facility for making it. So, buying the appropriate equipment has made my woodturning more fulfilling and much less dangerous. The equipment now matches and probably exceeds my expectations of it.

Much of the equipment I use was acquired second-hand when I bought three entire sets of kit from people who were selling up. Some bits are still in a box but are a useful backup for making modified tools to help with a particular job rather than going out and buying new each time. It's all about wanting to work efficiently but without necessarily splashing the cash. On the other hand, I might watch a demonstration and see a particular tool used and think to myself, 'that would help with...' and I then have



to purchase one. Hand on heart, I still use them all, justifying their purchase.

I have very little actual woodturning craft training in my background but taught myself as and when the need arose. I think it is all about developing the right attitude to producing a quality outcome through pleasurable processes essentially.

The first ones off are going to take ages but one becomes generally more adept with time. Many previously acquired skills, gained elsewhere, are transferable to the task in hand. I am envious of people who went through an apprenticeship and gained that blend of practical skills and experiences from a 'master'.

Over time I have needed to work out what sort of shapes and forms work for me, drawing (literally) on everything

I see. I am also envious of people who had an art college education and the opportunity to explore ideas under tutelage. However, I do believe that 30-odd years of teaching design technology has helped me to reach the point I am at now. There is good training in needing to think through an activity and to work out how to put it over to an audience in a convincing fashion which captures their interest.

To finish, it is said that a poor workman blames his tools. So, if I had a better lathe, I could demonstrate my ineptitude more effectively. I work out of two sheds and the back of my garage but would love a proper workshop with space. What matters most, the facility or the 'filosophy'?



## Lathe arrival and assembly

The equipment arrived with me on a pallet, the lathe and leg stand set in separate boxes. The various parts of the lathe were nicely packaged and supported for protection. The metal parts all had a coating of oil/grease to protect them, which was quickly cleaned off with paper towel and a mild solvent. Since the lathe can be used as a bench-top model, you need to decide if you mount the lathe on a bench or on a stand, either homemade or bought. I wanted to use the tubular leg stand Record offers for this lathe.

To fit the legs, the lathe needs to be laid on its side or, if inverted, minus the headstock, tailstock and toolrest assembly. The legs are held in place by two bolts and once the front and rear legs on each end are affixed, there is a fifth bolt that locks the two meeting plates on the legs together. Once the legs were in place I screwed the rubber feet, about 25mm high sections of rubber, to the underside of the legs and then stood the lathe up.

The tailstock is held in place by a screw lock clamp mechanism. The handle to do this is on the rear side of the tailstock. The toolrest assembly is locked in place by a camlock-handle mechanism and the toolrest positioned and held in

The headstock – minus the motor and control – is locked in placed by a level clamping mechanism on the rear side of the lathe. The motor and speed controller is placed on a machined round rod at the rear of the headstock and slid on to this so the pulleys fit into the hole in the headstock. A nut is used to secure the motor in place on the end of the round rod and a lever-locking arm is placed in

an arced slot and used to lock the motor

pulleys, of which there are three in total.

in place. The belt was slid over the

place by a threaded lever lock handle.

When assembled, the lathe centre height once on the legs comes to about 75mm below my elbow. To raise it further one can place blocks under the legs and they can be screwed in place, of course without the rubber bungs, or one can buy riser blocks to fit under the lathe before fitting the legs.



Assembly can be done solo, but it is helpful to have a second person. The headstock, lathe bed, tailstock and toolrest assembly are all cast iron. Each is nicely fettled, and painted and machined parts. I was impressed with the quality.

When looking at the headstock, I noted that at the end of the lathe spindle, which runs through a hole in the end of a plate section covering a gap on the headstock casting, there is a handwheel. Look at the picture captioned 'inside the headstock'. This shows that there is no rear bearing at the end of the spindle. There are three bearings in total in the extended cast housing at the front of the headstock. Two are placed at the front of the housing, then there is a gap and then the third is at the rear of the extended housing. This is not a new concept and is used on other makes of lathes, some of which are much larger, with good success to this day.

Note also the castellated 24-position indexing wheel, the silver spindle-lock/indexing lock button, the small screw to affix the flip-over cover and the pulleys. All lock positively and easily.

The headstock can be moved along the lathe bed and/or rotated. This is done by slacking off the headstock locking mechanism at the rear. Once the pressure is eased off you rotate it to any position you like, even turning it 360°.

There is an audible click which corresponds to preset positions you can lock into if you choose. There are three indents to shift the spindle from inline with the lathe bed to 90° to the bed. Once in the position you lock it in place. If you set the spindle at 90° to the lathe bed you can turn larger work using a bowl-turning attachment or a floor-standing rest.



Inside the headstock



The rear side of the tailstock



The digital speed control and speed readout unit

Swivelling the headstock can be a huge help when hollowing out work. You have a nicer working position than when leaning over a lathe bed. The swivelling headstock also means you can turn the head round to the other side and select the reverse spindle rotation on the controller, which enables left-handed turners to work successfully. This, of course, requires that the chuck used has a mechanical locking mechanism to lock it onto the spindle so it cannot rotate off.

Record offers an optional extra bowlturning attachment (BTA), which is a casting that sits in toolrest assembly so you can create an articulated arm system that you can place on the left or the right of the headstock for turning larger items.



## ■ In use

Before having the lathe for test I recall Record Power talking about how much research and time it put into the motor controller and circuitry and how much money is invested in it. Whatever it did certainly worked well for me. I found the power delivery was smooth, precise and responsive with no hesitation whatsoever. It is also quiet. There is loads of torque for larger faceplate or spindle work up the diameter capacity over the bed.

There is a small time delay before reaching the speed selected and for it to stop after switching it on or off.

Maximum torque for larger work is obtained by working on the slower pulley. The speed range possible not only caters for the larger work, but also for small lace bobbins and delicate spindles.

There is a belt ratio press-button that you click to indicate which belt you are on which will give a minimum and maximum speed range appropriate to the pulley selected. The speed ranges are: 95-1055, 140-1868 and 290-3890rpm. The middle pulley is the one that will likely suit the largest variety of work.

It is worth noting that the lathe has a reverse spindle rotation option too. The speed control unit takes a little getting used to, but it is quickly learned.

When turning some spindle work using a 150mm long piece of 115mm diameter sycamore spindle work held on a spigot in the chuck working on the unsupported tailstock end of the wood, I noticed some vibration. It wasn't much but it was there and, despite various cuts, I could not stop it. I experienced the same on the outer edge of faceplate work on 250mm x 100mm timber.

I tried various things to find out the cause. It wasn't the bearings or the chuck. I tried many chucks, I tried various tools and the small amount of vibration was replicated. I wondered if it was the stand. I tried the lathe on the DML305 adjustable stand and there was no vibration, so it must be the leg area.

Re-fitting the lathe on the leg stands, I tracked it down to the rubber feet and when I removed them it stopped the issue. No further vibration was encountered.

## Using the BTA

Trying the bowl turning attachment I found that there is a slight amount of flex when it is used at maximum reach when rough-shaping work using it to turn the maximum diameter possible. Nothing that I found prevents the turning of the work, just go a bit gentler on the heavy cuts, or that affects the finishing cuts.

I think that most people would only turn work with a BTA occasionally so it is nice to have for those occasional jobs.



Turning between centres

## Conclusion

I loved the leg design as it allows you to fit a dust extractor underneath, saving valuable workshop space. The manual says the legs can be filled with sand, for extra weight. Having said that I also like the DML305 leg stand system, which is height adjustable. This gives you a nice choice to what you fit the lathe on. The tubular leg stand costs £150, the DML305 stand costs £119.99.

I found the lathe a delight to use. People have said that the styling of it harks back to times of yesteryear. I agree and like it. Functionality wise, it did everything I asked of it without fuss and components stayed put when locked in place with no creep under pressure and use. I think it is a great midi-lathe which will suit many turners' needs, capacity and space-wise. At £999 I think it is a very good price for what it delivers. •



Optional rise blocks to increase height of lathe



Turning with the bowl turning attachment in place

## Tech spec

- Maximum between centres: 508mm
- Maximum swing over bed: 355mm
- Maximum bowl diameter when using the bowl-turning attachment: 533mm
- Spindle speeds: 95-398orpm
- Swivel headstock
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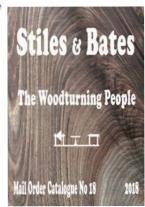
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## Turning — the antithesis of work

We catch up with Dave Smith to find out how he got into turning

I am an engineer working for the British Geological Survey based in Edinburgh. Most of my career has involved exploring what lies below the seabed for scientific understanding of how our planet functions, using geophysics and drilling techniques.

This takes me away for months to the far reaches of the world - the Antarctic, Arctic, Mid-Ocean Ridges and everywhere in between - in addition to developing robotic seabed drilling equipment and even trying to work out how to drill to 100m below the moon's surface with only 100W of power.

I'm very much a hobby turner who does well to turn about a dozen objects a year and would like to spend more time learning how to do some of the amazing creations seen in Woodturning.

## When did you start turning and why?

Two school terms of woodworking in 1974 and a very understanding teacher who showed me how to glue some scrap pieces of mahogany together and create a turned 1.2m pedestal (which I still have). This inspired a realisation that I could create something by rotating pieces of wood, and that stayed with me.

Up until five years ago that was the only memory of turning, but I always had a desire to create things with my hands. A chance encounter at a local college uncovered a woodturning night school class. A very popular, and now ceased class due to reorganisation of the local colleges, kick-started me again with the basics.

While I don't have a great deal of spare time with work and family life, I wanted to do something that was the antithesis of my work. There are no trees to see when you are at sea. Working with wood is so satisfying and turning requires total concentration and absorption, which allows me to switch off from everything else.

## What are your influences in your work?

The piece of wood itself often dictates what can be created and you have to go with the flow, sometimes discovering cavities that influence the final outcome. Conversations with and listening to friends and other people often spark ideas, which then turn back into presents, which is where most of my work ends up. I observe Oak platter on a pedestal



Here is a quaich I made from brown oak (Quercus spp.). I would like to acknowledge my friend, graphic designer Kevin Greig, who helped me with the design for the shape of the quaich

shapes and nature (not having an artistic brain I need to copy), looking at classical shapes such as Greek urns to understand why a particular shape is pleasing to the eye. Woodturning magazine showcases the endless amazing things that can be created from rotating a piece of wood coupled with imagination.

## Challenges and mistakes

My biggest mistakes have been not realising there was a nail buried in a burr before cutting on a bandsaw and cutting an unstable piece of wood on a bandsaw and jamming it in the blade.

The biggest challenges have been working out the method/steps of operation to create a piece of work, creating shapes that are pleasing to the eye and having the confidence to give something a go.

## Development

I would like to spend more time turning and complete a long list of ideas in my head. I want to learn from experts how to be more efficient, competent and creative. I would like to have a better artistic understanding of shapes. I would like to be part of a group of turners that can chew the fat and exchange ideas and knowledge and I would like to improve my knowledge of how different types of woods behave. I will enjoy the journey, wherever that may take me.



## WHAT WOULD YOU LIKE TO HAPPEN IN THE FUTURE?

Turners, by their very nature, are individuals in their own workshops in the far-flung reaches of the UK. Consider engaging and reaching a wider audience by better use of multimedia, e.g. make demonstrations 'webinar' events – you'd be surprised how this can bring a disparate audience together.

### LIKES AND DISLIKES

Likes: A craft magazine that takes as much interest in encouraging the novice turner, as it does to showcasing the best of turning.

A good and improving promotion of HSE, e.g. Geoffrey Laycock's articles.

Dislikes: While there is a plentiful supply of interesting wood in Scotland to turn, there are very few woodworking/turning shows and demonstrations and travelling hundreds of miles is not usually practical.

Slight frustration when you see the most amazing creations in *Woodturning*, but no indication of how they are created.

### MOST MEMORABLE TURNING EXPERIENCE?

Seeing the face of someone light up when you have given them a turned piece that has taken many hours to make.

### **BEST ADVICE**

All the advice I have gained is from reading *Woodturning* and books, so no real advice from a person, i.e. working in a bit of a bubble.

As far as advice for others, I relate to the article on Darren Breeze, who said you don't need many tools.

### HAVE YOU EVER GIVEN UP ON A PROJECT?

Occasionally, when a piece has split in the chuck or a piece of green wood has split too far after initial turning to be salvaged.

### WHAT IS YOUR FAVOURITE TYPE OF TURNING?

I have been fortunate to try burr turning. The lack of grain orientation and hardwood make this especially pleasing to turn, in addition to the gorgeous features that are exposed. 'Winged' bowls (quaichs) are satisfying from a technical perspective.

## **BIGGEST CHANGES IN TURNING**

I don't remember a chuck in 1974. Chucks have substantially changed the way we turn. There are also endless tool varieties using different types of metals.

## **FAVOURITE PIECE OF EQUIPMENT?**

Robert Sorby ProEdge sharpening system, which makes sharpening so simple.

### **HELPFUL ADVICE?**

Not sure I'm qualified to provide advice,



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Spalted beech bud vase



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or say anything that hasn't been said before, but:

- Enjoy the journey. Occasionally look back at pieces you made and you will be surprised by how much you have improved and learnt.
- Consider all HSE aspects of any work
- undertaken, including lone working. Carry out informal (tools box talks) or formal risk assessments (RAs) and mitigate any risk identified.
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## Chestnut Products

New YouTube Videos















Popular UK-based woodfinishing suppliers Chestnut Products have re-launched their YouTube channel recently by adding new films which build upon the popularity of their 'Finishing School' series being published in woodworking magazines. (These can be seen in this magazine and on the Chestnut Products website).

The selection of films available is growing steadily and already includes detailed films about using abrasives, sanding sealers and waxes. Presented by Terry Smart, a face well known to anyone attending shows and demos

around the UK and he draws upon over 30 years of experience of woodfinishing. Feedback has already been very positive, with several viewers calling the films 'very informative', 'clear and precise' and even 'the best video on how to finish your work'.

Each film includes practical demonstrations and they make good use of helpful diagrams and microscope pictures, all specially commisioned by Chestnut Products. Following requests from viewers it is planned that when sufficient films are ready they will be compiled onto a DVD.

Production has been overseen by Suffolk based Offset Films who have leant their expertise to the proceedings, shooting in a purpose-built studio in the Chestnut Products warehouse.

All can be viewed via the Chestnut Products website - www.chestnutproducts.co.uk - or by heading over to YouTube and searching for Chestnut Products.

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## Community online

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## YouTube

## BEGINNER MISTAKES ON THE LATHE youtube.com/watch?v=GCg\_teRa8y4



Brad Rodriguez has some interesting clips. This one shows him turning black palm into a bottle opener and he shares with you his experiences of the process. The clip shows day three of six days of beginner projects.

He has a gentle manner of explanation and his descriptions of what he is doing and when are clear and concise.

## Club website

## **CAMBRIDGE WOODTURNERS**

cambridge-woodturners.co.uk



Cambridge Woodturners' smart and stylish website has clear and easy-to-find details about the club, what it does and a great gallery of work.

The club comments that it is affiliated to the AWGB, caters for all abilities and levels of woodturning, and provides a friendly and encouraging atmosphere in which to learn and develop.

## Instagram

### **ALLAN GILDENER**

instagram.com/gildenerwoodwork



Allan Gildener has a very interesting profile and readily shares what he has made and is up to. He has uploaded a wide variety of his work, which is interesting to look at.

## From the forum

Here we share with you the pieces that readers have posted on our *Woodturning* forum. If you are interested in your piece appearing here, or would simply like feedback and advice on your work, visit **www. woodworkersinstitute.com** and click on the forum button.

## A COLOURED BALL

www.woodworkersinstitute.com/forum/a-coloured-ball\_topic21738.html Andy 44 posted: Been having a play with Jo Sonja paints and some lacquer, it stands 130mm high x 95mm diameter, c&c welcome Cheers, Andy

**Neil Lawton posted:** Well I'm not really one for colouring, but I have to say that is quite dramatic Andy! Could I ask what wood you used and if the ball was turned with a bought or homemade jig? Very well done. Neil.

### Andy44: Hi Neil

Many thanks for the comments. This is the first ball I have turned, so don't have any jigs. It was done freehand and

then put between some cup chucks to finish off. The wood was a bit of lime I had hanging around. All the best, Andy

Les Symonds posted: I keep looking at this and wondering, how on earth you paint a sphere without getting finger marks etc. all over it? Whatever the answer, it's a lovely piece of work.

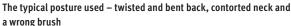


Video clips listed have been selected for their interest to other turners. We do not endorse any of the videos or websites selected. We take no responsibility for any information contained or acted upon in any sites listed. You need to be aware of your own skills and your own responsibility as far as wearing appropriate protective equipment and turning as safely as practicable.

## Don't sweep it under the carpet

Geoffrey Laycock poses the question of whether we should sweep the workshop







Better balanced pushing posture, appropriate brush

The most basic way to clean a floor is to sweep it, but all the safety guidance you look at tells us not to do this and usually suggests a vacuum cleaner to Class M standard. Can you sweep a floor in a workshop yet avoid large clouds of wood dust? In many cases, yes. There are four primary factors that determine how much dust becomes airborne if you use a brush: the material being swept, the floor surface, the brush being used and how it is used.

If we have a floor full of nice curly shavings from green wood turning, then little if any dust will result. But if you've finished sanding numerous items you have particles of many sizes that will easily float around, waiting for you to breathe them in. We can still move this and minimise the problem, but the best possible method is a vacuum cleaner. In my workshop, I produce the full range. I use a brush and a vacuum.

Pushing dust across a smooth surface is vastly different to doing it on a rough concrete one. In any case, unfinished concrete will produce its own dust that you really don't want to breath. Joints

between floor tiles or floorboards help flick brush bristles, which again launches dust into the air. My new workshop has a smooth concrete floor covered with two coats of two-pack paint, which hugely benefited the overall brightness in the workshop. It is clean, light, very smooth yet has good grip to prevent slips. It's about as good as it gets to minimising airborne dust when sweeping.

Using a long stiff-bristled yard brush will give maximum dust capability. A short soft-bristled one minimises the problem. Having a nice wide brush makes cleaning quicker and helps reduce our dust problem if used appropriately.

Years ago, I was undertaking ergonomics training for a local authority, specifically relating to care homes. Faced with a group of very experienced carers/cleaners I asked for a volunteer to demonstrate how to use an upright vacuum cleaner. After the disbelief that I was asking such a stupid question, one volunteer showed me what I expected. One hand on handle pushing it backwards and forwards with great enthusiasm, going over the same spot

numerous times very quickly. Everyone does that. Ask yourself a question - what is the powered brush in the bottom for? Without spending too much time on this, correct use is to push forwards or pull backwards consistently and slowly. This allows the brush to lift dust out of a carpet and away. Vastly reduced physical effort, superior carpet cleaning and, if you are trained in a certain important household. how to not leave any marks on the carpet by getting the pile all laying in the same direction. What does this have to do with a brush? Use the same principle. Don't use short, stabbing thrusts. Push the brush slowly and move the debris to where you want. Go back and repeat. You will spend the same or less time as with the energysapping stabbing sweeping and produce magnitudes less airborne dust. There is also a far better posture to use - see

I push debris to a collection spot and use a vacuum to pick up primarily dust. For shavings I use a wide dustpan and a very soft-bristled hand brush to slowly pick up, then vacuum.

HOTOGRAPHS BY GEOFFREY LAYCOCK

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## ON TEST

## Hope drum sanders

Anthony Bailey puts Simon Hope's drum sanders to the test

f you need to sand internal curves on the lathe or a pillar drill then Hope drum sanders are the perfect way to do this. The components of the system are three diameters of solid heat-dissipating aluminium drum, a 2MT Morse taper adaptor or, alternatively, a kit for the pillar drill comprising a hex-ended chuck adaptor and a dead centre for the bottom end for the chosen size drum to mount on. There is also a safety drawbar for lathe work. In addition, Simon Hope supplies Indasa loop-backed abrasives in 1m rolls from 80 grit right through to 1200 grit to fit on hook-faced sanding arbors and drums.

## Using a lathe

For lathe use the Morse-tape adaptor is mounted in the headstock spindle and you then attach the drum to the adapter. You can either bring up a revolving tailstock centre to fit into the hardened insert in the end of each drum or use without. If you do not want to use tailstock support, you must insert the threaded drawbar so there is no danger of the Morse taper coming loose from the spindle.

The loop-backed abrasive is cut to size using the measurements shown on the notto-scale drawing supplied with each drum. The end-edge of the abrasive is inserted into the drum slot and wrapped around the drum away from you on the lathe so it can't 'pick up' and become detached when run on the lathe or pillar drill.

## Using a pillar drill

Working with the pillar drill entails using the pillar drill holding a centring kit



Drum sander being used on a lathe

comprising a drum holder which fits into the pillar-drill chuck and the use of a dead centre alignment plate. To fit the alignment plate, you will need to drill a 40mm dia. recess in a piece of board to take the lower part of the dead centre. If you have a 65mm diameter Forstner you can let in the upper section of the dead centre as well. In any case you will still need a thin board cut to fit around the drum to bring the table surface up enough to ensure there is complete abrasive coverage when sanding.

## Verdict

Considering how solid and well-balanced the drums are and the accuracy of the adaptors, it is not overpriced. You get safe, reliable and accurate sanding with no run-out because both ends of the drum are fully supported. There is a helpful video on Simon Hope's website



Hope drum sanders with pillar drill attachments

which demonstrates how to use these items on the lathe and pillar drill.

## Tech spec

## Simon Hope drum sanders

- 25mm dia. drum £20/40mm dia. drum £22/60mm dia. drum £26
- 2MT lathe holder £14.00/2MT drawbar £21.50
- · Pillar drill holding and centring kit

**Contact: Simon Hope** Web: hopewoodturning.co.uk



Drum sander on a pillar drill



### M42 RAZOR EDGE TURNING TOOLS

Crown Hand Tools has just extended its range of M42 cryogenically treated tools by introducing three new scrapers. There is a round-nose scraper, a bowlfinishing scraper sporting a French-curve type cutting edge profile, and one with a square end. Each has 20mm wide blades, 254mm handles and an overall length of 314mm.

Prices: RRP about: £55
For stockist information contact:

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Web: www.crownhandtools.ltd.uk



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**Contact Trend Machinery & Cutting Tools Ltd** 

Web: www.trend-uk.com



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For the UK contact: Woodworkers Workshop

Web: woodworkersworkshop.co.uk

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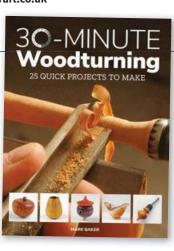
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## Conversion chart 2mm (5/64in)

3mm (¹/sin) 4mm (⁵/₃₂in) 6mm (¹/₄in) 7mm (⁰/₃₂in)

8mm (<sup>5</sup>/<sub>16</sub>in) 9mm (<sup>11</sup>/<sub>32</sub>in) 10mm (<sup>3</sup>/<sub>8</sub>in)

11mm (<sup>7</sup>/<sub>16</sub>in) 12mm (<sup>1</sup>/<sub>2</sub>in) 13mm (<sup>1</sup>/<sub>2</sub>in) 14mm (<sup>9</sup>/<sub>16</sub>in)

15mm (<sup>9</sup>/<sub>16</sub>in) 16mm (<sup>5</sup>/<sub>8</sub>in) 17mm (<sup>11</sup>/<sub>16</sub>in)

18mm (<sup>23</sup>/<sub>32</sub>in) 19mm (<sup>3</sup>/<sub>4</sub>in)

20mm (<sup>3</sup>/<sub>4</sub>in) 21mm (<sup>13</sup>/<sub>16</sub>in)

22mm (<sup>7</sup>/<sub>8</sub>in) 23mm (<sup>29</sup>/<sub>32</sub>in)

23mm (<sup>29</sup>/<sub>32</sub>In) 24mm (<sup>15</sup>/<sub>16</sub>in) 25mm (1in)

25mm (1in) 30mm (1<sup>1</sup>/sin) 32mm (1<sup>1</sup>/4in)

35mm (1³/sin) 38mm (1¹/₂in) 40mm (1⁵/sin)

45mm (1<sup>3</sup>/<sub>4</sub>in) 50mm (2in)

55mm (2<sup>1</sup>/<sub>8</sub>-2<sup>1</sup>/<sub>4</sub>in) 60mm (2<sup>3</sup>/<sub>8</sub>in) 63mm (2<sup>1</sup>/<sub>2</sub>in)

65mm (2<sup>5</sup>/sin) 70mm (2<sup>3</sup>/4in) 75mm (3in)

80mm (3<sup>1</sup>/<sub>8</sub>in) 85mm (3<sup>1</sup>/<sub>4</sub>in) 90mm (3<sup>1</sup>/<sub>2</sub>in)

93mm (3<sup>2</sup>/<sub>3</sub>in) 95mm (3<sup>3</sup>/<sub>4</sub>in) 100mm (4in)

105mm (4¹/sin) 110mm (4¹/₄-4³/sin) 115mm (4¹/₂in) 120mm (4³/₄in)

125mm (5in) 130mm (5<sup>1</sup>/sin)

135mm (5<sup>1</sup>/<sub>4</sub>in) 140mm (5<sup>1</sup>/<sub>2</sub>in)

145mm (5<sup>3</sup>/<sub>4</sub>in) 150mm (6in) 155mm (6<sup>1</sup>/<sub>8</sub>in)

160mm (6<sup>1</sup>/<sub>4</sub>in) 165mm (6<sup>1</sup>/<sub>2</sub>in) 170mm (6<sup>3</sup>/<sub>4</sub>in) 178mm (6<sup>7</sup>/<sub>8</sub>in)

180mm (7in) 185mm (7¹/₄in) 190mm (7½in)

195mm (7³/4in) 200mm (8in)

305mm (12in) 405mm (16in) 510mm (20in)

610mm (24in) 710mm (28in) 815mm (32in)

915mm (36in) 1015mm (40in) 1120mm (44in)

1220mm (48in) 1320mm (52in) 1420mm (56in)

1525mm (60in)

## ON TEST

## **Axminster Stayput lights**

Mark Baker tries out some new LED lights from Axminster Tools and Machinery

aving effective lighting in a workshop is a must, and since we require workshops to be multifunctional how to effectively light specific work areas is an issue we all face from time to time. The rise of light-emitting diode (LED) lighting has resulted in an increase in the availability and options for lighting for workshops. LEDs do not radiate much heat and are available as spotlights with fixed or adjustable beams and strip lights with various mounting/locating options.

I came across a couple of units from Axminster Tools & Machinery the other month and have been trying them out since. One is a Stayput strip light and the other is a Flexi-Head Stayput Lamp. The name Stayput refers to the flexible/bendy arm on which the lights sit. And as the name suggets, once you bend the light, it is meant to stay in the position you want. Both have a base that has four holes in it so you can screw it tol a surface. Axminster do offer optional extra fixing methods including a bracket, magnet or a screw clamp.

## In use

The lamps come ready assembled and once out of the packaging it is a case of fixing them to a suitable surface in the position you require them to be. I chose to use the Flexi-head lamp for the lathe fixed to the wall at the tailstock end so I could angle the light to show inside turned work and along spindle work. The strip-light was placed to the side of the carving/general-purpose area, so it could reach over the work area and sit just under the wall units.

The first thing of note was that the Stayput arms did stay put exactly where it was positioned with no drooping. The strip light lit up the work area well and being able to adjust the light output is a boon. Being able to position the head where wanted, you can use it as a direct or oblique light source which is handy when carving to help with seeing the depth and shadows formed etc.

The Flexi-head unit used near the lathe throws out a powerful diffuse light source that very clearly showed what was happening during the turning. The fluorescent strip lights I have in the workshop provided the top lighting



required, but the flexi-head unit enabled me to see the areas the overhead workshop lights could not.

## Conclusion

The lack of heat is a real plus when the lights are placed close to work or working under the lights. They are well made and sturdy. Whilst they are not inexpensive, they certainly do the job they were intended to do very well indeed with no fuss. Certainly worth looking at.

## Tech spec

## Axminster LED Stayput Strip Light

 LED 300mm strip work light with 'stayput' arm

- 14W LED set gives an even, bright light
- Brightness control adjusts output from 10-100%
- 500mm arm adjusts to where you need the light
- Poly carbonate shield protects the LEDs
- 1.8m cable

## Price £79.99

## Axminster LED Flexi-Head Stayput Lamp

- 3 x 2W LEDs give a bright pool of light to any dark corner
- Four mounting holes at 60mm spacing for mounting to a bench or machine

## Price £87.01

Contact: Axminster Tools and Machinery Web: www.axminster.co.uk

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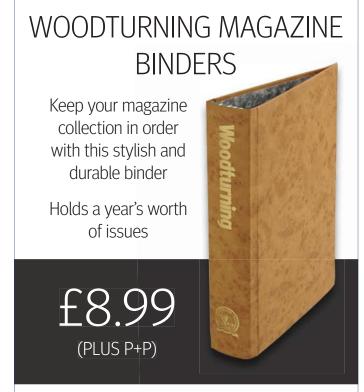
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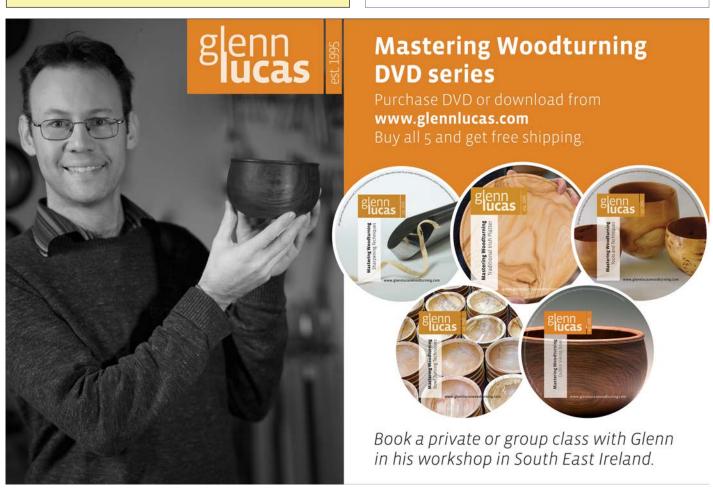
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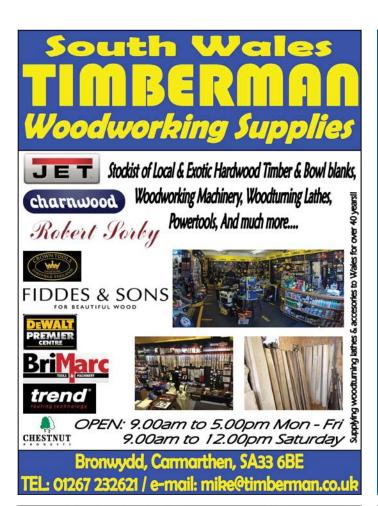




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## Duncan Hooper explains how he came to produce this piece called Eye



and getting inspiration from social media and YouTube. With the ideas that I find intriguing, I explore how I can experiment with the techniques shown, reinterpret them and how I can outwork them.

I recently saw a YouTube clip by a maker called Frank Howarth. He turned an amazing segmented eve project. I thought the iris part would look great set into a chopping board design.

I contacted Frank saying I was very

inspired by his design and would he mind me using his idea and process to make the project I had in mind. He very quickly got back saying that would be fine and to show him the results. So a big thank you to Frank for the inspiration, permission and encouragement to do this.

The iris is a mix of American black walnut (Juglans nigra), iroko (Chlorophora excelsa)

The piece measures 330mm across with the iris being 150mm across and a 38mm pupil. The thickness is 35mm. The iris is set into the maple to a depth of 22mm. The finish was tung oil. This project was a lot of fun with some head-scratching involved, but it came out much better than I thought so instead of being a chopping board it's now a wall hanging.

Email: dunkhooper@gmail.com •



a matching faceplate ring and a screw chuck. This gives you plenty of scope from mounting blanks for initial turning to final completion of your project. All you need to do is choose the chuck thread to suit your lathe.

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