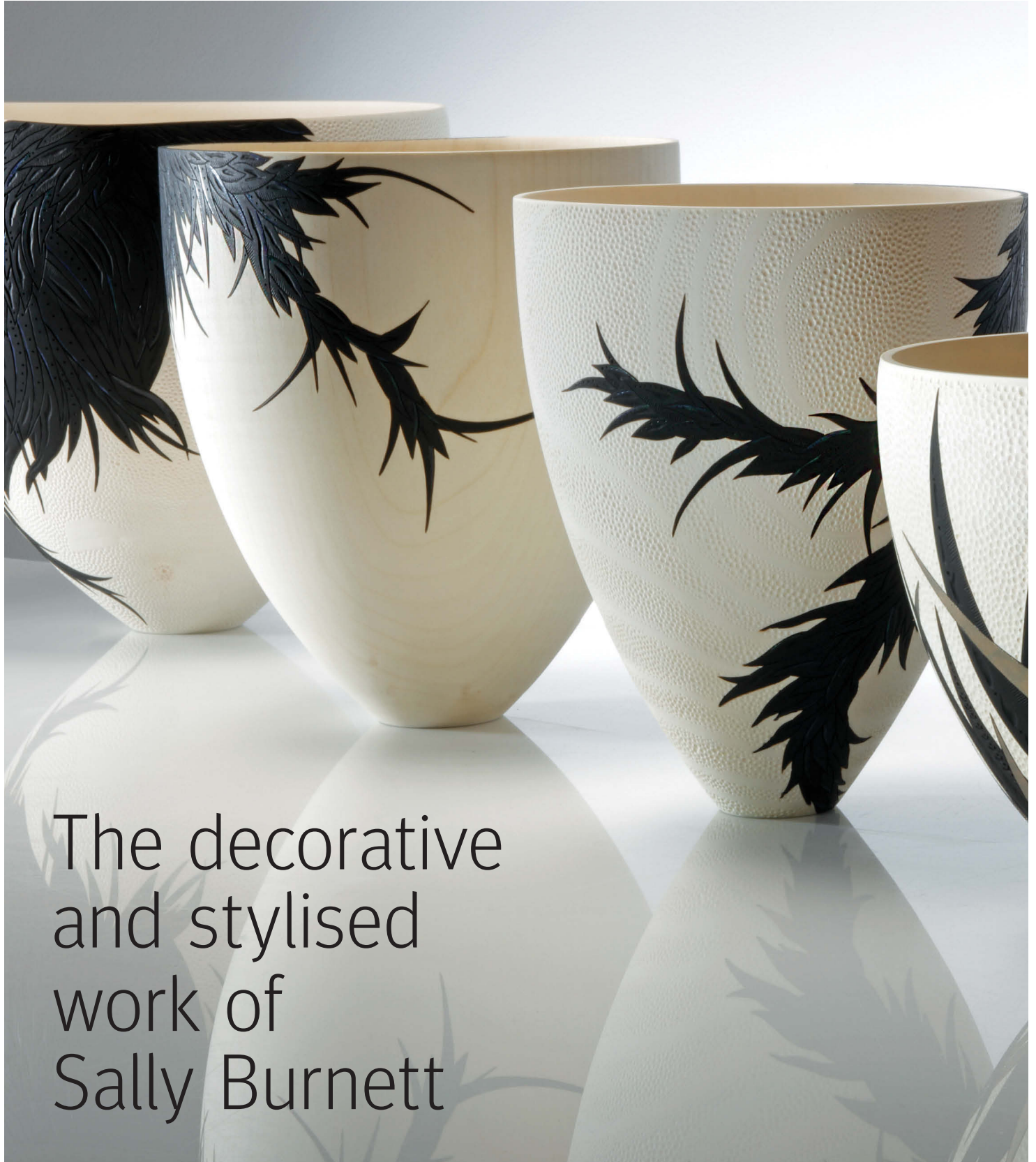


Woodturning

THE WORLD'S LEADING MAGAZINE FOR WOODTURNERS



The decorative
and stylised
work of
Sally Burnett

STEP-BY-STEP GUIDES FOR TURNING:

Threaded acorn box, travelling candlesticks, workshop tools, aged bowls



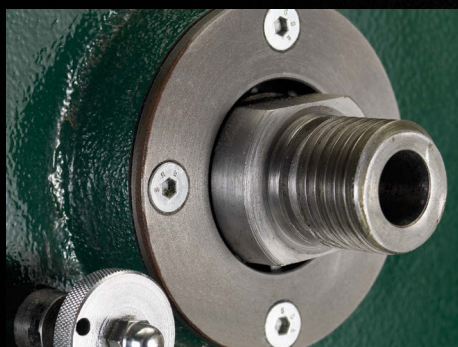
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What They Say...



Woodturning, Mark Sanger
(Professional Woodturner)



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STANDARD EQUIPMENT





Summer is upon us

Trying out some new tools is always fun

The question I am posing here is whether you are now at your most active turning-wise in the workshop or are you one of those who are more active in the workshop during cooler months? The two seasonal camps where many people naturally fit for peak turning activity are either October to March or April to September. Most people do a bit outside of the main times, but I am asking about when most things are made. I know the months will vary depending on location and weather conditions, and for many the period leading up to Christmas is the peak time, but I have seen a shift in this over time. Some now say that it is too cold in their workshop to do much in the colder months and they turn more in the warmer months.

I must admit that I turn throughout the year and have no peak turning time. It's

when I can fit it in with the other things. I suppose many are in that situation.

The biggest hurdle, it seems, is finding the time to be in the workshop and doing the things you like. I know of turners who have a full clear up 'out of season' so they know where everything is for when they get going properly again. Others have workshops that are spotlessly clean all the time. Others look more like a... well I don't know, Let's just to say they are full of all manner of things, and that may include new species of unknown critters and organisms, with very little floor space to move about in.

Truthfully I do not care when you turn or what you turn. The three main factors for me are that you do get time to turn, that you work as safely as you possibly can and that you have a lot of fun.

It's strange but making the small things

and items for birthdays and Christmas are the times when I have the most 'fun'. Maybe it is because I make things at those times of year I would not normally do at most other times. Oh, the other time I have a lot of fun is when trying out new kit. A kid in a candy store springs to mind when I am notified of something new.

Anyway, whatever you are doing this summer, be that gardening, holidays, time with children and grandchildren, clearing up the workshop and so on, please try to make a bit of time for turning and let me know what you end up making.

Have fun,
Mark

markb@thegmcgroup.com



COVER IMAGE by Simon Bruntnell. See page 36

Community

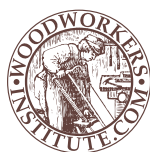
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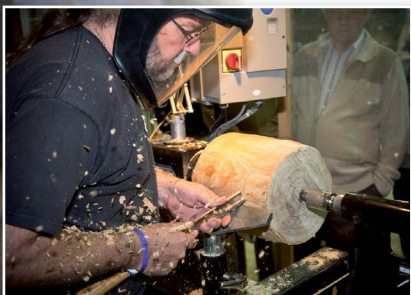


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HEALTH AND SAFETY

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.



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The Brighton Bun

Stuart Thomas creates his interpretation of a traditional pair of travelling candlesticks



A wonderful project combining faceplate work, spindle turning, inserts and thread chasing, so providing a challenge to your woodturning skills. When complete, this is a great talking point for family and friends as there is a lot of history behind these objects. You can find much more on the web, but here is a brief outline from me.

Travelling candlesticks have been known since about 1735 through to around 1925. They were used by explorers, travellers and military officers, including during the American Civil War.

So why a 'Brighton Bun'? When screwed together for transporting in a neat, compact unit it resembled the now-forgotten English pastry of that name.

These candlesticks were originally made of brass, bronze, copper and other metals, or in woods such as olivewood (*Olea* spp), yew (*Taxus* spp), elm (*Ulmus* spp) etc.

In this article I am making one in yew, from a locally felled tree and given me by my friend Dave, and using African blackwood (*Dalbergia melanoxylon*) for the inserts. This is not a project to be rushed. To ensure everything fits well many years later there is a need to minimise the risk of wood

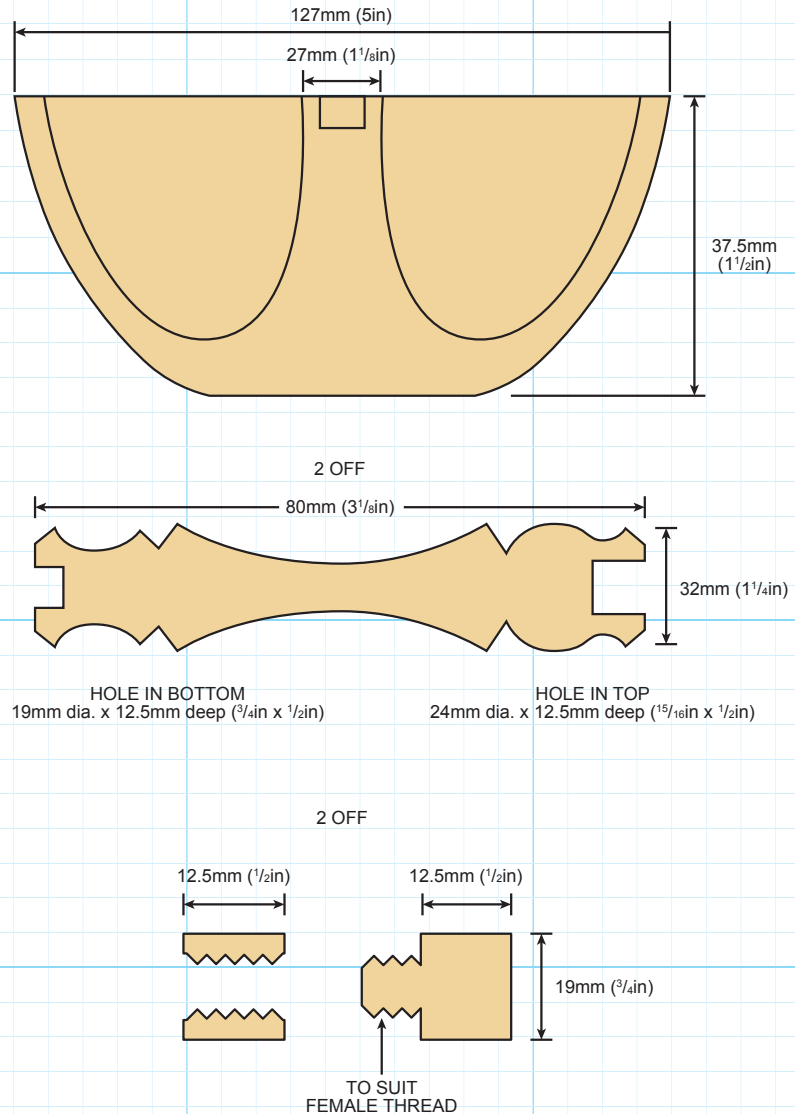
movement on some parts by using the technique called rough turning. You do not have to do this but, of course, things may move and not fit so well later. If you do use the rough turning method, it means you will need to rough turn some parts first allow extra thickness, about 10%, allow them to dry and move as they will and, once dry, re-turn them to final shape. I am using the rough-turn method for this article.

Allow yourself time to get all the parts right so it all fits together well. Making the Brighton Bun is not difficult, but you have to deal with things sequentially and be accurate. There is some thread chasing involved that you may need to practise. If you need to practise cutting threads choose very dense, close-grained hardwoods. John Berkeley has written many articles on this, or you could use threading jigs.

Although I have shown specific sizes and used timber to match those sizes, there is no reason why a Brighton Bun should be this specific size. You could use whatever you have available as long as you factor in the required shaping and sizing for the items so everything fits together and inside the bowls.

TOOLS AND MATERIALS

- 20mm spindle roughing gouge
- 6mm bowl gouge
- 10mm three-point tool
- 16mm spindle gouge
- 13mm skew chisel drill and a drill bit for your screw chuck
- 19mm Forstner bit
- 12.5mm Forstner bit (adjust sizes slightly if you need to and adjust your drawings accordingly)
- Round nose scraper
- Pair of 16 TPI (teeth per inch) thread chasers
- Yew (*Taxus baccata*) wood for half bowls and stems
- African blackwood (*Dalbergia melanoxylon*) for male and female inserts
- Four-jaw chuck with screw-thread attachment
- Jam chuck
- Brass candlestick inserts
- Abrasives
- Cellulose sanding sealer
- Buffing wheels: regular cotton wheels and domed ones



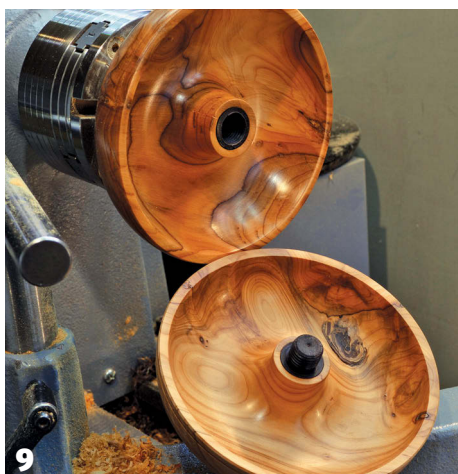
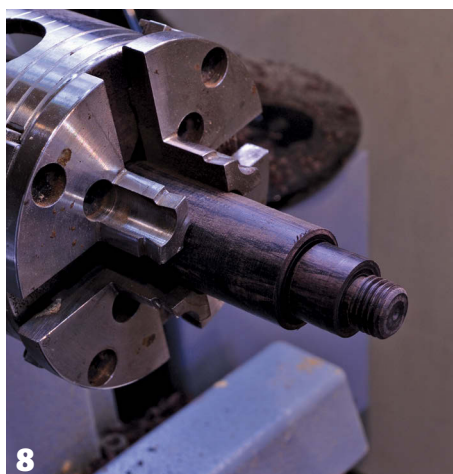
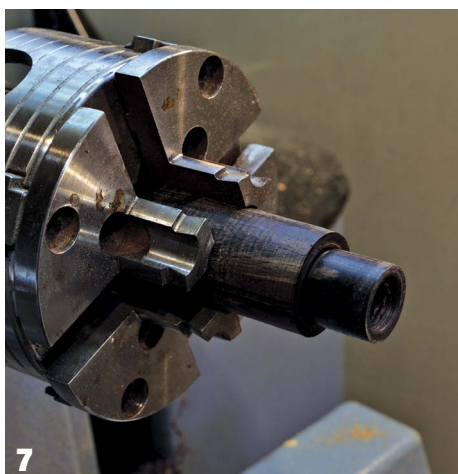
1 After preparing your bowl blanks (two are required – a top and a base) mount one on a screw chuck. Using a bowl gouge, rough shape the outside to the profile shown in the drawing. When you are happy with the shape, turn a spigot to fit your chuck jaws. Once the first one is done, mount the second blank and repeat the process.

2 Hold one of the blanks in the chuck by the spigot you have cut. Now, as per the dimensioned drawing, hollow out the inner U-shaped section of the bowl. If you are rough-turning the piece, leave the walls thick at this stage due to the blank being only being part turned. (See note on part turning). Take great care not to hit the centre with the tool in full cut mode. It is easily done. When you get close to the raised centre section, rotate the gouge so that the wing of the tool touches the wood in scrape mode, which drastically reduces the risk of a catch should you touch the central raised section. Of course it is better not to touch the raised inner section. Once the first bowl section is rough turned, take the second blank and repeat the process, then set them aside to dry.

Part turning

With all the boxes I turn and also other items like this pair of candlesticks, I always part-turn the blanks and leave them in the house to ensure the wood has properly dried out and settled. It may take a while but it's better to have a little patience at this stage than find the wood has moved after you have completed the project and you cannot fit things together any more..





3 After the blanks have fully dried and settled, mount one on the chuck and start the final shaping. If the blank has moved a lot, you can remount it between centres and true up the spigot. prior to fitting it in the chuck so you have better concentricity before refining the shape. When refining the internal elements, leave the raised centre section no less than 35mm in diameter. Previous experience shows there is a big chance of splitting the wood if you take it down to finished size before drilling the hole for the insert.

4 Drill a 19mm diameter hole, 12.5mm deep, with a Forstner bit to take the blackwood insert. This first half of the Bun will have a female thread, the second a male one.

5 Having drilled the centre hole, continue to turn the inside of the bowl and also as much as you can of the outside.

6 Complete the inside turning taking the centre diameter down to about 27mm. Aim for a wall thickness at the rim of just under 5mm, allowing the bottom of the bowl to thicken out a little. Remember to allow room for the candlestick stems. This first half can now be sanded, given a coat of sanding sealer and removed from the chuck. Repeat the whole process to make a second bowl.

7 Now it is time to make the threaded inserts. To make the female insert use a piece of 25mm diameter blackwood and turn it between centres down to a cylinder. Drill a 12.5mm diameter hole to a depth of 16mm with a Forstner bit to give a good parallel hole to chase the 16TPI threads in. Now, turn the outside diameter of the insert to 19mm to fit the hole in one of the completed half bowls. Part off a section 12.5mm long. Make two of these. One will be fitted into one bowl while the other will be fitted into one of the candlestick stems.

8 Make the two male inserts, again using a 25mm diameter blackwood section turned to a round, each of total length 25mm. Turn 12.5mm down to 19mm to fit the hole in the second bowl. The remaining 12.5mm needs to be threaded to fit the female insert in the first bowl. Repeat the process to make a male insert to fit the second candlestick stem. If you have no experience of threading you could use a tap and die on this dense timber instead.

9 Put the turned and finished second bowl, with the male insert glued in place, back on the lathe. The first bowl, with the female insert, can now be screwed on to it so that the bottom can be finished.

10 With both parts of the bowl screwed together it is a good idea to use the tailstock for extra security.

11 Making progress! Now, true up both halves of the bowl and start to remove the spigot, keeping the tailstock in place until the last moment...

12 When you can, then turn the little bead as a bit of decoration. The first half of the bowl has now been finished. Note in the picture that the bottom has been undercut a little and the bead is not where the bowl will sit if this face is placed on a table. You could use the flat edge of a parting tool to check the undercut.

13 Now work through the grits and sand this to a fine finish down to about 1200 grit. If you do not want as high a gloss look, 600 is fine. Once sanded, remove both halves from the chuck.

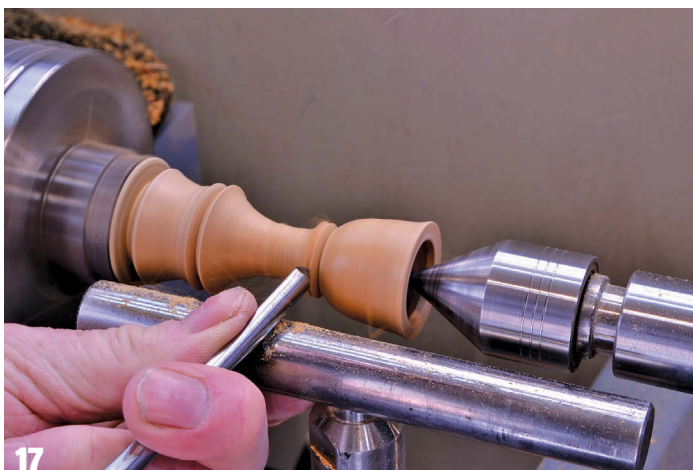
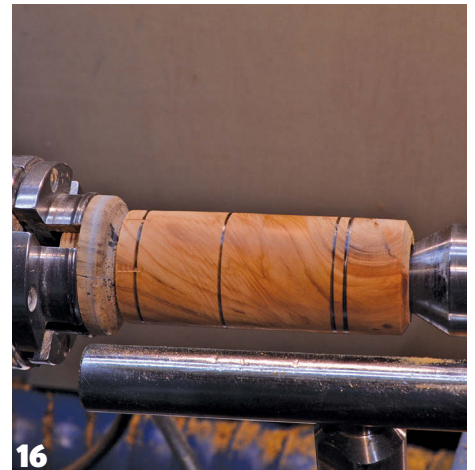
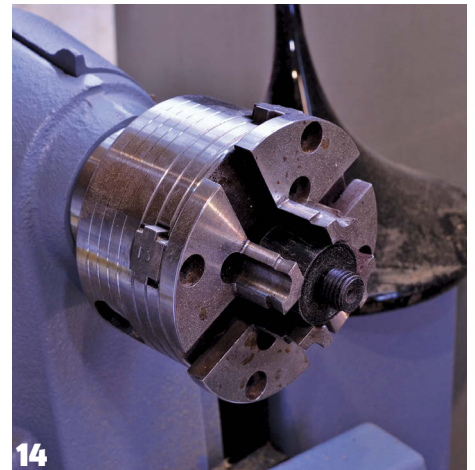
14 Using a piece of blackwood cylinder held in your chuck, create a jam chuck that has a thread to match the size of the female threaded section placed in the bowl earlier.

15 Screw the female half of the bowl on to the blackwood jam chuck. Once secure, bring up the tailstock and finish it using the method used previously for the male threaded half of the bowl. Sand it to the same level as the previous one and the bowl is now complete and ready for polishing.

16 Time for the stems. Prepare a stem blank with a 19mm diameter hole drilled 12.5mm deep in the bottom and a 24mm diameter hole drilled 12.5mm in the top as shown on the plan. Hold the bottom of the stem in a jam chuck and the top in the live centre. If the hole is too deep for the live centre, put a loose insert in the hole while turning.

17 Turn the stem to a shape you are happy with but ensure there is sufficient contouring to fit around the centre of the bowl. Remember that there are holes in the top and bottom of the stem. (Not that I've ever gone through them of course!)

18 When the stems are completed and sanded, glue the cup inserts in the tops and the male and female inserts in the bottoms before polishing.





19



20

19 You're nearly there. Having previously sanded the bowls to 1200 grit on the lathe and applied a coat of sanding sealer, use the polishing mops to put the final polish on the outside of the bowls. Take care positioning the items on the buffing wheel. Always trail the work and only gently touch the work to the wheel. You are refining a surface, not removing material. I used three buffing wheels. The first one was loaded with Tripoli, followed by the second loaded with white diamond and finally the third with carnauba wax. So, to remove imperfections gradually go down in abrasive size, and the last applies a high-gloss shine. Whether you buff or not is your choice. It certainly creates a lustrous high-class look.



21

20 Now polish the stems using the same procedure as for the bowls. After this it is time to polish the inside of the bowl halves, this time using domed mops which fit into the curved inner surface better and are less likely to grab any outward projecting edges. Use the same three-mop sequence as before i.e. three mops and three compounds.

21 The completed Brighton Bun open and showing both halves with the stems screwed in place.

22 This is how the unscrewed pieces fit into the curved recess of one of the bowls.

23 The completed Brighton Bun with both halves screwed together into the closed position and all parts contained inside.



22



23

Different materials

24 & 25 I chose to use yew for the project, but other timber can be used too. Take a look at this image where blackwood has been used throughout and how it compares to the yew ones made. You can also change the visual elements by opting to use other timbers and adding colour and maybe gilt cream. The other set on view is constructed of oak and blackwood, the timber was dyed and a liming paste/gilt cream was applied to fill the grain. ●



24



25



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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.

The ToolPost comes of age

Peter Hemley comments: 'The ToolPost, now based in Didcot, Oxfordshire, is celebrating 20 years of continuous on-line trading. The actual date of the first transaction is somewhat lost in the mists of time, although Invoice No1 (actually 1001) was dated November 1996.

'Unlike any other outfit at the time, the ToolPost started its trading life as an online-only business, at a time when the internet was all but unknown in the UK. This was driven by my being involved in the embryonic commercial internet, in software development, as well as being an enthusiastic woodturner.'

As an aside, Peter also developed and hosted the AWGB's first online presence as well as building and operating an early gallery site named Coeur du Bois.

Peter says: 'The company moved to its current trading site, where retail, showroom, meeting and workshop areas



PHOTOGRAPH COURTESY OF THE TOOLPOST

are available, around 12 years ago. It was decided at an early stage to incorporate a 'trade counter' – which soon became a major focus of the operation and led to the development of a full retail display area of around 30,00sq ft. This location also hosts the Open House shows that the company runs every June and November, where guest turners from around the world can be seen showcasing their skills. On 4 and 5 November this year we will feature, among others, Henri Kuntz from France and Willy Vanhoutte – of Wivamac fame – from Belgium.'

To celebrate the 20th anniversary, the ToolPost, supported by many of its suppliers, is holding a prize draw. Entry will be free and automatic for all customers spending more than £20 on goods between 1 July and 31 October 2017. The prizes include tools and equipment, courses and even a subscription to your favourite *Woodturning* magazine. Details will be on the website as they proceed and the prize pot grows.

For information contact: www.toolpost.co.uk

BriMarc and Tormek donate sharpening machines to tools charity

The charity Tools for Self Reliance (TFSR) recently welcomed six used Tormek sharpening machines to its HQ in Netley Marsh. The machines came from BriMarc Tools (sister company of Axminster Tools & Machinery) and Tormek. They were previously for the use of students at Leeds College.

Tools for Self Reliance collects tools for sending to development projects in Africa, helping local communities affected by poverty with the development of sustainable livelihoods and income diversification. However, these Tormek sharpening systems will be used in the charity's workshops throughout the UK to prepare tools for sending to Africa. More specifically, TFSR works within six African countries: Ghana, Malawi, Sierra Leone, Tanzania, Uganda and Zambia.

Ian Limbrick, deputy CEO of the charity, said: 'We are delighted to receive these.

'We recognise that these Tormek sharpeners are the gold standard when it

comes to tool sharpening machines and that they will enable our volunteer groups to produce finished chisels and planes sharpened to a high standard. We are very grateful to both BriMarc and Tormek for their kind and generous donation and we can assure you we will put them to very good use.'

Throughout the UK there are a total of 778 volunteers working for TFSR.

The majority of these volunteers work in 45 groups spread from Aberdeen to the south coast.

In 2016 the charity trained and equipped 3,705 people working with its partner organisations in the six countries listed within Africa.

Contact: Tools for Self Reliance – www.tfsr.org
BriMarc Tools & Machinery – www.brimarc.com



Volunteers (left to right): John Harcourt, Roy Barnard, John Howell, Brian Sharp and TFSR Chief Executive Sarah Ingleby

PHOTOGRAPH COURTESY OF AXMINSTER

The Cheshire Guild of Woodturners

April 29th was one of the most successful days in the life of the Cheshire Guild since it was formed in 2000.

As part of the AWGB 30th Birthday Bash, Mark Baker, Editor of *Woodturning* magazine gave a demonstration to an audience of more than 60 turners, including visitors from six other clubs in the region.

Mark produced five items over five hours, each carefully selected to cover a wide range of techniques. He started with a lidded bowl showing how wood can be utilised most effectively by producing the lid from the inside of the bowl using a specialist coring tool.

He then moved on to a square-edged bowl with elements to add visual drama while emphasising the care that must be taken to avoid injury and disasters. A simple bowl was next with various decorative techniques using everyday workshop tools and he finished with a three-legged bowl and a hollow form decorated using bead forming tools to highlight their versatility in design. An excellent buffet lunch was served and everyone departed determined to put some of the ideas into practice.

Contact: www.cgw.org.uk

COURTESY OF GARDEN OF ENGLAND WOODTURNERS



Garden of England Woodturners

Saturday 6 May saw the first charity event organised by the club. The intention was to raise funds and food items for the Canterbury Food Bank.

The day was centred on a turning competition with the members voting on the winning team. Four teams took part, each team using one of the small hands-on evening lathes. There were three people in each team and each team was given a box containing four pieces of wood unseen until the start of the competition.

The first person in each team opened the box, chose one of the pieces and in a time slot of 25 minutes had to begin turning the wood. The other members of the teams, seated away from the lathes, were not allowed to say anything and when the time was up the second person took over, having to try to work out what the first person was intending to make.

The second person selected the second piece of wood. Similarly the third person took over after another 20 minutes and had the task of finishing the item using

the first two pieces and a third piece from the box. The audience then voted on each team for skill, quality of item made, interest and amusement value.

Along with the competition the club donated all attendance fees for the day and all raffle money raised. The main raffle prize was a £50 gift voucher donated by Axminster tools at Sittingbourne. The money raised on the day was also boosted by a £100 cheque from Brewers decorating merchants.

Members were asked to bring in tins of food, packets of washing powder, soap – anything a family would normally buy for their everyday needs. Cakes were on sale during the day as were teas and coffees.

The representative from the Canterbury Food Bank came along to the meeting and was thrilled to receive the vast amount of items donated and money raised, which was just over £400.

The 42 members attending enjoyed the day so much they have asked if it can be made an annual event.

Contact: www.gardenofenglandwoodturners.org

SHOWS AND EVENTS

Woodfest Wales

When: 29-30 July, 2017

Where: Caerwys, Mold, North Wales CH7 5BP

Web: www.woodfestwales.co.uk

SWAT Symposiums

The annual gathering of the South West Association of Turners

When: 25-27 August, 2017

Where: Waco Convention Centre, Texas

Web: www.swaturners.org

Stock Gaylard Oak Fair

When: 26-27 August, 2017

Where: Stock Gaylard Estate, Sturminster Newton, Dorset

Web: www.stockgaylard.com

Yandles Woodworking Show

Always a highlight of the woodworking events calendar, thousands of visitors come from across the country.

When: 8-9 September, 2017

Where: Hurst Works, Hurst, Martock, Somerset, TA12 6JU

Web: www.yandles.co.uk

Bentley Woodfair

Woodfair is a celebration of woodlands, forestry, timber, trees woodcrafts and much more.

When: 15-17 September, 2017

Where: Bentley, Halland, East Sussex, BN8 5AF

Web: www.bentley.org.uk

European Woodworking Show 2017

This is the best woodworking show of its kind in the world as judged by many well-journeyed demonstrators and woodworking aficionados from around the globe.

When: 16-17 September, 2017

Where: Cressing Temple Barns, Witham Road Cressing, Braintree, Essex, CM77 8PD

Web: www.europeanwoodworkingshow.eu

North Of England Woodworking & Power Tool Show

The North of England Woodworking & Power Tool Show is the largest and longest established retail woodworking and power tool show in the country.

When: 17-19 November, 2017

Where: Hall 1, Great Yorkshire Showground, Harrogate HG2 8QZ

Web: www.skpromotions.co.uk

The Toolpost Open House

When: 4-5 November 2017

Where: Unit 7, Hawksworth, Southmead Industrial Park, Didcot, Oxfordshire, OX11 7HR

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Catches on faceplate work

In the final part of this short series, Richard Findley looks at common catches that occur when turning bowls with a bowl gouge

Having explored the most common catches in spindle work over the past two months, this final article will look at the catches that happen when turning bowls with a bowl gouge.

Some turners will tell you that bowl turning is easy compared to spindle work, others are certain that bowls give by far the biggest challenge. Either way, catches can be found in most areas of turning and, while spindle turning catches can be dramatic and deeply frustrating, they are rarely dangerous, because the work is held securely between centres. Bowl work is generally only held at one end and a heavy catch can easily launch a bowl

from the jaws of the chuck, and flying bowls equal potential danger. Likewise, catches in bowls can lead to exploding bowls if the material isn't sound and, again, chunks of flying wood are a recipe for disaster. That said, during the photo shoot for this article I forced (or tried to force) a range of different catches and none managed to dislodge or shatter the bowls I turned, so while the risk probably isn't great, it is nonetheless there. A face shield is the minimum protection I would recommend for bowl turning. Learning to properly chuck your bowls is also an essential skill for successful and safe bowl turning.

◀ Bowl gouge grind

It seems to me that the grind used on the bowl gouge can help to minimise, or indeed increase, the risk of catches during the turning process. There are two main grinds most often sold by tool manufacturers: traditional square grind and long grind – sometimes known as Celtic, Irish or Ellsworth grinds. My preferred shape would fall into the long grind category but, as you will see in the picture, it is far from being a full long grind shape.

Some turners will tell you a traditional grind will give a superior finish from the tool and is better for various other reasons that I am unsure of. Others will tell you the wings need to be ground back almost to the handle to achieve the best cuts. My advice would be to carefully try out a few grinds, possibly with some guidance, and see what suits you best.

I developed my preferred shape years ago, simply by starting out with a traditional square grind and, at each sharpen, gradually taking the wings further back until the tool did what I wanted it to do. I found the wings got in my way in the traditional shape and I wanted to be able to do the shear cut I'd seen the professionals use, which requires a long grind. Once I had a shape that allowed me to work inside a bowl without the wings getting in my way and a shape that allowed me to produce a fine shearing cut on the outside of a bowl I stopped and used that as my favoured bowl gouge profile. I should say the grind I use is certainly not new or revolutionary or worthy of a 'signature' range of bowl gouges, but simply suits me and my style of turning.

Wing catches

With the grind profile fresh in mind, it makes sense to begin by looking at catches caused by the wing of the tool. One of the reasons I like the grind I use best is that the wings are big enough to be useful but swept back enough to be out of the way, without being so big as to invite a huge and catastrophic catch.

It could be argued that most wing catches can be avoided if you are paying full attention to what you are doing, as they usually occur because the cut is increasing in depth or is up to a raised detail and the wing simply takes a cut too big to control. By properly monitoring where the wing is and how the cut is progressing the cut can be stopped and adjusted to avoid the catch, but, in reality, we have all found ourselves carried away by a smooth cut and flying shavings, perhaps a moment's inattention and BANG!

Because a traditional grind has its wings



Three bowl gouge profiles: Top – traditional square grind, Bottom – long grind, Centre – my preferred long grind

so square, they will quickly come into contact with a raised surface in front of the cut. With ground-back wings, this is much less of a problem, although a catch is still perfectly possible, it is just perhaps easier to see and so avoid.

This type of catch will grab the wing of the tool, violently lifting the handle upwards and pulling the tool's tip into the bowl. The increased leverage that is caused is usually the reason a bowl is pulled from the chuck.



Cut is progressing well but the wing is getting close to a catch



The wing of a traditional grind gouge is easy to catch

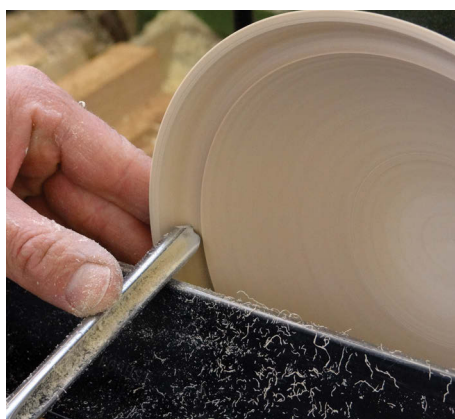


While still easy to catch, the longer grind gives better visibility

Forming details and wing catches

Cutting spigots and small stepped details with a bowl gouge means that the wing is put to use in a way similar to my previous description, but it is intentional. The difficulty is that when the wing is intentionally engaged in the cut, a full understanding of the limits is required. Unfortunately, as with so many things in turning and in life in general, the only way to find the limits of yourself and the tool is to push them. A catch when forming a chucking spigot is usually nothing more than annoying as it is early in the turning process and the blank will be securely held on a sturdy screw chuck or faceplate. Wing catches on details are often far further on in the turning process and can lead to much greater 'design changes'.

My personal preference is to rough out these details with the bowl gouge but to cut and refine them with a skew in scraping mode or a suitable scraper. Some will maintain that these details should be cut and not scraped to give the best finish from the tool, in which case a spindle gouge might be worth considering, as long as the overhang from the toolrest isn't too great. The grind and profile of a spindle gouge is far better for cutting and shaping fine detail than a bowl gouge, which, in my opinion, is generally better for bolder, sweeping curves.



Approaching a raised detail with the bowl gouge needs to be done with care



Using a skew in scraping mode or dedicated scraper may be a better option



Using a spindle gouge to refine a detail rather than a bowl gouge



The difference in profile between a bowl gouge and a spindle gouge

Testing the limit of a push cut

A push cut would be considered the traditional way of producing a clean finish on a bowl before sanding. With a traditional grind this cut is the only option, but with a long grind a shear cut can be employed on the outside of a bowl.

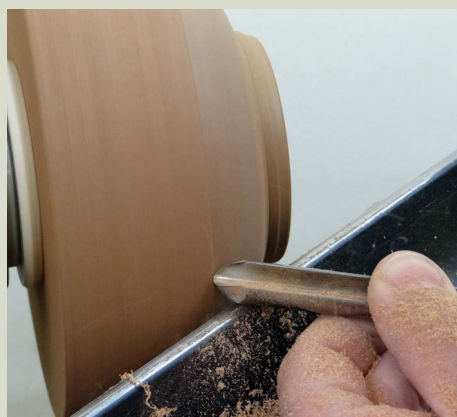
When taking a push cut, just like every other cut in turning, there is a 'sweet spot' on the tool where the shaving whistles cleanly from the edge with almost no effort. On the push cut around the outside of the bowl, when the flute is

at around the 10 o'clock position, the cut should be working well. There is a range of variables that will mean the exact position will be slightly different for each turner, but generally speaking 10 o'clock is a good guide. Likewise, inside a bowl, 2 o'clock is a good flute position to aim for.

It seems obvious that if the tool is rotated too far around, so the flute points nearly vertically upwards to the 12 o'clock position, the wing is in danger of a catch. To see how real this danger actually is I gave it a try. I wouldn't deliberately do

this on the inside of a bowl as my instinct tells me the catch would be far worse, but on the outside I was reasonably comfortable with it – or at least as comfortable as one can be poking a bit of spinning wood with a sharp piece of steel with the aim of getting a catch.

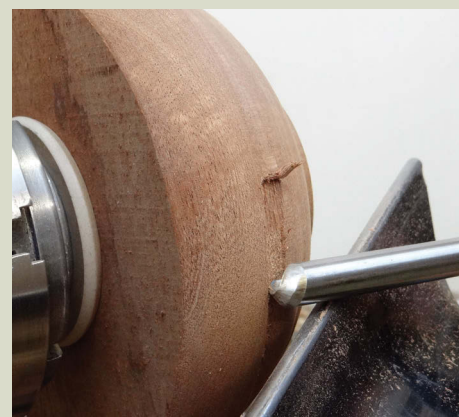
I was amazed at just how far round I managed to rotate the tool and still produce a shaving before the catch actually happened. When it did happen, it was quite deep and ugly, but not disastrous, either to the blank or the tool.



A good push cut on the outside of a bowl



I was surprised how far I could rotate the tool before getting a catch



The result of over rotating the bowl gouge

◀ Rim catches

In my experience, catches on the rim of a bowl are some of the most frustrating and common catches that happen in bowl turning. These catches are not linked to the tool's grind so much as the wing catches, but more to the presentation of the tool to the wood on the entry cut.

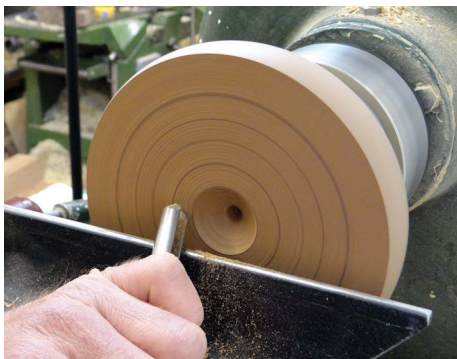
In both of my previous articles on catches I have written about the need to present sharp tools correctly to the wood to avoid catches, and this example is just the same. Bizarrely I tried various different presentations to the rim of a bowl and initially struggled to get a catch. It was only when I was really trying to cut a fine and crisp rim that I actually managed to achieve the catch I had been fishing for.

I relate this cut to the entry cut of a cove with a spindle gouge, as described in the last two articles. The action of simply pushing the tool into the wood is not the best approach. Instead the lifting action of the handle which makes the cutting edge arc into the wood produces a slicing motion which both delivers a clean cut and a controlled entry into the wood, giving the bevel something to rest against and so giving control.

The correct flute position is also important. I will usually begin with the flute rolled to around 3 o'clock on entry but, as soon as the bevel is comfortably in the wood, I will open it to the 2 o'clock position which achieves a much cleaner cut around the bowl.

Peter Child method

One of my favourite turning books, which is now a little out of date, but a good read all the same, is *The Craftsman Woodturner* by Peter Child. In it he describes a way to practise the entry cut into bowls by drawing a series of lines or rings on the face of a bowl blank and simply cutting on each until the method is perfected. The best thing about this suggestion, I feel, is that the cut will begin quite simply but become progressively more difficult as the forces on the tool increase, but by the time it does become more difficult you will have mastered the cut.



The Peter Child method of practising entry cuts



The result of a catch on the rim of a bowl



Catch with tool in place



Successfully cutting into the rim of a bowl

Over cutting the centre

The last catch possible to get with the bowl gouge is as you approach the final cuts inside the bowl, usually too quickly, and the tool moves past the very centre of the bowl. The upward force of the right hand side of the bowl lifts the gouge up and back to the left side of centre, where the now downward force grabs the tool and slams it down onto the tool rest, producing a spiral-shaped catch in the bottom of the bowl. I've been there, done that and got the T-shirt yet, despite every

possible approach I could think of, I couldn't achieve the spiral catch I vividly remember from my early days at the lathe. The picture shows my best attempt at the catch.

The answer to avoiding the catch is to slow the speed of approach to the centre of the bowl. Although the whole thing is spinning at the same RPM, the centre will be moving more slowly than the outer rim of the bowl, because RPM is a measurement of angular speed rather than



My best attempt at over cutting the centre of a bowl

a measurement of actual speed, like mm per second would be. So, to maintain an even cut throughout, you need to slow the movement of the gouge as it gets closer to the centre.

The tip of the gouge needs to be very slightly below the centre of the bowl so that the tiny pip that remains right at the heart of the bowl will simply drop off into the flute of the bowl gouge. As soon as this happens the tool can be removed from the wood, avoiding any chance of a catch.

My personal bowl gouge preference is for a 10mm (13mm diameter bar) tool, which I find ideal for most of my bowl work. Larger deeper bowls can need a more rigid, sturdy tool, in which case I move up to a 12mm (16mm diameter bar) tool. Both tools are ground to my preferred 60 degree short-long grind, but I will occasionally adapt that versatile grind if the need arises.

Final thoughts

Writing this short series has been interesting for me and very counterintuitive. I've spent the entirety of my turning career trying my best to avoid catches, and yet here I am doing the very opposite.

The one thing that struck me throughout the process, though, was how difficult it was to get some catches. This revelation thoroughly confused me because I am not so far removed from the enthusiastic raw beginner I once was that I can't remember every single one of the bone-shaking catches I have experienced – and occasionally, still do – yet here I was, prodding the wood in ways that really shouldn't be possible but a catch often didn't happen.

The only conclusion I can draw from this is that, as vitally important as sharp tools, perfect profiles and precise presentation are, there is something else that can cause and increase the chances of a catch. A variable that is almost impossible to account for: being human.

I'm no scientist but I know that we are emotional creatures and no matter how much control we feel we have of our minds and bodies, we have natural responses to events. In this case the event is turning and the emotion might be excitement, nerves, fear or relief, but in each of these cases muscles tense and relax, frame of mind alters and an action that has been done a hundred times before perfectly, can become hesitant or shaky. How many times have you thought 'just one more cut...' and got a catch, despite getting to that point without one? How many times have you thought 'I need to be careful here because...' and been rewarded with



Correctly finishing the inside of a bowl



Concentrating on turning the inside of a bowl and supporting the bowl at the same time

a catch? It's not that you have suddenly forgotten how to turn, but more likely because your natural emotional response has been to tense muscles that are normally relaxed, or perhaps something more subconscious that I don't understand.

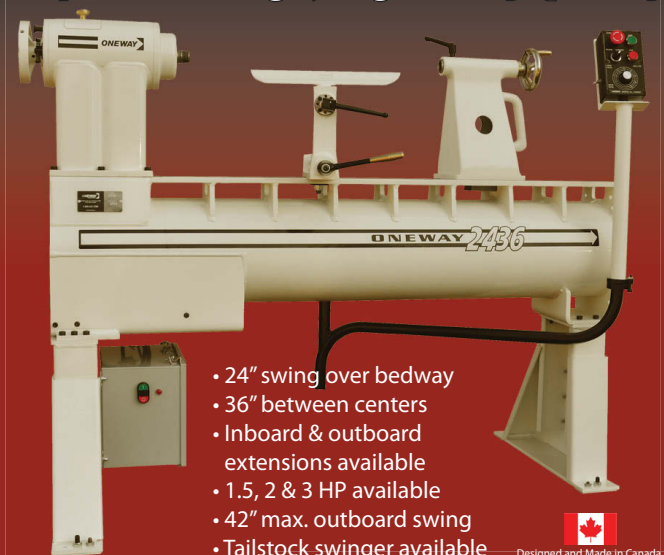
So what is the solution? I'm not entirely certain, but once everything practical has been done and you have practised and practised and practised some more, perhaps the answer is that, sometimes, we, as turners, just have to accept catches sometimes happen. ●

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A photograph of a woman and an elderly man surrounded by various woodcarving tools and supplies. The woman, on the left, is wearing a blue traditional Chinese-style top, fishnet stockings, and a gold hat. She is kneeling and smiling. The man, on the right, is wearing a white shirt, a blue sash, and a gold hat. He is standing and looking at a tool. Between them is a large collection of tools, including a set of carving knives in a wooden case, a hand plane, a sanding block, and various bottles of wood oil and glue. The background is dark, and the overall atmosphere is festive and celebratory.

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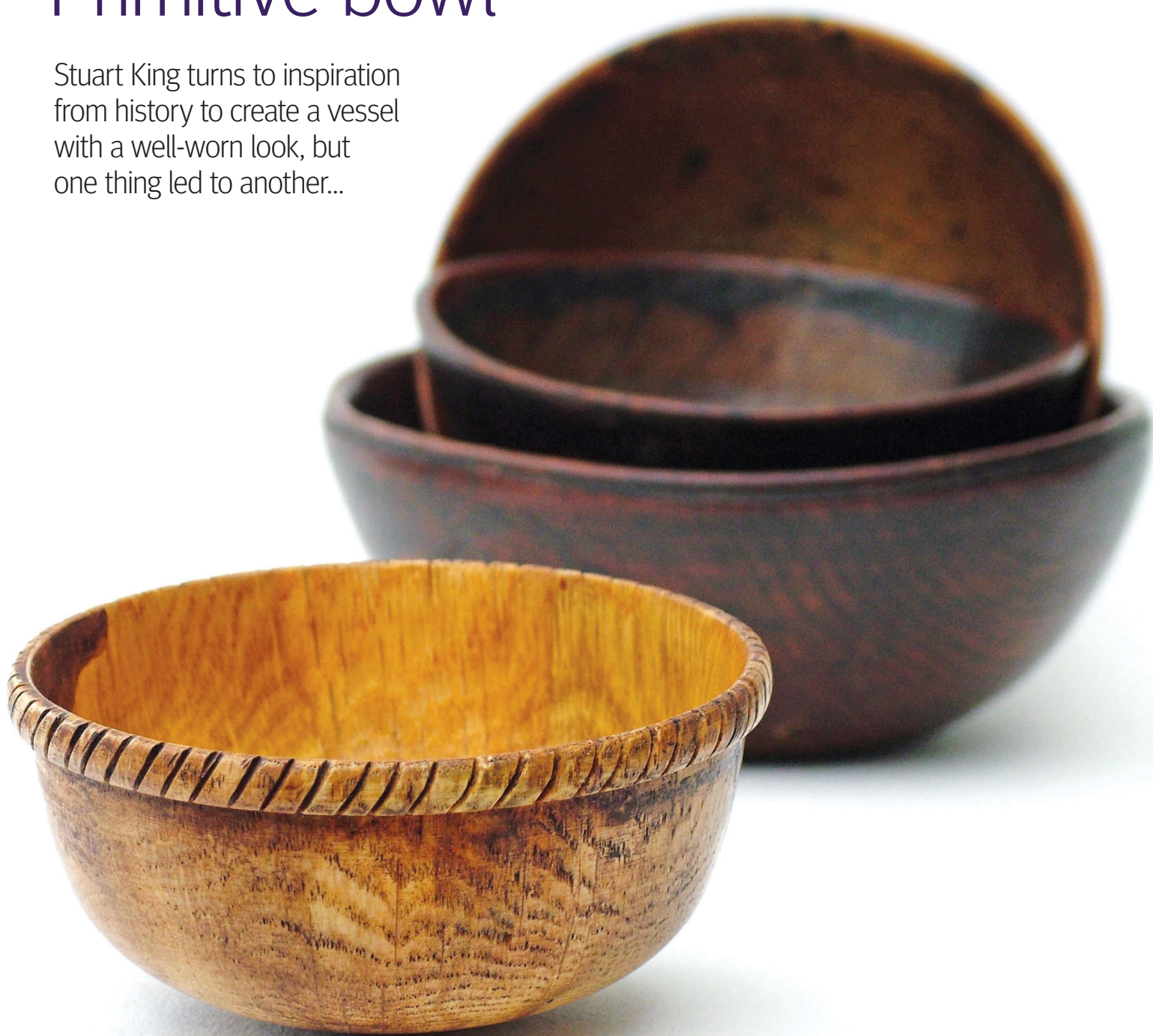
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Primitive bowl

Stuart King turns to inspiration from history to create a vessel with a well-worn look, but one thing led to another...

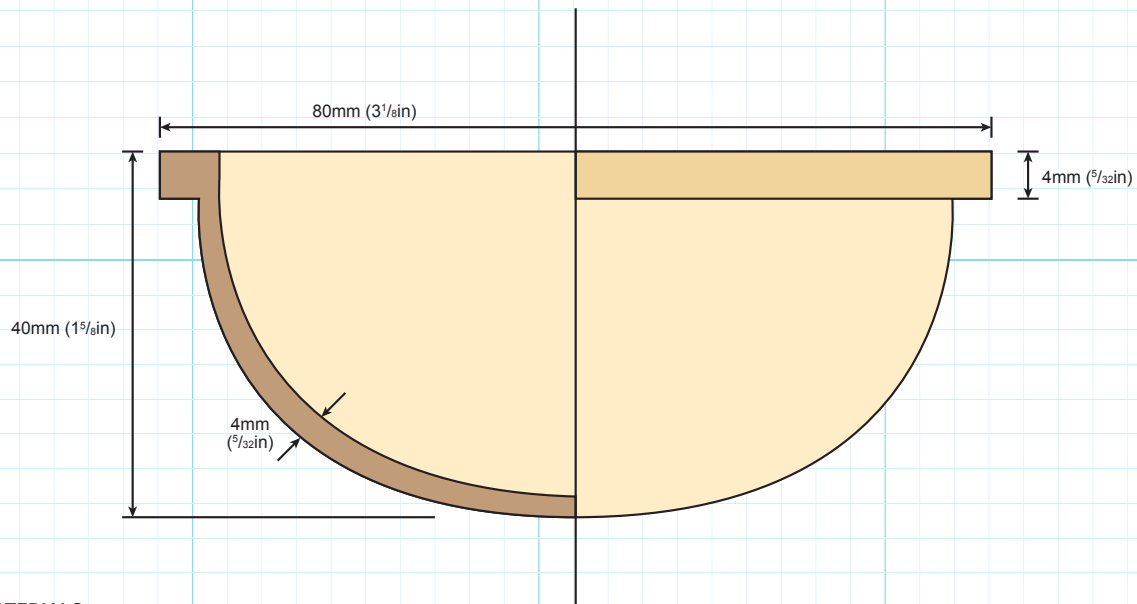


Being not only a woodturner but also an amateur archaeologist used to digging up the odd 2000-year-old pot, one becomes aware of form as applied in the real (ancient) world. A study of rims and bases, of decoration, weathering and wear are essential for dating archaeological finds but such observations can provide useful inspiration for woodturning projects, should that be your thing.

In this vein my project was to create a vessel with a hint of antiquity and of a primitive nature, but as you will see I went off on a bit of a tangent. How many of you have started a project with an idea fixed in your mind and, as things progressed, a change of direction occurred?

Instead of the rustic, even-walled end grain vessel I had in mind I could not resist creating a thin-walled end grain pot with a convex base – a wobble pot. I first made larger versions of these in the late 1980s. This example is a small tumbler, a drinking vessel of a size occasionally produced in the 17th century which tended to be used then by the upper classes rather than village rustics. A project turned on the hoof rather than from a measured drawing, and yes, with a hint of the contemporary after all.

After the storm a large oak bow crashed to the woodland floor – I own the woodland – and laid there for some six months, then I came along with my saw.



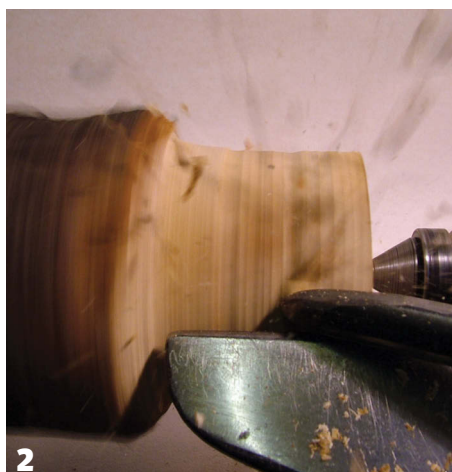
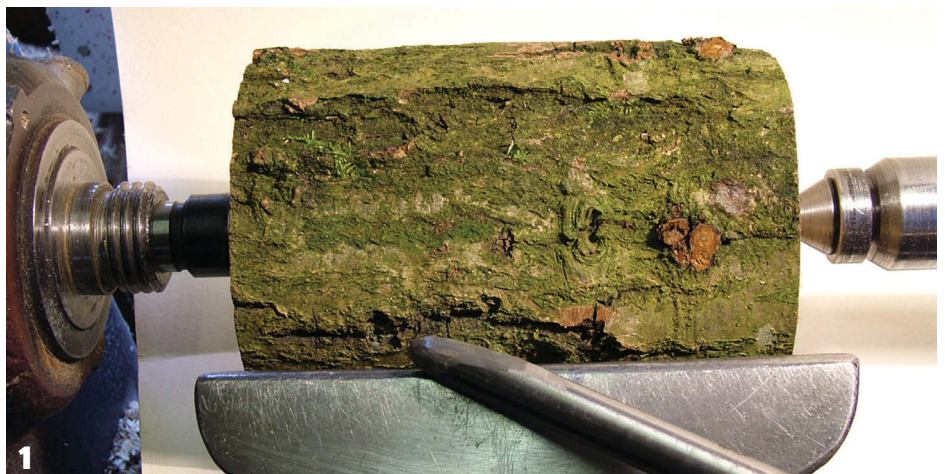
TOOLS AND MATERIALS

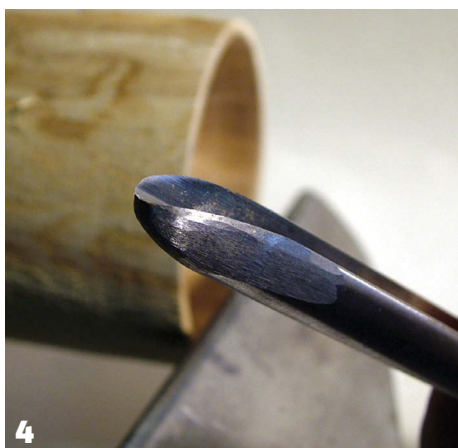
- PPE and RPE
- 16mm bowl gouge
- 10mm spindle gouge
- 4mm parting tool
- Small handsaw
- Abrasives
- Log of timber about 160mm long x 100mm wide
- Malt vinegar infused with wire wool
- Fine wire wool
- Button polish
- Burnt umber
- Stiff wire brush
- Automotive spray paint
- Coloured wax
- Green spirit stain

1 Mount your log – in my case a 16 x 10cm semi-green oak (*Quercus* spp) log – and mount it between centres on your lathe. This size will be enough to produce two small bowls. I will be able to rough down the log and make these bowls using the long-grind bowl gouge shown in the picture. As bark is unpredictable and could fly off erratically during the roughing down process it is prudent to wear a protective face shield and also to stand to one side.

2 To remove the bark, about half of it to start with, lay the gouge at an angle of about 30° off horizontal and have the flute angled to the wood so it is at about the 2 o'clock position. Have the lower wing gently make contact with the wood. Open the flute up to 1 o'clock for a coarser cut or close it down to the 2.30 position for a gentler scrape-type cut. Once you have the cut you require, run the blade along the rest to make multiple cuts to remove the bark down to clean wood. The flute always points in the direction of travel and the cut occurs on the lower wing. Remove half of the bark – you can see how uneven this log was.

3 Once the bark has been removed, take the diameter of one end of the log down to about 80mm. Using a parting tool, cut a spigot to suit your chuck jaws with a parting tool. Once cut, mount your timber securely in your chuck. Once securely held, bring up the tailstock and rough down the blank to a true cylinder.





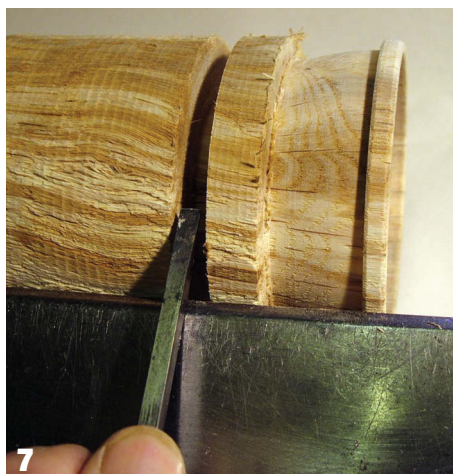
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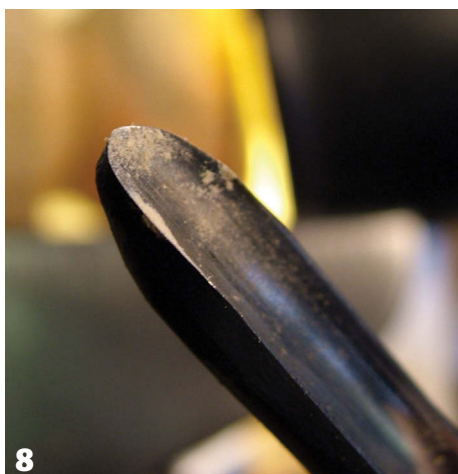
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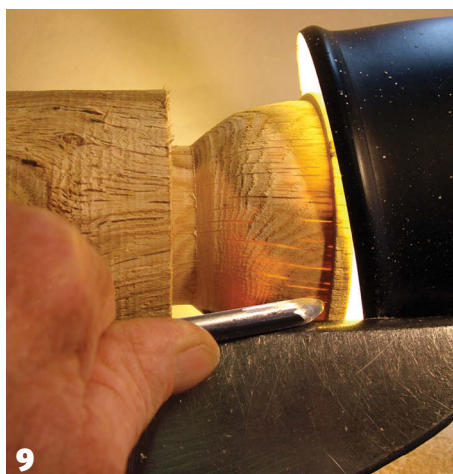
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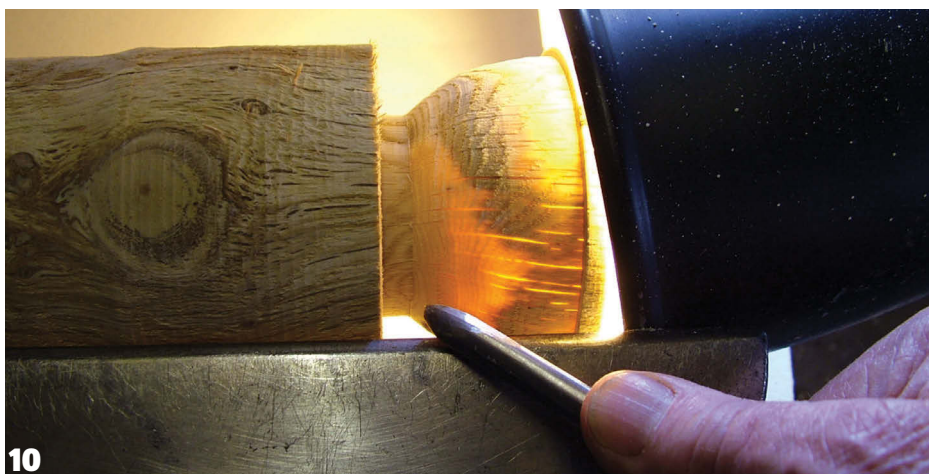
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10

4 Once you have your cylinder the hollowing process can begin. Due to your not going very deep the swept-back gouge used earlier can be used for this too. You can see it has quite a blunt front bevel angle. This will help you reach all of the surface of the tight internal radius curve. Start by either boring a hole in the centre or use the gouge to create a slight hollow and then extend this till you get to the required internal shape. Use a scraper to clean up the shape if you need to.

5 Technically you are meant to cut with the grain, from the centre out towards the rim section. Truthfully, on these shallow vessels, you can cut against the grain. It leaves a slightly worse surface than cutting with the grain, but it is easily sanded. Whichever cut direction you use, the entry angle of the gouge should be such that the flute points in the direction of travel and you enter in line with the bevel cutting on the lower wing. Begin in scrape mode and open the flute to get a better cut as you progress. A 3mm or 4mm even wall thickness is required to prevent cracking when it dries. It will go out of shape, but the even wall thickness drastically minimises the risk of cracking.

6 This is where I went off at a tangent from my original intent of an even-walled vessel. Instead, I chose to create a thin-walled vessel with a lip. Using the 4mm parting tool I took the wall thickness down to about 2-3mm, being guided by the use of a lamp fitted with an LED bulb so it doesn't generate heat and I could see the wall thickness. Here the translucence of the thin wall is apparent and shows the cellular structure well. This only works when the wood is wet, the translucence diminishes as the wood dries out.

7 To gauge where your base needs to be, use a parting tool and cut a groove down to about 50mm in depth. This cut acts as a guide so you can see what outer timber needs to be removed. Allow a 4mm wall thickness beyond the internal bottom of the bowl curve so you have enough material to adjust the shape and sand to an even wall thickness.

8 Spindle gouges are very versatile, but, like other tools, should be sharpened regularly. Once the shape is roughly what you require, you can refine it by using the gouge in scrape mode.

9 To do this, use with the flute facing the wood. As with the bowl gouge, the cut occurs on the lower wing, but the flute points at almost the 9 o'clock position to get a gentle scrape. Work from the rim down as far as you can.

10 After removing most of the waste at the top section use the spindle gouge to work closer to the base. The gouge needs to be reversed to reach the underside section. Instead of a pull cut/scrape you need to make a push scrape. Continue until you have a more consistent outer wall thickness.

11 This gouge is useful as it can be gently stroked along the surface to obtain a consistent outline. Note the use of the light to see if the wall thickness is even. There is a slight belly in the shape — adjust until you have the curve you want. I wanted to create this profile but noticed a dead knot inclusion. A feature will have to be made of this.

12 Now take a parting tool and reduce the solid waste at the bottom a bit down to about 10-12mm, which leaves enough support for sanding later on. Then refine the shape until you have reached the lower connecting spigot. At this stage, the turning could well become a goblet, but not with the dead knot inclusion. The piece is now ready for sanding both inside and out. Once sanded, cut through the waste spigot with a saw while the lathe is stationary and sand bottom round.

13 You can see there is enough material for another bowl.

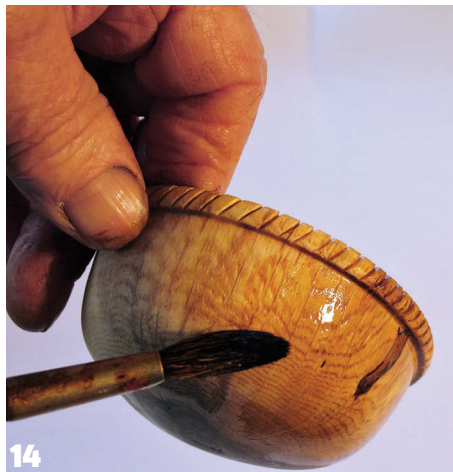
14 You can leave the rim plain or create a simple rope feature. This can be added to the rim by way of simple grooves cut by a saw, or burnt in with a scalpel edge pyrography tip, or cut in with a fine edge bit held in a rotary carving tool or a fine file.

15 Now is the time to apply a finish of your choice. I wanted an old, used, patinated look so chose to use button polish, which is a golden form of French polish. I applied two successive coats with a brush, the second after the first had dried. Once the polish is dry a coat of burnt umber powder suspended in methylated spirit is applied quickly, allowed to dry and then mostly removed with fine wire wool. That which remains gives the impression of age acquired patina.

16 If all goes well you will have a completed patinated bowl. Note how the patina has highlighted the rope-effect rim. Since the bowl is round-bottomed it wobbles.

Handy hints

- Keep tools sharp. Not only will sharp tools do a better job but blunt tools can be dangerous as more pressure is required and they scrape rather than cut. As the late (very late) Frank Pain would say: 'Turn the wood as it likes to be turned' — in other words, use sharp tools and rub the bevel.
- Unless strictly following a measured drawing don't be afraid to change course, whether to 'improve' the piece or because of an error on your part or a hidden flaw in the wood.
- If woodturning is your hobby there are only so many large fruit bowls that one can make and give away as presents. Try turning small items for a change — they take up much less shelf space and may be more welcome as gifts.
- Join a woodturning club for great camaraderie, a wide range of professional demonstrators and generous advice from members.

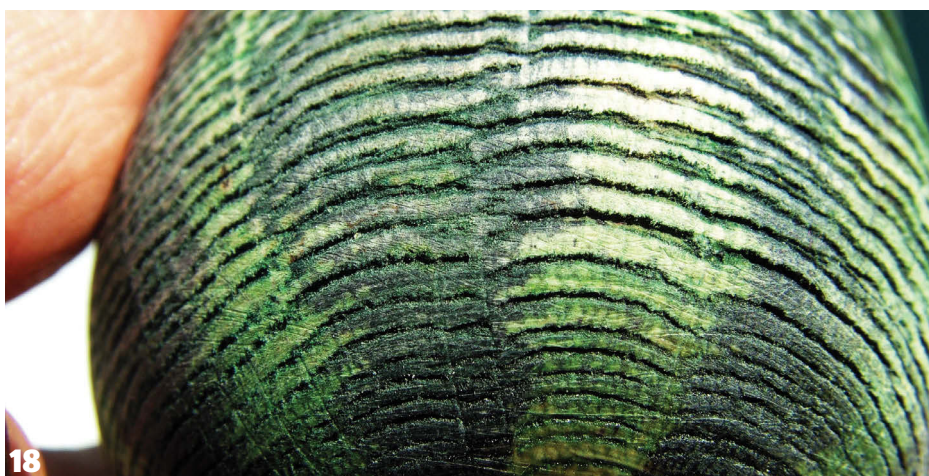




Alternative options

17 Another form of simple ageing is the use of vinegar infused for a few weeks with wire wool. This treatment will only work with woods with a high tannin content such as elm (*Ulmus* spp), sweet chestnut (*Castanea sativa*), walnut (*Juglans* spp) and oak (*Quercus* spp). Here it is being applied to another oak pot – the effect is immediate and quite dramatic. There are woodshade spirit and water based dyes to explore too.

18 After drying this pot had its surface brushed over with a wire brush while revolving in the lathe prior to parting-off. The resulting surface texture was further enhanced by using green spirit stain. There are lots of colours to explore.



19 Some turning folk are not keen on colouring. In this case I think my treatment enhances the grain in its own unique way. Here is the finished green pot.

20 An alternative is to use spray paints. These are available from DIY and automotive stores. The colours used on this pot were red oxide undercoat with a dash of white. Do experiment in colour as well as the size of pot turned. There are endless shapes and colour combinations awaiting you.



Things to consider

- Do not be afraid to experiment. It is easy sometimes to get stuck in a rut and there is more to turning than just another bowl or honey dipper. Have a go at texturing wood or colouring, even applying additional decorative elements – you may amaze your contemporaries with new-found artistic endeavours.
- Try the delights of turning wet wood and see where this takes you, and the material is mostly free. Keep an eye open for when a neighbour fells that old laburnum tree in their front garden. Turning wet wood is a completely different discipline to turning kiln-dried or seasoned timber. You will learn so much about the way wood behaves when drying and it is easier on the tools. There will be disappointments but this is a learning process. Tip: don't turn wet holly for you first exercise, it is almost guaranteed to split while you learn to turn wet wood and may put you off forever.
- Visit museums, they are full of inspiration. There is nothing new regarding classical form, you will not reinvent the wheel but much can be gleaned from ceramics, surface treatment, decoration, graffiti, texture, narrative (Greek vessels) and purpose. There are many museum collections of treen (small wooden artefacts) to inspire you, or look online. ●



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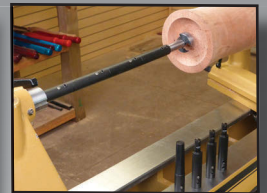
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In search of the perfect cut

Mark Baker explores creating that elusive perfect cut

The perfect cut is something every turner strives for but few ever achieve every time.

The perfect cut is often labelled as one that will require no sanding afterwards. Truthfully, that happens but rarely, on a few dense closegrained timbers. The simple fact is that we should be trying get a good cut most of the time with minimal need for sanding afterwards, which means a cut that gives a relatively smooth surface with no major humps, bumps and tear out that we can sand with ease to a fine finish. I know there are times when we are cutting certain dense timbers where we can get a beautiful finish straight off the tool, but it isn't something one should get vexed over if it doesn't happen. No one knows what grit grade you started sanding at unless you tell them. All they see is the end result.

The factors involved in making the perfect cut are: the timber species being used, the grain orientation of the timber, the shape being cut, the presentation angle of the tool, the speed of tool movement when cutting, the sharpness of the tool and lastly, but by no means least, practice.



Using a jig to sharpen a gouge

Sharpening

The number one problem that people encounter when starting to turn is not the turning – that comes a bit later when one starts to shape wood – it is sharpening tools. It doesn't matter if you use conventional turning tools or one or some of the tipped-tool variants – without sharp tools it is not possible to get a clean cut. Numerous machines and sharpening materials are widely available.

The common sharpening methods are via wheel or belt and after this some turners choose to hone. Use coarse grits to shape the cutting edge required and use fine grit grades to create sharp cutting edges. The tipped-tool variants might not be able to be re-sharpened, in which case you will need to buy a new tip.

Sharpening is a vital skill to learn. Do look at buying a sharpening platform and a fingernail/swept-back grind jig. They will prove worth the money in the long run and will make life easier for you.

So the primary rule is: sharpen often and keep the tools sharp.



Standard set of commonly used turning tools



A set of three scrapers with different cutting edge profiles

Turning tools

A huge mistake people make when starting turning is buying too many tools. A parting tool, bowl gouge, spindle gouge, spindle roughing gouge and maybe a few scrapers or a multi-tip scraper with multiple heads is all you need to start with.

I would add a skew, just because I think they are great tools for cleaning up and cutting, but I know some people hate them with a passion. You can certainly do without them, but some jobs are definitely easier with one.

By learning to use the standard tools well you learn all the fundamentals of cuts concerning standard turning without too many tools to try to learn.

Presentation angles

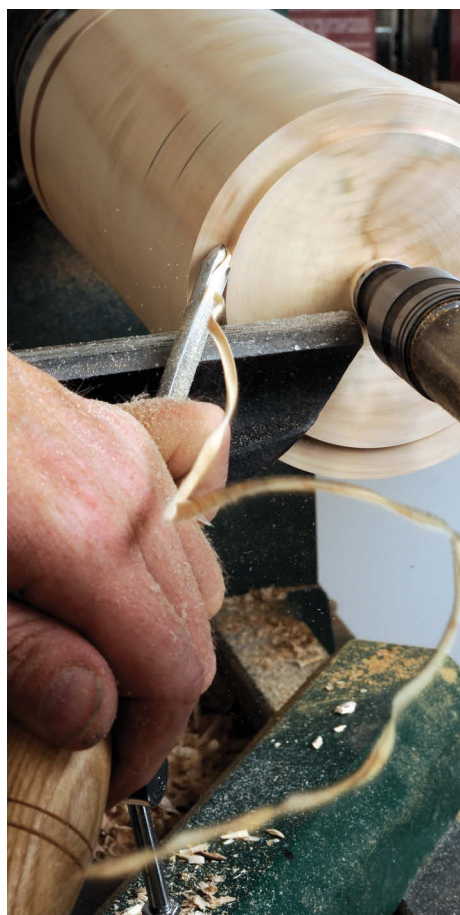
Tools need to be presented to the work so they can cut efficiently.

In the case of gouges, skews and parting tools – the bevel rubbing tools – they need to be presented to the work so the bevel is rubbing and you can peel the wood cleanly.

Depending on the tool used, this is done by raising or lowering the handle in conjunction with rotating the handle to present the cutting edge at an optimum angle. In the case of gouges, the flute should always point in the direction of

cut and the cut occur on the lower wing. Scrapers are typically presented to the work so the blade is flat on the rest and the handle is higher than the cutting edge or horizontal. You select a scraper cutting edge profile to suit the surface being cut, so a gentle curved face requires a scraper cutting edge profile to be as close a match as possible.

The cut should occur on or just below centre on external surfaces and on, or just above, centre on internal surfaces.



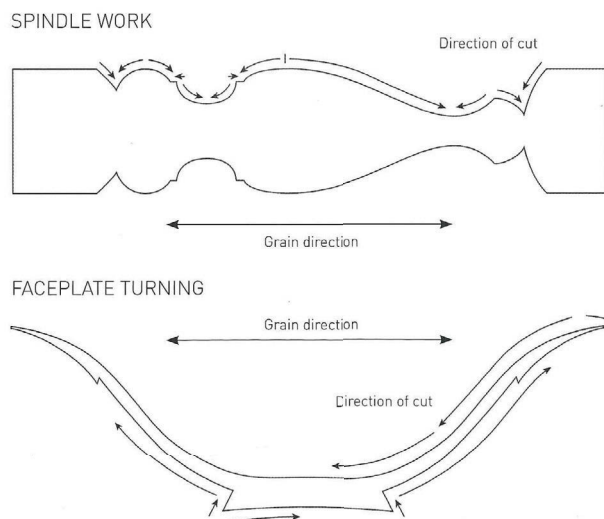
A shearing cut with a spindle gouge



Using a scraper on the inside of a bowl

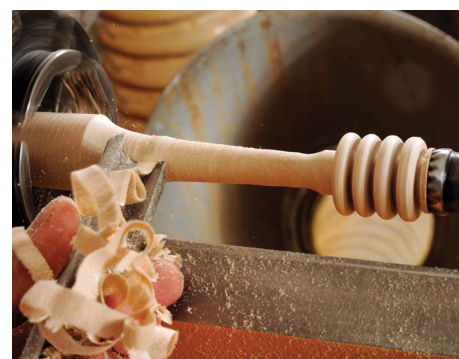
Cutting with the grain

It might sound simple, but if you cut with the grain you are well on the way to minimising grain tear-out. The phrase is, always cut downhill. This means no matter whether it is faceplate or spindle grain you will always be cutting so there is a longer fibre behind the one being cut, giving it support.



Practice, practice and more practice

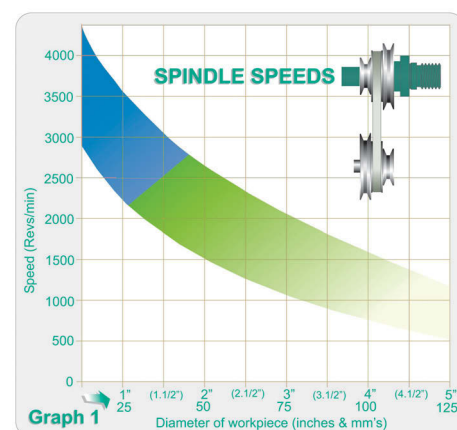
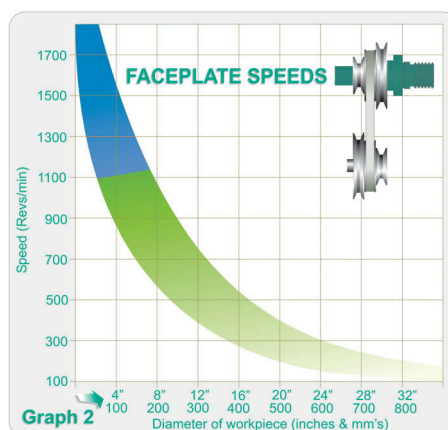
We cannot become truly proficient if we only get to turn once every couple of weeks or so. Yes, we all encounter time pressures, but there is no solution to this other than we need to make time in order to get better. We also need to turn multiples of the same thing so we get used to making certain cuts over and over again, rather than tackling one-off projects each time. So, instead of making one spinning top, bowl or box, make five, 10, or 15 and get used to the cuts involved. It doesn't take 15 times longer to make all 15. Repetition is needed to understand what is happening when you use a tool and how to make cuts perfectly. Use pine or some other softwood to start with. You will see immediately if you are getting a clean cut from a gouge. A clean bevel-rub cut will be shiny. A non-bevel-rub cut will be dull and likely to feature torn grain. Don't spend money on expensive timbers until you are ready to make a special project for someone.



A spindle roughing gouge being used on a spindle

Also, remember to work safely. Yes, that means observing best working practice, turning at the right speeds for the size, condition and type of work you are working on, and wearing personal protective equipment for face and lungs. And remember, you will experience frustration when things go wrong, but many mistakes can become design opportunities.

Finally – have some fun. ●



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Mark Baker talks to Sally to find out more about her and what inspires her to create her highly stylised and decorative work

Sally Burnett in profile

PHOTOGRAPH BY JULIE DEARDEN

Sally in her workshop working on her latest piece

When I finally got a chance to catch up properly with Sally beyond the rushed conversations and quick look at work at various events in the UK and abroad, I was glad of the opportunity to find out more about her and her work. I asked Sally about her background and how she started working with wood. Sally said: 'I was born just outside of London but moved to Stoke-on-Trent where I studied for a 3D design degree and never went back south. I now live in what was once an agricultural cottage on the outskirts

of Newcastle-under-Lyme, facing fields, part-way up a hill, which from the top has a tremendous view of the Cheshire Plain, framed by the Welsh mountains on one side and the Peak District on the other.

'I specialised in glass and ceramics at college, which then led to a 20-plus year career in ceramics, mainly surface pattern and tiles. Regarding working with wood, I have always had a love of wood and during the renovation of my cottage I was able to indulge this passion in the choice of wood that I used. I met furniture

maker Dave Rowntree from Pawswood, who introduced me to wych elm (*Ulmus glabra*), flaming sycamore (*Acer spp*), walnut (*Juglan spp*) and a variety of other incredible woods, many of which now have a place in my home.

'Part of the renovation involved the removal of a timber conservatory, which Dave was happy to take. In exchange he presented me with an old Record lathe and some tools. With some help from my local woodturning club (Staffordshire & South Cheshire Woodturning



PHOTOGRAPH BY JULIE DEARDEN

Sally in her workshop

making to the level that I have now.

'Tracy introduced me to turning green wood and nearly everything I make now is from green. I take great pleasure in the process – the warmth of the damp shavings and the amazing smell of many of the native English woods that I use. I never tire of this process – it is a big part of my passion for making things in wood.

'Many of my forms are tall and open, wide at the top, curving to a small base. I started making this shape using a bowl

gouge and, despite the many tools and jigs now available to turn hollow forms, I continue to use a gouge and a deep hollowing arm. Open forms require as good a finished surface on the inside as that on the outside and the gouge gives me that.'

Highlights

I asked Sally what have been her highlights of working with wood so far. 'Last year was a special one for me. I won a bursary from the Worshipful Company of Turners and, as a result, spent an incredible week with Jacques Vesery in his studio in Damariscotta, Maine. It was an incredible learning experience which really set me on track to develop my work as a full-time creative. At the same time I was accepted to the Craft Council's creative and business development programme for up-and-coming makers: Hothouse 2016.

The Hothouse scheme is run by the Crafts Council to help makers at the start of their career. This began in January and has been a very positive experience which I strongly recommend to any makers considering a creative career. As an alumni, the support network continues, both from my fellow Hothouse colleagues and from the Crafts Council. This all coincided with my decision to become a full-time maker and 2016 saw a change of emphasis in this remarkable journey.'



Association), I started turning – that was nearly 6 years ago.

Development

'I struggled for a while as my designs and ideas were way beyond my technical skills but this was resolved when I met Tracy Owen at the Harrogate Show and went to him for a lesson.

'Fortunately for me Tracy lives about 30 minutes away and, four years on, I consider him a friend, mentor and the single reason that I have developed my



PHOTOGRAPH BY JULIE DEARDEN

Spiral Stair 2 created for AAW Rising exhibition in 2014

◀ Going full time

'Initially, with the demands of a full-time job, it was frustrating to get enough time to turn, so I set myself both technical and creative challenges by working to a brief and entering competitions. In 2014 a piece of mine was accepted by the American Woodturners' Association (AAW) for its symposium 'Rising' exhibition. That piece I consider my first developed work, the final piece was driven entirely by design and not a desire to learn a new skill or influenced by the nature of the wood itself. This led to my Folded and Fylde Series that has further developed to the Corvus Nero Collection in 2017.

'My Folded Series is heavily influenced by pleated paper and smocked and pleated fabric. They play with shadow, movement and negative space and take some time to make, so I usually only make one or two a year.

'Next came the Fylde Series. This came about after a research trip to Southport in the middle of winter after much of the UK had been ravaged by repeated storms. The ever-changing landscape continues to be a source of inspiration. I consider these two Series to be my "voice". They contain elements of carving, piercing and texture, which are becoming synonymous with my work.

'The Corvus Nero Collection was first shown at Wizardry in Wood last November and since then the collection has developed into nearly 30 pieces. They are all turned green in sycamore, allowed to dry, then bleached several times with a two-part wood bleach.

Once dry, the design is burnt into the surface using pyrography. I work with quite a hot tip to carve the outline and texture. Additional texture is added with a micro-drill. The burnt, carved areas are then painted black with matt acrylic. Some of the more recent pieces have gold, silver and metal leaf applied.

Bigger work

'I have recently changed from a Harrison Graduate short bed to a Jet 3520. The versatility of the new lathe has encouraged me to work on a bigger scale and the Fylde Series pieces are becoming more sculptural. For next year I am working on sculptures for outside installation and it is particularly exciting to create pieces that will change as they weather over time.'

Changes

Sally said that this year she has seen huge changes in how she works and achieving a balance of all the skills needed to run a business is a huge challenge. 'I enjoy the solitude of working late at night and so



Corvus Aurum piece made from sycamore which has been bleached with pyrography detail in place



Now with refined pyrography detail and texture added for colouring



PHOTO BY SIMON BRUNTELL

Corvus Aurum completed



Corvus Nero 1,2 and 10

I use the mornings for paperwork, social media, marketing and household chores and the afternoons and evenings in the studio. It has taken a while, but now I am settled into my pretty diverse portfolio career – making in wood for galleries, exhibitions and shows, demonstrating my decorative techniques to clubs and acting as an international referee for sailing, a career that has taken me to six continents and provided me with a wealth of diverse creative inspiration.' One thing she has learned, she said, is that 'promotion is vital'. She added: 'I use social media to promote my work but not yet to generate sales. My website has proven to be my most useful marketing tool and means of attracting interest from galleries and collectors.'

Sailing

That comment about sailing caught my ear. This has not cropped up to my remembrance in any conversation before, so I enquired as to how long and what she has done. 'I am an international judge and umpire. I have been fortunate enough to travel to the last four Olympic games as a judge and umpire. I became a judge and umpire after competing internationally as a windsurfer.'

Balance

'I am lucky to have a small studio at home where I spend many hours turning and decorating but this has to be balanced

with time spent marketing, costing, promoting and preparing wood as well as time to experiment and research ideas. The Hothouse scheme has given me the tools to think about the direction of my creative career as well as the business and creative skills to run a successful and sustainable business.

'It is early days in this new career and there will be many challenges ahead, but I do not lack determination and, although I know that very few makers in wood survive entirely on their creative income, I intend to give it a go.

'Many of my pieces are extensively carved and textured and can take more than a week to complete. I usually have

several pieces on the go at one time.

Pieces can only be carved when they are dry so I need to plan my work carefully as, depending on wall thickness, a piece may take anything from a day to a couple of weeks to dry.

Favourite equipment?

'I suppose that I have two favourite pieces of equipment: my Axminster Precision chuck and a micro-drill from Woodart Products that I usually use for at least a couple of hours every day. The micro-drill is a few years old now but, with the many different burs that are available, it's still one of the most reliable and versatile tools that I have.'



Sally taking a well-earned rest from judging at the Rio Olympics



Folded form



Fylde Series 3 made in 2016

Likes & dislikes regarding turning

Likes

- Working with green wood
- The generosity of other turners – it is a wonderful global family
- Discovering, using and adapting a new technique
- Running decorative technique workshops for enthusiastic makers
- The first cut into a new tree, revealing the unexpected delights within

Dislikes

- Dust
- Nails that the metal detector missed

Final thoughts

Sally is one of those people who will do everything she can to excel in anything she undertakes, continually trying to improve and develop work with a passion that is contagious. Anyone who meets her cannot help but be affected by her smile and verve. I love it that she has a passion to improve and to be a success in her chosen field but is willing to share and help others. I asked her what her top tip was for turners. She commented: 'I encourage all new turners to have a lesson with a professional turner and to join a local club. You will improve so much more quickly and work safely.'

That very much echoes my thoughts as well. I will continue to look with interest for the beautiful work she produces and see how it develops and I am looking forward to seeing her at many more shows and events. ●



Fylde Series 8

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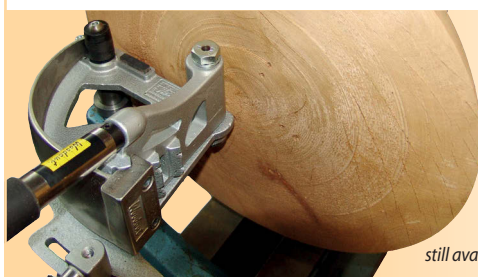
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Is there a need for face protection when turning?

Geoffrey Laycock takes a look at impact risk

In the first two episodes of our trip down Risky Road we have covered dust inhalation and other hazards, and impact injury is one more. It doesn't matter whether you are working with a prepared blank bought from a reputable source, your own sourced and seasoned timber or 'green' – the fact is that spinning it at several hundred or many more RPM can result in a problem. Hidden defects can exist in timber as shakes, splits, fungal decay etc. induce weakness that can be found with the turning tool or maybe even just centrifugal force as you crank up the lathe speed. Resulting flying pieces can go any direction, but those found with the chisel will mostly head in your direction.

You only have one pair of eyes and they are quite vulnerable, easily scratched or irritated, as we all know. Hit one with a piece of wood travelling at speed and the damage can be irreparable – an eye is, after all, only a semi-rigid, almost spherical container full of jelly.

In practical terms, eyes are not replaceable and, although we can adapt well to losing one eye, two is devastating. Having written that, there are non-sighted woodturners and I am in awe of their determination and skills. With my background in law enforcement I am reminded of a legal precedent set by a court case – relating to use of eye protection at work. Basically, it relates to a man called Paris who worked for Stepney Borough Council. He lost an eye during WW2, and in 1946 he became employed by SBC as a garage mechanic. He was using a hammer to remove a bolt from a vehicle suspension and a metal sliver flew off and hit him in his good eye, resulting in loss of all sight. Yes, lightning can strike twice and with catastrophic consequence. Why tell this story? Because it does help to think of worst-case scenarios sometimes. Eye protection is very important with any task that can involve flying fragments – even from hand tools, chemicals, fumes or gases, but logic should tell us it's even more important if you have potential for an even bigger consequence. If you have poor or non-existent sight in one eye take greater care.



PHOTOGRAPHS BY GEOFFREY LAYCOCK

Note the inset image. It is one of the lower-cost options for full-face protection with integral respiratory protection. Not only do face shields protect the eyes better than spectacles, they also protect the face and forehead. So, back to basics. Whatever you are turning, wear protection and I always

advise a full-face shield rather than specs. Simple logic – the flying object may not hit an eye but it can cause serious injury to any other part of your face/forehead. Why not reduce that possibility? And a face shield provides higher impact energy protection than any available safety glasses, which is what you need. ●



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Side-grain complex hollow forms

In the third part of this series, Andy Coates looks at forms with wide shoulders and the tools and techniques required to achieve them

In the first two articles of this series we looked at open forms and forms with a gentle shoulder to undercut. In this final section we will look at forms with an extreme shoulder.

The blank I used to produce the images is larger than I would recommend for those attempting an extreme-shouldered vessel for the first time, and was only used in order to allow for clear photographs to be taken. So alternatives based on smaller blanks are detailed in the diagrams.

The physical stresses on the body have already been mentioned, and these points are arguably more relevant here than previously. The nature of the extreme undercut is such that the stresses are magnified significantly, far greater control of the tool is required, and consequently more care and attention. These factors can result in hollowing sessions

being physically and mentally exhausting, so be prepared.

The hollow vessels detailed in the previous two articles have all used end-grain blanks; for this article I will introduce turning a cross-grain blank. There is little discernible difference between turning end and cross grain hollow vessels and all the techniques from the previous two articles are applicable here but, because the grain orientation is different, you have to cut from widest to smallest on the inside rather than smallest to widest as used on end grain items. The only other notable difference relates to turning forms from wet wood. As the wood dries on a wet-turned cross-grain form the opening is likely to distort far more than that of an end-grain form, so if a lid or stopper is desired the form should be part turned, dried and then finish turned once the wood has dried.

Tools and wood selection

The tools used for forms with a dramatic shoulder are essentially the same as for the forms discussed in the previous articles, with the exception of the extremely cranked, articulated, or multi-link tools. Straight tools cannot reach around to remove wood from the undercut, and here a cranked, bent, articulated or multi-link tool is essential.

There are a number of reasons you might wish to turn a hollow vessel from a piece of cross-grain wood:

- To have end-grain 'eyes' or 'bosses' on the finished piece
- To take advantage of the different grain pattern
- To display medullary rays in appropriate species
- To display other features usually only apparent on end grain
- To provide a larger diameter blank than you have available as an end-grain log

Whatever your rationale, a cross-grain form will result in a very different-looking piece to that of a similar sized end-grain form. With an end-grain form the grain runs up the finished piece, except for any area of shoulder you have created, and the end grain is, usually, only visible on the base of the piece.

With a cross-grain form the grain is running across the piece and the end grain is visible on two sides. This can result in some stunning features, and where the grain is attractive, or there is some other feature you wish to accentuate, this style serves you well.

The log I chose to cut the blank from was of sycamore (*Acer spp*) and the tree had been felled due to disease. This resulted in significant discolouration around the heart of the tree, but did not extend more than a couple of inches out from the pith. By cutting the blank (see diagram 1) in the manner I did, I would be able to display the dramatic colour. While this may seem wasteful, it does make best use of the features available.

Give some thought to the orientation of the blank. Is there a more appealing side which would be better as the top face? Also check for faults in the wood, as hollowing puts considerable stress on the blank and a fault could be worsened by the process. If in doubt, discard the blank for hollowing.

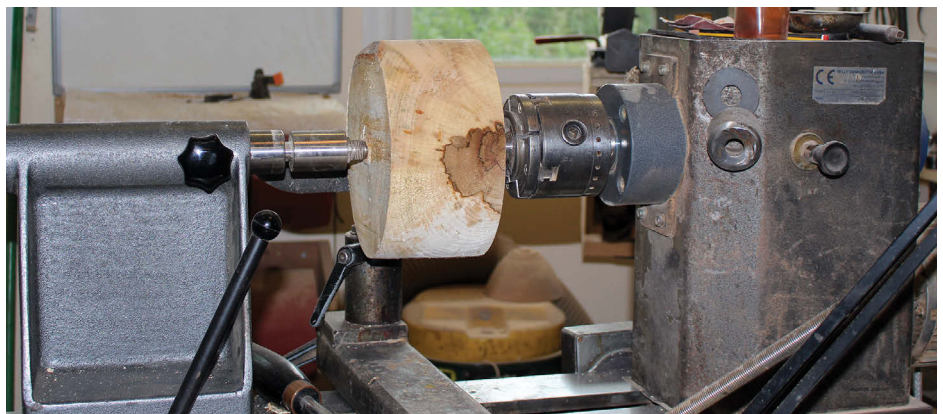
Mount the blank between centres with the top facing the headstock and the base at the revolving centre in the tailstock. Mounting between centres allows for adjustment of the blank during roughing out, which can be useful if faults are uncovered at the early stages.



Simple straight, bent and cranked tools used for the initial hollowing out and if their shape allows some undercutting too



Shielded, cranked and multi-link tools can, depending on their design, be used for initial hollowing and for cutting under the shoulder of the hollow form



Cross-grain blank mounted between centres ready for turning

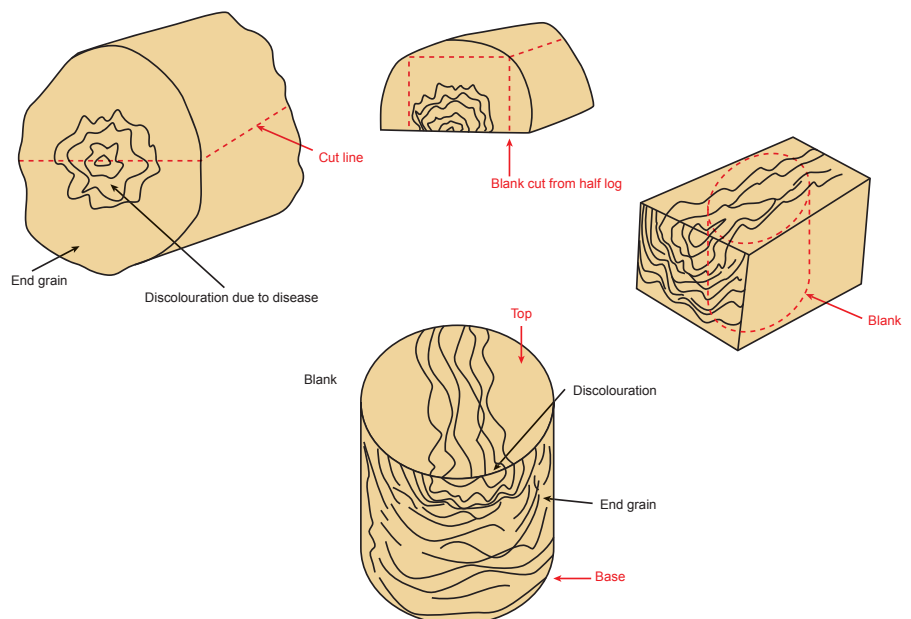


Diagram 1. How to create the blank for this project

Starting the process

The shaping process is no different from any other form you might turn. With the blank securely mounted between centres and the quill locked off, begin shaping with a bowl gouge with a fingernail grind. If the blank is relatively true there is little point in roughing down to a cylinder, as the blank will true very quickly during initial shaping.

For this form we want a dramatic wide/ undercut shoulder, so keep this in mind when initially forming the lower shape. Rough the lower shape first, working towards producing a large 95mm by 15mm tenon for the gripper jaws. Not only does this provide a more secure hold, but the large tenon may also serve to provide the material for final shaping of the form later. In the meantime, it provides much-needed support during the hollowing process.

Remount the blank in the gripper jaws and proceed to bore out the central core (see *Woodturning 306, Part 1*) to depth. Diagram 2 shows the rough shape of what is required and the central bore hole. Ensure lathe speed is low, and withdraw cutter frequently to remove the wood swarf.

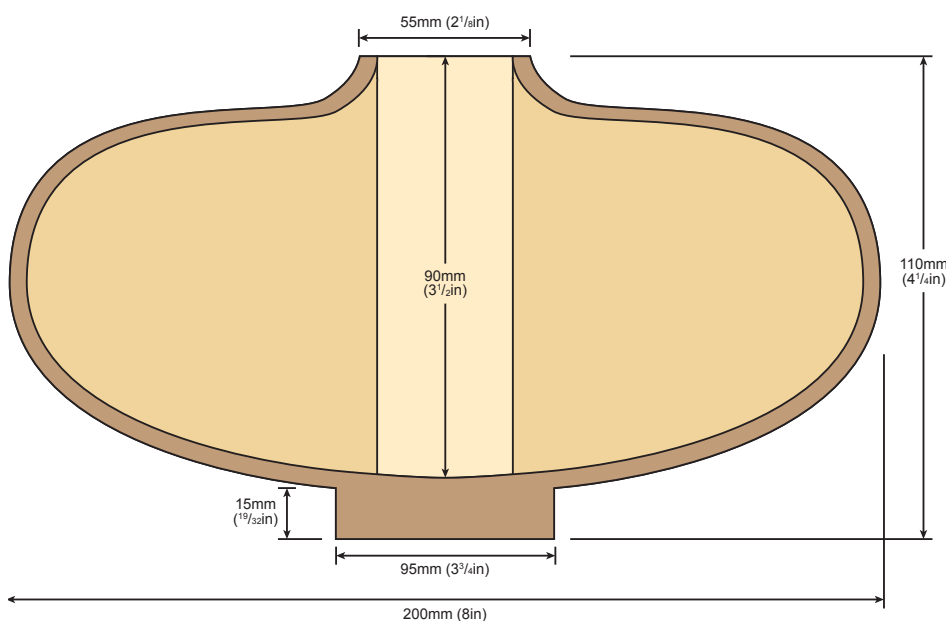
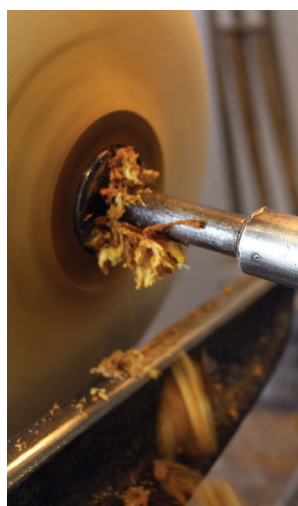


Diagram 2. The initial shape of the vessel and the central bore



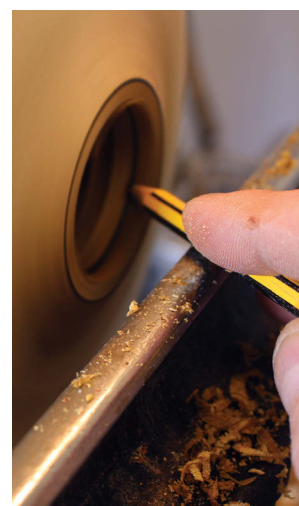
Truing the rim top



Boring out the central section



Creating the rim thickness



Marking wall thickness at inner lip

Hollowing process

In time you will arrive at a process that suits you and the way you work, but when first starting out it can be useful to have a process in mind to aid the removal of material inside the form. The basic process is quite simple: remove material from the more central area to make room for the tool to work up to the wall. By adopting a regular process the whole exercise becomes easier to cope with as each step is defined and purposeful. Diagram 3 provides one possible series of steps you might reasonably follow.

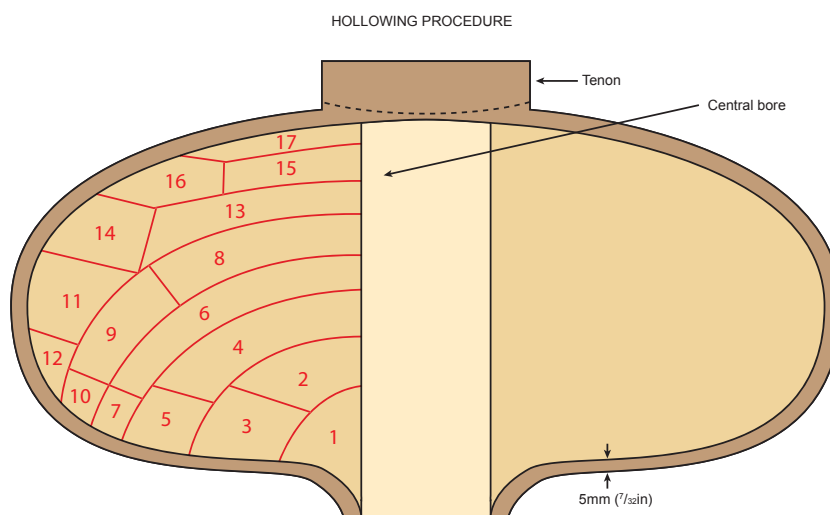


Diagram 3. A simple-to-follow hollowing process

Beginning to hollow

After boring out the central core you can begin hollowing. Diagram 4 shows the effective working areas for the three most common types of hollowing tool you are likely to use. The initial cuts are to remove wood to create an opening for the tools to work in. Cut off the shoulder created by the Forstner bit and swing the cut left towards the inner lip. Once you have room

to work a tool with a set angled tip, or an appropriately adjusted articulated tool can be used to work from the mark you made earlier at the inner lip. This sets the wall thickness right from the start, and all subsequent hollowing should follow this thickness. The bent or articulated tool should be able to work around the shoulder, but firm tool control is a must. To reduce the torque at the tip of the tool

the handle can be rotated left to allow a trailing cut.

The remainder of the hollowing process will require a combination of straight, angled or adjusted articulated tools in order to progress. A severely angled tool would be prone to catching deeper into the vessel, and at this point either adjust the articulated cutter to a straighter form, or revert to a fixed, straight-tipped tool.

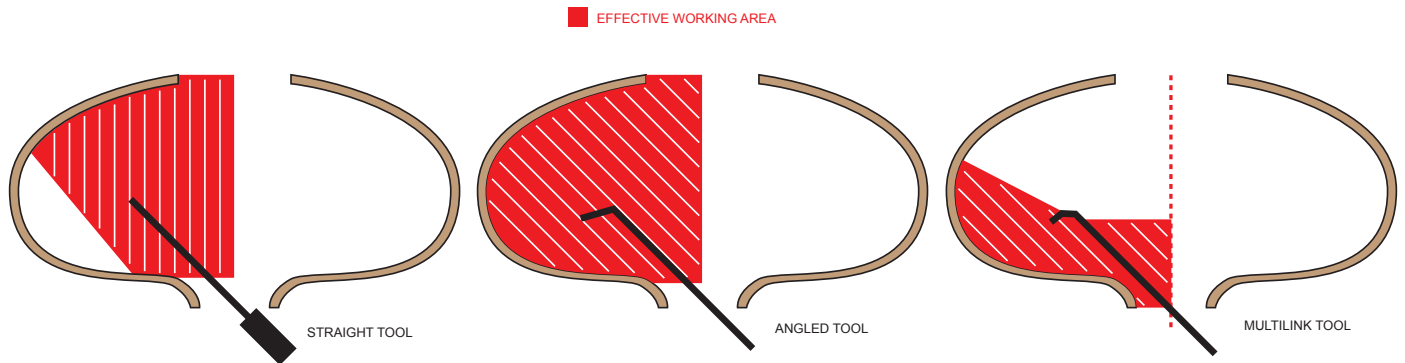
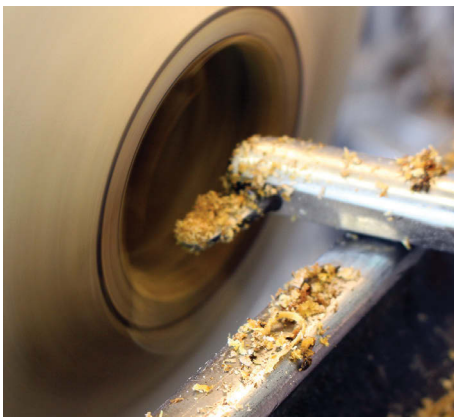
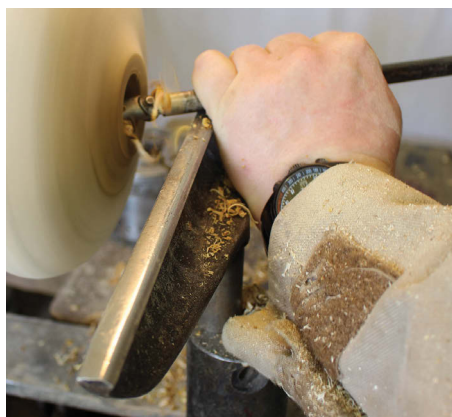


Diagram 4. Effective working areas with the three most common types of hollowing tool



Angled tip tool to reach under the shoulder



Articulated shielded cutter used on the shoulder



Bent hollower on a smaller form

Techniques for reducing stresses

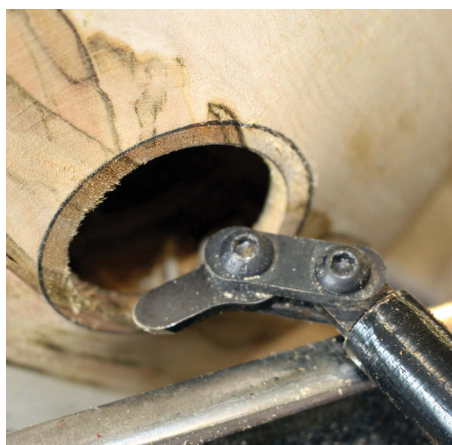
Having access to appropriate tools is a must for forms such as this. The severe shoulder could not be worked through a narrow access hole with a simple straight tool. Articulated tools give far better versatility, but bent or angled tools offer a reasonable, and often cheaper, alternative that works.

If your lathe has the facility to adjust the position of the headstock this can be an enormous boon. Placing the headstock at 45° to the bed enables you to stand directly in front of the workpiece, which will dramatically reduce the physical stresses to your body. The improved stance also allows clear sight of where the tool is positioned inside the vessel. This can improve safety considerably.

One of the major issues with deep hollowing is tool overhang. The further over the rest that the tool tip is working the more stress and torque is exerted on the tool, resulting in physical exhaustion

and loss of control of the tool. One method of reducing the overhang, and consequently the stress, is to take advantage of specialist tool rests. A round-bar curved rest can be angled into the form, which reduces the overhang

here by about 25mm. One consideration here is the potential for the shavings to bind against the internal portion of the rest, but frequent stopping and vacuuming out of the shavings removes any potential problem.



Articulated scraper can also be used



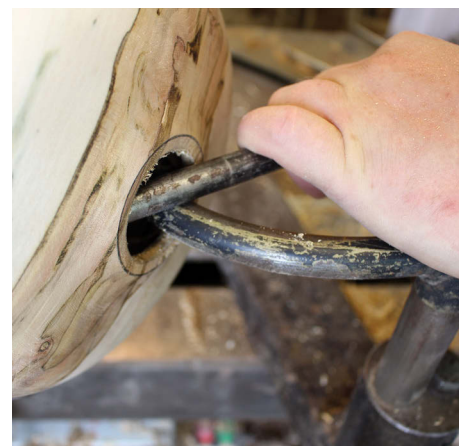
Articulated ring cutters also work



Headstock at 45° to bed for easier access



Angled entry to reach the outer section



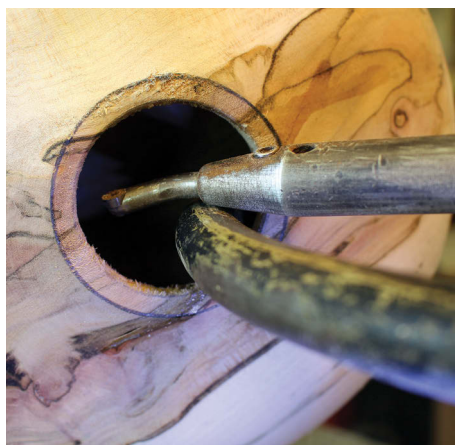
Curved tool rest inside form for better tool support

Finishing the form

Once the shoulder has been cut, clean the surface to a finished state. You can use a small teardrop scraper at a shear angle to achieve this, but a small carbide tool can be used to great effect as the cutting point is so small. A curved version allows access to the shoulder and will result in a very clean surface if used at a trailing, shear angle, taking very light passes.

Once you have finished the main portion of the hollowing you have only the base to hollow. As this requires the greatest overhang for the tool, you need to take every precaution against a catch. Close control of the tool is a must, and if you have a straight tool with a very small tip, be it a scraper type or carbide-tipped tool, this will help to reduce the torque on the tip of the tool. Blend the curves between the wall and the base.

The same tool can be used in place of a scraper to clean up the last section of interior wall. Address the wood with the cutter at a shear angle and take light,

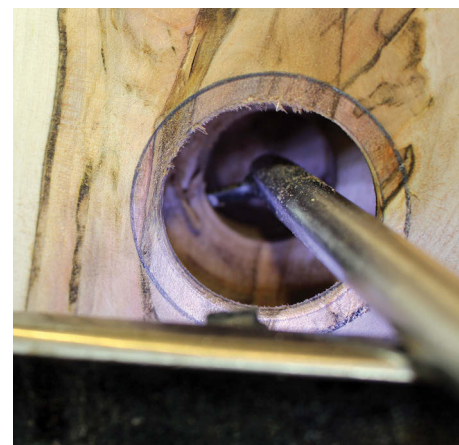


Cleaning the undercut surface

controlled cuts to a good finish.

If you wish to abrade the interior a simple abrasive tool can be made by wrapping some foam around a wooden dowel and taping abrasive to it. Take care while abrading and remember to vacuum the dust away as you go.

Completing the form is best achieved

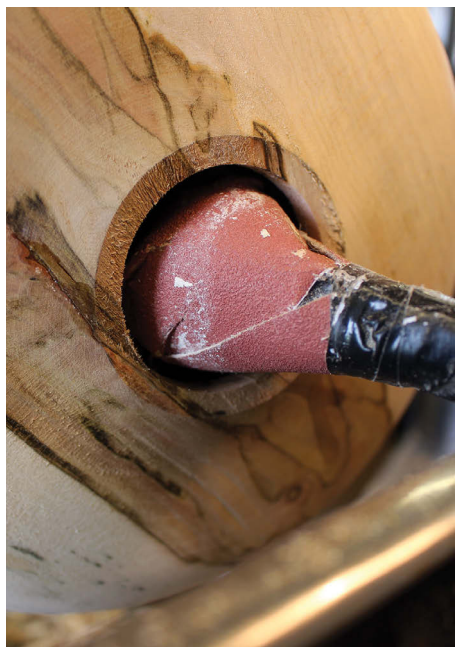


Finishing the internal base

by reverse-turning the base (see *issue 307*), but you could also carefully part off, finishing by cutting the stub with a pull saw and hand-finishing the base with abrasive.



Delicate finishing and refining cuts



Abrading the internal cavity

Considerations

- If using scraper-type tool tips keep them honed for the best possible cuts with reduced resistance to the cut. Using a blunt tool is more likely to result in a catch.
- If using wet wood and it is not possible to complete the form in one session, wrap the form in a plastic bag filled with damp shavings until the next session. This will almost certainly reduce the amount of warping and make the second session less stressful.
- If you notice faults in the wood during the turning or hollowing process you must either attend to them with glue, or reject the piece. As you hollow the form you remove all the supportive wood and losing a piece to a blow-out when a fracture leads to the tool tip vibrating is not uncommon.
- Take your time. Deep hollowing should not be rushed. A rushed hollow form is usually the one on the firewood pile.
- Take regular breaks if hollowing for a prolonged period. Back and upper body stresses are considerable, and this should be fun, not painful and damaging. ●

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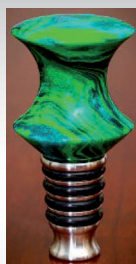
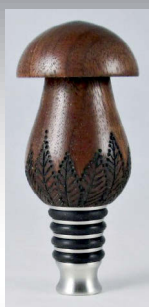
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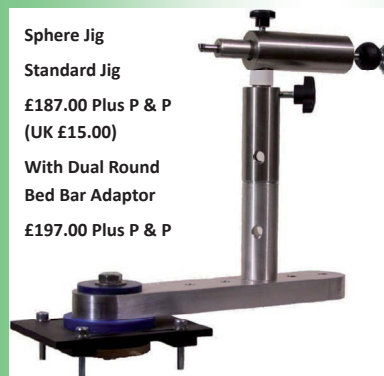
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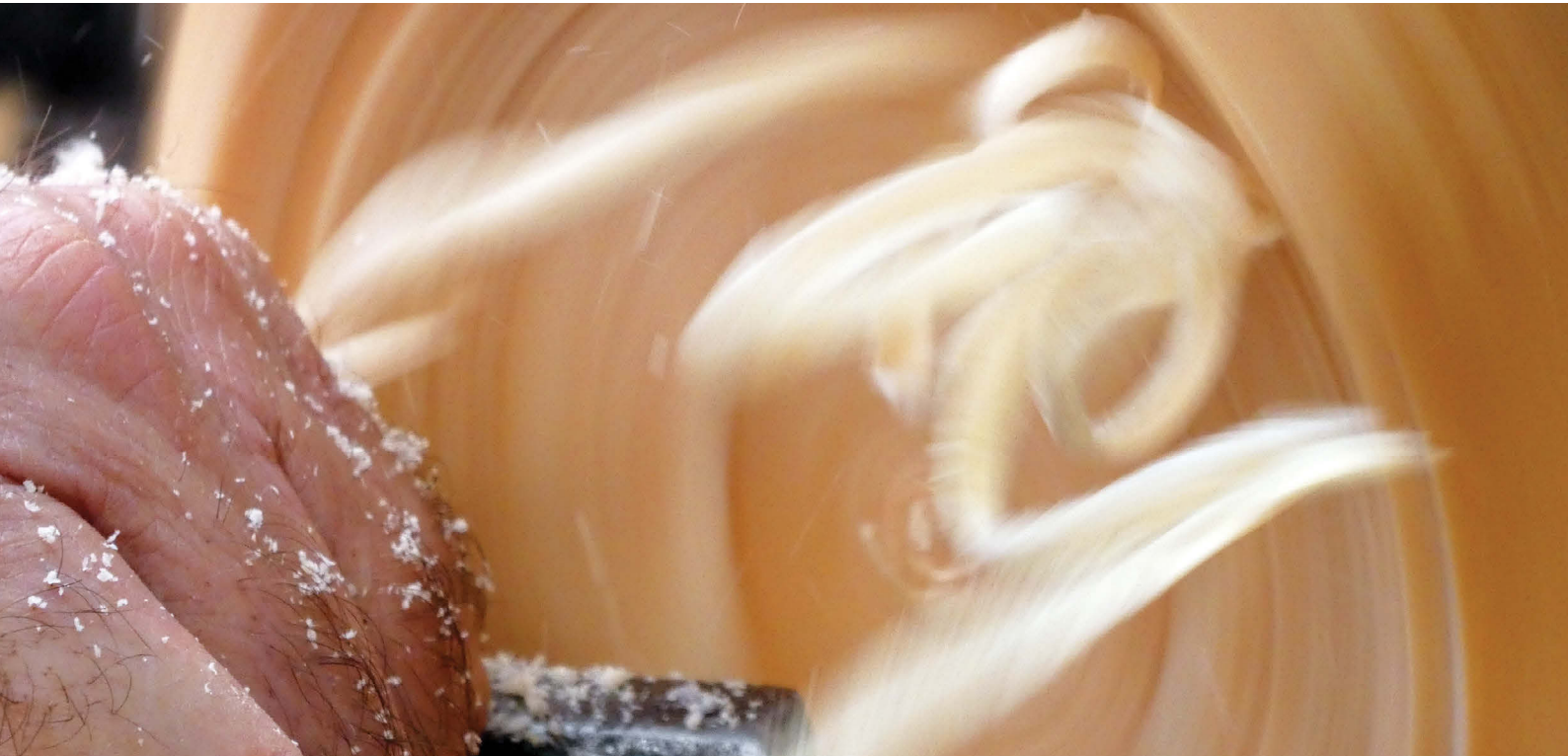
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It's my turn...

In the first part of a new series based on musings around becoming a 'lifestyle woodturner', John Plater looks at ways into the craft



Many people 'of a certain age' probably saw and maybe experienced woodturning in their woodwork lessons at school. Others may have seen a lathe during time at art college.

A lot of schools and colleges do not now have a woodwork room, let alone a lathe. So, what are the ways into woodturning?

I remember watching, transfixed, a woodturner at a country show until my parents dragged me away. Did this sow a seed? An acquaintance of mine has gone on to achieve a national reputation for woodturning in a few short years after having been inspired by a demonstration at a local industrial museum and heritage centre. Others I have met inherited the equipment and felt the need to learn how to use it. Many woodturning clubs offer hands-on days for local scout and guide groups.

Wherever the initial spark came from, perhaps the most direct way into the craft is through formal lessons. Many professional woodturners offer tuition at a number of levels, from half-day taster sessions to a more complex set of lessons for a person looking to progress their woodturning skills from whatever position they have reached. This approach is very effective for learning our craft in a safe and purpose-provided environment.

I was one of the people who did woodwork lessons at school and was doubly fortunate to have had two inspirational woodwork teachers.

Since then I have taught myself woodturning by:

- Reading books, magazines, watching DVDs and checking online
- Trying things out at the machine and making lots of mistakes
- Watching demonstrations live and then trying things out at the machine
- Attending local and national clubs to meet like-minded people and see demonstrations

Woodturning continues to be well served in print with a plethora of texts, of which this magazine is one. They are very accessible through plain text and lots of illustrations to help the person who needs the step-by-step approach. The problem is that words and pictures are static representations of a dynamic process.

A DVD produced by a woodturner of known reputation is a dynamic presentation of the process which makes it more real. One can also find this in online clips from both professionals and amateurs, but sometimes these lack the

clarity and accuracy of the DVD and, in some cases, online items are downright dangerous, so it is hard to know what is good or bad.

My own learning curve was at its steepest when I went into the shed and tried things out. The pressure to 'get it right' was eased after I bought a tree. Buying an individual blank from a supplier possibly created a need to produce a piece of some worth to justify its price. Having lots of timber for next-to-no price removed this need.

A live demonstration is a wonderful way of learning new techniques and developing ideas. Some of my best ones have been from fellow club members when the club's event rota has been filled with member demonstrations. It is very easy to get wrapped up in the 'how to do it' elements of woodturning. Many of the nuances one might perceive in a live demonstration will also answer some of those 'why it is done?' or 'what is done?' questions.

To finish I will paraphrase an old saying: Those who can woodturn do, those who can't teach and those who can't teach write about it.

I leave you to ponder and make up your own mind. ●

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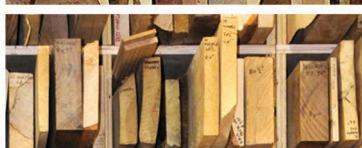


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Powerful Powermatic

Mark Baker tries out the Powermatic 3520B lathe



Getting the chance to check out new lathes is always fun and I recently had the opportunity to look at one of the Powermatic lathes that Axminster Tools & Machinery have started selling.

The lathe colour is best described as mustard. That's how I view it anyway and I quite like it. This is the livery colour for all Powermatic machines. The company's motto is: 'The gold standard since 1921.' This is a clever play on words as it means they should be well built and it can also refer to the colour.

I have been aware of the brand for many years and have used one of its bandsaws and a lathe at times when overseas and I have encountered some of its other machinery in workshops.

My initial impression of this lathe, which I have not used before, was that it is a solid, sturdy-looking lathe built to the

high standard. The castings are heavy, well fettled and machined and the lathe comes in at a weight of 326kg.

Headstock

The headstock is a solid rectangular-looking mass. There are two pulleys in the headstock, accessed by pulling down a cover plate on the front, which accept a 10-groove poly-V belt. The 2hp motor is aligned at the back-end of the headstock and can be lifted and lowered with the aid of the well-placed and easy-to-handle lever to facilitate belt changes.

The speed ranges on the two belts are 50-1,200/125-3,200 rpm. This means you have a wide variety of speeds to tackle various types of work, but by having two pulleys you can alter the amount of torque as well. The lower speed ranges are designed to enable you to tackle

larger work where you need the power, or as I once heard someone say, the 'grunt', to shape large work and/or out-of-balance work at sensible speeds. High speeds on this type of work would be positively dangerous.

The lathe has electronic variable speed and there is a digital spindle revolution counter. The spindle is 33 x 3.5tpi, is through bored with a 13.5mm hole and the front end has a 2MT taper for the fitting of accessories. The spindle also has a two-position spindle lock and a 24 and 36-position indexing facility.

There is a variable speed control unit that has an easy-to-access on/off switch and speed dial and a moveable magnetic emergency stop button.

The headstock can be slid along the tailstock to any position you choose. You can slide it along the lathe bed to the

very end, remove the tailstock and have a floor-standing rest for larger work if you require.

The outboard wheel is a nice size to grip and has a threaded internal section on the end of the spindle to allow the fitting of a vacuum chuck.

On the back of the headstock you can fit a bracket/comparator arm that forms one of the two used to create a between-centre spindle-holding method for a guide when copy turning. When this aspect is not required, you can fit a safety guard which can be flipped up out of the way when not required or lowered over work to provide protection when turning.

Tailstock & toolrest

These are both well built and solid in feel and weight. The tool rest is easy to move and clamp via a lever camlock. The locking and release arm is a nice size and there is an adjustable metal side handle to lock the toolrest-post position. There are two hole positions for this locking handle.

The tailstock sports a flip down panel so you can store accessories in the main housing. It has a sturdy looking adjustable quill locking lever and a nice bar to lock/release the clamping system on tailstock so you can move it along the lathe bed. On the rear side of the tailstock housing can be fitted the other comparator arm. The front to the tailstock quill has a 2MT taper. The quill also sports a 9.5mm bore for use when drilling table lamps and other such projects.

The accessories supplied with the lathe are a 350mm toolrest, 75mm faceplate, live centre with a removable front pointed cone to create a ring centre, drive spur and knockout bar and tool caddy. The tool caddy can be attached at the end of the headstock or tailstock. There are also two dead centres for use in the comparator arms/brackets.

Lathe bed and stand

The machining on the lathe bed is clean and accurate and the bed castings have webbing underneath to provide extra strength and stability. The legs are sturdy and sport adjustable feet on the stand to help level the lathe if the floor is uneven. The headstock and tailstock slide along the bed with ease and can easily be adjusted to a new position.

In use

Using the lathe for both faceplate and spindle work I found the lathe speed to be smooth and easy to adjust and noticed that this was a quiet lathe noise-wise. This seems to be becoming one of the norms now with lathes.

They are definitely becoming quieter.

I turned a large section of faceplate work on the lower speed range and encountered no power fade at all with any of the cuts I made, including the purposefully obtuse rough-shaping ones.

As normal I used the tailstock for support whenever possible and this was possible with the guard in place too. The choice of using the guard is, of course, up to you, but it is an extra protection aspect that I value greatly. I tried the lathe with it in protective mode and also flipped back and didn't find it intrusive when in use on the work I tried.

I used the higher speed range pulley arrangement for spindle turning and again everything was smooth and easy to use without problem.

I found the whole unit very stable in use with minimal vibration even on the out-of-balance

work. I also found the toolrest assembly and tailstock stayed put when they were under pressure.

The lathe is solidly built and its capacity and size means it is capable of a wide variety of work and I encountered no problems in using it.

The price of £2999.96 is what I would expect to see for a lathe of this power, size and capability. This lathe is built to a high standard and is well worth considering if you are exploring a lathe within the larger capacity lathe sector.



The lathe showing all of the accessories and fitments in place and ready to use.

PHOTOGRAPH COURTESY OF ADMINISTER TOOLS & MACHINERY



The webbing on the underside of the lathe bed



Turning a spindle with the guard in place



View of the end of the headstock. Note the threaded internal bore of the end of the spindle. This will accept vacuum-chuck attachments



Technical Specs

- Five-year warranty
- Heavy cast iron construction (326kg)
- Index lock, offers 24 and 36 positions
- Supplied with comparator centres for copy actions
- Supplied with flip-over cage for extra safety when turning.
- Spindle bore: 15.8mm
- Tailstock bore: 9.5mm
- Quill travel: 115mm
- Distance between centres: 800mm
- Max diameter over bed: 500mm
- Overall L x W x H: 1473 x 685 x 1370mm
- Rating: industrial
- Speed range: 50-1,200/125-3,200rpm
- Spindle thread: M33x3.5mm
- Toolrest stem diameter: 25.4mm (1in)
- Headstock spindle and tailstock taper: 2MT
- Centerline of spindle to floor: 1120mm
- Overall (L x W x H) 1420 x 690 x 1470mm
- Footprint (L x W) 1270 x 610mm
- Price: £2999.96

For further information contact:
Axminster Tools & Machinery
www.axminster.co.uk

CuBoroN

With the release of the new R-series CBN wheels from The ToolPost, sharpening for woodturners enters a new phase. Produced to the same high standards as our renowned series of face and rim-coated CBN grinding wheels, the R-series brings the brilliance of CBN sharpening within the reach of most turners. By eliminating the CBN coating on the little-used face of the wheel we have been able to substantially reduce the price. Of course, we still keep face and rim-coated wheels for those who prefer this format of wheel, but now we offer a choice. Not just a choice of wheel styles, but a choice of wheel diameters, sizes. All of which seemed to warrant a new name: CuboroN, superior CBN wheels from The ToolPost.



Perfect Partners

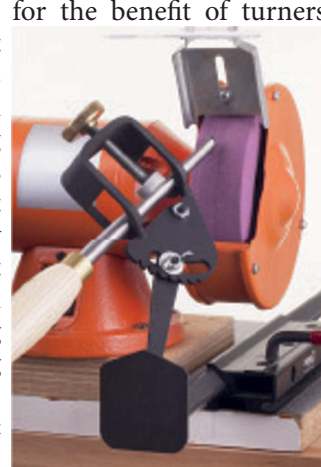
If you're going to take full benefit from having the best CBN wheels available, then it makes perfect sense to pair them up with the best sharpening jig too. For very good reason, many folk get more than a little anxious when it comes to sharpening their turning tools. They have seen experts and heard them extolling their own ability to sharpen "freehand" and are frequently 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 necessary 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 satisfies 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.



The ToolPost

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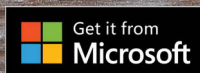
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Useful workshop tools

Colwin Way shows how to make a bradawl, marking gauge and a mallet

So far the projects I have shown how to make have been based on ornaments or practical objects for the home or as gifts. This month I think it's time to give something back to the workshop and make some of the most useful tools for us to use in our upcoming woodworking creations. I'm choosing the common marking out tools I use most of all in the workshop, outside of actual turning tools, of course.

The bradawl, marking gauge and mallet are used together to centre, mark up and tap home our centres prior to turning. They tend to stay on my workbench permanently as they're used so often.

I'm using a selection of timbers for these tools, some to look good but some because of their working characteristics. I will also be using some workshop bits and bobs to complete the tools and

make them look the real deal. You can, of course, take these tools and expand on the idea for all manner of gadgetry in the workshop and completely customise your toolkit. What better gift to the turner who has bought every tool in the tool shop than a handmade heirloom tool?

OK, so we're going to make these tools in order of difficulty and start with the bradawl. The bradawl is used to mark a small hole in the centre of the workpiece before tapping in your centre prior to mounting on the lathe. You can use the process we're about to use to re-handle your turning tools and customise them to the timber you like, or buy unhandled tools for this reason and handle them yourselves.



Top tips

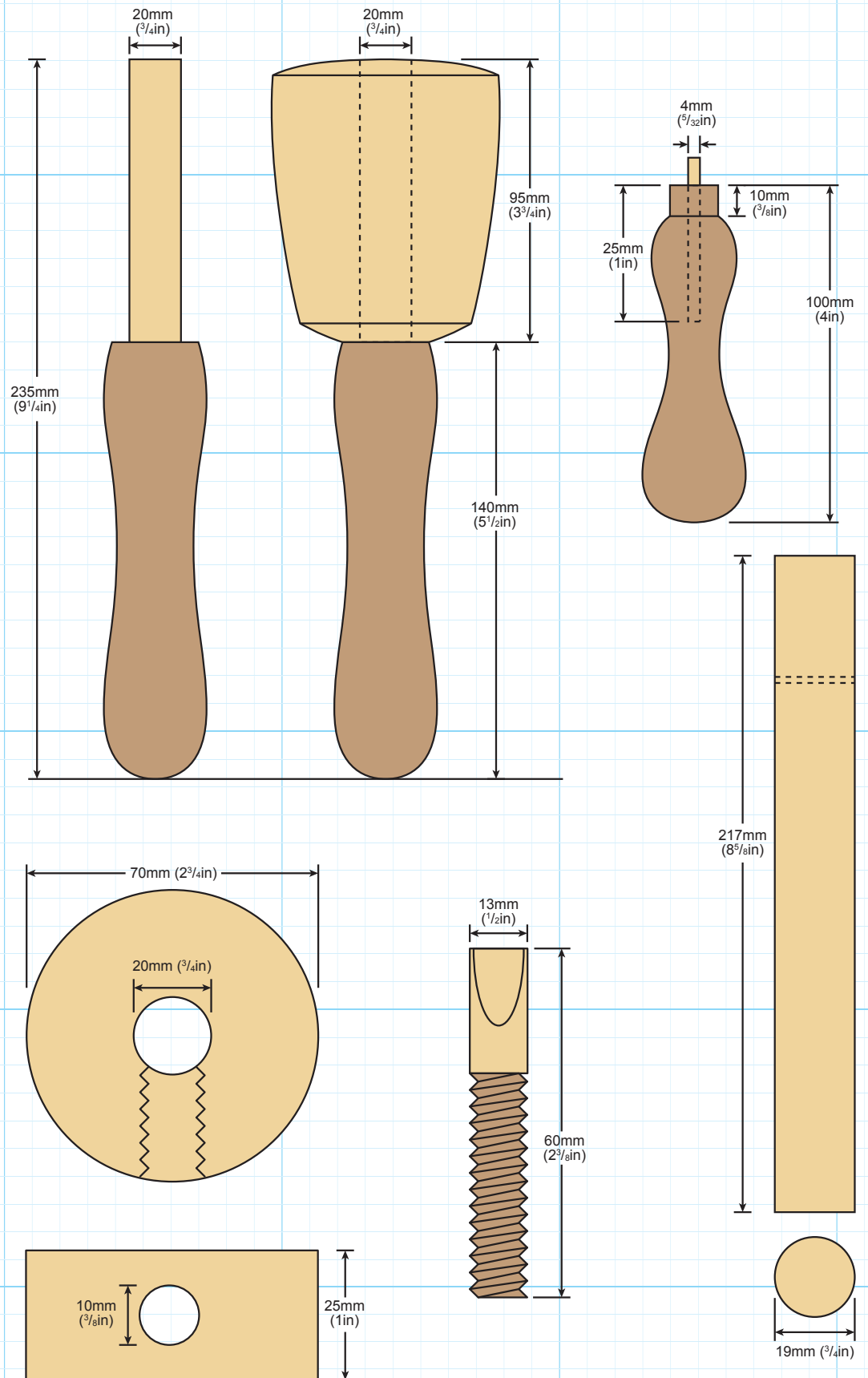
- Soak in oil – if you're finding thread cutting difficult and continual breakout occurring, try soaking your timber in finishing oil for 24 hours to soften the fibres.
- Chuck as a vice – holding nails and pipe to be cut can be hazardous. However, using your chuck frees up your hands and keeps

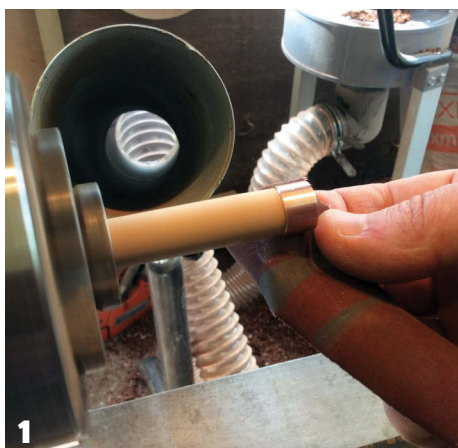
them out of harm's way, allowing you to lock the spindle and hacksawing with ease.

- Sand with water – *Lignum vitae* or any oily timber can be very difficult to sand as the oil continually clogs up your abrasive, but if you keep the project wet while sanding no slurry can build up or cracks appear, leaving you to sand with a fine abrasive with ease.

TOOLS AND MATERIALS

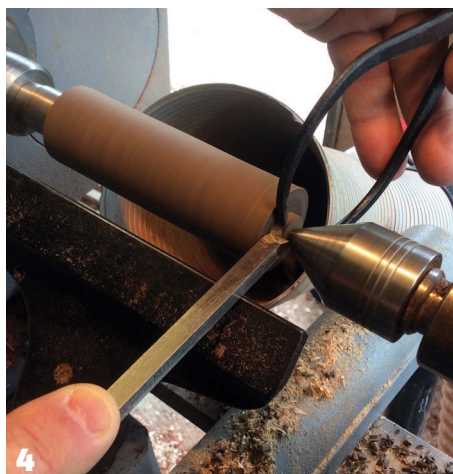
- PPE & RPE (personal and respiratory protective equipment)
- Skew chisel
- Parting tool
- Bowl gouge
- Spindle gouge
- Spindle roughing gouge
- External callipers/dividers
- Four-jaw chuck
- Drive spur
- Friction drive
- Pointed revolving centre
- 20mm Forstner bit
- 10mm drill bit
- 4mm drill bit
- Drill chuck to fit in lathe
- 13mm wood thread kit
- 15mm copper pipe offcut
- 2mm x 30mm nail
- 4mm x 90mm nail
- Finishing oil
- Acrylic lacquer
- Adhesive
- Sanding disc
- Timber of your choice to suit project drawings





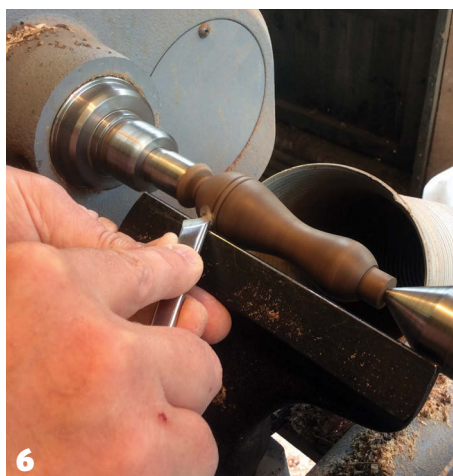
The bradawl

1 To start the bradawl you need to create a ferrule and the point. For the ferrule you can use offcuts of 15mm copper or you can buy one ready made. If you are making your own, cut off a 10mm long piece. There will be a ragged edge so cleaning up is an important step – and if you're doing one you may as well cut off a few more and make some for future use. Put on your PPE & RPE, mount a scrap of wood in your chuck and rough down to a size that makes a snug fit inside the piece of copper. Slide your soon-to-be ferrule on to the wood. Once secure, sand it down until you have a tidy and shiny ferrule.



2 Now make a point using a 90mm x 4mm nail. Carefully grind the nail to a clean point. You can do this by holding the nail in a cordless drill and rotating it over abrasive – a disc held in the chuck works well. Alternatively, use a bench grinder or belt sander. Be mindful that there can be sparks so be careful to clear away sources of ignition such as fuels or wire wool before you start. When you're happy with the finish, cut the nail to length.

3 Now it's time to tackle the handle. I'm using a piece of ebony (*Diospyros* spp) for this. Start by drilling a hole for the point at 4mm diameter and a depth of 25mm. Use your chuck or a drill chuck to hold the drill bit while you use the tailstock to push the blank on to the bit. Since this is a very small hole and not deep I am using a very low lather speed. Bring up the toolrest to sit under and along a corner of the wood to prevent the wood spinning if the bit jams. As always, make sure you extract the bit regularly to prevent jamming. Using this method of drilling gives perfect central location markings for turning between centres later on.



4 Hold the blank between centres with a single pointed tailstock centre resting in the hole you've just drilled. Now start the tenon for the ferrule with a set of callipers and a parting tool.

5 When the tenon fits both the diameter and length of your ferrule, start your shaping, I've gone for a classic, easy-to-hold bradawl shape, using the skew chisel to give me a nice clean finish before sanding.



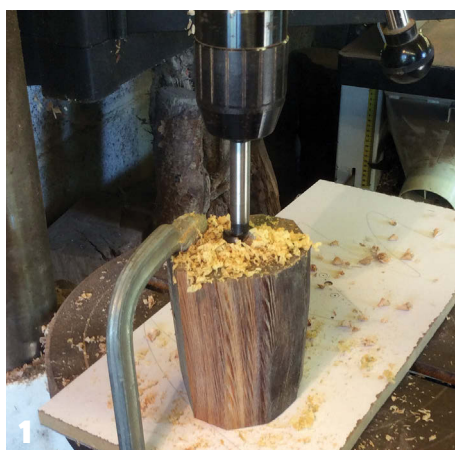
6 Now it's time to add a little decoration in the way of a couple of V cuts, simply added with the skew laid down on its side to scrape the lines in. Add as much decoration as you want to, but remember it needs to be comfortable in the hand so don't go crazy.

7 When you're happy with the handle shape and the ferrule fits snug you can sand before applying your finish – I've chose acrylic lacquer. The first coat will need to be very lightly sanded back before a second coat. Usually three coats will be enough.

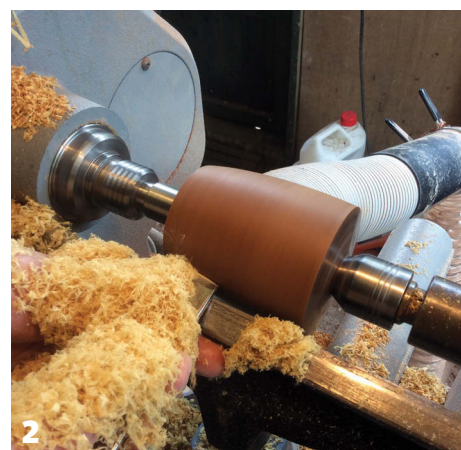
8 There we are – the finished bradawl and a really nice piece. The point is glued in using epoxy resin that is left slightly proud to give a neat finish.

◀ The mallet

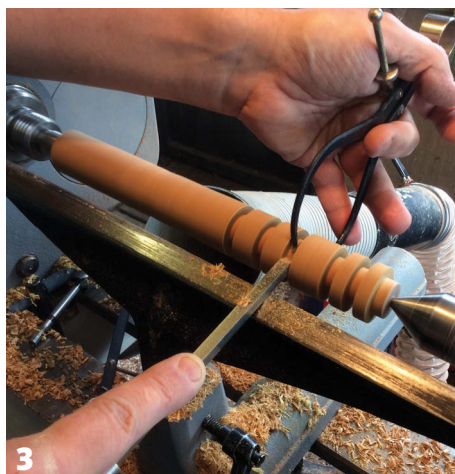
1 I'm making my mallet in two pieces, but to simplify the project you could make it out of one piece. For the head I'm using a piece of old lignum vitae (*Guaiaacum officinale*). A good source is old bowling balls. This timber is incredibly hard and heavy and ideal for a mallet head. The handle is a piece of mango (*Mangifera indica*). All will be held together with an ebony wedge. Start by drilling a 20mm hole all the way through the blank to accept the handle shaft later. A pillar drill is ideal for this but, since you are drilling quite a long way, you will need to clamp the blank when drilling such a large hole. Remember to extract the cutter regularly to remove waste and so minimise the risk of jamming.



2 Hold the blank between centres between a friction drive (either bought, or homemade out of waste wood) held in the headstock, and have a pointed revolving centre in the tailstock. This ensures that the blank is always centred around the hole. Lignum contains a large amount of oil, and even using a gouge often creates chips rather than shavings. That said, scraping can produce wonderful ribbons of shavings, but usually very fine dust is produced. Use a gouge to rough shape and then use a skew chisel in scrape mode to refine the shape. Tidy up the ends as well.



3 I'm using mango for this handle but ash (*Fraxinus* spp) or similar resilient timbers can be used. Mango is an easy-to-turn timber and will stand up well against rough treatment. Mount the wood between centres and size the tenon. Use a parting tool and callipers set to the drill size used earlier to check the measurements as you go.



4 After sizing the tenon, shape the main shaft to the shape you need but don't make it too thin. It needs to be comfortable in the hand so stop the lathe regularly and check for comfort. Once shaped, sand and then remove the wood from the lathe. Then sand off the waste at the end of the handle.



5 To ensure the handle stays put, glue and wedge it in place. Here I've cut a slot on the handle tenon, about half its length, and into that you eventually drive the wedge. The wedge matches the diameter of the handle tenon, 20mm.



6 Now apply glue to the tenon, insert the mallet head on to the tenon and orientate the grain of the mallet head so that the wedge runs across the grain of the head, not along it so as not to split it. Once aligned, gently tap in the ebony wedge until everything is firm.

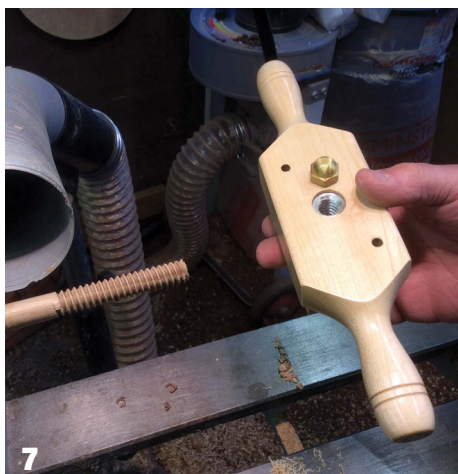
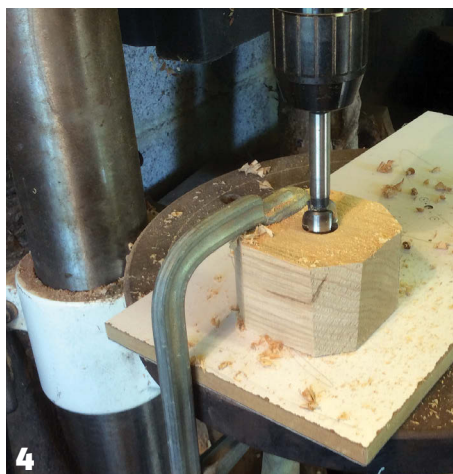


7 When the glue has set cut the waste away before sanding to a clean finish. You can see the wedge is running across the grain of the head.



8 Here's the finished mallet with a coat of finishing oil applied to it. I've chosen oil simply because lignum vitae is so oily some finishes struggle to adhere to its surface. Wax would work brilliantly too, some just burnish the wood and leave it.





The marking gauge

1 Start by making the handle. I used oak (*Quercus* spp) for this project. Using the same technique as used to create the tenon on the mallet handle, create the main shaft of the gauge. The diameter of the handle will eventually be 19mm, slightly smaller than the hole we will later drill in the gauge head, as they will have to easily pass through each other.

2 Once sized, make a small cleaning cut with the skew to allow a nice sliding fit through the head of the gauge. Now trim the ends with the skew and sand all over down to 400 grit.

3 After sanding, clean off the waste wood left by the centres with a disc sander. Drill a small hole at one end of the handle to take the scratch pin, this is positioned 30mm down from one end. For safety and accuracy use a V block when drilling any circular section. I'm using a nail to create the gauge spur. A small 30mm x 2mm nail with its head ground off is tapped into the hole in the handle to give you the scratching spur.

4 Now start working on the gauge head. Oak is also used for this. Drill out the main handle hole to a diameter of 20mm. Use a vice if needed and, as it's side grain you are drilling into, use a Forstner bit to drill with.

5 To drive the gauge head, use a between-centre friction drive method in the holes you've just drilled. Turn the head down to your desired diameter before cleaning up both faces with a side scrape from a parting tool, then sand it.

6 Now cut an internal/female thread in the head you have made to accept a threaded lock screw. The threads need to be big and coarse and I've found the easiest way to do this is by using a bought 13mm wood thread cutting kit comprising a tap and die. These are easy to use and, in readiness to tap the hole, you need to drill a 10mm hole.

7 For the lock screw, hold a 20mm square length of timber in your chuck and turn it down until it small enough to start threading through the screw box – this is usually about 13mm. I used oak to match the shaft but this can be brittle and the crowns of the thread can chip if you're not careful. When cutting the thread the wood should be easy to pass through the hole as it is threaded. If you're having to force the box on to the wood the spindle is a little too big and needs to be turned down a bit. When the thread is cut, cut off a long enough section to fit, lock on the shaft and extend out of the hole a bit. Shape the end so you can readily tighten and loosen it with ease. I just sanded a couple of angled micro flats for this.

8 So there we are – the finished gauge, which I've given a coat of finishing oil. This helps stop moisture in the air from swelling the timber in the wetter months and stopping free movement of the gauge. I hope you've enjoyed making your workshop tools as much as you're going to enjoy using them. ●

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Victorian classic

Chris West provides some inspiration and plans for you



I found that this simple Victorian spinning top was something 'new' to my grandchildren. To see the gaming machines voluntarily put down was something to behold.

The spinner stem is put through the 10mm diameter hole in the handle and the string threaded through the 4mm hole in the stem for about 1in held against the stem while the remaining length of string is wrapped round the stem.

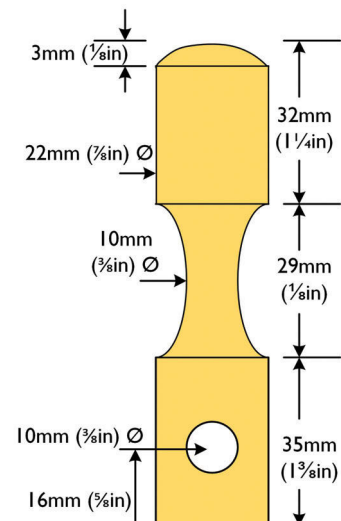
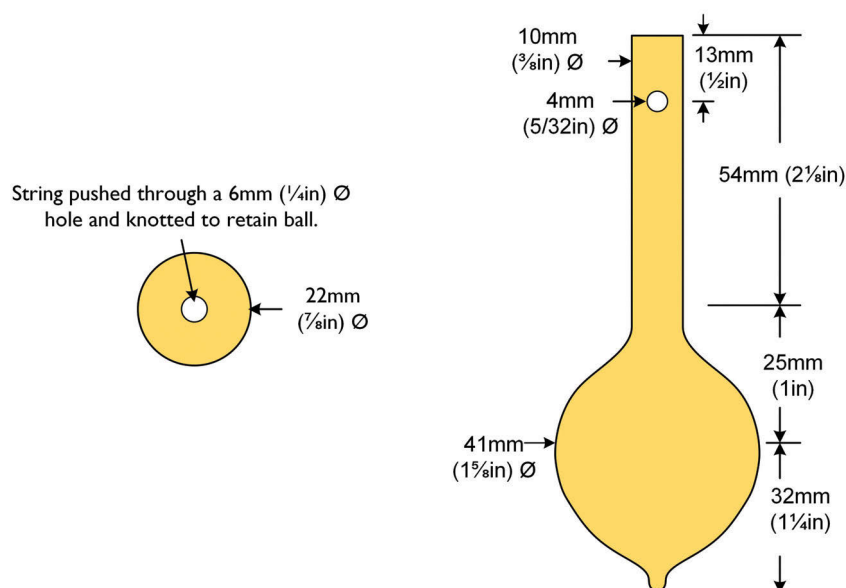
With the handle held firmly about 6in

above a smooth surface and the other hand holding the ball and remaining string, a sharp pull will unwind the string and rotate the spinner as it falls to the flat surface. It should continue to rotate for some considerable time if your turning skills have made a balanced spinner with a decent point on its end.

If you think colouring the spinner will add interest, this should be applied on the lathe after sanding. No sealer or finish is applied. ●

TOOLS AND MATERIALS

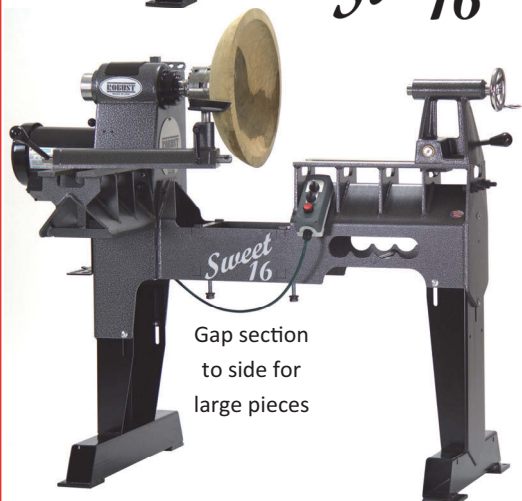
- Spindle roughing gouge
- Spindle gouge
- Parting tool
- Drill
- 4mm and 10mm drill bits
- Abrasives
- 400mm nylon cord
- Any attractive hardwood blanks
- Handle: 130 x 25 x 25mm
- Spinner: 130 x 51 x 51mm
- Ball: 75 x 25 x 25mm





Gap section
at end for
long pieces

*Sweet
16*



Gap section
to side for
large pieces



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Community links

We have searched the internet for the best, most interesting and fun websites, blogs, pins and pictures, so you don't have to

Website of the month

STEPHEN HATCHER

www.stephenhatcher.com



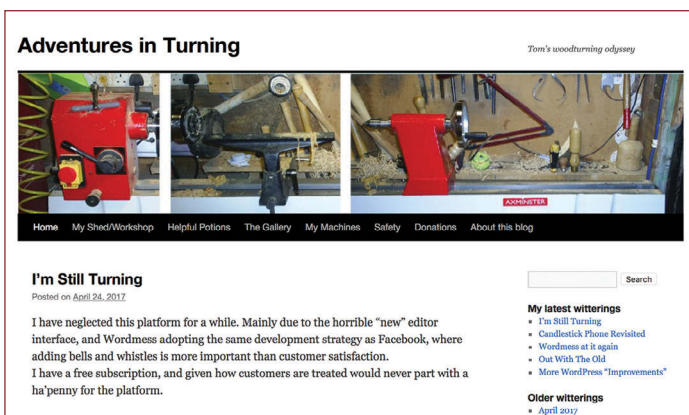
Stephen Hatcher's work is, to say the least, well worth looking at. His wide variety of work with such fine attention to detail is a real treat. His site also includes a lot of downloadable PDFs of the various techniques he uses.

There is loads of visual interest here and information that you will find incredibly useful.

Turning blog

ADVENTURES IN TURNING

adventuresinturning.wordpress.com

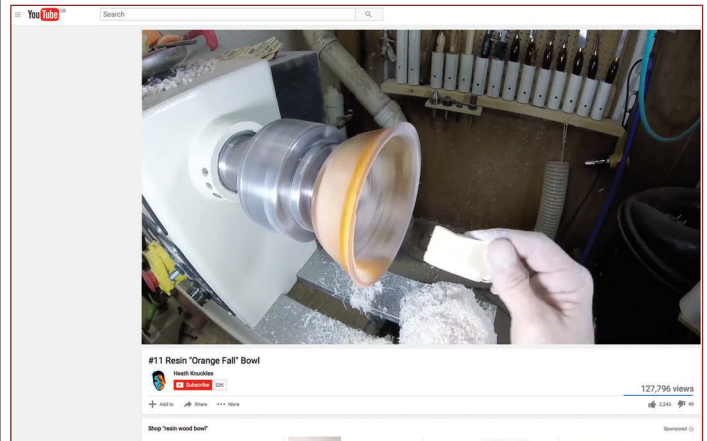


Tom has created an interesting site where he shows what he has been up to and shares the trials and tribulations he encounters over a number of years. I like his honesty and I found myself saying more than once that I understand where he is coming from. There is some very interesting reading here.

Clip of the month

HEATH KNUCKLES

www.youtube.com/watch?v=IF9u4unMZ5s

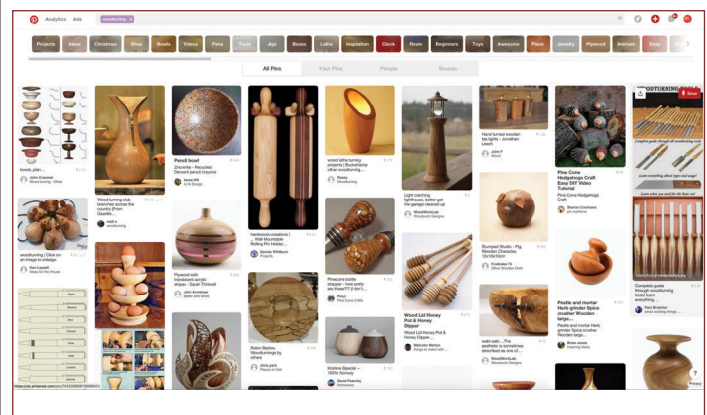


Heath Knuckles shows how he used waste wood blocks cast in resin to create a bowl. The video does not mention any safety aspects so assume the wearing of a faceshield and respirator protection as a minimum. Lathe speeds are not mentioned either, so err on the side of caution with low(ish) speeds when turning such composites.

I found the process he uses intriguing and think it is worth having a look at.

Pinterest

[uk.pinterest.com/search/pins/?q=woodturning&rs=typed&term_meta\[\]=woodturning%7Ctyped](http://uk.pinterest.com/search/pins/?q=woodturning&rs=typed&term_meta[]=woodturning%7Ctyped)



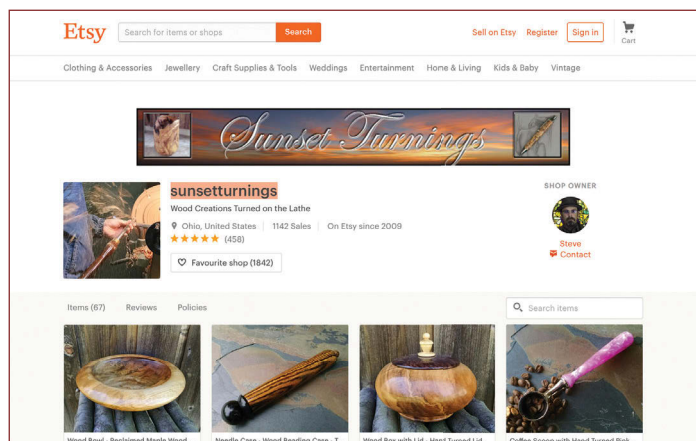
For those new to searching for turning on the internet, do try Pinterest. Just logging in the search word Woodturning will yield myriad postings that you can then click on and explore to your heart's content.

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.

Etsy

SUNSET TURNINGS

www.etsy.com/shop/sunsetturnings

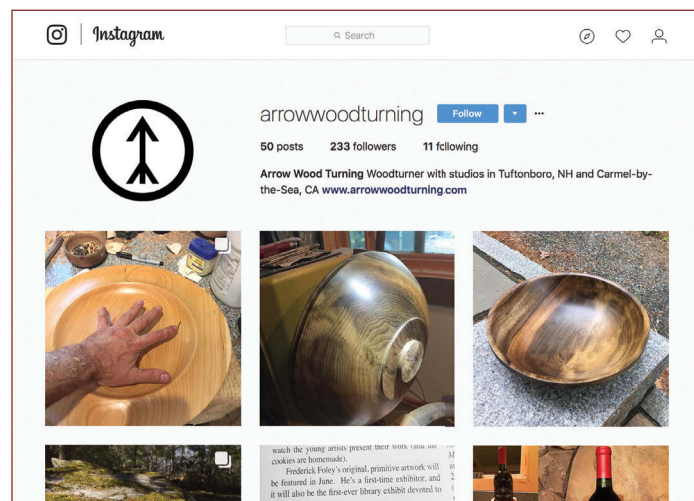


Steve's Etsy site shows a mix of turnings and cutting boards. He comments on his profile: 'My passion for beautiful woods and woodturning is displayed in every piece that I make... My biggest hope is that people will like my work enough to pass it down in their families, and that long after I am gone my work will still be out there living on.' I think that sentiment is echoed by many who have the pleasure of making things in wood.

Instagram

ARROWWOODTURNING

www.instagram.com/arrowwoodturning



Nicholas Moore has made good use of this social media site to update people as to what he has been making recently. Here is a link to his clean, simple and effective website, www.arrowwoodturning.com, giving a fuller idea of what Nicholas is doing and making.

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.

APOLLO'S APSIS

http://www.woodworkersinstitute.com/forum/apollos-aspis_topic21414.html

Edbanger – real name Ed Oliver – has posted a burr oak sculptural piece on the Woodworkers Institute. Saying: 'Burr oak 540mm x 380mm finished with Danish oil.'

Kiwi – real name Peter – commented; 'Tip of the hat for this one Ed, a wonderful piece of art, great presentation.'



Community letters

Here is a letter the Editor has received from a reader

Hi Mark,

Thanks for a wonderful magazine. I look forward to it every month. While turning recently I encountered a slight knock in the outboard bearing of my Vicmarc 175SH lathe which I had purchased from Phil Irons nine years ago. I had no idea how to remove the spindle and replace the bearings and my daughter emailed Phil. Within a few days we had a list of instructions on

how to remove the spindle and replace the bearings.

The instructions were so detailed that my 92-year-old brain had no trouble following them. I did the job as Phil instructed and all is well again. Thanks a million Phil for taking the time from your busy life to explain in detail how to do this.

Yours most gratefully, Johnny Sheehan



The Hawaiian calabash

Emiliano Achaval explores traditional vessels with a perfect and timeless design that is rich in tradition

I can almost hear the yell of the sailor in the crow's nest when he saw the tallest peak on the island of Kauai peeking through the clouds, Kawaikini Peak.

I'm pretty sure Captain Cook himself heard it and the ensuing commotion from the comfort of his own cabin.

In 1778 the HMS *Resolution* and *Discovery*, under Cook's command, sailed past the Island of Oahu,

to later make landfall at Waimea, on the island of Kauai.

I can also imagine the group of Hawaiian craftsman and their priest gathering around a massive ancient kou tree, initiating the consecrating ceremony of the tools and the tree before they could start cutting it down. The wood then would be provided to all the king's craftsmen to make the

calabashes that would dazzle Captain Cook himself.

Much has been written about the Hawaiian calabash, in countless books and magazines. This article is written with the insight and eye of a woodturner who has been living in Hawaii for 30 years.

We don't know much about the ancient craftsmen who made these



Pre-contact puahala calabash. Notice the well worn inside. The outside is beautifully finished

beautiful containers, or the exact process they used. We know that they had a lot of skill and produced beautiful things. We have a lot of their work, scattered now throughout the world in museums as far as Vienna and England. Their work speaks for them – superbly and perfectly designed bowls, obviously inspired by the gourd and coconut containers that were also used.

There are lots of historical references describing and highly complimenting the calabashes. What they all have in common is the surprise and awe of encountering such amazingly crafted wooden artefacts, by a civilization in the middle of nowhere, and without the benefits of iron. The Hawaiians were the only indigenous Polynesian people

in the Pacific with highly crafted wooden artefacts. My favourite quote comes from Captain Cook himself: ‘These wooden dishes and bowls are of the kou tree. As neat as if made in our turning lathe, and perhaps better polished.’ Captain Cook took back at least one calabash that I know of, now on display at the British museum.

◀ Usage

The main purpose of the wooden containers was to hold food. The size and type depended on the intended purpose. They varied from a large calabash that would hold several gallons of poi – a food staple of the Hawaiian people and still very much a part of the culture here in the 50th state – down to a very small personal bowl that was given to a child shortly after birth to use for meals. There were literally hundreds of names for all the different types of containers. Most of the names have been lost in history. The universal name for a wooden bowl used now that resembles the traditional Hawaiian shape seems to be ‘calabash’.



Pre-contact palewa – made from kou wood – in its traditional hanging net. From a private collection

How they were made

The accepted Hawaiian name for all wooden containers is umeke laau.

How they were made is a bit of a mystery, but we believe that one way was to build a small fire inside, then after it had subsided the craftsmen used a variety of stone adzes and sharp coral implements to remove the burnt parts. Then they would rebuild the fire and continue the process all over again. I don't imagine the old craftsman was in a hurry, as his job was very specific, with a knowledge passed down through generations, just as the calabashes were. Some have been in families since the early 1800s, passed down as family heirlooms to be treasured for ever.

Once the carving was completed he would start the process of finishing and polishing. There was no shortage of natural things to be used as sandpaper:



A pre-contact puahala calabash. Kou wood (*Cordia* spp) It has been repaired with almost all known types of repairs, including pewas, round and oval pegs of different sizes and slivers of wood used as stitches.



It measures 220mm inches tall by 213mm wide . The bottom of the puahala calabash is thick and round. It measures 32mm thick



A NATIVE FEAST OR LU'AU, HAWAII.
An antique postcard depicting a traditional luau, or Hawaiian feast. Notice the kuoho calabash in the centre and individual serving sizes around the traditional mat



Antique postcard showing a native Hawaiian pounding poi with a poi pounder made with a lava rock. Notice the big gourd by him, the inspiration of the ancient craftsmen for the design of their wooden cousins

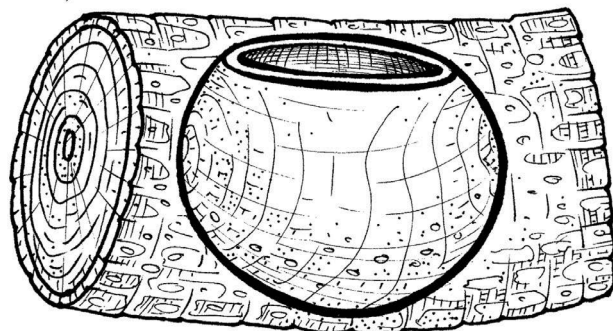
coral, sand, volcanic sand, pumice stone and, for a final rub, the skin of sharks. The final step was to rub it with kukui (*Aleurites moluccanus*) nut oil. The kukui tree nut was also used as a lamp – its nickname is candletree. They would

simply drill a little hole and stick a wick in it – it would burn for hours due to its high oil content. The oil would help preserve the wood as well as give it a beautiful shine. I often use kukui oil in my turnings, it adds an extra Hawaiian touch to a piece.

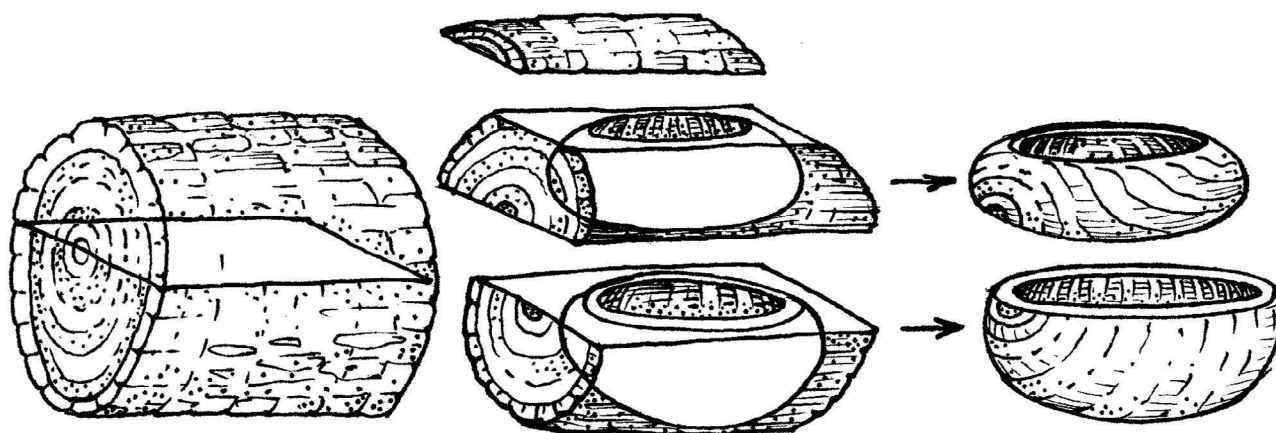
Because I'm writing a magazine article, and not a book, I will mention the three main shapes of the umeke laau, the ones that, no matter where you see them, you know where they came from: Hawaii.



Here is a set of ancient basalt rock adzes and tools from a private collection. The big one was probably used to fell trees and to hollow out the inside of the trunk to make a canoe. The hand-held one was probably used for finishing and carving the inside of wooden artefacts, included calabashes



An original John Mydock drawing showing the location of the traditional round-bottom calabash inside the log



John Mydock's drawings show two bowls: kumauna on the bottom, and a palewa on the top

Types of calabashes

Each of the main three shapes had variations in sizes. Each size had a different name. For example, a kumauna was the large family-sized bowl, a very traditional-looking calabash, and a pua niki was small enough that a child could hold it.

And, just as today's woodturners' styles are different and each piece of wood gives a slightly different piece, I believe that the old craftsmen each had their signature work.

Only one piece of all the hundreds that have survived the times had the name of the ancient craftsman. We do not know anything of him, where he lived, when he died, only his name: Puakoa. We know a little about his father. In the *History Makers of Hawaii* author A. Grove Day wrote about his father, Kaiana, a warrior

who was killed in the Battle of Nuuanu Pali in 1795.

1. LOW CALABASH CALLED PALEWA

Palewa are the only ones carved in what today's woodturners would recognise as the most stable way to turn a bowl, side grain, and always trying to avoid the pith, the part where you have the highest chance of checking. The palewa has to be more wide than tall. No foot, round bottom.

2. KUOHO

This type is one of the most copied forms, perhaps the most recognisable due to its proximity to the calabash. It can be as wide as it is tall, but not always. It was mostly, due to its size, carved out of the whole trunk, side grain, and its most spectacular ones were done with crotches.

Because of it, they were prone to a lot of checking on the end grain, where you can see a lot of the repairs done by the ancient craftsmen, such as: pewas (butterfly stitches) huini pegs, kepa kepa wedges, and aha maka cord repairs, just to name a few. No foot, round bottom.

3. PUAHALA

This iconic form is usually taller than wider. Some of the nicest examples have a beautiful matching lid. This calabash was always carved in end grain. The walls were fairly thin, but they all had a heavy bottom. We all know how weak an end grain bottom can be, so I believe the ancient crafters solved the problem of cracks and broken bottoms by making it extra thick. Still, we see a lot of these forms always with several repairs on the outside of the bottom.

◀ Woods used

The woods preferred by the Hawaiians were:

1. KOU (*CORDIA SUBCORDATA*)

The kou was almost entirely wiped out from all the islands by an introduced insect. By the mid-1860s it was hard to find a kou tree. At the same time, the first British-made lathes started arriving on the islands. Now it was possible to turn the acacia koa. Koa is definitely harder than kou, thus the reason why we see very few old koa or koaia calabashes. I have turned several kou puahala, palewa and kumauna. The wood is surprisingly stable, to the point that you can turn a puahala green and turn it to finish. Applying cedar oil (a stabilising oil) I didn't get any warping or checking. It is also very easy to turn – with sharp tools you can leave a surface that needs little sanding.

There are few pockets of surviving kou trees on some of the islands. A lot of turners confuse the introduced Tahitian kou with the true kou. Almost every new parking lot in the past 30 or so years has the Tahitian kou for shade – the colour of the flower is one way to tell them apart. When the British turners arrived, it started the decline of the ancient Hawaiian crafter. Within a few decades they were gone, and with them a part of history.

2. MILO (*THESPESIA POPULNEA*)

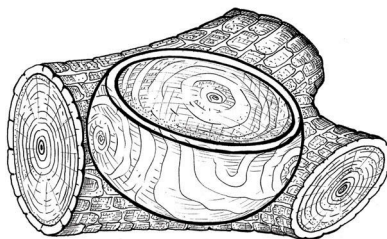
I do not know why milo is considered a hard wood. It cuts like a dream, with a sheer scrape you can leave a glassy surface. Milo was abundant in old Hawaii. Some war canoes were made from this wood. I can only imagine the size of a giant old milo needed to do this. Nowadays you can see milo growing usually close to the beach, but those old giants are a thing of the past. I can see why it was a favourite of the ancient crafters – it is a beautiful chocolate dark wood, very easy to carve, soft, yet durable. The contrast with the almost white sap wood makes for a striking distinctiveness. You always see this on the old milo calabashes. I mount the blank a little off-centre to make sure to have this great contrast.

3. KAMANI (*CALOPHYLLUM INOPHYLLUM*)

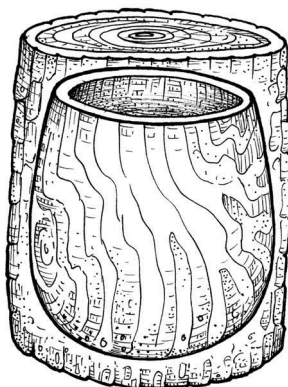
The true kamani – not to be confused with the false kamani, an introduced variety by the first white settlers – is a reddish-brown hardwood. Like the milo and kou, the kamani when dried is an odourless wood, thus a favourite to make calabashes for food purposes. It's a rather plain wood, but turns nicely.



A pre-contact round-bottom palewa calabash with kukui nut lei around it. The oil from these nuts was used for finishing the outside of all wooden artefacts



This John Mydock drawing shows a kuoho calabash. Notice all the end grain around this type of calabash – you can see why the ancient mastercraftsmen also mastered the art of repairing them



ABOVE: A lidded puahala calabash by turner Kelly Dunn. Sandalwood with 14 sandalwood pewa patches, 113mm wide x 138mm high

LEFT: This John Mydock drawing shows the location of the puahala calabash. Notice the end grain orientation

TODAY

The Hawaiian calabash remains one of the most recognisable shapes in the world. Copied by many, the shape is not easy to reproduce, simply because it's a perfect design, very round and with very specific reference points.

The calabash in Hawaii is more than a bowl and is still revered by families. It's common to order one for a wedding present, anniversary and special occasions. I work mostly with acacia koa, with the occasional find of milo, kou and kamani. The tourists prefer koa for its beauty. The local buyer who knows the

history prefers the true woods used in the old days.

We do not know if the calabashes had a religious significance for the ancient Hawaiians. I do know that when you see a huge one made pre-contact with the white man, you get a sense of reverence at its size, its shape, its beauty and the mystery of who and how he did it, a sense of awe, that I'm sure is something akin to what the king felt when the humble artisan gave him his latest creation.

Until the next time, aloha. ●

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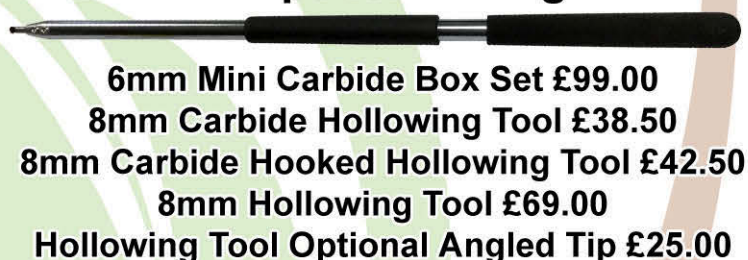


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Acorn box

Pat Carroll shows how to make an acorn-style box with the addition of hand-cut threads



Boxes can be very decorative and have many uses. They are fun projects that often don't need much wood or equipment. This acorn box does not have a foot so, as it lays on its side, it needs a snug pop fit or threads to stop it falling open. This project has many variations and many decorative options available. I show making a threaded acorn box.

I chose oak (*Quercus* spp) for the nut, which is the bottom of the box. This links the box nicely to the subject matter. For the cup – upper section – I chose spalted ash (*Fraxinus excelsior*). This would enable me to use pyrography to add detail and texture and colour to the cup section.

Since neither of these woods allow

me to cut fine 20 teeth per inch (TPI) threads on them, I chose to insert a collar in each part using ebony (*Diospyros* spp). Ebonies hold threads well, but this section of ebony has a very greenish-brown tinge to it rather than the conventional black/brown one often encounters. The section of timber I used looks very much like verawood/palo santo (*Bulnesia* spp) which are dense timbers that hold threads well too. Maybe the timber was labelled wrong.

Alternative woods for the threaded would be dense, close-grained hardwoods such as boxwood (*Buxus sempervirens*) and some of the rosewood species (*Dalbergia* spp). Alternatively you could use a cast resin, polymer

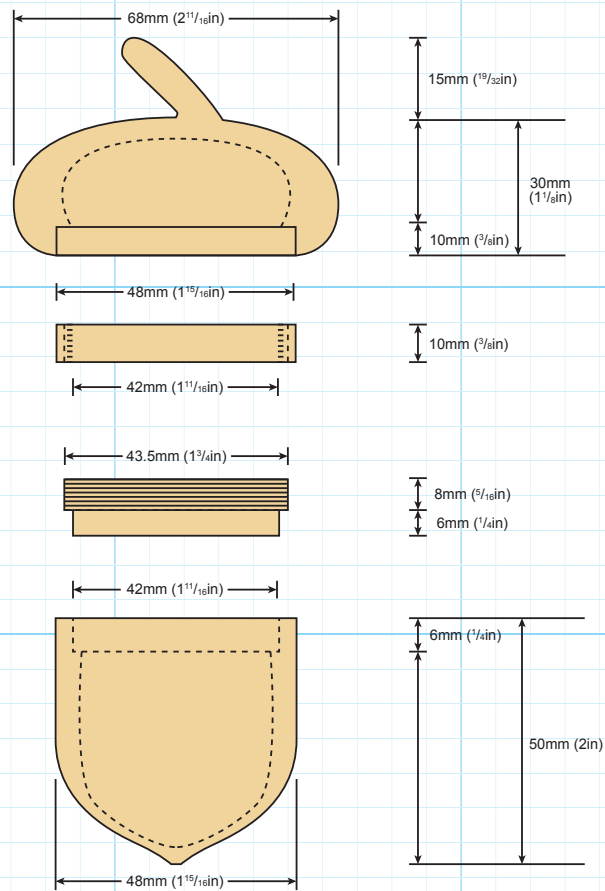
or acrylic such as those used on pens and alternative ivory. Some of these materials can hold threads well too.

As thread chasing is an in-depth subject that could take up many pages to explain it fully, here is a link to give a more detailed description of the process for those who are unfamiliar with thread chasing: www.woodworkersinstitute.com/wood-turning/techniques/tool-use-modification/10-steps-to-the-perfect-thread

When using pyrography on the cup to add texture, I chose to burn away in the softer parts of the spalted ash to leave the denser areas more prominent. A light brushing of verdigris wax was applied and buffed off with a soft cloth.

TOOLS AND MATERIALS

- PPE & RPE
- 20mm spindle roughing gouge
- 10mm spindle gouge
- 4mm parting tool
- 25mm side-cut scraper or skew chisel
- 25mm round nose scraper
- Chuck
- Dedicated drive centre
- Live drive centre
- 20 TPI male and female thread chasing tools
- Drill bit
- Saw
- Pencil
- Callipers
- Pyrography unit
- Abrasives
- Danish oil
- Verdigris wax
- Timber of your choice to suit the drawings

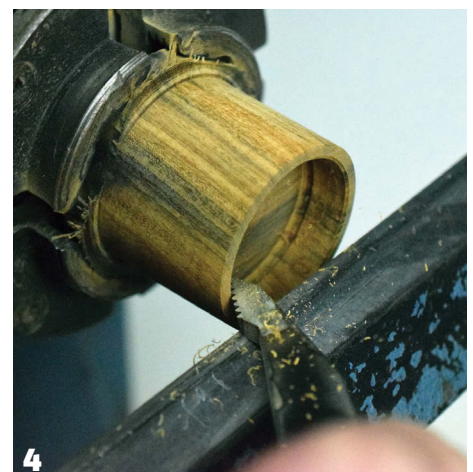
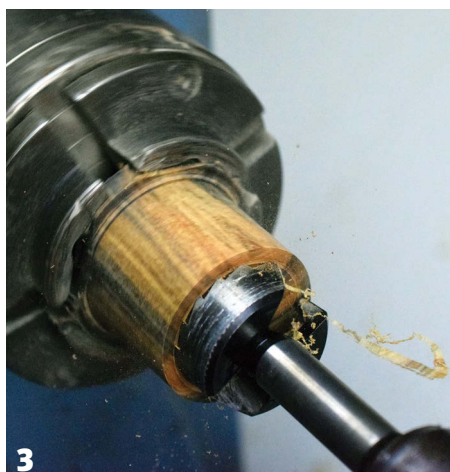
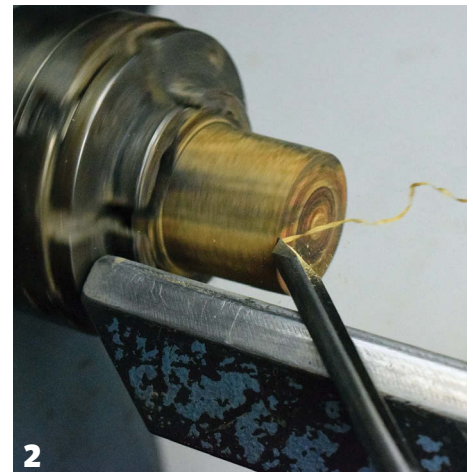


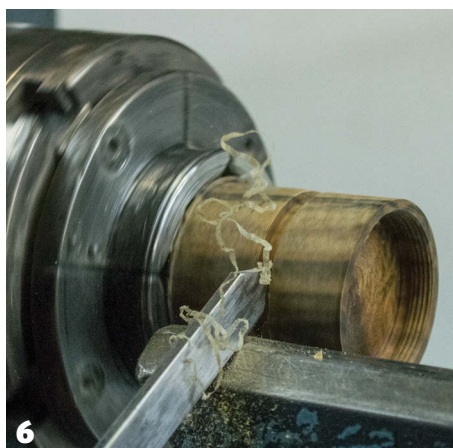
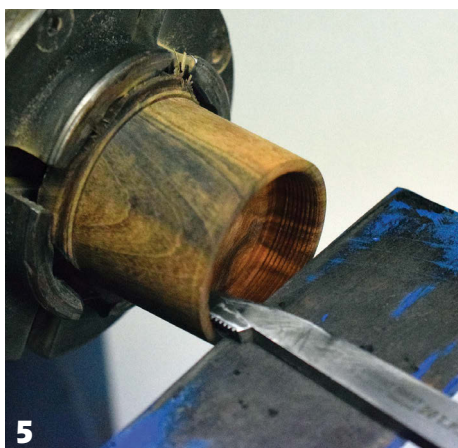
1 Mount the two pieces of wood for the cup and nut between centres and, using a parting tool, create a tenon on one end of each piece.

2 Now cut the collar inserts. I find making the threaded collar and spigot first is a safer practice than making all the acorn body sections first, as it gives me far more room for error with the thread chasing if something goes wrong. Place your timber for the threaded section between centres and cut a tenon to suit your chuck jaw size. Once cut, fit the piece in your chuck on the tenon just cut and true up the piece using a spindle gouge.

3 Now drill a hole using a Forstner bit or cut a recess using conventional turning tools and true up the side wall until it is the size you need and parallel. The advantage of using the drill bit is that parallel walls are easily achieved and if you make the hole size to match a drill bit diameter it makes life simpler. Once the hole is created cut a recess at the bottom of the collar to stop the thread chasing tool bottoming out and stripping the threads cut.

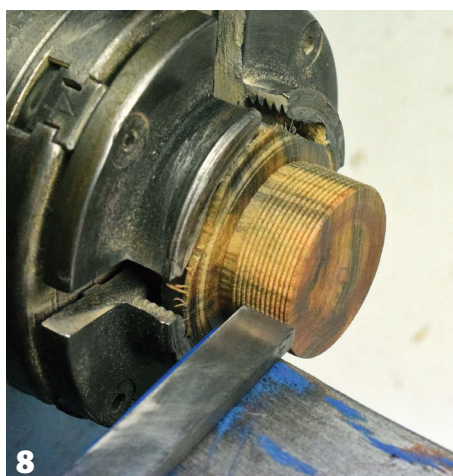
4 A slight chamfer is created at the top of the collar. This helps to allow the threading tool to engage the cut before you arc the tool to cut the main surface to be threaded. You cut the thread in small clockwise circles touching the second tooth off the chamfer, allowing the tool to engage the cut. Speed is between 250-300rpm. As the tool is drawn into the piece, allow the tool to come around so the cutter is parallel to the wood.





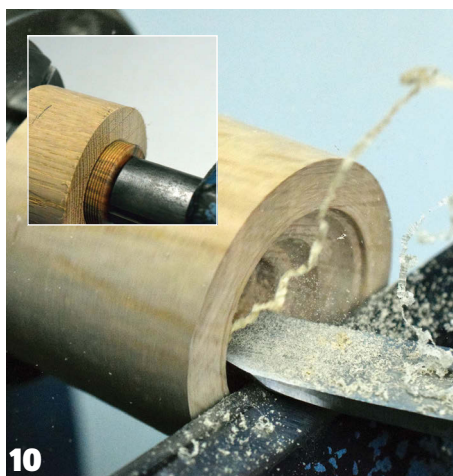
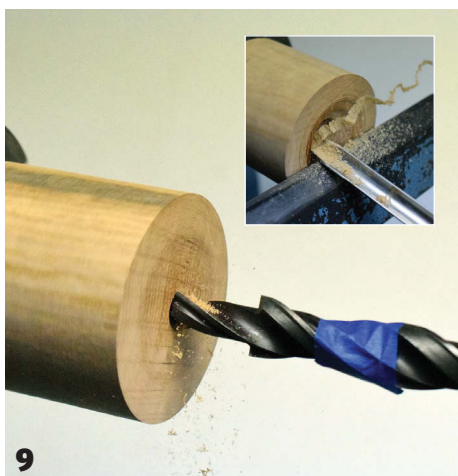
5 When allowing the cutters to traverse along the collar down into the piece, pay attention to the tool stopping once the first tooth enters the recess. A little paste wax can act as a lubricant for the tool to make the tool a bit easier to move on the rest and also in the cut.

6 Now use a parting tool to part the collar off. Gentle, light cuts with a freshly sharpened tool are recommended.



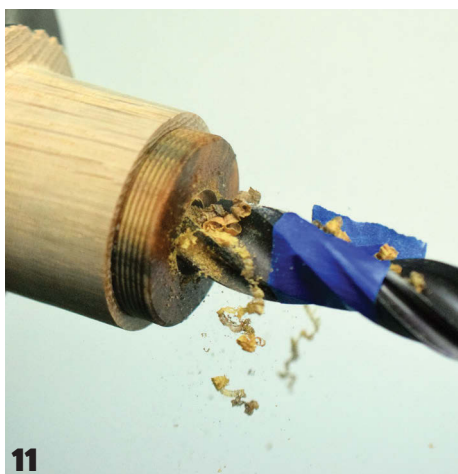
7 Use a parting tool and callipers for sizing on the remaining piece of wood to reduce it in size to about 1.5mm larger than the diameter of the internal measurement of the collar.

8 With the piece sized, cut a recess at the bottom of the spigot. The recess allows an area of clearance for the thread chaser to disengage as it cuts near the bottom and remove the tool at the end of the cut. For thread chasing I use a speed of 250-300rpm. The second tooth of the cutter is the first to gently touch the work. Progressing slowly around the spigot the tool can traverse along the length of the spigot until the parallel threads are cut. A number of light passes are required until you have a neat parallel thread. Leave a small micro-flat on the crowns of the teeth crown of the teeth to minimise the risk of the crowns of the teeth breaking off.



9 Place the oak nut in the chuck and true the cylinder up. Drill a hole to the correct depth with a Jacobs chuck and drill bit or use a spindle gouge to bore a hole. Use a spindle gouge to start hollowing the piece. With the flute facing a 10 o' clock or 45° angle, the tool is gently pulled and arced from the centre towards the outside. At this point it is only necessary to go to the spigot depth.

10 Using a flat side-scaper, refine the recess to accept the threaded spigot. Once cut, switch the lathe off and use the tailstock with no drive fitted to give a straight surface to push the spigot into place in the holes cut. This method also helps with alignment while the glue sets. Of course, don't press it in place if the fit is too tight – adjust the hole so that it is a nice, snug fit prior to finally pushing the collar in place. Allow to set before moving on to the next process.



11 With the spigot glued in place, drill a hole as a starting point for the spindle gouge then hollow out the internal cavity. Use the same process as used in step 9. A side-cut flat scraper is used to clean up the sidewalls and a 25mm round nose scraper blends the curvature of the bottom into the straight section of walls.

12 The inside of the piece and the outside where possible should now be sanded with various grits, starting at 120 grit through to 400 grit. The outer bottom section will be refined and dealt with at a later stage. I applied Danish oil to the inside of the box. Once done, remove the piece from the chuck.

13 The spalted ash section of timber for the cup needs to be put in the chuck on the tenon you cut earlier and trued up. The size of the threaded collar now needs to be transferred to the top face and a hole drilled to the required depth. Using the same techniques as in step 9, the piece is partially hollowed out to just shy of the required hole width. Now partially shape the external shape of the cup.

14 Using the side-cut scraper, make the sidewalls parallel and then insert the threaded collar. At this point the collar is not glued. A pencil mark needs to be drawn around the inside of the threaded collar on to the lower inner section of the wood that is yet to be properly shaped.

15 Remove the collar and refine the internal shape to mimic the profile cut on the outside. The reference mark drawn inside the collar is the finishing point. If the collar had been fitted prior to the hollowing, the threads would be in danger of being damaged. With the inside sanded and oiled two detail lines are added to the inside of the lid. The collar is glued in place. No oil is applied to glue area.

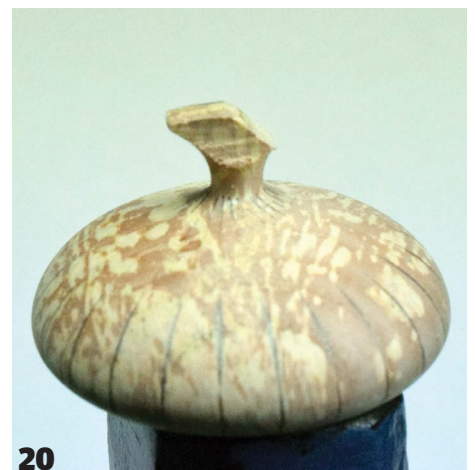
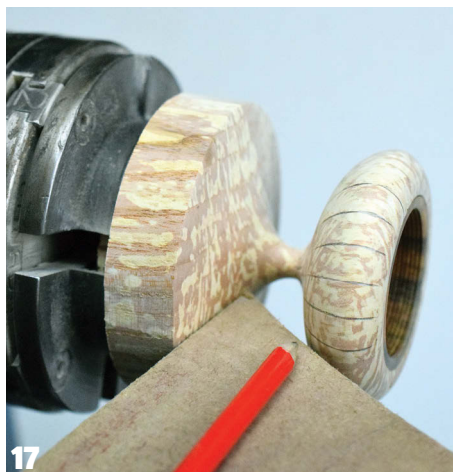
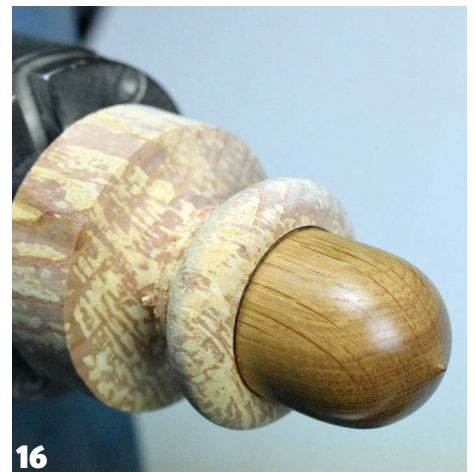
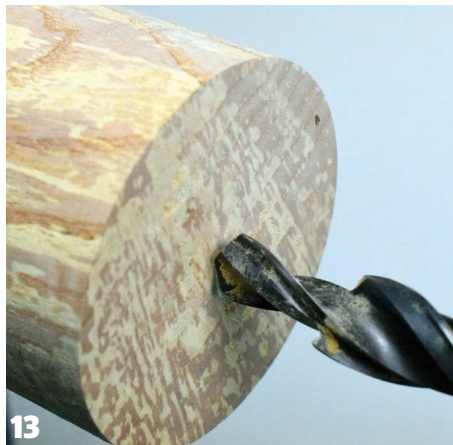
16 Now, screw the nut to the cup. You have still got to refine the very point/top of the nut. Bring up the tailstock revolving centre to support the piece while you shape and refine the nut profile as far as you can while you have the tailstock support in place. If anything needs doing now, it is just a very tiny refinement of the tip, which can be done carefully with the tailstock removed. Once happy with the shape, sand this using down to 400 grit abrasive. I applied Danish oil to the piece after sanding.

17 With the nut removed, shape the cup using a spindle gouge, but leave enough material to support the stalk of the cup. A bulbous shape was decided upon for the top design. After sanding through the grits use an index system to mark the cup with reference lines to help with the pyrography.

18 Once the grid lines are in place, part off the piece with a parting tool. Stopping the lathe and using a saw to remove the cup is a safer way for turners not confident in finishing the cut with the parting tool.

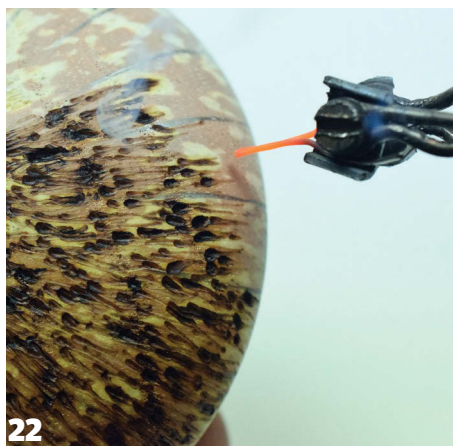
19 The top now needs to be marked out ready for shaping the stalk. Cut in line with the grain, not across it. Attention to grain direction is important for strength.

20 The stem of the piece needs to be cut down both sides, then the back corner is cut off. You can shape the stalk using a rotary carving tool fitted with a small sanding drum or carving burr. You can also use a carving tool or knife to create the stalk shape required.





21



22

21 Then use abrasives to refine the shape.

22 Use a pyrography machine to add the texture. Try not to concentrate the burning in one specific area, which helps to keep the pattern more uniform. By using the pencil lines as a guide, the pattern needs to flow from the centre of the stem to the rim of the lid.

23 The pattern I created could be described as tadpoles swimming. Once done, the body needs to be screwed to the top, and masking tape wrapped around the body of the nut. Now brush on a light coat of verdigris wax. Buff off excess using a piece of tissue. Repeating the process creates layers and depth of colour. The rest of the piece receives three coats of Danish oil and is buffed to create a fine finish.

24 If all has gone well you should end up with something like this. ●



23



24



Alternative design



Here are a couple of images of a push-fit acorn box

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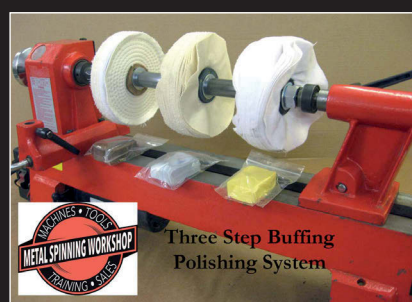
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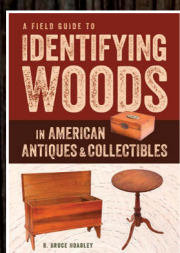
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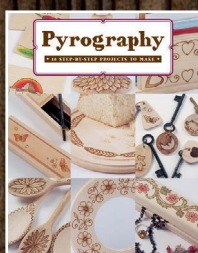


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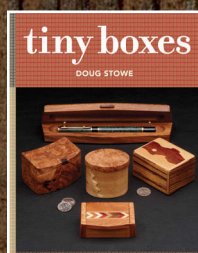
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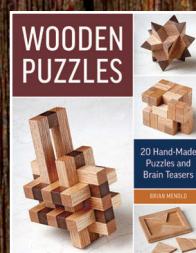
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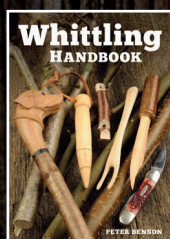
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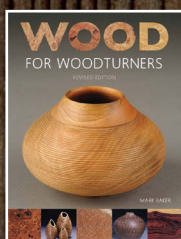
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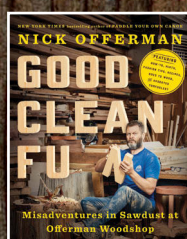
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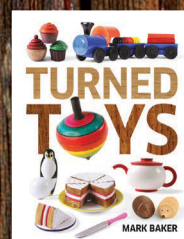
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Coalescing finishes

This month Kurt Hertzog looks at using waterborne finishes

We've worked through the evaporative and the reactive finishes. Together, those two groups probably contain most of the finishes you are using. They were pretty easy to understand based on the curing mechanism and why the particular finishes in those groups belong there. The evaporative finishes were cured once the carrier flashed or evaporated off. The reactive were cured after the catalytic reaction had gone to completion. Now, we'll launch into the coalescing finishes. These finishes are less frequently used by the woodturner. They are more widely used by the woodworking community but they do have a home in the woodturner's finishing arsenal. Coalescing finishes are waterborne finishes and they cure by a combination of both the evaporative and reactive processes. I will use the terms coalescing and waterborne interchangeably. Imagine little balls of reactively cured resin floating around

in a sea of water with some additional solvent. As the water evaporates, the little balls of resin get closer and closer. This continues until they come into physical contact, creating a larger blob of touching balls. The solvent in the mix works on the balls, making the contacting balls in that blob combine. The water is gone and now the solvent is gone, leaving the solid surface film finish formed by all of the combined balls of resin.

Safety & terminology

Coalescing finishes are much more user-friendly than the typical evaporative and reactive finishes. Their development and, in some localities, their mandatory usage, has been driven by the problems with the health hazards and waste streams of the traditional finishes. Coalescing finishes don't contain the high percentages of volatile distillates or exotherm as the other finishes do. Regardless of the term

'waterborne', or the often-used, but I believe incorrectly, 'water-based', don't become complacent. They need to be handled in the manner that is indicated on the safe-use panels on the container. Proper use and disposal are key to being healthy in the workshop and keeping the environment in order. Each country will have its own safety labels and legislation that products need to comply with.

Don't get lost in the terminology. You'll hear water-based and waterborne. I don't believe they are really interchangeable. Water-based implies that the formulation is based on water and that the water is somehow an active ingredient, i.e. the solvent. Not so with the finishes we are discussing here. The water is certainly there in large amounts, typically 50% of the volume, but it doesn't play a part in the chemistry of the actual finish. The water is the carrier for the resin and the actual solvent, normally glycol ether.

- The process of creating the finish relies on the resin and the solvent, not the water. The water is only carrying everything along to keep things from becoming a mess before you get it applied where you want it. In addition to being the carrier, it does aid with the spreading of the actual components during application. The water evaporates and the solvent reacts with the resin. Rather than water-based, I think coalescing finishes are more correctly waterborne finishes.

Why use coalescing finishes?

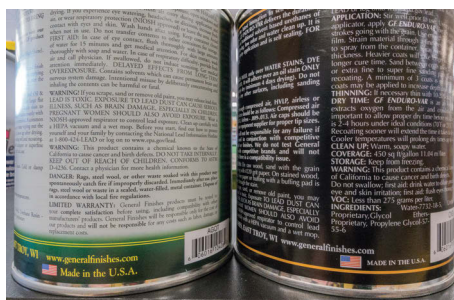
Apart from any local legal requirements that usually impact commercial operations exempting hobbyists and amateurs, the best reason for using coalescing finishes is the safety aspect. Nearly all of them are low odour and quick drying. Because of the nature of the curing, nearly all of the cured films have a matrix of minuscule gaps through which the finish can 'breathe'. The best reasons I have found to use these waterborne products is the lack of odour and the simple clean-up process. Clean-up is easy, requiring only some soap and water.

Why not use coalescing finishes?

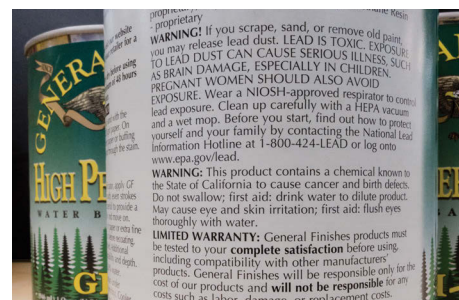
Regardless of what the manufacturers claim, I haven't found a waterborne finish that is the same as their original formulation. That is not to say they do not work, it's just that they are different. Polyurethanes, varnishes and lacquers that are now waterborne don't give me the same results as the original. They try hard to accomplish it but I've not found them to exactly replicate the original. They may have their own benefits but I have always found the waterborne products to give me somewhat different results than the originals. You obviously need to test to be certain you'll be happy with the results if you are moving from the solvent-based evaporative or reactive products to the coalescing replacement.

Applying coalescing finishes

Prep as you would for any finish. Remember, the most important aspect of any finish is the prep work. We dwelt on it at the beginning of this series. It is that important. Poor prep almost guarantees a poor result. Some coalescing finishes instruct you to raise the grain before hand. Sand, wet, let dry well, and re-sand. Remember, these are waterborne. Knocking back the grain beforehand will help with the success of the finish. There are ways around the grain-raising process if you'd rather. Using the universal intermediate coat of shellac will work. An oil varnish stain will also seal the wood. If you'd rather do one of those, you can



A quick comparison of the contents and safe use rules between waterborne and traditional



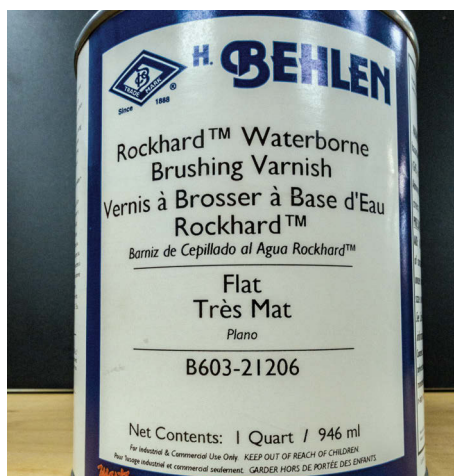
Water, resin, and glycol ethers are all there is. The water is a carrier for the active ingredients



If you are a fan of urethanes, you can find waterborne in any gloss you wish



Acrylic finishes fall into this category of finishes



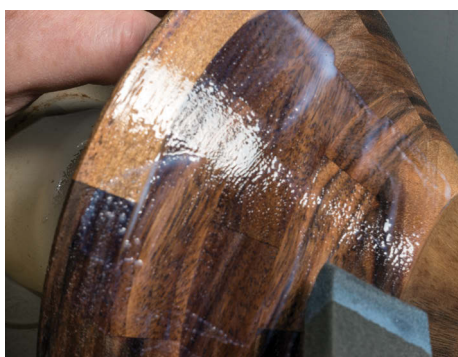
I haven't tried this yet but plan to. I want to see how the brushing varnish compares to the original



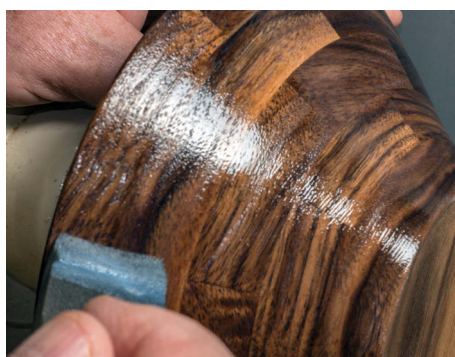
You can now find virtually all of the traditional products in a waterborne version

skip the grain-raising process and go right to finishing. I'm a huge fan of foam brushes and use them to apply finish while spinning the lathe by hand. Others may want to try to apply finish with the lathe running slowly if they can get their controller down far enough. My lathe will go all of the way to off via the speed control but I still favour rotating my workpiece by hand when it is mounted on the lathe. If you have a favourite brush other than the foam brush, go for it. Any quality brush will work. The beauty of using a fine quality brush is that you'll clean it in soap and water before drying and storing for its next use. More good

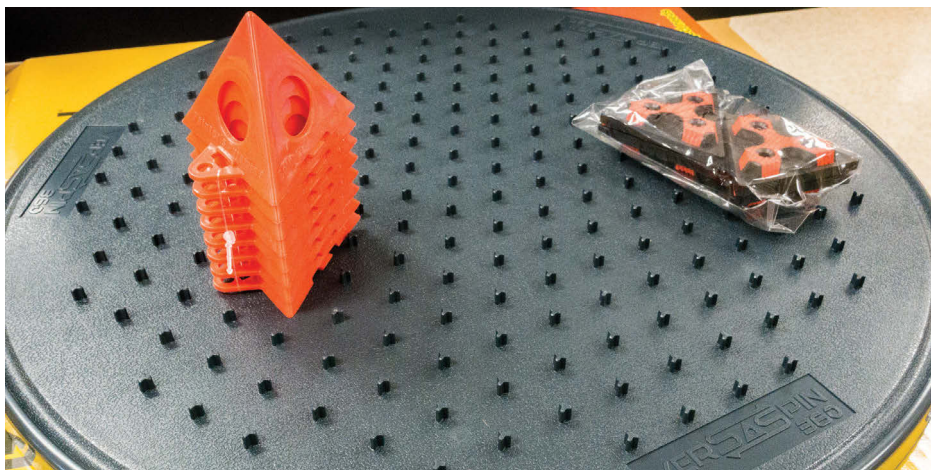
quality brushes are ruined by improper cleaning than anything else. Especially when the cleaning requires one of the various thinners. A clean cloth will work for applying the finish as well. No power on the lathe if using cloth please. Dampen your cloth with adequate finish and wipe on. Like painting a wall, keep a wetted edge and progress until you get complete coverage. A good wet coat is sufficient. Too much will cause you problems. Far better to have a thin coat that can be repeated many times than a thicker coat with bubbles, runs, or streaking. Of course all of this finishing can be done off the lathe if you wish.



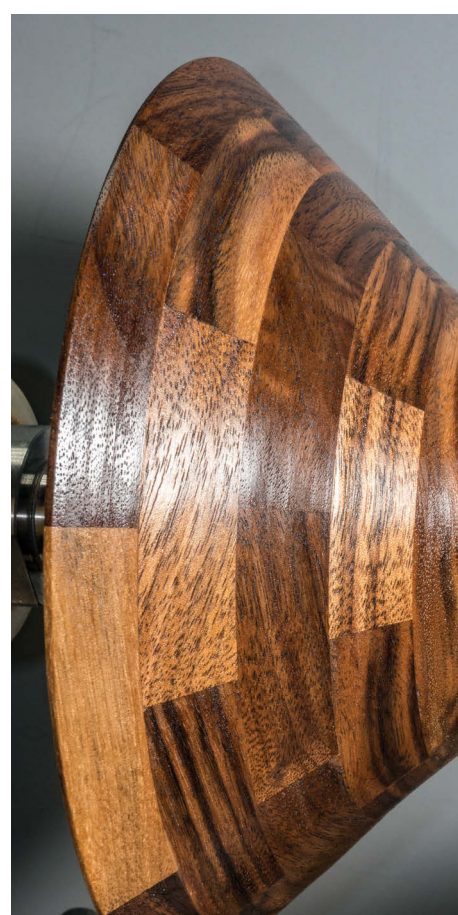
I'm a fan of using a foam brushes. They are inexpensive to buy, easy to use and easy to clean



I tend to put on a generous coat and then smooth it out quickly. It dries very fast so don't dawdle



If you don't want to tie up your lathe or are working on bigger pieces, a low-cost rotary table with stand offs is helpful



Most waterborne finishes will dry far quicker than the traditional, allowing for quick additional coats

Spraying the finish

These waterborne finishes can be applied quite nicely using an air system. A standard spray gun will work fine. An HVLP is actually ideal for applying waterborne finishes. I'm told that airless sprayers will also work well for applying waterborne finishes but I have no personal experience with that type of application. For furniture, a spraying system aids in the process with the ability to spray tops, bottoms and sides rather quickly. Most woodturners won't have the need to cover that much surface or underneath and insides. Unless you have a lot of pieces that require finishing, getting the HVLP system out and running is probably far more effort than it is worth. On the plus side, it is very easy to clean up after shooting waterborne compared to shooting solvent-based finishes.

Subsequent coats

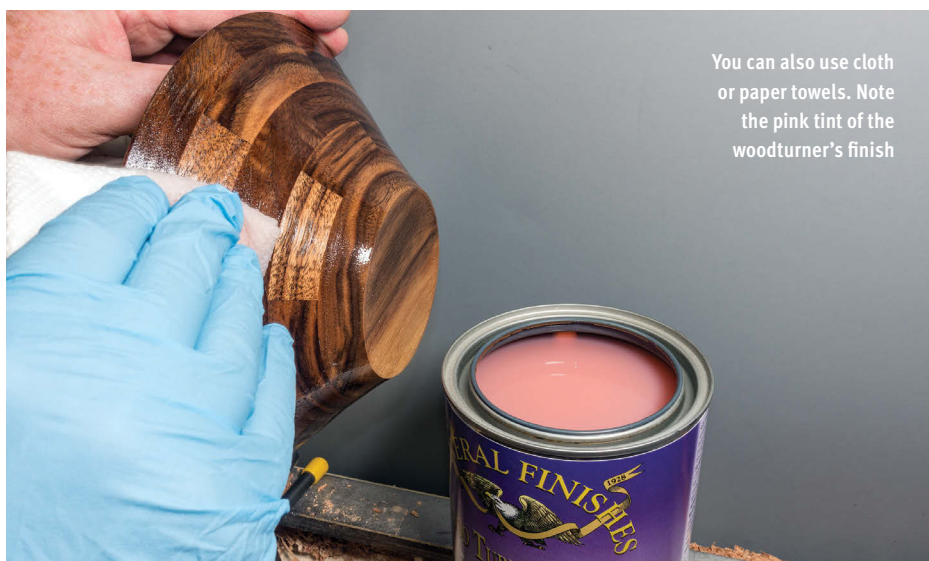
One of the advantages of coalescing finishes is high-solids content. It doesn't take much to build up a very durable finish. The number of coats is up to you, but I find that three or four are usually more than enough. Unless your instructions tell you otherwise, let each coat dry well. Once dry, I like to lightly scuff between coats. You can use 320



I like to do a light scuffing between coats. It will provide some tooth for the next coat



A good cleaning is needed to prevent embedding the debris in the next coat. I use denatured alcohol



You can also use cloth or paper towels. Note the pink tint of the woodturner's finish

grit, dry or wet with water as a lube – not slobbering wet, just sufficient water to lubricate the surface and help when removing the swarf. After you sand, be certain to remove any of the debris or you'll embed it into the next coat. You can use a well-wetted rag but, of course, not under power if it is cloth. I typically use a paper towel wetted with denatured alcohol. Once cleaned, you can apply your next coat. The scuffing will help this coat adhere to the coat beneath. Waterborne finishes don't 'cut into' or chemically dissolve the surface of the coats beneath in the same way as shellacs and lacquers will. One of the tricks I've learned from some of the more accomplished with waterborne finishes is to make your last coats very thin. This is particularly important if you are going to rub out

the finish later on. We'll cover rubbing out and buffing later in the series.

Colouring

One of the common complaints I've heard about waterborne finishes is that they sometimes have a blue tint to them. I haven't experienced it but some claim it is a downside to waterborne finishes. That, along with the fact they sometimes make the wood seem bland and washed out, makes you want to do some colouring. One method you can use with waterborne finishes is to colour before and between coats. You can apply any water-based stain you wish between coats. You can choose the colour based on the wood you are using, the finish, and your final desired colour. One of the beauties of this is that you can dilute the colour as needed to

get any intensity you wish. Be certain to let the stain thoroughly dry before you apply any finish coat over the top. You'll be able to repeat as needed between coats if you require more to achieve your desired results. Another method is to add dye to the finish. Your colourant should be mixed prior to adding it to the finish. Get your dye powder mixed with some water to ensure that it is well dissolved. Use that mixture to colour your finish. Remember to add a little bit of colour and check things. If you put in too much colour, you can't lessen it without diluting with more finish. The only tricky part is to colour sufficient finish to complete the project. You really will have a difficult time trying to match things should you run out. Err on the side of preparing a bit too much finish for the project so you don't run into that problem.

Problems

Coalescing finishes sometimes can be tough to repair if the need arises. They are also difficult to strip once they've cured since they have no stripper or thinner available. Once they are cured, they are there for good. If you want them off, you'll need to sand them off. You can do some repairs if needed by sanding back enough to remove the problem and provide some tooth for the new coat(s). A beauty of coalescing finishes is that they are very scratch resistant. Did you ever wonder why they commonly use these finishes for wood floors? Adhesion can be a problem if you wait too long between coats. That usually isn't a problem for turners. They don't tend to wait days between coats of finish. If you do wait long, be certain to go through the scuffing of the surface and thorough cleaning before applying your next coat. I find scuffing is a good practice regardless of the time between coats. For the artistic sorts who may have done some dyeing or colouring of any kind prior to the finish, you'll do well to seal it. Waterborne finishes can have a tendency to cause problems with anything already in the wood. Shellac works wonders as an intermediary coat. Whenever you are in doubt, you can never hurt yourself with a coat of shellac. It will bond to everything I know of and everything else will bond to it. If you need a refresher on buying, mixing, or using shellac, you can find plenty of information in *Woodturning* 285 – *Fast and easy finishes*. If you run into curing problems, it is most likely the weather. Much like lacquer is fussy about the temperature and humidity, so are waterborne finishes. Because you are counting on the water carrier to evaporate, the speed at which it does so will impact the curing of your waterborne

finish. Too hot or too cold along with too humid or too dry will impact the rate of curing. All of the manufacturers will provide best results suggestions, including temperature and humidity. If both are within reason, you likely won't have any problems. The extremes will be the issues. If the weather isn't conducive to applying your finish, wait for a different day with more appropriate conditions.

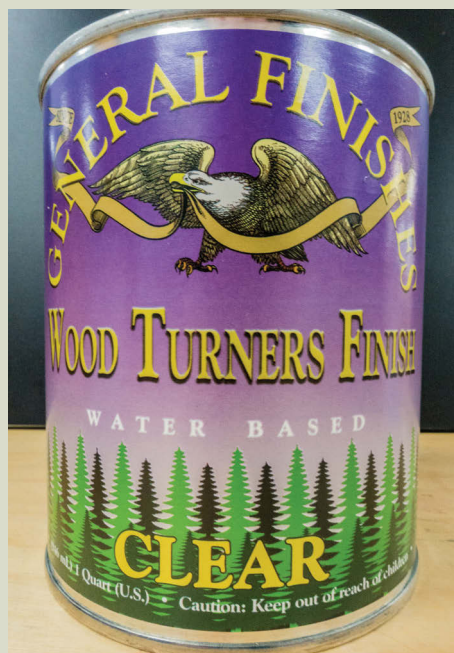
SIDE NOTE

This next comment doesn't fit in the problems paragraph because it is a benefit, although not one really touted by the manufacturers. My waterborne finishes have a far greater shelf life when compared to the traditional solvent-based

finishes. Over the years, I have never had a waterborne finish 'go bad', skin over, or change viscosity to become unusable as has happened with many of my other finishes. I'm not certain why this has occurred but I am very happy about it. I'm guessing it is the lack of volatility of the water compared to distillates. Because my waterborne finishes tend to sit much longer than others, it is pleasing to open them and have them be 100% serviceable. The amount of traditional finish that has become unusable is not only a cost but an inconvenience. When you go to open it for use and find it ready for the trash, you need to replace it or change your finishing plans. Both are an inconvenience.



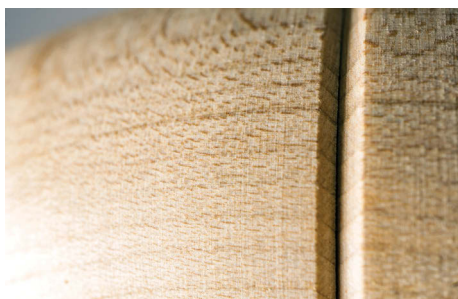
Even though white in the can, you can see the slight blue tint on the lid. I've never had a problem



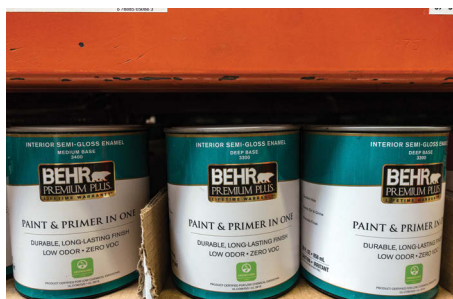
One of my new additions in the waterborne. I have had good results with this, along with Top Coat

Paints

Paints of various kinds are now being used by turners and, given the pace of developments, we may see an ever-increasing use of them. The debate of whether to colour or not and the issues that some finishes may cover the wood will continue, but many turners are using paints and, since they fit in this category of finishes, they need mentioning.



When applying a paint as a finish, you can leave a bit more tooth/a slightly less sanded/refined surface than when using a top coat or stain



Don't forget to consider home improvement products for waterborne. You can create any colour by mixing products



Mixing is key to good results. High solid loading in coalescents require uniform mixing



With any finishing products, keeping a wetted edge and moving it forward is the key



With typical conditions, the first coat will cure in about two hours. The second coat can then be added once the first is dry



Second coat applied and in the process of drying. Once dry, additional coats or a top coat can be applied as required to get the finish you want

Conclusions

There is truly no free lunch. For finishes, it is the same. Each time you select a finish, you are making a conscious decision why you want that particular finish. You've weighed the good and the bad to decide. Waterborne or coalescing finishes are exactly the same. Water clean-up is wonderful but raising the grain is a pain. They are better environmentally and have less noxious odours but do not exactly replicate the results of the traditional version. Regardless of what you decide for each project, you'll likely weigh your familiarity with that product, the difficulty using it, and the expected result.

They are continually developing and are vastly improved since their inception in the 1950s, so waterborne finishes do have a place in the finishing world. If anything, they will become a larger and larger part of our finishing selection. Continuing efforts to reduce VOCs (volatile organic compounds) and increase awareness of health and environmental considerations will continue to drive the finishing manufacturers to create and market additional waterborne products. Personally, I tend to favour the results I get from traditional finishes over the waterborne finishes. Waterborne finishes work well and I do use them. I have a couple of

favourites but waterborne isn't usually my go-to choice at the moment. You'll need to make your own decision where they fit

in your finishing selection. They certainly work and there are many products across many brands to choose from.



A recently finished bowl

Top tips

- Cleanliness. Sand and wipe clean. Fingerprints, grease and dirt will cause problems.
- Stir the product well. Then stir more. The solids will have settled to the bottom. Uniformity requires thorough mixing.
- Apply a liberal coat and work keeping a wetted edge forward.
- When adding colour or unsure about absorption, test in an unseen area.
- When working in high temperatures or low humidity, check manufacturers' instructions about dilution.
- Under normal conditions (70° and 70% relative humidity), two hours is sufficient between coats.
- Lower temps and/or higher humidity require additional time.
- Depending on species, you may need pre-sealing. Test in an unseen area.
- If applying over another stain or sealer, especially oil-based, be certain it is completely cured.
- When applying paint, you can leave a slight bit more tooth to the piece for better adhesion. ●

Repairing antiques and making reproductions

Ernie Conover looks at repairing antiques and the age-old practice of do no harm and make your work reversible



My parents and grandparents collected antiques so it is natural that my wife, Susan, and I have enjoyed this pastime. Because one of our main interests is furniture, long ago I became the repairman.

Cardinal rules of antique repair and restoration are: do nothing more invasive than necessary; do nothing that was not in the spirit of the original; and do all repairs in a way that is reversible, should future generations find better methods. To this end, I always try to match the original wood. A favourite wood of great wheel builders was American chestnut, which is all but unobtainable. Fortunately, I have some 760mm wide x 150mm thick planks that a friend's grandfather harvested around 1900 – before the chestnut blight. Any glueing is with hide glue, which is reversible and what the builders would have used. I use hide glue for all my hand-

cut joinery. All finishing and refinishing is with high-grade shellac that I make in small batches from dry flakes.

With antiques, I try to match the wood and original finish, but include a letter detailing what I did. With turnings, I try to save as much of the turning as possible. For example, I only replace the end of a pediment rather than turning a new one.

Susan's vocation of spinning and weaving has required my skills to make parts for and repair her antique spinning wheels and looms. For many of my spinning wheel repairs I do not match the finish so as to make my work obvious. This also led to making two reproductions of great wheels and a number of heads for them. The head is the part with the rotating spindle that spins the strands of fibre into thread and they take two forms:

direct-drive (aka bat) and accelerating.

The former is the simplest – I suspect its name comes from it looking vaguely like a cricket bat. It is simply a length of approximately 1in (24mm)-thick wood turned between centres to form a tapered shaft for attachment to the wheel and an oval shape for the head. A rotating spindle set in woven cornhusk or leather bearings is placed on the upper face of the bat. This area is carved, sawn or turned out to give clearance for the approximately 1in (24mm)-diameter pulley on the spindle. Endplay is controlled by the ends of the pulley butting against the bearings. A drive band goes between the spindle pulley and the 1220mm diameter drive wheel, which gives this style of spinning wheel its name, Great Wheel. The resulting ratio makes a bat head spindle turn about 50 times for each turn of the drive wheel.

The heads pictured are reproductions of a beautiful antique that was produced in Texas around 1900 by a German settler. After bandsawing to rough shape, the centre was faceplate-turned by paper jointing to a glue block. The blank was then spindle-turned between centres at each end. This stage of the turning can be daunting, but just takes good 'on the bevel all the time, no matter what direction' technique. The grooves around the centre were scraped during the faceplate stage and the rest of the carving was done off the lathe. The taper that mounts bat and accelerating heads is always close to a No.2 Morse taper. Whether this was by design I do not know but locking tapers occur around 3°. I use a standard No.2 MT reamer to ream seats for my heads. An easy aid in fitment is to crayon chalk the length of the taper, insert it in the socket you are matching and twist it slightly. Inspecting where the chalk smears tells you where the taper needs refining. Between-centre work can be chucked and un-chucked *ad infinitum* to this end.

Accelerating heads

In 1803 Amos Miner patented an accelerating head that places a jackshaft between the drive band and the spindle pulley. A small pulley on the jackshaft accepts the drive band and a larger pulley on the same shaft is belted to the 25mm spindle pulley, giving nine times or more acceleration. This means that the spindle now turns 450 times for every turn of the great wheel. By 1810, Miner's company was turning out (literally and figuratively for the head is a collection of turnings) 6,000 to 9,000 per week. Great wheels still abound on the antique market but more than half are missing their heads. A latter day Miner could do a brisk business, I suspect. I have repaired a good many accelerating heads and built two bat heads and one accelerating head from scratch.

Accelerating heads tension the belt between the jackshaft and the spindle with threaded posts that have a floating bearing seat for each end of the jackshaft. The bearing material is most commonly cow bone, but I have also used deer antler to good effect. A common ailment of accelerating heads is for one or both of the tensioning screws to be stripped out or, a like number of bearing seats, to have gone missing. The threads are most commonly ½in (13mm) x eight threads per inch. I have a thread box and wood taps for this size but have cut odd pitches by milling them with a flush trim router and 60° bit mounted on the tool post of my South Bend engineering lathe.



Two-reproduction bat or direct drive heads turned by the author from extant example, centre



A reproduction bat head with two Miner, or accelerating, heads repaired by author, showing extremes of repair. The one at the left only needed a new spindle, pulley and whorl, while the only part saveable on the centre head is the countershaft. While spindle could be turned on a South Bend engineering lathe, it is quicker to chuck it in an electric drill and rotate it against the rotation of a bench grinding wheel



Threaded parts are common to spinning equipment in general. A 25mm threadbox was used to cut male threads on shaft while tap cut female threads in the wing nut. Standard No.2MT reamer was used to ream tapered hole from stepped 15mm-13mm hole



Repairing singed cups on barley twist candle made by author a decade ago. Although the cup was a separate piece it was quicker to catch the base in a jam chuck and centre the cup with a tapered mandrel. Metal inserts are now included

Threaded parts are common to great and treadle-type wheels so have to be in the repairman's repertoire.

For threaded parts I turn the shafts about 0.5mm undersize with an ultra-sharp skew and leave the unthreaded area square to better facilitate holding in a vice during threading. Whether threading or tapping, applying liberal amounts of mineral oil, the most economical source being the local drug store, makes for much less resistance and much cleaner threads. It does not affect shellac or oil finishes. I then turn the remainder and, for accelerating heads, drill the mortise for the floating bearing seat.

Damaged items

Repairing antique turnings or reproductions that have met calamity requires all of the restorer's rules enumerated earlier. Jam chucks, tapered mandrels and double-sided tape are all stalwart aids to this end. Pictured is a set of barley twist candlesticks I made about a decade ago that the owner singed the candle cups on. While turning new cups was an acceptable route, I chose to turn a jam chuck for the base and a mandrel that fit the candle mortise. I then held it in the jam chuck by placing pressure with the tailstock on the mandrel in the wax cup. I then turned the singed wood away and applied a bit of shellac. I found this less intrusive than a new cup. This certainly would have been my choice with an antique.

An important question you should ask when repairing antiques is: do you possess the skill to tackle the job? It is important to know when to say no. I waited a decade before I tackled the job of repairing an inherited French empire table. I think a second question that will help with the first is: could I make this piece from scratch?

A video of building a Canadian great wheel can be seen on the author's YouTube channel. https://www.youtube.com/watch?v=CW_uVfNI93U ●



Making a duplicate of a stair newel post pediment. Turned almost entirely between centres the author used a four-jaw chuck to turn the centre mark at the very top away. By loosely grabbing it in the chuck and running the lathe slowly (50rpm) the piece was brought on perfect centre by applying pressure with the flat of a skew against it. The chuck was then fully tightened and the centre turned away

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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 small-batch runs, antique restorations or any number of strange commissions. He also demonstrates and teaches turning. **cobwebcrafts@btinternet.com**
cobwebcrafts.co.uk



COLWIN WAY

Colwin started turning aged 13 and has since gone on to teach the craft. He wishes to continue to give people confidence to try the wonderful hobby for themselves. **colwinway@btinternet.com**



CHRIS WEST

Chris has spent a good deal of his time designing, turning and writing on the subject of salt and pepper mills. His book, *Turning Salt & Pepper Shakers and Mills* was published in 2012 by Taunton Press in North America and GMC Publications in the UK. **www.westwoodturnery.co.uk**



EMILIANO ACHAVAL

Emiliano is an 'almost' full-time woodturner, demonstrating, selling his turnings, teaching and living on the island of Maui in Hawaii. He is the president of the Maui Woodturners' Association and one of the pioneers of the Live Remote & Interactive demos. **www.hawaiiankoaturner.com**



ERNIE CONOVER

Ernie is best known for teaching and writing about woodturning, as well as designing and marketing the Conover lathe. **erconover@conoverworkshops.com**



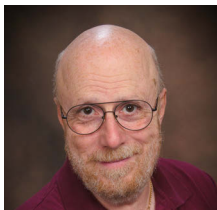
GEOFFREY LAYCOCK

Geoffrey is a Chartered Safety Practitioner, Chartered Ergonomics Practitioner and Fellow of the Royal Society for the Protection of Health and has written extensively for our sister magazine, *Furniture & Cabinetrymaking*. **geoffrey@otterconsultancy.co.uk**



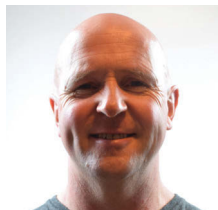
JOHN PLATER

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.co.uk**



KURT HERTZOG

A professional woodturner, demonstrator and teacher, Kurt writes for various woodturning and woodworking publications in the US. He is on the Pen Makers' Guild Council and is past president of the American Association of Woodturners. **kurt@kurthertzog.com**
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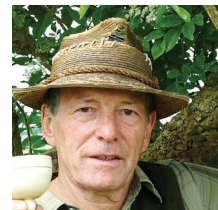
PAT CARROLL

Pat is a builder and carpenter who has always loved working with wood. After taking his first woodworking class in 2002 he has been keen on every type of woodturning but is particularly drawn to hollow forms. He is currently looking to introduce a combination of texture and colour into his work. **slievebhuiwoodturning@gmail.com**



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@turnersworkshop.co.uk**
turnersworkshop.co.uk



STUART KING

Stuart has been a familiar figure in traditional woodworking circles since the early 1960s and has built up a broad knowledge of woodworking and turning techniques. Stuart's historical interest has led to much research into endangered or lost skills in many parts of the world. **www.stuartking.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. **crownngreen1@yahoo.co.uk**

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AXMINSTER EVOLUTION SERIES WOODTURNING HANDLE AND PROBES

Evolution Series woodturning handle

The Axminster Evolution Series woodturning handle has an overall length of 440mm. The handle has a comfortable medium/hard foam covering providing a durable and non-slip grip while you are turning. The working end has a 12-13mm ER20 collet, which firmly grips on to a 12.7mm (½in) diameter round bar. The collets are interchangeable; if you need to grip a different diameter bar, then you only need purchase a suitable size collet. The handle includes a C-spanner and tommy bar to release the nut if required.

Evolution Series probes with carbide cutter

There are two probes currently within the evolution series, one straight and the other offset. Axminster says the straight probe is a perfect tool for turning boxes, goblets and small hollow forms. It has a 300mm long 12.7mm shank with the last 75mm tapering to the cutting tip.

The offset/cranked probe allows you greater access when undercutting inside a hollow form, as with a vase, for example.

The tip of both probes is a fine grade,

solid tungsten carbide, cup shaped, circular cutter, 8mm in diameter. The tungsten carbide cutter is sharp and ready to use. When the cutter eventually begins to lose its edge, rotate the cutter slightly to give you a new sharp edge. Replacements are readily available. The probes also include a Torx wrench for the fixing screw.

The price includes VAT and may be subject to change without notice.

Contact: Axminster Tools & Machinery

Web: www.axminster.co.uk



PRICE: £49.94

PRICE: £35.36-39.36

HAMLET STAYSHARP M42 TOOLS

Hamlet Craft Tools has launched a range of M42 gouges comprising 10 and 13mm spindle gouges, 6mm, 10mm and 13mm bowl gouges, each with a Masterflute parabolic flute profile. A 20mm spindle roughing gouge is to be introduced in August. The spindle gouges come ground with a fingernail profile and the bowl gouges with a Celtic grind.

The bevel angle on each tool is 45° and each has a secondary bevel of 20° to aid control. These tools are slightly oversized in the bar diameter than conventional tool sizes and, for those who wish to use them in interchangeable handles, you can buy blade-only options with a machined-down section on the shaft to the standard common bar diameter sizes.

Contact: Hamlet Craft Tools

Web: www.hamletcrafttools.co.uk



PRICES FROM: £30.52

MIKE MAHONEY TURNING TOOLS FROM CARTER & SON



The bottom feeder



Double-barrelled resolver



The finaliser



Shear Scraper



The Cleaner



The Wood Beater

PRICES FROM: \$49

DOUBLE-ENDED GOUGES FROM CROWN HAND TOOLS

Crown Hand Tools has introduced two double-ended bowl gouges, 6mm and 10mm, into its extensive range of tools. Made from M2 HSS which is cryogenically treated, they are designed to be used in conjunction with interchangeable metal handles. They are supplied with a standard grind with a blunter, a more traditional grind and one where the wings on the flute are slightly ground back. Each blade is 485mm long with each flute 140mm long.

Contact: Crown Hand Tools
Web: www.crownhandtools.ltd.uk



PRICE: 6MM £47.76



PRICE: 10MM £53.06

Carter & Son Toolworks has worked closely with Mike Mahoney to produce six tools – all gouges – that are machined and sharpened with Mike's speciality grinds and made from its M42 steel. Carter & Son says that each tool is easily ground using a Wolverine jig.

The tools are titled the cleaner, the woodbeater, the shear scraper, the bottom feeder, the finaliser, and the double-barrelled resolver.

Contact: Carter & Son Toolworks **Web:** www.carterandsontoolworks.com
For UK enquiries and prices contact: The toolpost. www.toolpost.co.uk

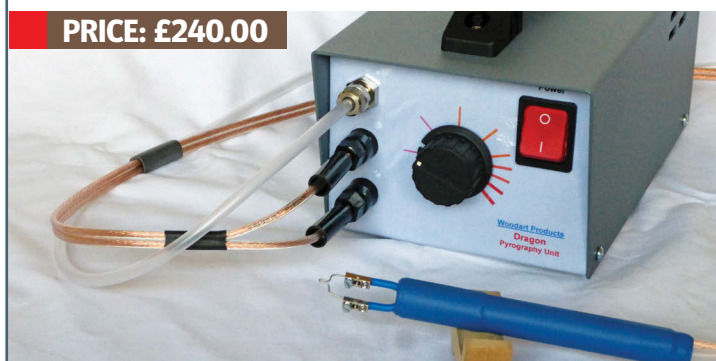
DRAGON PYROGRAPHY UNIT

Woodart Products has introduced a new pyrography unit. Woodart has labelled it as excellent for pyro-engraving and texturing, but also suitable for artistic work. Incorporating a pumped air source to help cool the pen handle and disperse fumes away from the nib and user, it has a 25amp output for rapid tip heat recovery that helps speed up high power burning/texturing work. It has fully variable temperature controls.

The pen incorporates a forced air-cooled handle to keep everything comfortable when in use. Accepts tip wire from 18-26swg or pre-formed Razertip® tips.

Contact: Woodart Products **Web:** www.woodart-products.co.uk

PRICE: £240.00



EXTENDED DEAD CENTRE

PRICE: £12.60



PRICE: £4.34

The ToolPost has introduced an extended 2MT dead centre for checking headstock and tailstock alignment. Featuring a conical point the centre is 220mm long and acts as an amplifier when aligned to a headstock or tailstock centre. This is a quick and easy way of finding out if centres are misaligned. A standard dead centre is available too.

Contact: The Toolpost
Web: www.toolpost.co.uk

Conversion chart

2mm (7/64in)
3mm (1/8in)
4mm (5/32in)
6mm (1/4in)
7mm (9/32in)
8mm (5/16in)
9mm (11/32in)
10mm (3/8in)
11mm (7/16in)
12mm (1/2in)
13mm (11/16in)
14mm (7/8in)
15mm (9/16in)
16mm (5/8in)
17mm (11/16in)
18mm (3/4in)
19mm (13/16in)
20mm (1in)
21mm (11/16in)
22mm (7/8in)
23mm (23/32in)
24mm (5/8in)
25mm (1in)
30mm (1 1/8in)
32mm (1 1/4in)
35mm (1 3/8in)
38mm (1 7/8in)
40mm (1 5/8in)
45mm (1 3/4in)
50mm (2in)
55mm (2 1/8-2 1/4in)
60mm (2 3/8in)
63mm (2 1/2in)
65mm (2 5/8in)
70mm (2 3/4in)
75mm (3in)
80mm (3 1/8in)
85mm (3 1/4in)
90mm (3 1/2in)
93mm (3 3/8in)
95mm (3 7/8in)
100mm (4in)
105mm (4 1/8in)
110mm (4 1/4-4 3/8in)
115mm (4 1/2in)
120mm (4 3/4in)
125mm (5in)
130mm (5 1/8in)
135mm (5 1/4in)
140mm (5 1/2in)
145mm (5 3/8in)
150mm (6in)
155mm (6 1/8in)
160mm (6 1/4in)
165mm (6 3/8in)
170mm (6 3/4in)
178mm (6 7/8in)
180mm (7in)
185mm (7 1/4in)
190mm (7 1/2in)
195mm (7 3/4in)
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)

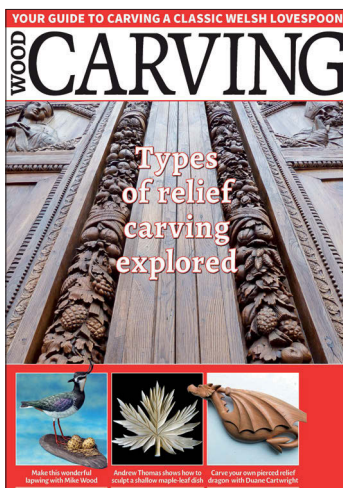
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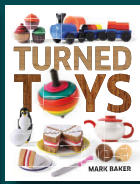
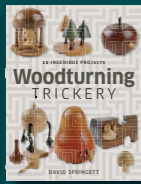
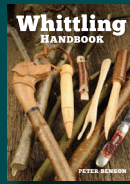


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One volunteer is worth...

Colin Grundy explains how a traction engine for a competition became a collaborative exercise for the club

Back in January at the AGM of Coombe Abbey Woodturners, Peter Carless threw down the gauntlet for clubs attending Woodworks at Daventry to enter a competition. Clubs were challenged to make a wooden model of a steam traction engine, using the skills of club members. These would be exhibited and judged at the above show.

Peter had already made a traction engine in the past and this gave a good idea of the tasks involved. All it needed was someone to take charge. Oh well, in for a penny as they say. Now all we needed was a few willing volunteers.

Following a short bit of networking – I believe that is the modern expression – the first few club members had been primed. The criteria for creating the piece were that it was to be a collaborative effort and that the finished model should be between 355mm and 405mm long.

We found some pictures of old British traction engines and an outline drawing of an Allchin engine. These particular engines were built at the Globe Works, Northampton, from 1847 to 1925, when they ceased production. We thought, what better example than a local engine?

We created working plans for the various parts needed. While these needed to be accurate, it was also important they could be used as a guide and give some degree of artistic licence to the members making the various parts.

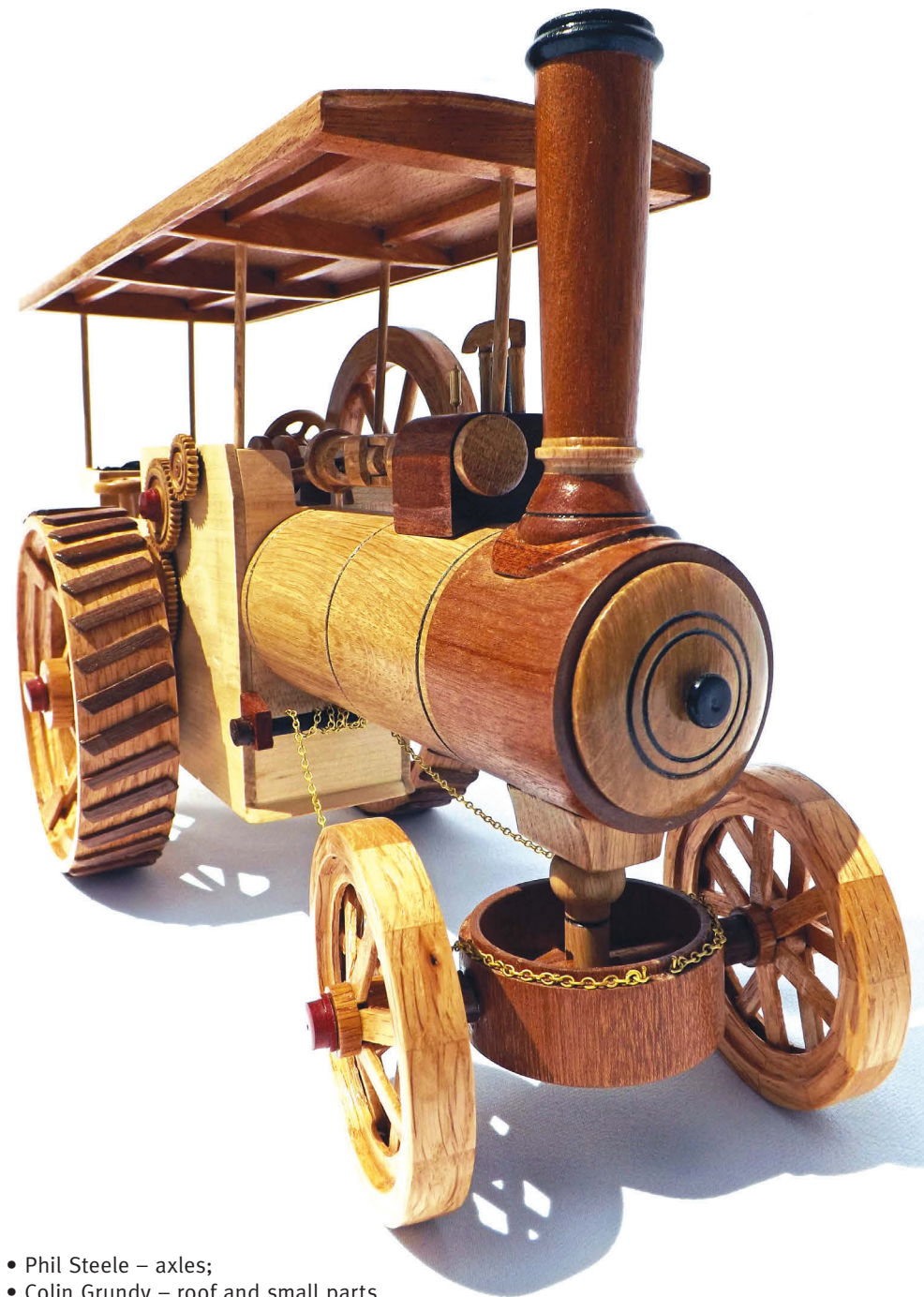
A strict timetable of eight weeks was given to the volunteers, which gave a further month for assembly and ironing out any issues. While this may seem quite a long time for this task to be completed, believe me, with other commitments, time soon disappears.

People also involved:

Steve Slack provided most of the wood for the project, with the assistance of some colleagues with dimensioning and using a planer/thicknesser.

The remaining tasks were divided up as follows:

- Lionel Crabbe – boiler and chimney;
- John Wittle – gears and small parts;
- Pete Bickley – cab and firebox;
- Pat Flynn – wheels;
- Giles Headley – front suspension;



- Phil Steele – axles;
- Colin Grundy – roof and small parts

When all of the turned parts came back, the tricky bit began. With no assembly instructions to follow, it was work it out as you go. Assembly was not entirely without its problems but we got there. The finished project was completed on schedule and, just to let you know, we won first prize!

The plan now is to enclose the traction engine in a glass case and put it on display at Coombe for the public to see what can be achieved by collaboration.

For further information contact:

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