WOODWORK | TURNING | TOOL TESTS | FEATURES

October 2021

The Woodworker

& Good woodworking

THE ORIGINAL [illegible] 1901

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SKELTON SAWS: The husband-&-wife team keeping the sawmaking tradition alive

WIN 1 OF 5 PEACOCK FINISHING KITS FROM SKELTON SAWS

PLUS...

- ON TEST: CAMVAC CGV336-4 DUST EXTRACTOR
- LES THORNE TURNS A BOX IN APPLE & VIOLET ROSEWOOD
- GEOFF RYAN BUILDS A BESPOKE TWO-STOREY CHILDREN'S PLAYHOUSE

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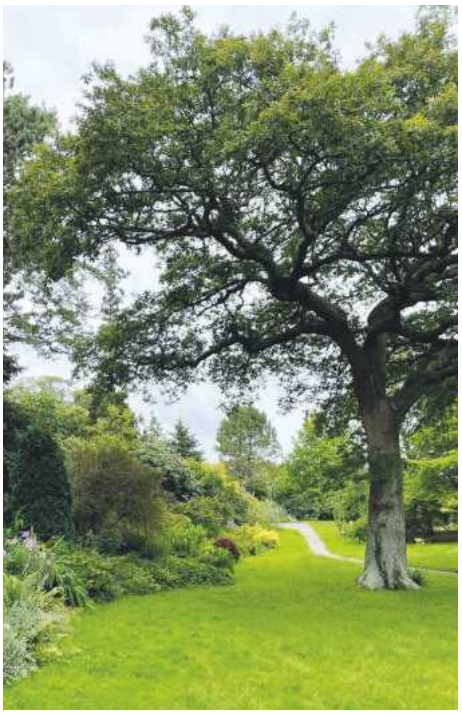

Welcome

For those who've ever wondered what it's like to be the editor of a woodworking magazine, I can happily report that getting each issue to press is different every month. In fact, no two are ever the same. Mostly, things go smoothly; other times it's a bit of a logistical nightmare, but the important thing is that we always get there in the end. Where possible, we work as far in advance as we can, and while putting the December issue together in September feels a little strange, doing so gives us a certain amount of leeway and wiggle room if things don't end up going according to plan.

Magazine mix up

During my 12 years as a woodworking journalist, I can only recall one major incident, and I'm glad to say that it occurred while working for another publishing company. This came in the form of an error at the printers whereby one of our woodworking titles had somehow got mixed up with an entirely different magazine altogether – if I remember correctly, it involved knitting. Somehow, half of its pages had been stitched into the middle of ours, meaning that as readers flicked through, planning their next project, they were suddenly greeted by a pattern for a knitted toy! You get the gist anyway... The only saving grace was the fact this blunder had been picked up before the whole print run had finished, but even so, many were sent out, and needless to say, we received a fair few concerned letters and phone calls from readers worrying that the magazine had taken a new, slightly odd direction! It's only looking back now that I can see the funny side...

Laughter is the best medicine

On the subject of humour, I believe that, generally, it's important not to take day-to-day life too seriously. And when things do go wrong, or awry, being able to laugh them off, to a certain extent, is certainly a good life skill. Having been a self-confessed 'stress head' for a number of years, I can say with conviction that doing so brings little benefit in the long-run. The saying 'life's too short' indeed rings true, and while we may forget this now and then, it serves us well to remember that unnecessary fretting is largely pointless. Distracting oneself with things that bring us joy, such as woodworking, really is a saviour, and help us to appreciate the things that matter. Being able to switch off, lose yourself in the moment and create something in the process – whether that be a turned bowl, piece of furniture, carved spoon, etc. – is where the magic often happens.

Borde Hill Garden

As I said a few months back, the extended lockdowns of 2020 made me appreciate being outside a lot more than I'd done previously, so I made a pact with myself to get out into the fresh air wherever possible. When the sun's shining, this becomes even more vital, and even if I don't often feel like it at the time, I'm always so glad I made the effort. Personally, I love being surrounded by nature, be it woodlands, plants, animals, and also escaping from the city, even if just for a few hours. My most recent excursion was to Borde Hill Garden, West Sussex, which I'd describe as 'the horticultural enthusiast's dream'. With a fascinating history dating back to 1598, when Borde Hill House was first built, the garden came second, around the early 1900s, and over the years, many species gathered from all over the world have been planted here. Boasting one of the most comprehensive collections of trees and shrubs on record, my favourite areas were the Old Potting Sheds and abandoned Victorian Greenhouses, although Warren Wood offered a chance to escape, walking among fantastic spruces and pines from China and Japan, which were first planted there in 1905.

Also, don't forget to keep sending in your workshop hints and tips for inclusion on our letters page – there's an Axminster Rider No.5 for the month. Finally, we hope you enjoy our October issue and a bit of autumn woodworking!

Email tegan.foley@mytimemedia.com

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50 JUNGLE FEVER

Tom Wilson's fantastic gorilla build uses beech and London plane to create a wonderful wooden version of this magnificent beast

WIN!

1 OF 5 PEACOCK FINISHING KITS FROM SKELTON SAWS

EACH KIT CONTAINS:

Peacock Oil Wick – Clear Figure – 250ml
Peacock Oil Wick – Rich Figure – 250ml
Peacock Wax Tin – 60ml

See **page 30** for details on how to enter – **good luck!**

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– see page 63 for details

The Woodworker & Good Woodworking
OCTOBER 2021

PROJECTS & TURNING

24 Let playtime commence!
Commissioned to make a bespoke two-storey playhouse for his grandchildren, Geoff Ryan's first port of call was to ensure it featured a more solid construction than those available off-the-shelf

41 French finesse
Peter Dunsmore's take on a classic full-length Cheval mirror, using lengths of cherry, certainly adds to its sophisticated and elegant appearance

57 Pedal to the metal
Colin Simpson experiments with reactive metal paints to add an aged appearance to a tear-drop vase

71 Making time
Mechanical devices made from wood are always impressive, and few more so than a working, accurate timepiece, as shown in this article by Christopher Blasius

76 Apple of my eye
Influenced by the late woodturner Dennis Hutchinson, Les Thorne tackles the subject of boxmaking, choosing to make a design based on one of Dennis' ideas, using two pieces of contrasting timber that complement one another in terms of grain and colour

TECHNICAL

46 Woodworker's encyclopaedia – part 31
In this section of the directory, Peter Bishop gets stuck into the Rs, where he discusses radial shake, resaw, ridge and resin, among many other timber terms

82 The invisible mitre
Dovetails are usually thought of as decorative joints, designed to be seen and admired as an example of the craftsman's art. The mitred dovetail rather goes against this, however, as once completed the dovetails are invisible, as Andy Standing shows

89 Extracting broken screws – what to do when things get stuck!
If you've ever used small brass screws in hardwood, you'll have undoubtedly run into issues. Mike McCrory offers his advice on dealing with the problem and tips on how to avoid this happening in the first place

FEATURES

32 A penn'orth of woodwork
Robin Gates is captivated by a jack plane and historic advertisements in *The Woodworker and Allied Crafts Journal* of March 6, 1909

ON THE COVER **34 Custom-made perfection**
Based in a small workshop in North Yorkshire, Shane Skelton and his wife Jacqueline work tirelessly to create the finest examples of handmade English craftsmanship – bespoke saws designed to last a lifetime

66 Can wood save the planet?
Looking to the future, building 'green' and taking into account the climate-related benefits of wood could be an important part of any solution, as Paul Greer discusses

84 Where nature drives creativity
Fusing discarded wood with metal and various upcycled items, Wild Woodworks Idaho create unique pieces using a multitude of techniques and processes

98 Take 5
From complex boxmaking to sculptural woodturning, toolmaking and wildlife carving, this month's selection is sure to brighten your day

REGULARS

ON TEST

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www.getwoodworking.com
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Edenbridge, Kent TN8 6HF
UK and Overseas Tel: +44 (0) 203 855 6105

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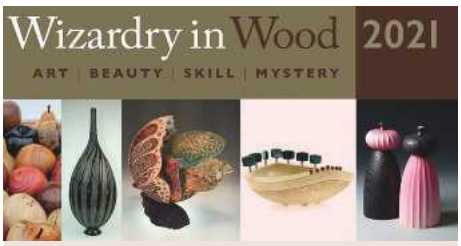
Call for entries to **TURNERS' COMPANY** Competitions 2021



If you're a professional turner, this is your opportunity to enter the largest competitions of contemporary woodturning in Europe. Be inspired and stretch your boundaries with themed competitions, including the Master's Open – Music.

WHEN: Wednesday 13 – Saturday 16 October 2021
WHERE: Carpenters' Hall, 1 Throgmorton Avenue, London EC2N 2JJ
TIMINGS: Exhibition open to the public from 10am-4pm each day
TICKETS: Early bird tickets available via Eventbrite

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Closing date for entry forms: Monday 4 October 2021

Full details and online entry forms can be found on the website: **www.turnersco.com/turning/turning-competitions-2021**

A few words from some of the exhibitors at Wizardry in Wood 2021

Margaret Garrard

Which piece are you working on?
This piece was initially inspired by the lift panelling made for the refurbishment of Selfridges, London, in the 1920s. These panels were replicas of the originals by Edgar Brandt, made in wrought iron and bronze. I made this piece from sycamore, using an airbrush for colouring and an air tool for piercing, plus acrylic paint.

How has the pandemic affected you?
The COVID-19 virus will have affected us all in different ways. Uncertainty, lethargy, but the positives have been good. Zoom has made the world a much smaller place, and I've been able to keep in touch with family and friends as well as making new connections all over the world.

Reasons why you're looking forward to Wizardry in Wood 2021
Wizardry in Wood will be taking place from 13–16 October 2021. This is an opportunity to see, up close, all the beautiful, inspiring and technical work on display, which can be purchased at the exhibition. It's also a great excuse to chat to all the friends and colleagues we've missed during this tough period.

See more examples of Margaret's work here: **www.margaretgarrard.co.uk**.

Mark Sanger

Which piece are you working on?
I'm currently working on various pure wood lidded forms, as well as building on my textured and coloured forms. I'll be creating new pieces specifically to exhibit at Wizardry in Wood 2021.

How has the pandemic affected you?
The pandemic has been a difficult and interesting time in terms of my work; it's stopped me from demonstrating and teaching, therefore losing a major income stream. In addition to the pandemic, I received a diagnosis of Multiple Sclerosis, which has forced me to look at so many aspects of my life, including the way I work. The condition impacted my ability to stand for hours at the lathe and while this was initially hard to deal with, there's always a silver lining if you look for it. My diagnosis forced me to reflect on many aspects of my life, as well as the direction my work was taking. It has forcibly nurtured me into letting go of what I could do physically and slowed me down, so I can focus on maximising positive use of my time. This time will now be spent producing highly textured, coloured and sculpted forms, a few of which are included here and will be exhibited at Wizardry in Wood 2021. My passion has moved me into and developed my finely textured and sculptural designs, many of which have been sitting patiently in sketch books.

Reasons why you're looking forward to Wizardry in Wood 2021
Wizardry in Wood is a wonderful opportunity to connect with other makers and friends as well as being a great platform for makers to show their beautiful and thought-provoking work to those attending, inviting them to view woodturning in a different way. To enthuse those passionate about the craft and art, keeping the craft moving forward. So what am I looking forward to the most about Wizardry? Well, that's easy – the wonderful experience and all that it will bring to everyone attending.

See more examples of Mark's work here: **www.marksanger.co.uk**.

The Woodworker Timber Suppliers Directory – October 2021

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WHAT IS AVAXHOME?

Bring wooden furniture back to life with **Liberon**

Richard Bradley, Marketing Manager at Liberon, provides some guidance on breathing life back into wooden furniture that's in need of some TLC.

Many of us have a beloved piece of wooden furniture at home – perhaps an antique. Over time, however, the piece may become dirty and grimy, and it's not always easy to know what to do with it. There's a veritable plethora of wood care products available, and choosing the right one can be confusing. Bringing back the beautiful good looks of your treasured piece of furniture can't be left to chance by selecting inferior quality products – the key is to choose a top quality wax.

With some spray treatments, there's a risk they will, over time, damage the wooden surface onto which they're applied, but choosing a high quality wax polish can only benefit the timber. Its ability to protect means it won't adversely affect the structural stability of the surface.

Liquid wax polishes are better suited to tackling larger surface areas such as panelling, doors, staircases and other relatively large interior woodwork areas.

Liberon Wax Polish Black Bison

Waxing furniture is a practice that's been carried out for hundreds of years, and while traditional beeswax has its place, it's a good idea to seek out a solid wax with a modern formulation, which makes it more hard-wearing. Liberon recommend choosing one with a good content of carnauba wax. Carnauba wax is found on the leaves of the carnauba palm, which is native to north-eastern Brazil. Known as the 'Queen of Waxes', it contributes to the superior durability of the complete wax formulation, making it ideal for nourishing and protecting all types of wood, including lacquers and French polishes. Liberon's Wax Polish Black Bison has a good content of carnauba wax, and being highly lustrous, makes wood look simply beautiful. It provides good resistance to finger and water marks, and is ideal for small surfaces such as chairs. Traditionally used on antiques, it's known for its high quality and pleasant, distinctive aroma. It feeds, polishes and helps to prevent wood drying out.

Reviving old furniture

Bringing a piece of wooden furniture back to good order is a straightforward job. Firstly, remove the old wax using Liberon's Wax and Polish Remover, then apply Liberon's Wax Polish Black Bison sparingly, preferably with ultra fine steel wool, such as Liberon grade 0000. It's possible to apply the wax with a cloth, but it's easy to overload it. Apply the wax in a circular motion in much the same way as you would polish a pair of shoes, always working with the grain of the wood. If too much wax is used, it can be tricky to achieve much of a shine because the wax will simply be pushed around in circles during buffing. It's more difficult to overload fine steel wool with wax, and this application method affords a deeper penetration into the wood. Many people make the mistake of applying too much, but it's better to build up the layers gradually.

Allow the wax to dry for 20 minutes or until touch dry, then buff with a clean cotton cloth or furniture brush. The wax application process should be repeated on very dry wood as it may require two or more coats.

A glossy & resilient finish

Liberon's Wax Polish Black Bison affords a highly glossy and resilient finish, helps to cover marks and scratches, and also assists in preventing wood drying out in future. Applying a small amount at a time achieves a highly lustrous and hard-wearing effect. It's a good idea to try the product on a test surface or inconspicuous area for colour, compatibility and end result before committing to the project in hand.

In future, whenever cleaning treated surfaces, they can be wiped over with a cloth or duster and re-waxed as required when they start to look dull and tired. It's important to ensure the surfaces aren't washed with water.

15 colours

Wax Polish Black Bison is available in 150ml and 500ml size options in a choice of 15 colours. Since wax and water don't mix, these finishes shouldn't be used in the kitchen or bathroom. To see a video showing how to apply Liberon's Wax Polish Black Bison Paste, visit **www.liberon.co.uk/help-advice/video-guides/wax-wooden-furniture/.**

For more information on these and other products from Liberon, visit the website – **www.liberon.co.uk** – or call **01797 367 555**. For tips and advice, follow Liberon on social media: **@liberonUK**.

MACHINE MART'S new autumn/winter catalogue – out now

The new Machine Mart catalogue is packed full of all the tools and equipment you need, whether you're a hobbyist, DIY enthusiast or professional. Featuring over 400 price cuts and new products, the 500-page 2021 autumn/winter catalogue is a 'must have' for anyone seeking a huge choice of tools and equipment at unbeatable value.

With over 21,000 items of tools and machinery in store across the country and online, you're sure to find what you need. Order your catalogue via the website – **www.machinemart.co.uk** – visit your local store, or call **0844 880 1265**.

DICKIES presents 'Considered Essentials'

Global workwear brand Dickies announces details of its upcoming 'Considered Essentials' collection, aimed at workers who demand garments that work as hard as they do. Considered the leading brand within innovative and trusted workwear globally, Dickies has supplied workers with tough, quality clothing for almost 100 years, a milestone that will be celebrated in 2022. In that time, Dickies has evolved to encompass a full range of performance wear as well as a workwear-inspired range.

Product highlights include the Everyday Coverall, Action Flex Trousers, Okemo Sweatshirt and Stowe Hoodie. All products within the collection provide comfort and technical details; pieces like the Acting Flex trousers offer knee pad pockets, mechanical stretch for movement and pocket with zip opening for optimal accessibility and safety.

Dickies' workwear garments are updated to offer greater support and lasting comfort, while staying true to the core garments and its history. The collection is designed for the worker, with the worker's lifestyle in mind.

Find out more about Dickies and the Considered Essentials collection by visiting the website – **www.dickieslife.com** – or follow them on Instagram: **@dickies_europe**.

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AUTOJAWS™ FACE CLAMP

TRAA DPBC3
AUTOJAWS™ DRILL PRESS / BENCH CLAMP

75mm (3") Clamping Capacity / 10 - 180kg (25 - 400lb) Clamping Force

TRAA FC6
AUTOJAWS™ FACE CLAMP

TRAA DPBC6
AUTOJAWS™ DRILL PRESS / BENCH CLAMP

150mm (6") Clamping Capacity / 10 - 110kg (25 - 250lb) Clamping Force

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3YR GUARANTEE

Mirka's DEROS sander produces a high quality finish on each guitar

MIRKA rocks for custom guitar builder

Custom guitar builder, repairer and converter Fern Evergreen Guitars, based in East London, is making a name for itself among accomplished musicians and novices alike. Its bespoke, handcrafted, upcycled guitars, made from natural materials, are formed using organic shapes that reflect the company's sustainable ethos and love of nature, aligning with its vision of producing beautiful instrumental pieces that combine design and function.

Established three years ago by musician and artist Mr Fernandez and Sound (Fern), Fern Evergreen Guitars is gaining a strong reputation both in the UK and globally, with work arriving from countries as far away as the US and Singapore. As a result, the company has grown to four full- and part-time craftspeople, each producing high-end, original instruments.

A recent project involved converting a 2020 replica BMG, upgrading it to the spec of *Queen* guitarist Brian May, as seen on his original guitar. The company is also passionate about helping young, up and coming musicians, who can't afford expensive instruments, to upgrade their own guitars.

Fern says: "As a teenager, living in a single-parent household, I couldn't afford the higher-end instruments, but I was frustrated by the quality of what I could afford. So, the challenge for me was how to achieve the high quality I yearned for, but at a budget price. And so, the desire to satisfy this need, while being creative at the same time, began the obsession with my craft, based on a DIY approach. Today, that same spirit lives on in Fern Evergreen Guitars and if I can inspire and excite other young musicians to pursue their craft and artistry, that makes me really happy. I love seeing the videos and images customers share on social media; it brings me a lot of satisfaction."

Fern Evergreen guitar body, once shaped and sanded

Sanders & abrasives demo

To carry out the builds and repairs to his exacting standards and those of their owners, Fern decided to research the tools market, as his existing tool collection had its limitations in terms of quality, productivity and longevity. After discovering Mirka sanding pads online and reading impressive reviews, Fern started to follow Mirka on Instagram, commenting on the manufacturer's posts. As a result, Mirka contacted Fern and invited him to a no obligation, full demo of its sanders and abrasives. Fern explains: "I was so impressed with the slick approach and professionalism of the company that I decided to take part in the demo to see how Mirka products performed on my guitars. I could instantly see how their high quality performance and finish could make a difference and was completely set on purchasing and integrating the Mirka system. The 77mm DEROS rotates completely, not just side to side like other sanders, and you can either completely dig in and be aggressive with the sanding or exert a light touch, affording you total control. Also, by connecting the DEROS to a dust extractor and using Abranet® and Abralon® discs, we've completely transformed our workspace into a cleaner, dust-free environment, which isn't only good for the guitars, but also everyone working here."

The Mirka system works perfectly for Fern Evergreen Guitars

The total package

"The Abranet® discs are very accurately made, so you don't get any loose grains, or crumpling or folding of the disc, which would create huge scratches on the wood's surface. There's also an amazing range of sizes so you can really achieve a beautiful softness to the curves. Its grip backing sticks really well to the sander, and the interface pad provides an extra layer of protection, preventing the grip from melting as it does with other medium-priced abrasives. The Mirka representative, Vince, also helped me solve some problems I was having when it came to removing swirls and scratch marks left by the abrasives making contact with the wood or finishes – he really understood what I was trying to achieve. All in all, Mirka really does offer a total package of very high quality products, expertise and excellent service."

With two albums recently completed and another on the way under Mr Fernandez and Sound, Fern is certainly keeping busy in the workshop and studio. Like his woodcraft, Fern's latest blues acoustic creation is a stripped back, simplified, natural sound and as his business continues to expand, Fern's determined that these values sustain the company going forward. "Just as the UK has rediscovered some traditional values of making things and providing for ourselves, so Fern Evergreen Guitars will continue to promote a more homely, direct, DIY approach to doing what we love, which is creating exceptional handcrafted guitars. I'm very excited to see what the future holds."

For more information on Mirka, see **www.mirka.com/uk/uk**, and follow Fern Evergreen Guitars on Instagram: **@fernevergreenguitars**.

Putting service first with **MAKITA UK**

In a move that reaffirms its commitment to delivering outstanding customer service, leading power tool manufacturer, Makita UK, recently unveiled its new Factory Service Centre (FSC) in Blakelands, Milton Keynes.

The company chose to relocate its Milton Keynes Factory Service Centre, which was originally housed at their headquarters, to a new 20,000sq.ft premises in Blakelands. The centre – which has now been open for some five months – enables Makita to bolster its customer repair and service support commitments, completing a portfolio of three dedicated centres in London, Glasgow and Milton Keynes.

Makita's Factory Service Centres deliver an exceptional service and repair offering for end-users. Products covered under the company's warranty agreement can be posted – by arranging a collection – or dropped off – with prior booking – at each FSC where Makita's technical experts and engineers perform product servicing, detailed diagnostics and high standards of repair work when required.

With a focus on improving levels of technical knowledge across the construction sector, the new larger premises in Blakelands will also be used to host Makita UK accredited service training, as well as workshops and seminars for Authorised Service Agents (ASA) . Furthermore, the new site will also be used to host apprenticeship training sessions focusing on the electrical and mechanical service requirements of Makita tools.

Commenting on the recent FSC opening, Tony Coleman, Technical Manager at Makita UK, said: "Opening this new, larger site is testament to the growing popularity of our tools, as well as our long-lasting commitment to delivering exceptional customer support. We're now in a better position than ever to deal with service and repair demands, as well as promoting high quality industry training. The spacious centre also provides us with ample opportunity to continue growing our operations as we look to develop into new sectors and industries."

Customers are advised to follow the most up-to date guidance on arranging servicing or repairs, which is published on the company's website. For more information on Makita's FSC sites, services and procedures, visit **www.makitauk.com/factory-service-centres**.

CAMVAC CGV336-4 DUST EXTRACTOR

This heavy-duty vacuum extractor doesn't take up too much floor space and could easily become the heart of an efficient overhead system, says **Phil Davy**

With dust collection a top priority in workshops these days, it's hard to remember a time when many smaller woodworking machines were built without dust outlets. My trusty old Startrite bandsaw is guilty, with sawdust gradually piling up on the floor inside the stand while it cuts. With no easy way to connect up an extractor hose, it means now and again moving the machine and shovelling up the debris before continuing. Machines such as planer/thicknessers create rather more waste – in the form of chips – and have always featured a sizeable port, secured to a suitable hose or ducting via push-fit adaptors or jubilee clips. In a small workshop you'll probably only have space – and budget – for a single extractor. Whether you want to hook up one machine at a time or intend to install a dedicated extraction system with overhead ducting, making the correct choice of unit is important.

CamVac produce a variety of vacuum extractors, including floor and wall-mounted units. Classed as HPLV – High Pressure Low Volume – they're designed to collect waste down to a particle size of 0.5 microns, which is classified as respirable dust. Cheaper impeller-type extractors don't have such fine filtration and are known generally as chip collectors.

Steel drums

CamVac extractors feature a heavy steel drum, which collects the waste material, powered by one, two or three motors on the biggest models. All work with cyclonic action, which means that debris sucked in circulates around the inner edge of the drum and drops to the bottom, while clean air exits through outlets on top. Continuously-rated motors mean they can be used for up to two hours at a time, but should then be switched off for 15 minutes to allow for cooling. CamVac's CGV336-4 is described as a medium extractor, with a capacity of 55 litres. This may sound fairly generous, but when using a thicknesser for any length of time you'll know just how rapidly a drum or bag can fill up.

With a diameter of 355mm, overall height is 680mm. It's no lightweight unit, weighing about 13kg when empty, so you'll probably need wheels if you envisage moving it around. A dedicated set from Record Power will cost around £55, though I'd be inclined to make a suitable circular trolley from ply or MDF and fit a cheap set of castors.

This particular extractor is equipped with twin 1,000W brushed motors, which are individually switched. These are mounted underneath the steel lid, which has a pair of handles to make life easier when emptying or changing filters. Rocker switches illuminate when on, though you'll hear the noise level difference between one or both motors when powered up.

Filters & hose

Elasticated canvas filters fit tightly over each motor and as a second level of filtration,

All CamVac extractors work with cyclonic action, which means that debris sucked in circulates around the inner edge of the drum and drops to the bottom...

... while clean air exits through outlets on top

The CamVac CGV336-4 is equipped with twin 1,000W brushed motors, which are individually switched

The brushed motors are mounted underneath the steel lid, which has a pair of handles to make life easier when emptying or changing filters

Elasticated canvas filters fit tightly over each motor and as a second level of filtration, paper bags then cover these, secured with strong rubber bands

A large elasticated fabric bag fits around the inside of the drum

A 2m length of clear, flexible wired plastic hose fits over the drum's inlet via a rubber cuff

Fitting an additional hose cuts noise levels, but a pair of acoustic outlets allows for maximum benefit

An extra 2.5m hose and reducer can be fitted, costing around £33

paper bags then cover these, secured with strong rubber bands. A large elasticated fabric bag fits around the inside of the drum. These are washable, with paper versions disposable.

A decent length (5m) mains lead is provided, inserted into a socket on the lid, while three retaining clips keep this and the drum firmly sealed. A 2m length of clear, flexible plastic hose is provided. With a diameter of 100mm this is wired, and fits over the drum's inlet via a rubber cuff, though I found an adaptor sleeve was required for connecting some machines.

Above the lid, each motor has a port for clean air to exit. CamVac call these acoustic outlets, as fitting an additional hose cuts noise levels, though ideally you need a pair for maximum benefit. In this mode, the unit also works as a blower.

Flow rate

With one motor running, flow rate is stated as 54 litres per second, which is certainly adequate for bandsaws and other machines that don't produce a huge amount of sawdust. Switching on the second motor makes a noticeable difference to suction as flow rate doubles to 108 litres per second. With the clear hose fitted, you can actually see how effective this action is.

Using the same unit for static machines as well as portable power tools makes sense, though it's worth pointing out that, with chip collector extractors, hose diameter shouldn't be reduced. This isn't a problem for the CamVac, however, as you can fit an extra 2.5m hose and reducer, costing around £33. With an inside diameter of 52mm you'll still need an adaptor, as power tools are notorious for having non-standard ports. The advantage of twin motors here means you can switch between them to allow cooling, as a smaller hose diameter leads to overheating if used for any length of time.

Effective extraction

If you don't have a workshop already fitted out with overhead ducting, you'll probably hook up machines separately. The advantage of an installed system is that you can shut off individual machines via blast gates, so the extractor concentrates on suction from one area, albeit via a system of vertical and horizontal plastic tubes and bends.

I tested the CamVac in a friend's workshop, equipped with around 8.5m of ducting, three or four 90° bends and blast gates for individual machines. To be honest, using just one motor provided adequate suction for most operations, though with two motors, performance was better than from his existing extractor unit.

Connected to the outlet of a 14in Record Power bandsaw, it sucked effectively with just one motor activated. Switching to a DeWalt thicknesser, the increase in flow rate with the second motor running was impressive.

Power tools are notorious for having non-standard ports, so be prepared to experiment with adaptors. While the optional hose is fine for smaller bench-top machines, it's still cumbersome for hand-held power tools. Here a dedicated mobile extractor makes sense, though increasing overall costs.

Conclusion

This is a heavy-duty vacuum extractor that doesn't take up too much floor space and could easily become the heart of an efficient overhead system. Twin motors increase versatility if you're running the unit for several hours at a time. If you're happy to connect directly to one or two individual machines, you may want to consider CamVac's 1,000W model (CGV336-3), saving you more than £100, though obviously flow rate will be halved.

If you need an extractor primarily for use with a planer/thicknesser and have the funds required for this, I'd suggest going for a larger capacity model. With the CamVac CGV336-4, it simply means emptying the drum more frequently, especially if machining timber for a major project.

Connected to the outlet of a 14in Record Power bandsaw, the CamVac sucked effectively with just one motor activated

Switching to a DeWalt thicknesser, the increase in flow rate with the second motor running was impressive

While the optional hose is fine for smaller bench-top machines, it's still cumbersome for use with hand-held power tools

SPECIFICATION

Filtration: 0.5 microns
Air flow: 108 litres/second
Capacity: 55 litres
Motor input P1: 2 × 1kW
Inlet diameter: 4in
Weight: 13kg
Size: 370mm wide × 412mm dia. × 624mm high
Optional fitments: Heavy-duty cloth filter
Key features: Three-stage filtration; acoustic outlet; twin motor two-stage filtration; cyclonic inlet

Typical price: £428.99
Web: www.recordpower.co.uk

THE VERDICT

PROS

- Highly efficient cyclone action; twin motors

CONS

- Adaptors required for power tool use

RATING: 4.5 out of 5

PEACOCK OIL WICK & PEACOCK WAX

Phil Davy looks at two new and improved finishing oils, plus a wax, all made by hand in the **Skelton Saws** workshop

Not surprisingly, there's often a tendency among smaller producers of woodworking goods to strive to develop their own products where possible. This is certainly true of Shane Skelton, who's responsible for creating Peacock Oils in his Yorkshire workshop. If you've examined their elegant hand saws at woodworking shows, you'll know just how silky smooth the handles are, finished with these same oils. And in case you weren't aware, Peacock Oil contains no synthetic resins – unlike finishing or Danish oils – which has to be good news, especially for allergy sufferers.

Peacock Oil Wick

I tested the original finishes back in 2019, but the range now includes Peacock Oil Wick, which offers reduced hardening times, hence shortening the entire application process, which can be lengthy if you're after the ultimate finish. It can take several days to achieve a lustrous, hand-rubbed effect, though this depends on timber choice and grain to some extent. Initial coats are still touch-dry after 15 minutes, so you can build these up rapidly – typically four – using a lint-free cloth. Surplus oil from the last coat is wiped off with a paper towel before drying. After that it's a case of leaving the timber for eight hours before adding another thin coat, denibbing with fine abrasive before oiling once again. Further coats can be applied with a similar time interval between them. Previously you had to wait 24 hours or more each time, so life has definitely speeded up, hence the name Wick, which means 'quick' or 'lively' up north!

With a choice of Clear or Rich Figure, colour difference between the two is subtle. On pale timbers it's hard to differentiate, though the more coats you apply, the deeper the effect. Rich Figure is recommended for darker timbers.

To check their effectiveness, I tried both oils on several pieces of figured English oak, plus maple and oak-veneered MDF. After the fourth coat, I wiped off the surplus before it was dry, then left samples overnight. Denibbing with 400 grit abrasive, it was time for another coat. The next day, surfaces were glowing nicely.

Peacock Wax

A clear wax has also been added to the Peacock range, for even simpler finishing. To create a sheen, many woodworkers like to add a coat of wax after sealing with oil or polish, though for a surface that's unlikely to be handled too often, applying the wax directly to bare wood is the easiest finish of all. After applying three or four coats to a piece of quartersawn oak, using a lint-free cloth, a lovely silky sheen became evident. Peacock Wax hardens after about 24 hours, offering more protection than most waxes.

Allowing a couple of the oiled samples to cure sufficiently, I denibbed then added wax on top – what a gorgeous finish, particularly on figured oak slab. Peacock Wax can also be used on bare metal – I tried it on a small Lie-Nielsen bronze block plane and the tool shone even more. A good choice for general maintenance of hardwood tool handles.

Conclusion

For cabinetmakers, boxmakers, instrument makers and similar producing smaller items from fine woods, Peacock Oil really does highlight the timber. It seems that the wilder the grain, the more it enhances the wood. Using Wick, achieving the best possible finish is still a lengthy process, albeit a little faster. If you're in a hurry, it's probably not the one for you. On bare wood, Peacock Wax avoids the problem of soiled cloths and long drying times, though don't expect the same level of protection if used on its own.

Available from Classic Hand Tools and Workshop Heaven, though once woodworking shows are up and running, look for the Skelton Saws stand… And in case you were wondering, both the oils and wax smell delicious!

On pale timbers, the colour is harder to differentiate, though the more coats you apply, the deeper the effect

Skelton Saws recommend Peacock Oil Wick, in Rich Figure, for darker timbers

I tried both oils on several pieces of figured English oak, plus maple and oak-veneered MDF

After rubbing on three or four coats of wax with a lint-free cloth, a lovely silky sheen became evident

SPECIFICATION

Peacock Oil Wick – available in the following shades: Rich Figure; Clear Figure
Peacock Oil Wick – bottle sizes: 100 & 250ml
Peacock Wax: Currently only available in 60ml size

Typical prices: Peacock Oil Wick (100ml) – £14; (250ml) – £24; Peacock Wax (60ml) – £12
Web: www.skeltonsaws.co.uk

THE VERDICT

PROS

- Natural ingredients; fantastic finish when used on figured timber

CONS

- Achieving best results requires patience

RATING: 4.5 out of **5**

AUKTOOLS CONTOUR SANDING GRIPS

Phil Davy looks at two handy workshop items under the AUKTools brand, both available from **Wood Workers Workshop**

The method is simple: cut pieces of abrasive paper roughly to size...

... wrap them around your chosen grip and sand away

Depending on the cross-section of moulding, you'll need to experiment to see which grips work best

Sanding is arguably the least favourite part of many people's woodworking, especially if it means doing so by hand. There's a tendency to take shortcuts and skip abrasive grades, which becomes obvious once you've applied a clear finish to the wood. Or perhaps we're faced with cleaning up intricate profiles such as picture frame mouldings, rather than sanding those easier flat surfaces. We've probably all had our fair share of cleaning up picture frame mouldings, traditional skirting, architrave and so on before painting.

Anything to make this process less tedious is worth checking out, so these contour grips should help. The eight-item set includes three lengths of rectangular dense foam measuring 140 × 70mm, in thicknesses from about 5-12mm. The remaining five grips are strips of rubber, each 73mm long and with various shaped profiles along one edge, including knife edge, radius and wedge. Imagine offcuts of thick weatherstrip material and you get the idea.

The method is simple: cut pieces of abrasive roughly to size, wrap them around your chosen grip and sand away. As grips are flexible, there's plenty of give for sanding convex or concave surfaces, with more stiffness along the radius edges than slimmer, opposing edges. Depending on the cross-section of moulding, you'll need to experiment to see which grips work best.

Conclusion

I tend to use lengths of rigid hardwood dowel for this sort of sanding work, which are limited in diameter and obviously don't flex. This set of contour grips provides more scope and can be handy for cleaning up contoured or turned items as well. For sanding surfaces such as handrails, the flat pads are reasonably useful.

SPECIFICATION

- Three large sanding pads in three thicknesses: 12, 6 & 5mm
- Four radius contour grips – approximately 6, 8.3, 11.6, 14.5mm & 1 × flat-sided (25mm)

Typical price: £11.95
Web: www.woodworkersworkshop.co.uk

THE VERDICT

PROS

- Handy for sanding complex mouldings

CONS

- Flat pads

RATING: 3.5 out of 5

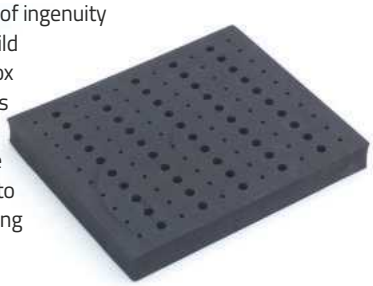
AUKTOOLS ROUTER BIT FOAM TRAY

Even if you only occasionally use a router, you're likely to own several ¼in or possibly ½in cutters. I tend to store mine in discarded plastic ice cream tubs, which is OK, but means sifting through boxes when I need a specific profile. Newer bits tend to remain in their packaging until these eventually split, while older ones often get mixed up in the bottom of the box. The more bits you acquire, the longer it can take to find the one you're looking for, and annoying if cutting edges come into contact with one another.

This storage tray from AUKTools is made from high density foam, measures 325 × 275mm, and is covered in a series of holes. It accommodates 60 × ¼ router bits and 50 × ½ versions, so there's sufficient space for a sizeable collection. At 35mm-thick, it's deep enough to house the longest shanks without them falling out. Not that they're likely to, as each one is gripped firmly. If you want to keep track of specific cutter sizes or product codes, there's just enough room between the rows to add a label or two.

Conclusion

You could easily make a storage board from a piece of ply or MDF, though this tray is lightweight and probably easier to move around. With a bit of ingenuity you could even build it into a storage box for housing various other routing bits and pieces. Simple storage designed to help get your routing life organised.



The bit tray will accommodate 60 × ¼ router bits and 50 × ½in versions, so there's sufficient space for a sizeable collection

At 35mm-thick, it's deep enough to house the longest shanks without them falling out

SPECIFICATION

- Protect your router bits
- Faster router bit selection
- For bits with either a ¼in or ½in shank
- 6mm deep holes also accept 8mm shanks
- High-density foam construction
- Dimensions: 325 × 275 × 35mm

Typical price: £12.95
Web: www.woodworkersworkshop.co.uk

THE VERDICT

PROS

- Cutter organisation at last!

CONS

- Expensive for a piece of foam

RATING: 4 out of 5

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Shaper Origin is an easy-to-use handheld CNC router that brings digital precision to the craft of woodworking. With Shaper Origin + Workstation, you can create perfect box joints, mortise and tenon joinery, and more with ease and accuracy.

MIRKA DEOS ORBITAL SANDER

Jamie Smith of **Atelier Cabinet Makers** is very impressed with this industrial orbit sander from **Mirka**, which delivers virtually dust-free sanding while being ergonomic and comfortable in use

The Mirka DEOS 353CV is a compact and very lightweight orbital palm sander, which weighs just under 1kg. Its ergonomic credentials are noticeable straight out of the box and it sits very comfortably in the palm of your hand. The switches and controls are all easy to use and allow quick changing of speeds during various sanding operations. If you've not used a Mirka sander before, the first thing you'll notice is the unusual paddle switch located on top of the machine, which is used to facilitate fuss-free switching on and off, while also enabling fast control of the various speed settings. This delivers a hassle free 'pick up and go' ability when working in the workshop or on site.

During sanding, you can simply ease off or increase the pressure on the paddle switch, which is handily positioned under the palm of your hand, and this either increases or decreases the speed. Other sanders on the market will require a second hand to turn a speed adjustment wheel, so the DEOS is certainly ahead of the game here. Releasing the paddle switch stops the sander entirely but leaves it ready to pick up and carry on. When finished, you simply press the power off button, situated just behind the paddle switch.

MyMirka smartphone app

The palm sander not only features the unique paddle switch for fast speed control, but also a plus and minus option, which allows the user to set a top speed limit. This means you could set a 50% speed level and when the paddle switch is pressed fully, it won't go any higher than this. Changing the power limit is indicated by the consistent green indicator light, which gives a red flash every time the plus or minus button is engaged. Unless you download the MyMirka smartphone app – which allows you to connect to the orbital sander via Bluetooth – there's no way of gauging which speed setting the sander is on. The app shows the real time running speed along with vibration level, which you can monitor to ensure it's not getting too high. During all the sanding tasks I carried out, however, the DEOS didn't reach anywhere near the stated excessive vibration limits.

Abrasive sheets

The Mirka DEOS has an 81 × 133mm base with a 3mm orbit. The base pad is covered in extraction holes, which ensures dust-free sanding when paired with the Mirka Abranet® abrasive sheets; these allow dust particles to pass straight through the abrasive and not clog up like traditional sanding paper does. I'd highly recommend using these branded sheets as opposed to generic equivalents as they increase the sander's performance.

The DEOS is supplied with a secondary hook-and-loop pad, which you keep fitted to the main base pad to prevent the original one from wearing out. When the secondary pad wears, you can simply change it, which is much more cost effective than replacing the main base.

Exceptional sanding

While working in my cabinetmaking workshop, I found the DEOS exceptional for sanding in awkward areas due to its low – 10cm high – profile. The 1kg weight makes it perfect for one-handed sanding operations overhead, especially if working for long periods of time. I used the Mirka a great deal for sanding between coats of finish on tall kitchen cabinets and found its compact weight really made the job easier along with the truly exceptional level of dust extraction. There's nothing more frustrating than sanding overhead only to have dust

Bluetooth connectivity to the MyMirka App

The ergonomically designed paddle switch

Power switch, speed adjustment and indication light

Versatile sanding is possible thanks to the DEOS' light weight and compact design

I found the DEOS ideal for sanding a number of oak veneer kitchen cabinets

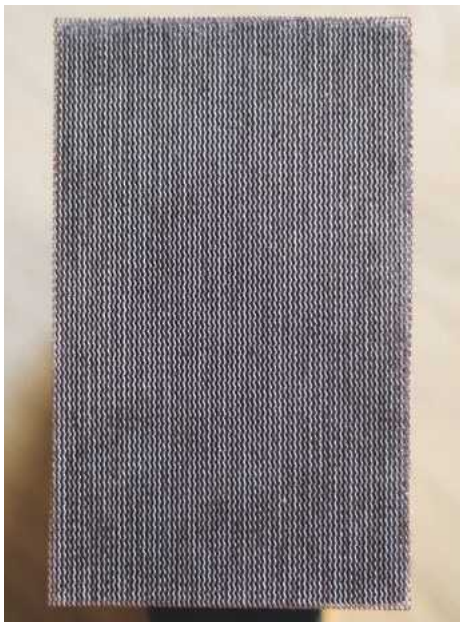
Sanding between coats of finish

The 81 × 133mm DEOS base pad, showing extraction holes

fall in your face! I paired the DEOS with my Festool CTL extractor and found the Festool hose adaptor fitted over the Mirka dust port, holding itself securely in place. Plugging into the dust extractor power outlet gave instant auto-extraction as soon as the DEOS was switched on. I've used many grades of Abranet® sanding sheets with the DEOS – from 80-320 grit – on a range of materials and the dust extraction experienced has been consistently excellent.

The sanding finish quality is very high and better than that seen on circular orbital sanders, which can leave swirls on the surface being worked. This is where the DEOS' 3mm orbit really comes into its own, noticeably reducing any swirls, and allowing you to achieve the very best finish possible.

Something I really like on any power tool is a detachable power cord, which I was pleased to see here. If the cord gets damaged, this allows easy replacement and makes things a lot easier when it comes to packing the sander away into the T-LOCK storage case provided, which is also compatible with all TANOS systainers.



Base pad fitted with Abranet® sanding sheet

Conclusion

While I wouldn't recommend the DEOS for initial heavy sanding work, it's nevertheless ideal for lightweight and finishing jobs, especially for cabinetry, and being able to delicately reach into corners of panels and doors, etc. is a big plus. I could see this sander becoming a permanent fixture in our workshop, and having had it on test for a few weeks, I'd certainly consider purchasing one in future. While the DEOS may be one of the most expensive sanders in its class, ensure to take note of the unique features if you're thinking of buying one. In my opinion, these really do set it apart from the competition.

The Mirka T-LOCK systainer case

A hose extractor can easily be fitted over the dust port

The removable power cable

SPECIFICATION

Motor: 250W brushless
Weight: 0.97kg
Orbit diameter: 3mm
Pad size: 81 × 133mm
Rating: Industrial
Speed: 5,000-10,000rpm
Voltage: 230V
Sound power level [Uncertainty K]: 80dB(A) [3.0dB]
Sound pressure level [Uncertainty K]: 69dB(A) [3.0dB]
Vibration sanding [Uncertainty K]: 2.6m/s² [1.5m/s²]

Typical price: £518.62
Web: www.mirka.com/uk/uk

THE VERDICT

PROS

- Very lightweight; low vibration; virtually dust-free sanding; ergonomic and comfortable for prolonged use; replaceable secondary hook-and-loop pad

CONS

- High price tag; paddle switch could be vulnerable to breaking if dropped

RATING: 5 out of 5

FURTHER INFORMATION

To find out more about Atelier Cabinet Makers, see their website: **www.ateliercabinetmakers.com**

What's new from

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D&M TOOLS

FESTOOL 577131 FIXINGS SYSTAINER KIT – LIMITED EDITION

MANUFACTURER: Festool
D&M GUIDE PRICE: £259.95 (inc VAT)

Coming in September from Festool, the limited edition fixing Systainer ensures that workpieces of different shapes are held firmly when being machined on the MFT multifunction table or MW 1000 mobile workshop – available while stocks last.

The accessories supplied in the fixing Systainer provides flexibility when it comes to clamping and securing workpieces of different shapes. This offers a greater variety of possible applications, allowing efficient machining of all workpieces, therefore saving valuable time.

The fixing Systainer's lever clamps and stops are compatible with all models of MFT multifunction table and MW 1000 mobile workshop.

Contents: 1 × blue Systainer SYS3 M 112 (limited edition); 2 × MFT-HZ 80 lever clamps; 2 × FS-HZ 160 lever clamps; 4 × MFT bench clamps; 2 × low-profile stops; 1 × deep-drawer insert.

FESTOOL FS/2-KP GUIDE RAILS WITH ADHESIVE PADS

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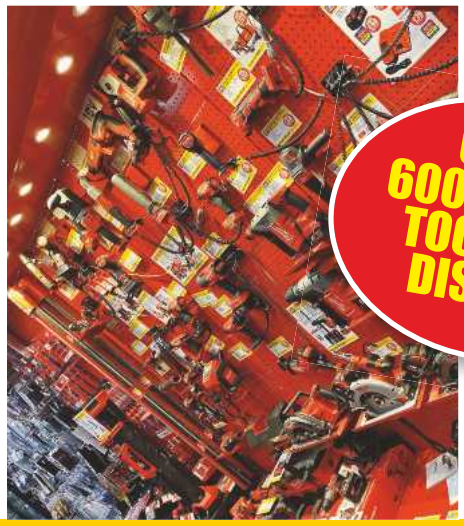

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LET PLAYTIME COMMENCE!

Commissioned to make a bespoke two-storey playhouse for his grandchildren, **Geoff Ryan**'s first port of call was to ensure it featured a more solid construction than those available off-the-shelf

When my daughter asked if I could build a playhouse for the grandchildren, we looked online to get an idea as to the styles available. The type we liked were two-storey and cost in the region of £600-700. Based on this figure, I priced up the cost of the wood required to build something similar, which turned out to be around the £500 mark, plus roof covering, glazing and paint – basically, there wasn't a lot to be saved in doing it myself. However, on closer inspection, we discovered that many of the designs we liked had sold out, and those that were available cost well over £700, including a minimum three-month delivery from date of placing the order. We were also concerned by some of the online reviews regarding quality of materials or standard of construction. To keep costs down, playhouse and shed manufacturers tend to use the lightest thickness of timber possible, and by building my own version, I'd be able to ensure it was of a more substantial construction.

Design & timber requirements

The design I came up with was a two-storey affair with an upper mezzanine floor measuring half the width of the house. Having the apex

of the roof offset to one side maximised available headroom above the mezzanine floor. The overall dimensions are approximately 2.13m high × 2.13m square. When starting the build, the first step was to make some rough sketches, which would allow me to judge overall layout, followed by more detailed sketches of the individual parts and how they'd go together. While many of the finer details can be dealt with during the build, you really need to be sure that your creation will actually fit together. My estimate for materials drawn up from the sketches proved to be fairly accurate with little waste other than offcuts.

I chose to build the body of the house using untreated timber – splinters from pressure-treated timber can be nasty and, as the occupants were to be very young children, safety was therefore a major consideration.

The most economical timber for framing is scant, produced from kiln-dried spruce – whitewood, which is planed and finished with eased – rounded over – edges to consistent dimensions, and available in a range of cross-sections and lengths. As it's recognised as a cheaper timber, scant is usually used for hidden work such as stud wall construction; however, the planed finish makes it less of a splinter risk than rough sawn timber – but don't expect it to be perfect! I chose 2×2in, which is actually 44 × 44mm, as 3mm is planed off each face. Due to the quantity required, I couldn't select each individual length and, having used scant many times before, ordered more than required as there were bound to be some lengths that were bowed and twisted. When delivered, I cut the straps off the bundle and was pleased to find that only two lengths were in poor shape, but even these were usable for some of the short sections required.

For cladding, I chose 5in shiplap although, again, this is just a nominal size. The actual effective size is 114 × 14mm. Only one of the lengths delivered was unsuitable for use as cladding, but instead I was able able to use it for some of the trim around the windows.

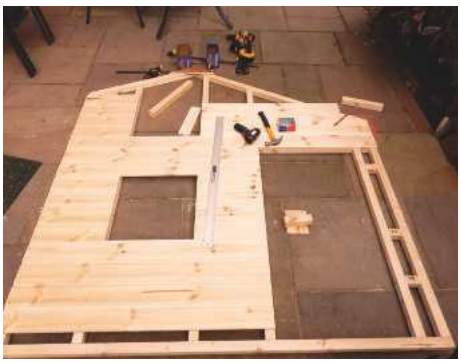
The base frame is 6×2in treated timber, the roof panels are ½ Board), and the main floor and mezzanine are ¾ were 5in tongue & groove for the door, 4in and 2in pencil skirting for the trim, and some 5×1in PAR for the fascia. I was also able to make use of a variety of offcuts in my timber store.

The windows are all 3mm shatter-proof polycarbonate, purchased from Toolstation, which is available in a variety of thicknesses and panel sizes. The panels are delivered encased inside two layers of plastic twin wall board, which affords excellent protection.

Frames & panels

The frames for the front and back are similar but not identical as only the front has a door and windows (**photo 1**). Located on the back frame, the central horizontal section, which supports the mezzanine, is one length and the uprights are staggered to allow screws to be driven vertically.

1 The frames for the front and back are similar but not identical as only the front has a door and windows



2 The height of the window and door openings were chosen so they'd line up with the sections of cladding

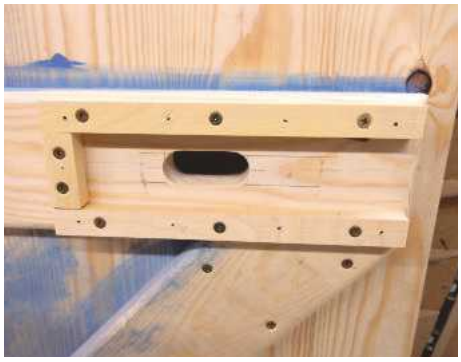
3 The side panels are relatively straightforward: one is 1.5m high and the other, with a window opening, 1.8m high

4 To create the substantial ridge piece required, I set my table saw at 25° and ripped the edges from two lengths of 2×2in scant

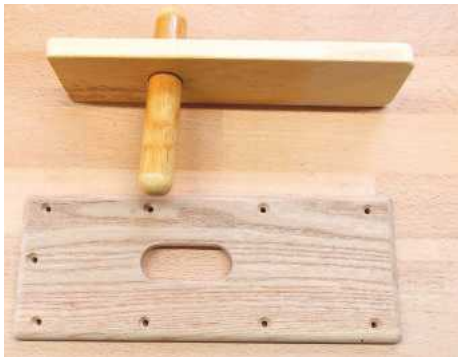
5 The width of door was chosen taking into account the width of boards used and the need to remove the tongue on one edge and groove on the other

6 A diamond- shaped opening was carefully cut out using a jigsaw, the edges sanded flat, then the inside rounded over using a router

9 The completed door having received two coats of paint. The window panel sits in rebates in the external trim, with glazing silicon used to seal it in place



7 Initially, I thought of fitting a metal latch but as these tend to have sharp edges, I opted for a wooden one, and rounded the edges myself



8 The latch was then waxed and the handle given three coats of exterior varnish. The cover for the inside was a piece of thin oak from my odds and ends bin

When driving long screws into end-grain, pilot holes are essential to ensure splitting doesn't occur. The height of the window and door openings were chosen to line up with the sections of cladding (**photo 2**). The bottom rail runs the entire width of the playhouse, but would be cut away at the door opening once the frame was finally in place, ensuring the frame doesn't twist when being handled and transported. Also, the bottom length of cladding isn't fixed on at this stage as it overhangs the frame to cover the edge of the base and could potentially be damaged during transportation. Due to the dryness of wood and to reduce splitting, all cladding was fixed in place using galvanised nails, with pilot holes drilled into the cladding.

The side panels are relatively straightforward: one is 1.5m high and the other, with a window opening, 1.8m high. Once complete, I could then assemble all sides onto the base, allowing construction of the roof and all internal fixtures. The roof pitch is different on both sides – 68° on the left and 62° on the right – giving an overall roof angle of 130°.

Wishing to create a substantial ridge piece to support the roofing boards and match these angles, my solution was to set the table saw at 25° and rip the edges from two lengths of 2×2in scant (**photo 4**). Once screwed and glued together, I was left with a very solid 130° ridge beam. All roof beams were fixed in place using pocket-hole screws, followed by the roof boards, which were cut to size to provide a 125mm overlap of the sides and, after some careful marking out, these were screwed to the beams from above.

Door & latch

The width of the door was chosen taking into account the width of boards used and the need to remove the tongue on one edge and groove on the other (**photo 5**). The boards were then clamped together and marked up for the cross-pieces, from the same timber, but with tongue & groove removed. Next, three cross-pieces were screwed in place at the top, middle and bottom of the door, with a single brace fitted to the lower section. A diamond-shaped opening was then carefully cut out using a jigsaw, the edges sanded flat, then the inside rounded over using a router (**photo 6**).

Initially, I thought of fitting a metal latch but as these tend to have sharp edges, I opted for a wooden one with rounded edges (**photo 7**). It was also important to ensure that no one could potentially lock themselves inside! The opening through the door was made by drilling holes using a Forstner bit, and a jigsaw removed the rest. The body and latch were made from some leftover hardwood – I've no idea as to the species, but it's extremely dense. The latch was then waxed and the handle given three coats of exterior varnish (**photo 8**). The cover for the inside was a piece of thin oak from my odds and ends bin, which seems to grow daily!

Photo 9 shows the completed door having received two coats of paint. The window panel sits in rebates in the external trim, with glazing silicon used to seal it in place.

Windows

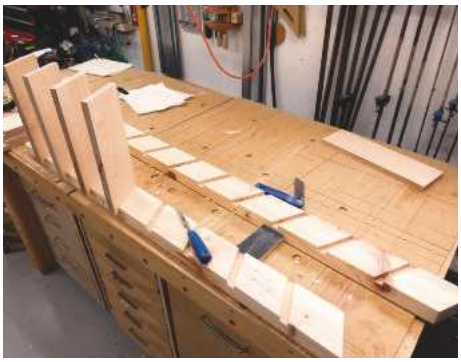
The fixed windows at the front of the playhouse were again set in rebates fitted in the external trim. The opening windows at the side needed to be light but strong – my solution was to make each half of the window from two simple frames, held together with glue and a single pocket-hole

10 For the side windows, I made each half from two simple frames, held together with glue and a single pocket-hole screw at each butt joint

11 Two clamps were used to keep the two frame halves aligned while screws were inserted into recessed holes, which would hold them together

12 Drip caps – for placing over the door and opening window – were made from some 2×2in scant. Using the table saw, I ripped a slope on the top edge and created a drip rebate on the underside

13 Internal fit-out started with the mezzanine floor. Three 'joists' support a ¾ OSB floor, which is made up from three pieces

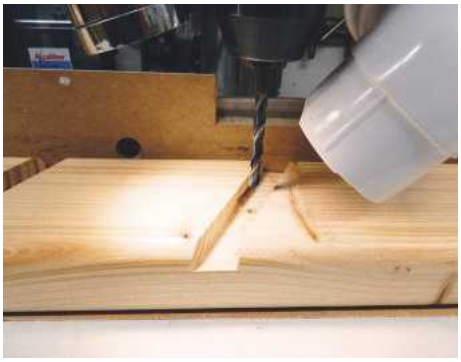


14 I've never made stairs before, but found this easier than anticipated. Using 4×2in scant, the required angle for the side rails – 65° from horizontal – was largely dictated by the amount of space available

screw at each butt joint (**photo 10**). The external surfaces of the frames were painted before assembly, which kept the paint away from the glazing. Note that in order to maximise rigidity, the two halves aren't mirror images – the joint positions don't line up with one another. The outer part of the frame has a rebate for the glazing, which sits in a bed of silicon. Plenty of glue was then applied to both halves before they were brought together.

Two clamps were used to keep the two frame halves aligned while screws were inserted into recessed holes, which would hold them together (**photo 11**). Clamps were then used to hold the two halves in place while the glue dried. The screw holes were filled to hide the screws and after some final sanding, the frame received a further coat of paint. Drip caps – for placing over the door and opening window – were made using some of the 2×2in scant. I ripped a slope on the top edge and created a drip rebate on the underside using a table saw (**photo 12**). Two passes over a flat-topped blade is the quickest method, but you could cut the rebate on a router table. The front top and bottom edges were then rounded over

15 After rounding over all side rails edges and front and rear edges of the treads, the stairs could be dry assembled

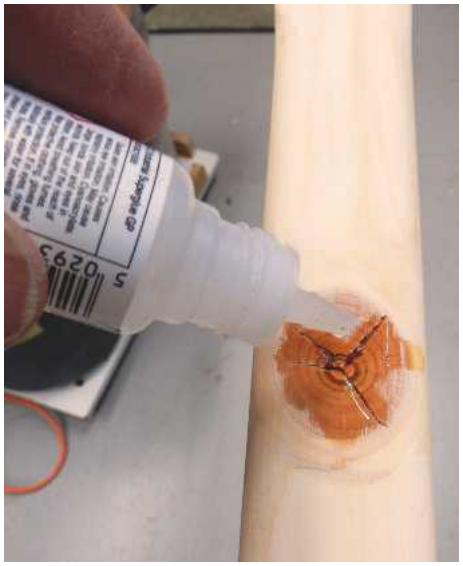


16 The holes in the side rails were drilled out bigger, providing clearance for the screws, then countersunk

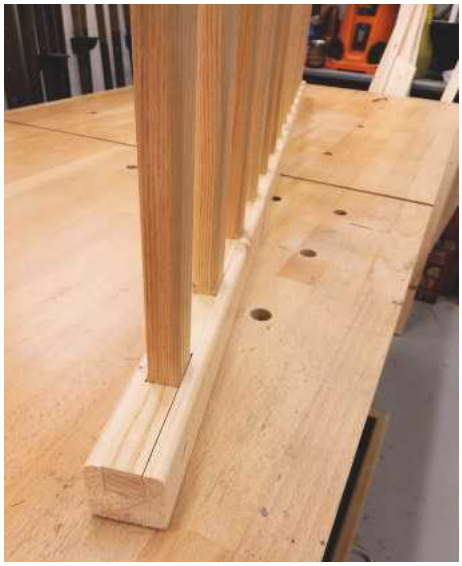
on the router table. The opening windows were installed using hinges with removable pins; however, I forgot that once the drip cap was fitted over the outside of the window, the top pins couldn't then be removed...

Internal fit-out of the playhouse started with the mezzanine floor (**photo 13**). Three 'joists' support a ¾ made up of three pieces. As these needed to have cut-outs to fit round the upright

frame sections, they couldn't be made using one large piece. The joist next to the window has an additional length fixed to its middle section, so that long screws could be installed to hold it to the frame sections either side of the window, thus greatly aiding rigidity. The scant used for the joists was carefully chosen to ensure minimum knots and defects, before being sanded to remove all splinters. These also received two coats of varnish.



17 I discovered a couple of knots in the side rails, so these were soaked with thin CA adhesive to stabilise them



18 Using multiple passes on the table saw, I created a rail for the upper floor. I cut a wide slot along two lengths of 2×2in scant, ensuring it was wide enough to accept some lengths of recycled ash batten I'd been given

Stairs & upper rails

I've never made stairs before, but found this was easier than anticipated. Using 4×2in scant, the required angle for the side rails – 65° from horizontal – was largely dictated by the amount of space available (**photo 14**). After carefully marking out positions for the tread slots, I used my mitre saw set at 25° to cut these out, taking advantage of the trench slot cutting facility. At the time, I didn't realise this idea was flawed – the circular blade only reaches the rear bottom of the cut when fully plunged. As the saw was set at 25°, there wasn't enough room to put a spacing piece against the fence on the saw, leaving me with a slot that curved up at the rear edge. In the end, I had to resort to a sharp chisel to flatten out every slot. The stair treads are each made using 13 × 5 × ¾

After rounding over all edges of the side rails and front and rear edges of the treads, the stairs could be dry assembled. 5mm holes were then drilled through the side rails into the middle of the stair treads, providing pilot holes for the screws. All treads were numbered to

19 Sadly, persistent rain delayed construction. Most was carried out during fine weather, but when the rain arrived, I had to clad the playhouse in plastic sheeting

20 All external capping and trims were prepared and, where appropriate, edges rounded over. Two coats of grey paint were then applied – here you can only see the fascia boards and corner trims, but I assure you there was a lot more to it!

21 On site at my daughter's house, the first task was to install the base frame

ensure they'd eventually be fitted in the correct position. The holes in the side rails were drilled out bigger, to provide clearance for the screws, then countersunk (**photo 16**).

I discovered a couple of knots in the side rails, so these were soaked with thin CA adhesive to stabilise them (**photo 17**). Once dry, they were packed with wood filler and once the filler was set, further sanded. After assembly, the completed stairs were given three coats of water-based satin varnish.

Using multiple passes on the table saw, I created a rail for the upper floor. I cut a wide slot along two lengths of 2×2in scant, ensuring it was wide enough to accept some lengths of recycled ash batten I'd been given (**photo 18**). All edges of the rails and uprights – apart from 20mm at each end – were rounded over and sanded to ensure no splinters could harm little hands. Short lengths of ash were used to space out the uprights, then glued in place. Three coats of varnish were next applied. The gaps between the uprights are less than 100mm, which is important to prevent small heads from getting stuck in the rails!

Sadly, persistent rain delayed construction. Most was carried out during fine weather but when the rain arrived, I had to clad the playhouse in plastic sheeting. This made measuring up and test fitting of the external trim a time-consuming process – as soon as I'd removed some of the plastic sheeting, another rain cloud appeared out of nowhere. When I'd eventually finished, I was able to dismantle the playhouse as a flat-pack ready for transport to my daughter's house, which was nearly 50 miles away.

All the external capping and trims were then prepared and, where appropriate, edges rounded over. Two coats of grey paint were next to be applied – **photo 20** only shows fascia boards and corner trims, but I assure you there was a lot more to it!

Transportation & assembly

On site at my daughter's house, the first task was to install the base frame (**photo 21**). As the ground is heavy clay and stable, after the turf was removed, I dug six shallow holes and set a concrete block into each, tamping them into place with a flag layer's maul. The frame could then be levelled by fixing wooden blocks inside the frame, which rest on the concrete. The front right corner was sitting directly on the concrete, so therefore didn't require a wooden block. Under each point of contact with the concrete blocks, I stapled a piece of damp-proof membrane and each block, although already treated timber, was soaked in preservative. This meant that the base frame had a total of 10 support points. As we'd run out of weed control matting, I chose to put some odd pieces under the frame to discourage any growth. On the right-hand side of the frame is an area of artificial grass I'd previously laid. I fixed some long screws through the side of the base frame and into the wooden frame under the edge of the grass, pulling them nice and tight. Artificial grass makes a great play area and means that no mud gets trodden inside the playhouse. Next, the floor panels

22 Next, the floor panels were screwed down. These had previously been painted on both sides with two coats of floor paint, effectively sealing the surface

23 Transporting the completed flat-pack proved a little trickier than originally planned, and due to the size of panels, instead of a van I ended up with a flat-bed vehicle

24 The roof is covered with Firestone EPDM rubber membrane, which is largely intended for flat roofing but can also be used on sloping roofs

25 Here you can see the under eaves trim holding the rubber membrane in place

26 Fitting out the inside didn't take long as everything was pre-finished and all holes pre-drilled

were screwed down. These had previously been painted on both sides with two coats of floor paint, effectively sealing the surface (**photo 22**). Transporting the completed flat-pack proved to be a little trickier than originally planned, and due to the size of panels, instead of a van I ended up with a flat-bed vehicle. Owing to the rain, sheeting had to be placed over everything and tied down to prevent flapping. However, this probably resulted in less damage to the panels compared to standing them on end in a van. On site, the four sides were secured to each other and the floor and two roof panels then installed (**photo 23**). Fortunately, the sun shone during the assembly phase. Note that the piece of frame across the door threshold could now be cut away.

Final flourishes

The roof is covered with Firestone EPDM rubber membrane, which is largely intended for flat roofing but can also be used on sloping roofs (**photo 24**). While felt is a lot cheaper, the rubber is a far superior product and will probably outlast the rest of the structure. I've used it several times before, including for the roof on my own workshop. To install it on a sloping roof, however, you lay it over the roof, roll up one side, and apply emulsion-type adhesive using a large brush. The rubber can then be carefully rolled down, smoothing out any bubbles or wrinkles as you go, pulling it tight over the edges where it can be temporarily secured using a staple gun. The other side can then be rolled up and the process repeated. Once the fascia boards and under eaves trim is fixed in place, it won't move. Note that on the sides I added a bead of black roofing mastic, which would prevent water getting behind the fascia. **Photo 25** shows the under eaves trim holding the rubber membrane in place.

Fitting out the inside didn't take long as everything was pre-finished and all holes pre-drilled (**photo 26**). Note the grab handle on the wall above the stairs. This is more for use when descending as on the way up, children always reach over and grab the back edge of the stairs – hence the importance of rounding over and sanding all exposed edges. The downstairs floor was covered with interlocking foam rubber tiles, which is a great surface for kneeling and playing on. Next, the mezzanine floor was covered with a piece of industrial vinyl flooring leftover from a camper van build. **Photo 27** clearly shows all rounded-over edges on the rails.

27 The mezzanine floor was covered with a piece of industrial vinyl flooring leftover from a camper van build. Here you can clearly see all rounded-over edges on the rails

After painting the sides of the base dark grey, the bottom shiplap boards were screwed in place rather than nailed as these are most likely to get damaged. All trim was screwed in place and seated on a bed of mastic to keep water out of the joins. I tend to use a lot of screws, but things rarely fall off. The corner trims have a screw position on each one of the shiplap boards, which helps to keep them flat. The opening windows on the side fold right back, so the playhouse can also double up as as a play-shop. Note the finger guard on the door, which is essential to protect little fingers. An aluminium threshold trim was also fitted across the entrance to protect the edge of the floor panel. A solid brass handle and lock were added to the inside of the opening window (**photo 28**) and a solid brass handle added inside the door to assist closing (**photo 29**). The door latch, which was coated with wax prior to assembly, works well and doesn't jam, which might cause panic to the residents! A further addition was an air vent with insect screen located in the rear wall – it gets quite hot inside the playhouse when the sun shines. I'm considering adding a solar powered extractor fan to keep the air moving.

The finished playhouse has been a great success with my grandchildren. While I might have been able to buy one ready-made for the same cost or less, you can't put a price on the feeling you get when a four-year-old hugs you and says, "thank you, granddad!"

MATERIAL SOURCES

Firestone EPDM rubber membrane – 2.5m × 3m × 1.14mm – £106 – including a 2.5l tub of water-based adhesive and delivery – **www.rubba-seal.co.uk**

Door finger-guard – £14 – Screwfix – **www.screwfix.com**

3mm clear Polycarbonate sheet – 1,000mm × 3,050mm – £123.86 – Toolstation – **www.toolstation.com**

28 A solid brass handle and lock were added to the inside of the opening window...

29 ... and a solid brass handle added inside the door to assist closing

30 A further addition was an air vent with insect screen located in the rear wall – it gets quite hot inside the playhouse when the sun shines

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For more information on Peacock Finishes, see **www.skeltonsaws.co.uk/peacock-oil**.

HOW TO ENTER

To be in with a chance of winning **1** of **5 finishing kits** from **Skelton Saws**, visit **www.getwoodworking.com/competitions** and answer this simple question:

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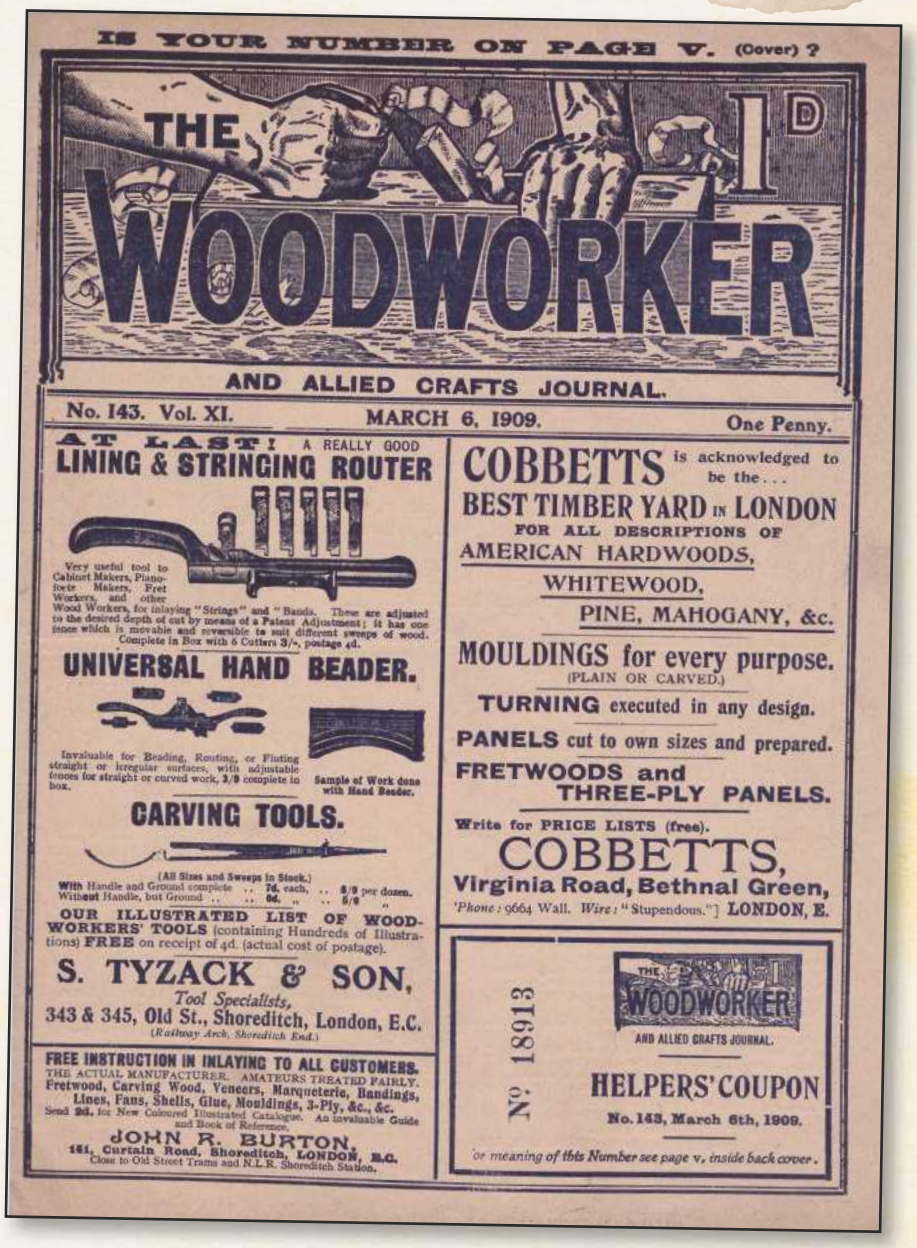
The winners will be randomly drawn from all correct entries. The closing date for the competition is **22 October 2021**. Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd and Skelton Saws are not eligible to enter this competition

A penn'orth of woodwork

Robin Gates is captivated by a jack plane and historic advertisements in *The Woodworker and Allied Crafts Journal* of March 6, 1909

Having started as a monthly in October 1901, *The Woodworker*'s title changed several times to reflect its expanding coverage. For a while it was *The Woodworker and Art Metal Worker*. That morphed into *The Woodworker and Art Metal Worker and Allied Crafts Journal* and with a bold leap into weekly publication, we arrive at *The Woodworker and Allied Crafts Journal*, costing one penny.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No. 18913

THE WOODWORKER
AND ALLIED CRAFTS JOURNAL.

HELPERS' COUPON
No. 143, March 6th, 1909.

For meaning of this Number see page v, inside back cover.

Carving competition

This issue from March 6, 1909 reported 'a goodly number of frames were received' for the woodcarving competition. The subject was a picture frame carved with roses, shamrock and thistles, and the winning frame was praised for being 'a long way ahead of the others. The way in which the ornament is thrown about marks it out as being the work of one who knows his material and tools'. Others may have felt slightly peeved at being mentioned among the 'helpful' notes delivered in somewhat schoolmasterly tone. J.A.G. was told 'you must learn to get the shape of things before you undercut'. R.T.F. faced a verdict of 'roses poor, leaves flat' while C.M. faired little better with 'more care should be taken with setting-in; veining incorrect.' But I feel most for J.R.C. whose frame 'would be good at a distance.'

There followed designs for wall and pedestal cabinets, tips on building a bench, and the second article on making a silk winder, concluding with the author's assurance that 'our machine was used regularly for three seasons and some thousands of cocoons were wound off with it.' But it's the cover which captivates me here, partly owing to that powerful image of the wooden jack plane behind the title, and partly its advertisements.

Tools for all

In the 1900s, the East End of London was a veritable melting pot of furniture-making trades and nationalities, with S. Tyzack & Son being in the thick of it. Their premises were in Old Street, Shoreditch, adjacent to the long-gone North London Railway station. Traditional woodworkers may recognise the tool announced by 'At Last! A Really Good Lining & Stringing Router' as Preston's Patent Model No.1396 which, complete with six cutters, optional adjustable rod used when inlaying curves, and a detachable faceplate with a second fence, would be a really good find at a boot sale! Again unnamed, but the Universal Hand Beader below the router is Stanley's No.66 introduced in the 1880s. I have the later nickel-plated version and must agree with Mr Tyzack that it's 'invaluable for beading, routing, or fluting straight or irregular surfaces.'

Below Tyzack's advertisement, and around the corner in Curtain Road 'close to Old Street trams' comes John R. Burton, with an aptly decorative typeface advertising his ornamental 'fretwood, carving wood, veneers, marquetrie, bandings, lines, fans, shells' for which he's 'the actual manufacturer'. 'Amateurs treated fairly', you'll notice.

Back in the day, colossal shipments of logs from America, Canada, Scandinavia, Russia and Africa were unloaded and auctioned at the East End docks, thence to be carried off by horse and cart to the many sawmills and timber merchants north of the Thames, one of which was Cobbetts in Bethnal Green whose advertisement is on the right. From there the timber filtered into an East End furniture-making world of mutually dependent cabinetmakers, carpenters, turners, chairmakers, upholsterers, carvers, gilders, French polishers, glue makers and foundries supplying hardware.

Finally, do you see the 'Helpers' Coupon' printed at bottom right? Had this copy's first reader found their No.18913 among 12 printed in next week's issue, they could have claimed 'Half-a-Guinea' in return for using their 'best endeavour for one week' to increase the journal's circulation. All in all, here was a good penn'orth of woodwork for starters, with a bonus of 10 shillings and sixpence coming!

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CUSTOM MADE **PERFECTION**

WW PROFILE

Based in a small workshop in North Yorkshire, **Shane Skelton** and his wife **Jacqueline** work tirelessly to create the finest examples of handmade English craftsmanship – bespoke saws designed to last a lifetime

Great Britain has a long and rich sawmaking history dating back to the 1600s. These tools are collected the world over and while they still have a special place in many a woodworker's armoury, the skill of new and modern makers cannot be ignored. Operating from a small workshop in North Yorkshire, Shane Skelton is one such highly skilled maker, and his ingenious designs reimagine the past as well as setting a benchmark for the future, all the while taking the world by storm.

I first met Shane and his wife Jacqueline at the North of England Woodworking & Power Tool Show some years ago, and while their stand seemed somewhat unassuming from a few metres away, closer inspection revealed a range of saws in all their glory. Gleaming as they sat there, they begged to be touched such was their tactile nature, and the one that really caught my eye at the time was the Mallard 13, which, as I was told, truly sits in a class of its own. More on that later…

For those who may have missed the recent feature (*WW* August) on the latest one-off to leave the Skelton Saws workshop – the St Paul's Cathedral Saw – it's definitely worthy of a read as well as being a great introduction to Shane's work. The saw in question features a handle made using historic wood from the Bells of St Paul's.

Woodworking in the blood

From a young age, Shane recalls being enthralled by his grandfather's natural aptitude for woodworking, but sadly, being a chicken farmer first and foremost, he never really got to fulfil his passion for cabinetmaking. "His tools were always pristine and everything had its place; he was a perfectionist and I too have developed this trait," Shane comments. "My tools are immaculate and, unlike most, I keep a very ordered workspace." Shane explains that the main advice he's carried with him from his grandfather is that 'if a job's worth doing, then do it right.' "I believe that everything should be completed to the highest quality," he confirms.

Knowing of this family connection to an age-old craft, the attention to detail that's displayed in each and every one of the saws Shane makes becomes clear. This is a great skill to inherit and one that's undoubtedly set him head and shoulders above the competition.

Going back to his childhood days, Shane says that even as a young lad, he remembers being intrigued by the fact that early planes were made out of wood and he could often be found using bits of balsa to fashion his own: "When I was about seven, I moved onto hardwoods and this was when I began using proper saws," Shane reveals.

Early skills

Around the age of 14, Shane decided to try his hand at blacksmithing. Regarding this as a weekend/holiday job he could probably do, it just so happened that his parents knew a blacksmith in the neighbouring village. "Sometimes he'd pay me; other times he told me that the knowledge I'd gained was payment in itself – I'm not sure you'd get away with that now!" Shane recalls that the gates he made for the village church in Cloughton many years ago are actually still there to this day. "I was interested in manipulating metal without the use of machines and this is where I developed the hammer and anvil skills that

Skelton Swift 11¾in Dovetail Saw with handle in Castello boxwood – the traditional Skelton medallion features the peacock in all its glory

have come in handy for creating my handmade panel saws," he explains.

Forging a passion for wood and metal early on – excuse the pun – I asked, if at this stage, Shane realised he would go on to become such a successful and internationally acclaimed sawmaker. Believing that hand skills were the key to his success, to my surprise, Shane tells me that he never really envisaged becoming a sawmaker at all: "From the outset I wanted to be a Professional gunsmith and although I had all the training in this area, I've always been quite a home bird, and unfortunately the opportunities around here are quite few and far between." There are elements of gunsmithing, however, that do transfer into sawmaking, in terms of both requiring handwork in order to create precision pieces, so in this sense, Shane's skills in this area haven't gone to waste.

Shane with one of his signature panel saws

13¾in London Long Stroke Fine Carcass Saw

An inventor at heart

Delving deeper into his story, it seems that despite discovering a passion, Shane had his fair share of bad luck – facing redundancy; the gunsmith company he worked for going on to close down; and the kit plane company Shane went on to work for then deciding to move their workshop. Asking whether he ever felt disillusioned with everything, perhaps even considering taking a different path altogether, Shane pragmatically replies that he doesn't believe that any job is for life these days and as such, it's always good to have a number of transferable skills that you can take into another career area if required. "I've had a pretty varied career, and I'm lucky in that sense, and despite having faced redundancy quite a few times, fortunately I've never been out of work for long," he says.

The husband and wife team behind Skelton Saws pride themselves on having a very positive attitude when it comes to work: firstly if they don't enjoy what they're doing then they reassess things, which seems like very good advice; and secondly: if they're fully passionate and believe in what they're doing, then that comes across to others.

Returning to the story, Shane tells me that the next step on his journey was a return to engineering, but I come to learn that after three years, he felt a desire to go back to working with wood – particularly carving. Enquiring as to how this move subsequently led to the creation of Skelton Saws, Shane comments that "out of all the tools on the market, the saw is the one that always appealed to me. I enjoyed the feel of the saw in my hand as well as in use, plus the fact that making them incorporates both metal and woodwork techniques."

The St Paul's Cathedral Saw – handle made using historic timber from the Bells of St Paul's

Mallard 13 – 13in Crossover Saw – with handle in English flamed beech

Shane says that for many years, he thought he could make a better product than what was currently available commercially. Describing himself as an "inventor at heart," Shane had talked about making a saw for the past 12 years, then one day, with redundancy looming once again, he and Jacqueline found themselves at Snainton Woodworking Centre, which is situated just a few miles up the road from where they live. "In the corner of the machine room was a really nice piece of walnut at the bargain price of £50," Shane recalls. "Jacqueline told me to buy it and have a go at making a saw handle, so I did. She thought the end result was amazing and felt confident – despite having no knowledge of tools whatsoever – that with my skills in this area, we could potentially create a viable sawmaking business." The next steps were setting about registering the company name, tracking down suppliers for machines and materials, as well as developing a website. Fast forward just a few months and Skelton Saws was up and running. "Looking back now," says Shane, "we can't really believe how we did it."

New premises & saw range

Looking back to 2015, Shane was working out of a tiny garage workshop near Scarborough, but having relocated the business back in 2018, although the workshop is still small, it's a lighter environment that's benefitted from a custom fit-out as well as being insulated for warmth. Importantly, Shane explains that his tools are

The Arc Saw – for veneering and inlaying – with tapered semi-symmetrical octagonal handle in English plum

now set out much better, allowing for ease of use and efficiency, and it's definitely a happier and brighter space that's gladly free of children's bikes: "All in all, it's a proper workshop that's fit for purpose."

Those familiar with Skelton Saws will know that Shane produces two ranges – Sheffield and London – both of which are loosely based on saws manufactured in these locations during the 18th century. I ask him to briefly explain the sawmaking process, doing his best to paint a picture of what happens in the workshop. The logical place to start is with the wood for the saw handles, which are bought in boards, then planed down to size by hand before the handles are cut out. Next, the brass, which Shane mills himself, is tapered and shaped by hand. Blades are cut to size, again by hand, using his grandfather's old heavy-duty tin snips, then every tooth punched out individually using the fly press and tooling, mainly made by Shane, or designed and custom-made by him. Moving on to handles, these are slit for the blade and let in for the brass, before being shaped using rasps, then sanded down the grits. The blade is then ready to be fitted and tensioned into the brass back, fitted into the handle, and secured in place using traditional split saw nuts. Everything is then straightened, the blade checked for alignment and corrected if necessary. Next, the teeth are set and sharpened, then the saw is used to carry out a test cut in oak before it's finely tuned. Finally, the handle is subjected to a traditional oil finishing process, which can take upwards of a week to complete. After polishing, the tool is then ready for the customer. "Everything is handmade," Shane confirms, "and a saw, depending on the type, can take anywhere from 20-60 hours to make." In terms of the types of tools employed in the sawmaking process, Shane utilises many he's made himself, ensuring to buy the best available wherever possible. "Hand tool-wise I have lots of chisels, rasps and files," he explains, "and since a young age, I've always had sets of Ashley Iles' chisels and I really like Auriou rasps – there's a great YouTube video showing how these are made. I also have a lovely Blue Spruce mallet and a large assortment of Lie-Nielsen planes, although the Bill Carter mitre plane is one of my favourites." Shane's main piece of kit, however, is the fly press, not forgetting the lovely anvil and custom-made hammer, plus a few small machines, such as the milling machine, bandsaw, drill press and bobbin sander. With regards to quality control, Shane maintains that he approaches the making of each tool as if he were doing it for himself, and all saws are test cut when complete in order to measure their accuracy.

We're also lucky enough to be let into one of Shane's trade secrets, as he explains: "When I'm using chisels, I always have a piece of leather with a little Autosol applied to it, which I use as a strop and keep within reach on the bench. This time-saving technique allows me to maintain a sharp edge on my chisels without having to keep going back to the sharpening stones."

Shane's saw range, all made to his own original designs, has grown dramatically since setting the business up seven years ago. Shane explains that he draws each design freehand after a period of being able to visualise it – almost in 3D – in his mind. "Before I even commit it to paper, in my head I've already worked out how the saw will look and perform and any snagging points ironed out." Shane explains that each range has a number of different sized dovetail, carcass and tenon saws covering all the woodworker's sawing needs. He also makes fully taper ground by hand panel saws for larger work, as well as limited editions, and higher end bespoke saws for specialist furniture makers and collectors alike.

High praise

Shane's saws are revered by some of the most well renowned furniture and cabinetmakers in the industry, with his dovetail saw heralded as "fantastic" and "the perfect product." According to Shane, praise such as this inspires him to keep moving forward, all the while developing and honing his designs. Only when the end user is satisfied with the results and the functionality outperforms their expectations, can Shane finally sit back and relax.

Obviously a custom-made, handmade product such as this comes with a price tag that reflects the work involved in its creation, and some may question whether it's worth spending so much money on, what's regarded by many, as a relatively simple workshop staple. Shane outlines the making process to me again, but in more detail, starting with the customer selecting their own piece of high grade timber, before taking individual palm measurements to ensure the handle fits seamlessly; this guarantees a saw that's extremely comfortable in use with a smooth, perfectly straight cut. Considering each saw has a build time of some 20 plus hours, I believe these handmade products therefore represent exceptional value, as Shane confirms: "There aren't many other quality handmade items you can buy within this price bracket. Hopefully what our customers are getting is a first-class


Gentleman Jaq Saw – gent's saw with purpleheart handle and ebony collar


Damascus Steel Saw with hand-chequered handle, incorporating Shane's gunsmithing skills

Archer Saw – 7½in fine gent's saw with tapered semi-symmetrical octagonal handle in flamed beech. Rear of the blade features a unique Cupid's bow, plus a skilfully crafted complementary Cupid's arrow in the brass back

Limited-edition 9⅜in Seaton Chest Kenyon Dovetail Saw, featuring a handle in Wimbledon beech

personal service, whereby Jacqueline and myself liaise with the individual from the point of deciding on the type of saw that best suits their needs, right through to checking the saw has been received and the customer is happy with the end product." Skelton Saws also offers an after-sales saw sharpening service, which isn't always available for those bought off-the-shelf. The traditional methods Shane employs in his work aren't currently practised by any other sawmaker in the UK and for that reason alone, anyone purchasing one of his creations can be assured that they're investing in a unique example of handmade English craftsmanship.

In terms of target audience, this encompasses the hobbyist, professional furniture and cabinetmaker, right through to the extremely wealthy and famous. Shane believes he can cater for everyone, and his 10-12 month waiting list firmly attests to this while also giving people the opportunity to save up for the model they aspire to own. "To put things into perspective, some mobile phones cost a lot more than our saws, yet unlike them, our saws will last a lifetime."

The Rolls-Royce of hand saws

Revolutionary in both design and construction, the main concept behind the Mallard 13 was to produce a saw with an ultra-high tensioned blade, with the woodwork not influencing the blade in any way. "Cosmetically, I wanted it to look elegant," Shane confirms, "like an 18th century model, but streamlined, with 21st century benefits – these being both a highly accurate and precision-made tool." Built almost like a shotgun with its side plates, this model employs clever engineering, echoing techniques used by Karl Holtey, to produce a saw unlike any other that's been made or seen before. Its bronze construction affords the Mallard 13 an added luxury, and not only is this material much harder, it's also much more expensive compared to brass.

When looking at his designs for this saw, Shane noticed that the front end reminded him of the Mallard steam locomotive – also built in Yorkshire – so it therefore seemed fitting to assign it this name. On a more personal note, the name was also significant due to the fact that Jacqueline's grandfather had been a fireman on the old locomotives. As a child, on a number of occasions, she remembers being taken to visit the Mallard at the York Railway Museum.

Trademark features

Most of Shane's saws feature the trademark peacock insignia with an acorn in its mouth, which is featured at the top of the Skelton family's heraldic crest. "My father has an interest in armour and heraldry, and as a gift, I once carved the family crest for him, which is where the inspiration came from. Jacqueline then went on to research the peacock in more depth and discovered that, in some cultures, it's actually a sign of immortality." While appealing to both Shane and Jacqueline, this idea seemed particularly significant. They firmly believe that their saws will live well beyond them and into the future, enjoyed and cherished by many generations of families and sawmaking enthusiasts alike.

When asked as to his proudest sawmaking achievement to date, Shane has to think long and hard on this. For him, this is a difficult question to answer as he's proud of each one he produces, always striving for the next to be better in some way. Settling on the London Long Stroke 13¾in fine carcass saw, Shane explains that this is probably the most universal example anyone will ever use. He's also proud of his panel saws, however, originally inspired by those in the Seaton Chest. Incorporating metalwork techniques, these utilise some of Shane's blacksmithing skills, but he insists he's also proud of the Mallard due to its uniqueness.

Exciting developments

Having produced a limited-edition Mallard Saw to coincide with the 80th anniversary of the Mallard locomotive's build and speed record, Shane's also hoping to introduce a new range of saws that are currently still in idea form. It's not all about sawmaking, however, as their portfolio now also includes a unique range of finishes and oils, as he

Each handle is hand-carved by Shane

Flushing bolts

Several views inside Shane's workshop

explains: "In my last engineering job, I was always inventing things and at times a materials scientist, so developing an oil came quite naturally to me." Despite being a long time in the R&D stages, Shane's very happy with his Peacock Oil – see Phil Davy's test on page 16 and accompanying competition on page 30 – and despite original plans to only use it on the handles of his saws, it's proving a bit of a breakthrough in the finishes market.

Despite the fact that Shane is responsible for making the end product, he's eager to point out that Skelton Saws is a pure partnership between himself and Jacqueline, and the business wouldn't exist without either one of them. Their overall plan is to continue to strive to do the best they can, all the while keeping product quality high and service first class. "We never really plan beyond the next 6-12 months because life is ever changing, especially given the recent COVID-19 pandemic. We prefer to just roll with it and enjoy the excitement along the way."

Creating the highest quality handmade saws that are as unique and traditionally made as they would have been centuries ago, Skelton Saws really is in a league of its own, especially when you take into account the unique personal service offered. "What we're doing is quite different and we just plough our own furrow," says Shane. Given the fact he only produces around eight saws per month, Shane's belief is that you can't mass produce quality; it's simply about the time and passion that's put into each and every creation. We couldn't agree more.

FURTHER INFORMATION

To find out more about bespoke saws and other products produced by Skelton Saws, visit the website – **www.skeltonsaws.co.uk** – and for regular updates, follow them on Instagram: **@skelton_saws**

Jacqueline Skelton manning the stand at the 2018 North of England Woodworking & Power Tool Show

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FRENCH FINESSE

Peter Dunsmore's take on a classic full-length Cheval mirror, using lengths of cherry, certainly adds to its sophisticated and elegant appearance

1 Make an MDF or card template detailing the outline of one foot

This classic style of mirror is both elegant and stylish and, I think, stands the test of time well. I chose cherry for the timber, partly because I had some to hand but also because its light colour and attractive grain suit the simple lines. It's also easy to work and sands to a good finish. Almost all parts can be cut from 22mm-thick stock, which is an advantage as your timber supplier should be able to plane this from a 25mm sawn board, thus minimising waste.

Making a start

Start by making a cardboard or MDF template detailing the outline of the four feet (**photo 1** & **Fig.2**) and use this to draw the shape onto the cherry, taking note of grain direction. If the board isn't wide enough, you can laminate a couple of pieces together to give the width required. When making the template, it's worth mentioning that the base of the foot must be at right angles to the edge of the tenon, which fits into the housing groove on the upright posts. Using a scrollsaw or similar, carefully cut out the four pieces, getting as close to the outline as possible (**photo 2**). Wrap some abrasive around a suitable former and smooth the sawn edges (**photo 3**) finishing with 180 grit and keeping the paper square to the timber.

Put the four feet aside for now and take the two pieces of timber for the upright posts and cut to the dimensions shown in **Fig.1**. To avoid a square finish, cut a very shallow curve across the bottom of the post, using a disc sander, which will allow you to quickly cut the curve so that it's square. The feet are secured to the posts using tenons glued into housing joints, and I find it better to cut the housing joints first. The following method works well and ensures that the grooves in the post are cut central using a router fitted to a small router table. As the project uses 22mm-thick timber, you need to cut a groove that's around 8mm wide. Position the router cutter so that it's central in the post and reset the router so that the cutter is just a fraction further from the fence – a little closer to you (**photo 4**). The depth of slot needs to be about 12mm, but it's better to make this cut in two or three passes. Before cutting the joint, draw a pencil line on the table to indicate the stop position when you're cutting the slot. Ensure to push the wood from right to left in the normal fashion. Once you've completed the first pass along the router table, lift the timber up and away from the cutter. Now, contrary to normal routing practice, turn the timber around and push it down on top of the cutter where the housing joint stops. As a guide, it can be useful to draw a pencil mark on the router table so it's the same distance from the cutter as that drawn on the opposite side, then pull the timber from right to left in the usual direction. It's important to ensure that you don't push the timber in the opposite direction as the cutter will snatch

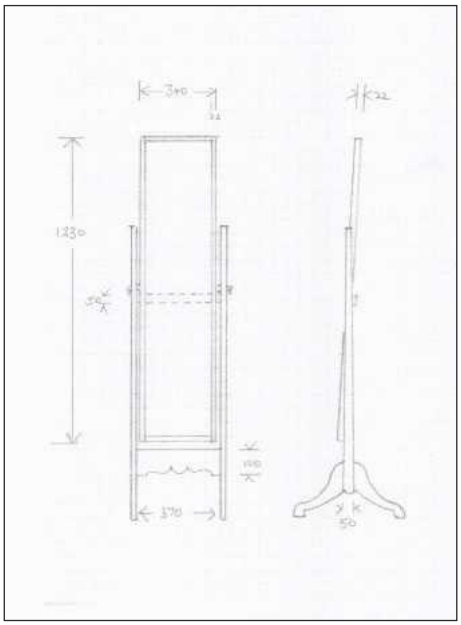


Fig.1 Mirror components

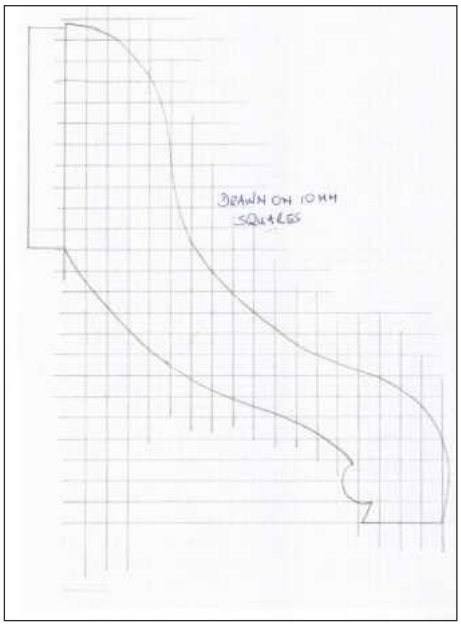
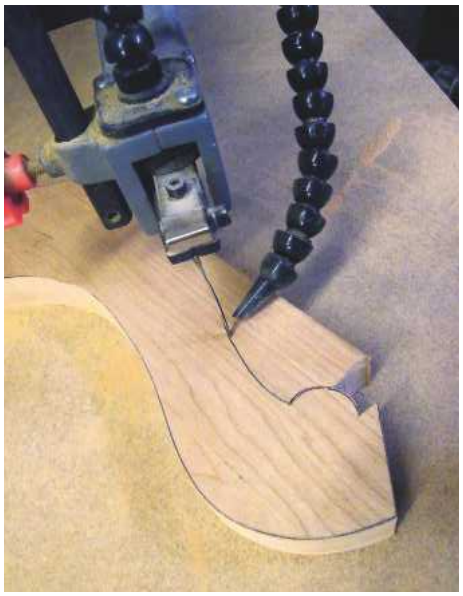


Fig.2 Foot template

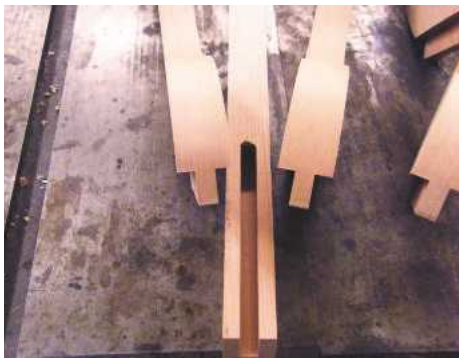


2 Cut the shape out using a scrollsaw or similar

3 Sand the sawn faces to remove any saw marks

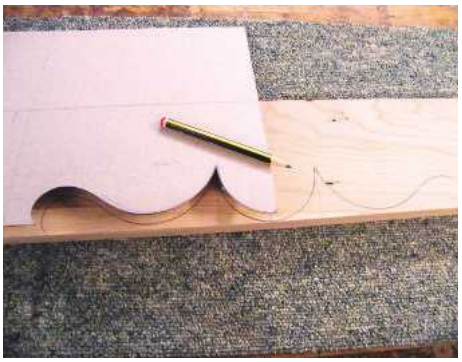
4 Cut the grooves using a router table

5 Note masking tape in place to prevent breakout



6 Cutting from each face guarantees that the joints are central

7 Cut a shoulder at the top of the foot



8 Make a card template for half of the lower curves

the timber, pulling it violently. By making the two passes in this way, the housing slot is guaranteed to be central in the timber. Repeat for both sides, on both posts.

Cutting the tenons on the feet

Cutting the tenons on the feet is a much simpler task. Fit a straight cutter into the router and set the depth of cut from the fence so that it's a little under the depth of the housing joint. Lay the post onto the router table and use the outer face of the housing joint as a guide to set the depth of cut, starting with the cutter set a little too low. Cut the tenon from both sides (**photo 5**) and increase the depth of cut until you achieve a sliding fit into the housing joint (**photo 6**). The result will be a perfectly centred tenon. Cherry can be a little brittle to cut in places, so to prevent this as the cutter breaks out at the end of the cut, place a little masking tape over the shoulder of the foot where the top of the tenon is formed. Cut a small shoulder on top of the foot and use a chisel to square the end of the housing joint. Next, dry assemble all parts and adjust if required (**photo 7**).

Making the lower rail

The lower rail is completed in a similar way to the feet – making a card template (**photo 8**) of the required shape then cutting this out (**photo 9**). The rail will be secured to the inside faces of the two posts using a simple mortise & tenon joint, which needs to be cut to a depth of around 12mm. To ensure the mortise is central, cut the slot in a similar way as for the previous housing joint used for the feet. Alternatively, fit a guide fence to the router and make a pass from each side of the post, ensuring the mortise is central. You need to cut the tenons at both ends of the lower rail in the same way as you did for the feet. Small shoulders at the top and lower edge make for a neater joint (**photo 10**).

Finishing the posts

To give the mirror a more elegant finish, taper the posts from just above the lower rail on both front and rear edge, so the top makes a 22mm square. Next, draw a pencil line as a guide on

9 Cut these in a similar way as you did for the feet

10 In terms of fit, you're looking to make this the same as for the feet

11 A sharp plane and lovely shavings – very therapeutic

12 Carpet tile softeners in place

the post side and using a sharp plane and ensuring you're cutting square to the timber, repeat this on both sides (**photo 11**). When the posts are finished, the feet can then be glued in place. As this piece will be varnished, it's really important to ensure that any spilled adhesive is wiped away before it soaks into the cherry. Use some offcuts of carpet tile or similar as a softener, which will prevent any damage to the wood as you tighten the clamps. Leave this to dry, then sand the completed end post to a smooth finish, retaining the nice crisp edges. Repeat this process with the second post, then glue the lower rail to both parts (**photo 12**). Before gluing the lower rail in place (**photo 13**), drill a 6mm hole – to accept the swivel bolt – into each post, ensuring they are accurately located. To do this, temporarily clamp the two posts together and drill both holes simultaneously. Next, pin a 50mm-wide piece of 6mm-thick cherry and glue this to the rear of the two uprights; this will prevent the mirror tipping too far forward while also supporting the frame.

15 Pencil marks on the false table assist with positioning the wood

13 The base can now be glued together

Making the mirror frame

For the mirror frame, you'll need 22mm square timber with a 6mm rebate cut along the length to a depth of 16mm. This can be easily cut on the router table and requires just a few passes (**photo 14**). The four corners will be joined using a mortise & tenon variant. It features a longer shoulder on one side, which is required to fill the rebate that's formed to receive the mirror. As these joints will be visible, it's a good idea to cut these on the router table, aiming for a good sliding fit. Although they can be cut by hand, the following method produces an accurate fit on each of the corners.

To do this, start by marking out the joint, removing most of the waste using a hand saw. Next, fit a 6mm straight cutter in the router table and set the depth of cut so that it's a little greater than that required (**photo 15**). The secret to obtaining a truly central cut is to remove an equal amount from each of the two faces. Set the cutter so that it's central to the timber, then adjust either fence or router so the cutter is effectively a little further away from the fence, so that it cuts slightly offcentre and in line with the edge of the lip formed by the rebate. Push the wood from right to left in the usual way, making one neat cut and stopping once the cutter touches the end of the groove. Draw a pencil mark on the table at the appropriate

14 Note use of pressure pad on the router table

spot, indicating when you need to stop pushing the wood. The next step is a little trickier: turn the wood around and push down onto the cutter to the point at which you stopped the previous cut, pulling the wood from right to left. Safety note: be careful not to push the wood into the cutter as the blade will snatch the wood, pulling it out of your hands. You should now have a joint

16 Use a sharp chisel to square the end of the opening

17 Use a saw to remove most of the waste

18 Clamp a false fence to the router table

19 Position the MDF offcut so that it's perpendicular to the fence

20 Adjust the depth of cut a little at a time...

with an equal amount taken off each side, which only requires the end to be squared with a chisel (**photo 16**).

The next step involves cutting the tongue with the offset shoulders, so that it fits into the slot cut previously. Mark this out using a square and sharp pencil, removing most of the waste with a saw and cutting on the waste side of the line (**photo 17**). In a similar way as before, using a router cutter, remove an equal amount from each side. Start by setting up a fence with the depth of cut set both in height and distance from the fence, remembering to allow for the two different shoulder depths (**photo 18**). In order to cut an accurate joint, it's important to keep the timber square to the fence. The method I use is to take a piece of scrap MDF, cut square, and use this to support the timber (**photo 19**). An added bonus is that the MDF also acts as a sacrificial piece and prevents any breakout on the cherry. Adjusting the depth of cut a little at a time ensures you achieve an accurate cut (**photo 20**), and as a result the two timbers will slide together accurately (**photo 21**). Repeat this step for each corner. You can use a sharp chisel and saw to create a similar joint, but this will take a little longer to achieve.

Making the mirror fittings

The mirror design uses a pair of glass screw drop handles (part No.1740), which can be

21 ... which will result in a perfect fit

purchased from Restoration Materials – **www.restoration-materials.co.uk**. These are straightforward to fit, but it's important to ensure that both holes are drilled accurately, positioned halfway up the timbers so that the mirror hangs square in the base. After removing the waste with a sharp chisel, the threaded metal plate – which the rod screws into – can be recessed into the mirror frame (**photo 22**). To fill the space between mirror frame and base, you'll need two 15mm-thick cherry discs. Using the following method makes light work of this task while producing excellent results.

First, drill a hole in the cherry to suit the threaded rod followed by a corresponding hole, about 10mm from the edge, in a scrap piece of timber. Cut the circle of wood roughly to shape and fit the drill through this and into the scrap, ensuring you achieve a tight fit. Next, using a disc sander, slide the scrap against the fence, until the disc nearly touches the sanding sheet. Rotate the cherry on the drill bit and gradually move the scrap forward

22 As before, use a sharp chisel to remove the waste

in small increments, rotating the wooden disc (**photo 23**), so you're left with an accurate 22mm diameter disc. Repeat for the other side.

Finishing off

Before you fit the glass, dust everything down and apply a suitable finish. I used a matt PU varnish and obtained a silky smooth finish after thinning down the first coat a little (**photo 24**). I find that water-based finishes dry far too quickly and produce a very hard, cold effect. I always think that water and wood don't go well together! The design calls for 4mm mirror glass. Mine was obtained locally and fitted with a plastic film on the reverse to hold the pieces together in the event of any accidents. Cut the mirror so that it's a little under size and use a small bead of silicon to hold the glass in place. Finally, take a piece of 6mm plywood, paint it matt black, and fit this into the rear of the mirror frame. Secure in place, using some lengths of cherry planed 6mm square, and fix using small veneer pins. Rather than tapping into place, drill small pilot holes where required into the beading and use a pair of slip joint pliers or similar to squeeze the nails in place, positioning a softener on the edge of the frame (**photo 25**). Finally, cut the threaded bolts to length as required, then fit the mirror to the frame.

23 Using a simple jig, small diameters can be cut with care

24 Painter's pyramids are a great finishing aid

25 Using a pair of slip joint pliers or similar, the beading can be effectively held in place

WOODWORKER'S ENCYCLOPAEDIA A-Z PART 31

In this section of the directory, **Peter Bishop** gets stuck into the Rs, where he discusses radial shake, resaw, ridge and resin, among many other timber terms

DeWalt DW729KN 350mm 4,000W radial arm saw

Radial arm saw

The prime purpose of a radial arm saw is to act as a cross cut. The circular saw blade is fitted onto an arbor – a shaft that's driven directly off the motor. This arrangement is suspended on rollers and mounted on an overhead arm. To operate, the cutting head is pulled towards you.

Some machines have extra features, focusing on the cutting head's ability to swivel and the arm moved left and right. Taking advantage of these different modes allows you to cut angles across a workpiece, produce mitres and trenches, as well as turning the entire assembly into a rip saw. A very useful piece of kit that I'd not be without.

Radial shake in a cross-section of timber

Radial shake

A radial shake follows the radii of the tree trunk from centre to outside. Spot these in lumber by examining the ends, checking to see if these cross the growth rings.

Common rafters without collar beams form most of the roof shown here. There's not always a ridge board or beam where the rafter tops meet. Under the midsections of the rafters are purlins, which support the common rafters; these in turn are supported by principal rafters. This roof ends in an octagonal hip

Rafters
Roof rafters, sometimes called 'common' rafters, are the main timbers used to create a roof structure.

Rail
In a framework such as a door, rails are the horizontal components that span from left to right.

Bathroom cabinet in white oak with raised and fielded panels

Raised panels
A raised panel rises above the grooves or rebates within which it's fixed or further beyond its frame work. A prime example is a 'raised and fielded' panel. Here, the moulded edges 'lift' the panel, separating it from the frame and emphasising its shape.

Random widths
When boards, planks or lumber are described as 'random width', we'd expect to find material that's 150mm or so, up to much wider.

Violin back with 'figure'

Hardwoods from North America and Africa are most often sold like this. The alternative is 'dimension' stock where the widths are all the same.

Two Stanley Surform planes

Fine wood rasp

Rasps & Surforms
The original rasps, which you can still buy, are very similar to files and come in various shapes. The cutting face is much more pronounced with the protruding teeth lifted out from the body of the tool. Surforms are a slightly different beast. They still operate in the same way but the teeth are punched out from the back of a thin piece of metal. These are formed into blades, which can be mounted in a matching body. Various sizes and shapes are available. Both tools remove waste rapidly and it's good to have a couple in your tool kit.

Liogier 8in rat tail rasp – 12 grain

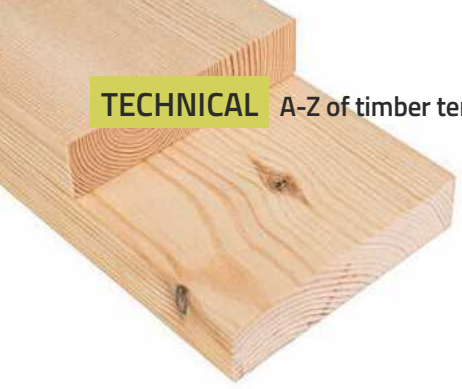
Rat tail file
As the name suggests, the rat tail file is round and tapers off to a blunt end.

Medullary rays – the dark lines between blank and centre – allow nutrients to flow across the tree trunk

Rays
Rays are ribbons, or strips if you wish, of cell tissue extending both vertically and radially in the stem/trunk of a tree. They are also called 'pith' or 'wood' rays. The rays we most easily recognise are those found in oak – the 'medullary' rays. These are the ones that give us the 'figure' or 'flower' we so like to see. This is exposed when the trunk is cut through following the radial line of the rays. The sides of the cells are exposed showing off the way in which they weave vertically throughout the trunk. When other timbers are cut in the same way, they might show different types of figure. In sycamore and maple this might be 'fiddle back', and in African timbers such as sapele we see a distinctly stripy pattern.

Reconditioning
This is a term used in association with artificial timber drying. If, perhaps, a batch has been 'case hardened' – dried too much on its outer layer – there'll be a need to recondition it. The process that follows will literally damp down the outer layers while trying to bring the whole cross-section into equilibrium. This is having an equal spread of moisture throughout. So when reconditioning wood, we're aiming to restore and improve poorly dried timber.

Redwood
Redwood is a general term applied to wood from pine trees. The timber from these trees is considered to be more durable than that from spruce and firs. These latter trees go under a general heading of 'whitewood'. Joinery that might be used externally for doors, windows and roof finishings is best in redwood.



PAR joinery quality redwood pine

Whitewood should be restricted to internal joinery but, of course, redwood can be used inside as well. In some parts of the UK you might hear of 'red deals'; these are redwood planks of larger dimensions.

Carved reed moulding

Reed

We used the word 'reed' to describe a variety of small, rounded beads, singularly or in the plural – more than one. They may be found in woodturning running down the length of a column, on boards to make up doors, or as a decorative detail that might exist to distract the eye. As discussed earlier, a pair of 'quirk grooves' on a corner can produce a rounded reed running down it.

Refractory

A timber drying term used to describe wood with a high resistance to moisture loss during drying. This is most likely because the cellular structure is closed and obstructed, thus slowing down the moisture removal process.

75mm regularised timber

Regularised

Regularised as opposed to random. Although you might think we mean dimension stocks – those of roughly the same size – timber that's been regularised should be all the same size with little or no variation. For example, in my sawmilling days we might regularise some stock into a size suitable to allow it to go through a moulding machine. We'll often come across mislabelled timber, which might have originally been cut to a regular size but has subsequently dried and shrunk unevenly. These are the dimension stocks and you must always check and work from the smallest size. If you ask for stock to be regularised, you should get exactly what you ask for.

Regeneration project in the Lake District's Hardknott Forest

Regeneration

Forest 'regeneration' can occur naturally or with some help from us. Hopefully the practice of 'clear felling' and not replanting has all but ceased and the areas where timber has been harvested can be regenerated. We'd also hope that the species going into that regeneration will be varied and typical of the locale.

One of my coffins, which make use of wood that would otherwise be wasted

Rejects

One person's reject is another's salvage! In general terms we talk about 'rejects' when describing something that's not fit for purpose. It may be bent, twisted, full of cracks or worm holes, too short, too narrow, or simply just not good enough for the job we want to use it for. But, of course, we should also concentrate on using these rejected materials wherever possible. This is a principle I've applied to my current venture – Mitre Coffins – which use timber that would otherwise be wasted.

Resaw

A 'resaw' is a large, usually two pulley, wheeled bandsaw used to cut down larger pieces of wood into smaller sections. They're most likely used when reducing the size of large sections or 'deep' cutting down the widest part of a plank. The commercial machines will have in-built 'pressure' and 'feed' mechanisms. These grab the plank as it's presented to the machine and push it against the 'fence', which will determine where the cut is made. The feed will push it through the blade, thus making the cut. A two-man job: one feeding and one taking off. We can also resaw stuff using our smaller workshop bandsaws, but it's not practical to use them for large pieces or batches.

A Robinson EFT 36in resaw

Orange resin exuding from the trunk of a hoop pine in Townsville, Australia

Resin

Resin is a natural substance that exudes, in the main, from coniferous, softwood trees. In a growing tree it can be found seeping out of the bark and is tacky and sticky to the touch. When the timber from these trees is turned into lumber, we might find the same stuff exuding onto its ends or surfaces. In most cases it's not a problem but, occasionally, we'll find a pocket of the stuff just where we don't want it! The resin is a soft or solidified substance, which is often called by different names such as amber, dammar, gum, pitch, copal, etc. It can be dissolved in ether, alcohol or turps, but not in water. In fact, once the moisture contained within resin has evaporated, we find that it crystalises and goes hard. Wood with a high resin content burns well.

Reveals

A reveal is the depth of wall between a door or window frame and the face wall. This could be both internally and externally.

A timber window reveal

Ridge

When we use this word we're referring to the ridge running along the top of a roof. This will be the horizontal section rather than the other, angled joining slopes, called 'hips'. In traditional roof construction, there will be a board that runs the full length of the ridge onto which the rafters are fixed; this is a ridge board.

The ridge of a roof is the peak where two opposing roof planes meet

NEXT MONTH

In part 32, Peter explains the meanings of more Rs – there's lots of rings and rips – ending with one of his favourites: the router

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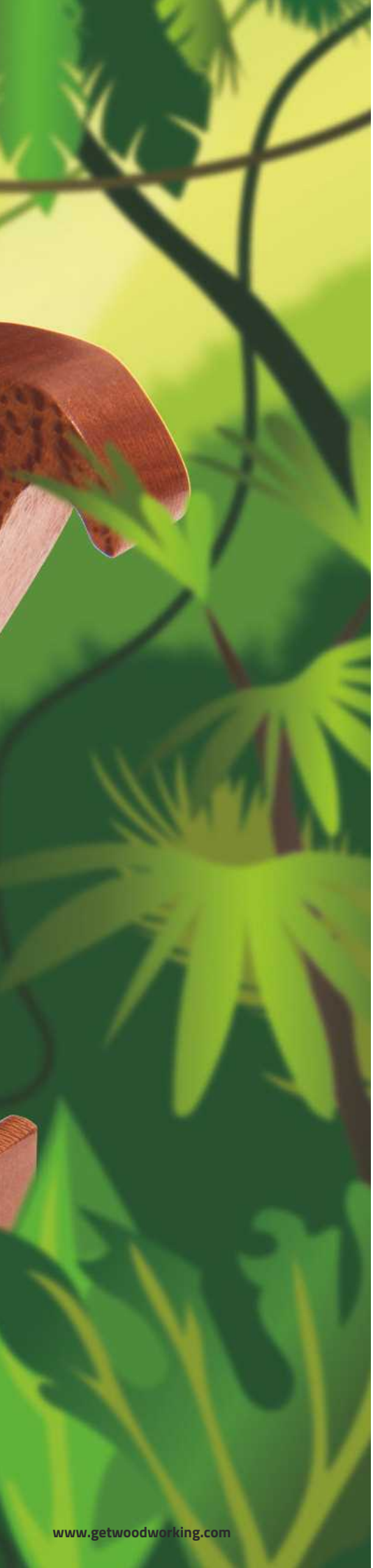


JUNGLE FEVER

Tom Wilson's fantastic gorilla build uses beech and London plane to create a wonderful wooden version of this magnificent beast

Many have tried to tame the wild animal, but few – if any – have succeeded. Although not renowned for our knowledge of the natural world, we at *The Woodworker* agree that this stylish project by Tom Wilson of Curio Studio comes very close to capturing the essence of the mighty gorilla. We stand by in awe.

1 A sacrificial softwood block is glued to the back of the body; the offcut forms a supportive sled for further shaping. Note chest in beech and rough-cut arm and leg

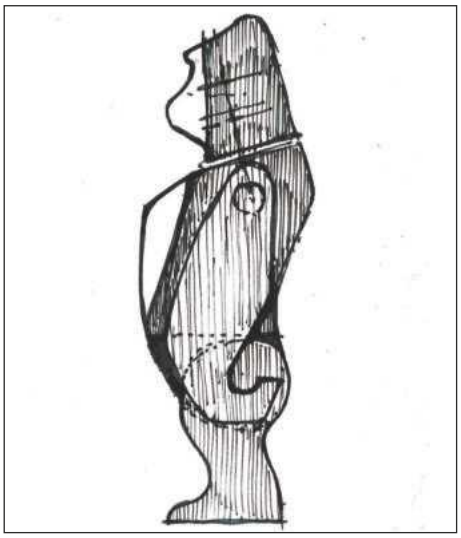


Fig.1 Initial sketch

Initial sketches

The build begins by sketching many versions and iterations of the gorilla (**Fig.1**), testing out variations in proportions, profiles and exploring the assembly sequence. The profile can then be set up accurately as a CAD profile (**Fig.2**). This allows the geometry to be refined, and exact locations for connecting pins and tube accurately set out.

Individual component profiles

Profiles for the individual components can then be transferred to the timber (**photo 1**), before roughing out arm and leg profiles using a bandsaw, followed by final shaping and sanding.

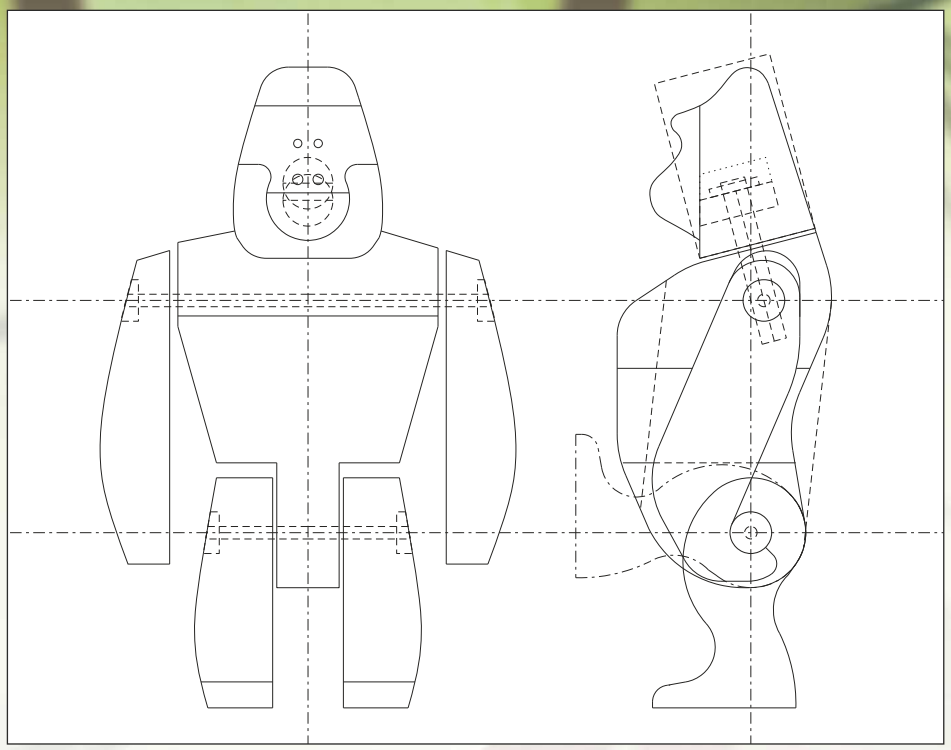


Fig.2 CAD drawing

Once fully shaped, the profiles can be cut in half lengthways, making a pair of each. The head and face blocks are also cut down to size before profiling on the bandsaw.

To form the body, the beech chest is first glued then clamped to the London plane, before gluing a sacrificial softwood block to the back of the body. Once the back profile is cut, the hatched area of softwood can be removed, with the remaining softwood forming a sled for making further cuts (**photo 1**), while keeping the body orthogonal to the bandsaw.

Shaping the body

The body can now be shaped and sanded, before 3mm holes for the connecting pins are drilled and 90° internal corners cleaned up with a chisel. Next, the head is roughed-out and a 12mm blind hole drilled. This is partially filled with a halved dowel, which provides a flat surface within the hole.

6mm brass tube is used to secure the head to the body. This is drilled to accept the 3mm brass pin, which also secures the arms in place. Once body, head and limbs are shaped and sanded, a test assembly can be carried out (**photo 3**).

2 Head blank and body. The head has been drilled and plugged with half a dowel, the body cleaned up and drilled with 3mm holes for the connecting pins

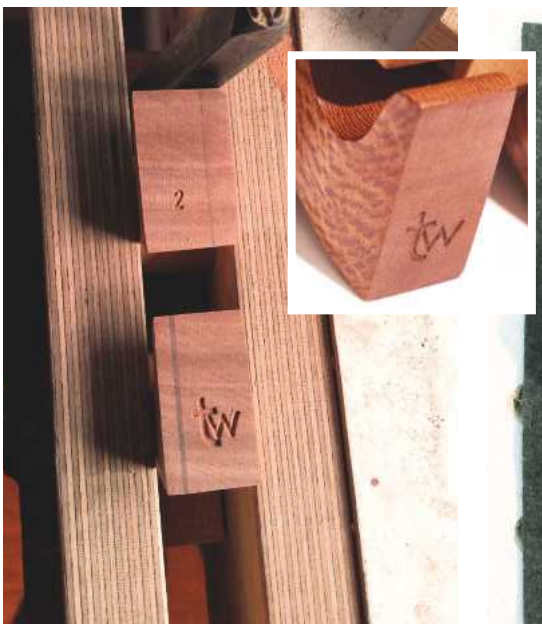
3 Ready for test assembly; note 6mm brass tube (drilled), which secures the head to the body

Final shaping of the arms & legs

Prior to carrying out final shaping of the arms and legs, recessed holes are drilled using a 15mm Forstner bit (**photo 4**); this allows the push-on Starlock washers to be recessed. Once the outside faces are shaped to completion, the holes can be deepened as required.

Before the arms and legs are shaped along their outer faces, the legs are held securely in a vice for stamping. I stamp

4 The arms and legs have a 15mm recess drilled part-way, which houses the Starlock washers



5 The maker's mark is applied – always a satisfying moment

6 With all parts oiled and ready, final assembly can begin

7 Finished vs. pre-finished face-off

8 The completed gorilla in a sitting position, holding a raised arm aloft, demonstrating the success of the felt washers

my maker's mark into the bottom of one foot. As this is the second gorilla I've made, a No.2 is stamped into the other (**photo 5**).

Assembly

All parts are now shaped and sanded to 240 grit, before being given three coats of finishing oil, rubbing back with fine wire wool between each. The next step is to cut the brass pins, make felt washers, then all is ready and waiting. Firstly, the legs are assembled, with felt washers between them and the body, and a dome-capped Starlock washer pushed onto each end of the brass pins. These have to be cut accurately to ensure a tight fit. The felt washers provide friction and so allow the limbs to be posed in different positions. Next, the 6mm brass tube is pushed into the neck hole, and the 3mm arm pin inserted, ensuring it passes through the hole drilled in the tube. The arms are then fitted using the same method as for the legs.

In the last act of construction, the head is pushed onto the tube, and a Starlock washer located into the hole, before it's pushed down over the tube. A length of dowel is then halved and slotted, and used to push the washer onto the tube. Finally, once everything has been checked and all's secure, the face can be glued into position where it covers the hole.

FURTHER INFORMATION

To see more of Tom's work, visit his website: **www.curiostudio.co.uk**

9 Posing on all fours and showing off the London plane's extraordinary fur-like grain

10 Standing squarely on level feet, eyeing up the competition

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Pedal to the **metal**

Colin Simpson experiments with reactive metal paints to add an aged appearance to a tear-drop vase

1 Turn your blank to a cylinder and start shaping

2 Refine the shape using a spindle gouge

3 Cut a spigot at both ends and a step above the spigot at the base

For this project, you'll need a block of sycamore measuring 200mm square × 220mm long. First, mount the blank between centres and turn it to a cylinder using a spindle roughing gouge. The same gouge can be used to start rough shaping the piece (**photo 1**). Refine the shape using a spindle gouge (**photo 2**), but don't take too much wood away from the neck of the vase at this stage. This area needs to remain strong in order to support the hollowing of the vase a little later on. Turn a spigot to fit your chuck at the headstock end; this end will become the top of the vase. Turn a similar chucking spigot at the tailstock end, but also turn a larger step just above the spigot (**photo 3**). I intend to hollow the vase from the bottom and this step will become the plug to fill the hole. Make several 'witness marks' on the vase and plug, so that the grain can be lined up later (**photo 4**). Remove the piece from the lathe, replace the four-prong drive with your chuck and mount the vase in the chuck, using the spigot at the top of the vase. Next, use a narrow parting tool to part off the plug and chucking spigot (**photo 5**).

4 Mark several witness lines on the plug and vase

If you don't like the idea of cutting this off with the parting tool, stop the lathe and cut the plug off using a saw (**photo 6**).

Hollowing the vase

Next, drill a hole in the bottom of the vase using a spindle gouge. With the tool resting on its back on the toolrest – handle down – gently place the tip of the tool in the very centre of the revolving wood. Hold the tool firmly and raise the handle until it's horizontal and the handle in line with the axis of rotation. Now push the tip of the tool into the vase to drill the hole. Remove often to release the shavings, but re-insert using the method described (**photo 7**). To hollow the vase, start by using a 10mm spindle gouge with the wings swept back. If the hole you've just drilled were a clock face, start with the flute of the tool pointing towards 11 o'clock and the cutting edge on the left wing of the tool, just inside the hole (**photo 8**). Push the handle away from you, pivoting the tool on the toolrest; this action should make a semi-circular cut. Continue hollowing in this way but as the hole gets deeper, the tool can't just be pivoted on the toolrest – it must be pushed through your front hand at the same time as swinging the handle away from you. As the hollowing gets deeper, the tool will overhang the toolrest too much and will begin to chatter. When this starts to happen, move to a larger tool.

I changed to my 12mm fingernail profile

5 Use a narrow parting tool to cut off the spigot…

6 … or use a saw if preferred

7 Start boring the hole using a spindle gouge

8 Hollow the vase, starting in the hole and swinging the handle away from you, making the cut on the left wing of the gouge

9 Use a bigger gouge to cut deeper into the cavity…

10 … and a cranked or articulated tool to remove wood next to the opening

bowl gouge, but the cutting action is the same. In **photo 9**, I'm using the bowl gouge right over on its side, with the bottom wing as a scraper. Note I'm also using the side of the hole on the right as a fulcrum to help apply a bit of leverage on the tool. With this shape of vessel, you can't hollow the area adjacent to the hole using conventional tools. This isn't necessarily a problem – no one is going to see inside the vase – so you could just accept the fact that the bottom is going to be a bit thicker. However, this would also add more weight to the piece, so I chose to remove this area of wood. I did this using one of my cranked or articulated cutters, in this case the Rolly Munro hollowing tool (**photo 10**). You can, of course, use this – or any other similar hollowing tool – to hollow the entire piece.

I like to use these tools starting with the cutting edge rolled over to about 8 o'clock and then roll it upwards towards 9 o'clock to make the cut. This way the top guard can contact the wood before the cutter and, to an extent, you can control the depth of cut by rotating the tool towards 9 o'clock. These tools are very efficient at removing wood, so stop the lathe often to remove shavings from the cavity.

Refining the shape

When you're happy with the inside hollowing, cut a parallel-sided step at the entrance to the hole using a skew chisel on its side (**photo 11**). Check to ensure the sides of this step are parallel and measure the diameter of the step using Vernier callipers (**photo 12**). Remove the vase from the chuck and replace it with the plug. Transfer the diameter of the step in the vase to the plug (**photo 13**) and turn the plug down to a fraction larger than this measurement. Now cut a small chamfer of the plug down to a fraction smaller than this measurement. Offer up the vase and rub the side wall of the step against this chamfer (**photo 15**). It should leave a slight burnish mark (**photo 16**). Now cut the plug down to the burnish line and you should find that it fits the hole perfectly. Take your time here and keep offering up the vase. This needs to be a good, tight fit as the rest of the vase will be turned from this chucking point. Glue the plug in place, making sure the witness marks are lined up and use the tailstock to ensure the vase is aligned correctly and also acts as a clamp while the glue dries (**photo 17**). Once the glue has dried, the final shaping can be completed. Keep the tailstock in place for additional security and refine the shape of the whole piece using a spindle gouge (**photo 18**).

11 Cut a parallel-sided stepped recess at the vase's opening…

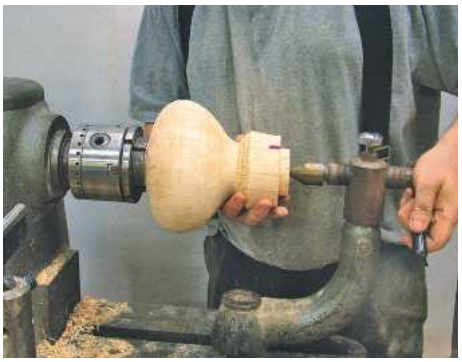
12 … and measure its diameter

13 Transfer the diameter of the opening to the plug

14 Reduce the plug to the correct diameter and cut a small chamfer

15 Offer up the vase and rub the corner of the stepped recess on the plug's chamfer…

16 … which should leave a slight burnish mark



17 Glue the plug in place and use the tailstock as a clamp

18 Carry out final shaping of the outside using a spindle gouge….

19 … and carefully shape the inside neck, breaking through to the cavity

20 Sand and finish with two coats of sanding sealer

You can now remove the tailstock and shape inside the vase's neck. Cut carefully here as at some point you'll break through into the vase's cavity (**photo 19**).

Applying the reactive paint

When you're happy with the shape, sand the piece down to 320 grit and apply two coats of sanding sealer (**photo 20**). You now have a finished vase and if you don't want to apply the metal paint, simply reverse chuck the piece to turn the chucking spigot away, then the project is complete. **Photo 21** shows the metal reactive paints I use from Metal Masters: **www.goldleafsupplies.co.uk**. These are water-based and contain real metal particles. Unsealed, the paints will tarnish naturally over time, but to speed up the process, use the patina aging solution.

I chose a spalted wood for this project because I wanted to colour areas bounded by the natural spalting lines. My thought process was that instead of the fungal spores eventually rotting the piece, they were converting the wood into metal – artistic or what! I mounted my vase, still in the chuck on my carving clamp, which is conveniently held in the toolpost of my lathe (**photo 22**). This clamp holds the piece firmly while allowing me to rotate it through all axes, easily reaching any part of the workpiece.

I outlined the areas of spalting to colour and shaded them in to avoid confusion (**photo 23**). Next, I carefully applied two coats of the primer (**photo 24**). Once dry, I painted on the metal paint – copper. The instructions advise

21 I use Modern Masters metal reactive paints

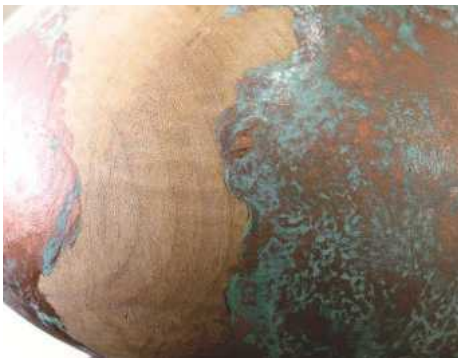
22 This carving clamp allows me to tilt the vase into any position, making painting easier

23 Draw and shade in the areas to paint….

24 … and apply two coats of primer…

25 … followed by two coats of metal reactive paint

26 Lightly spray the aging solution from a spray bottle



27 Here's a close-up of the tarnishing when left overnight

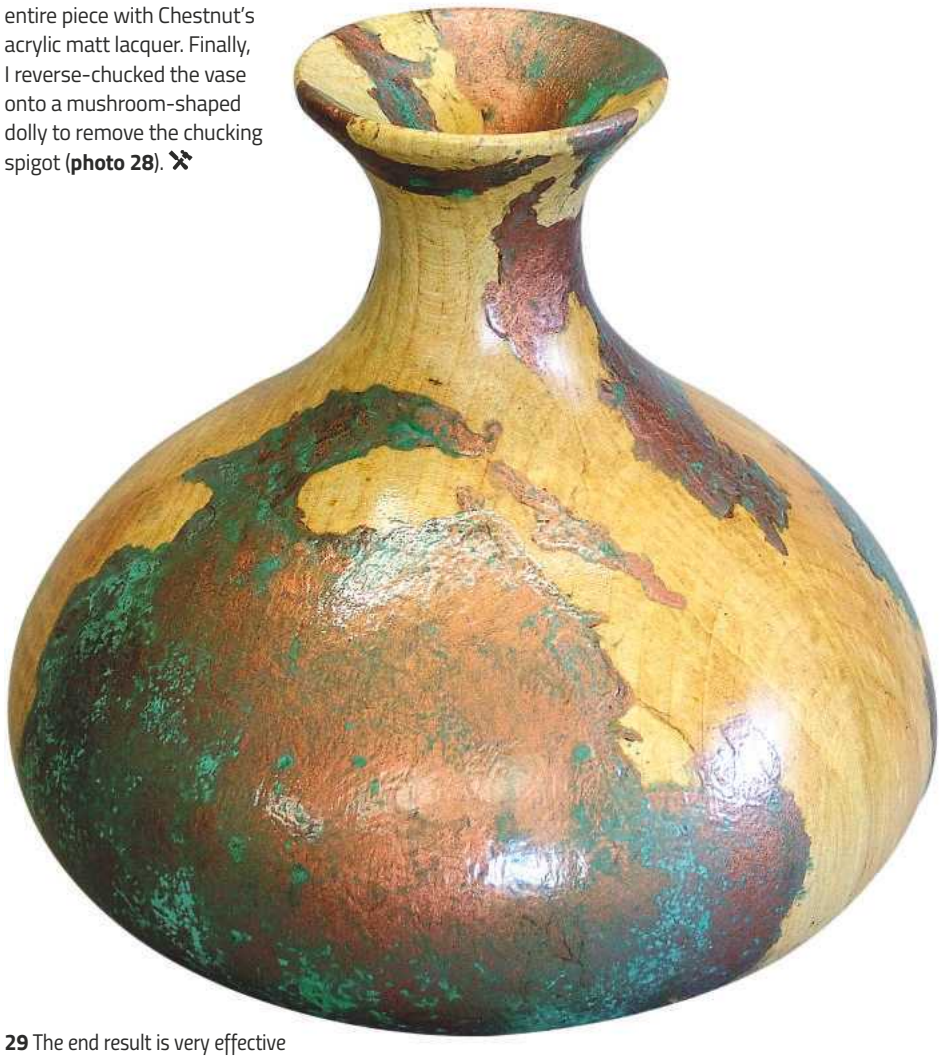
using two coats of the metal paint and, to give the metal part a little texture, I stippled on the second coat using a cheap glue brush (**photo 25**). Before this second coat dried, I gave the paint a light misting of the aging solution using a spray bottle (**photo 26**).

This chemical takes a little time to work – I left the piece overnight. **Photo 27** shows a close-up of the vase the following morning. A word of warning here: the chemical in the patinating spray reacts with the metal in the paint, tarnishing it. It also reacts with the metal of your chuck. My chuck, left overnight, was covered with a very light coat of rust by the next day. It was easily removed using a wire brush, but you might wish to protect your chuck from the spray, by masking it with tape or suchlike.

The instructions state that the green or blue patina doesn't require any further finishing, but I chose to give my piece a coat of Permacoat Extreme, which I thinned down 50/50 with water.

28 Reverse the piece onto a dolly and turn away the spigot

Once dry, I sprayed the entire piece with Chestnut's acrylic matt lacquer. Finally, I reverse-chucked the vase onto a mushroom-shaped dolly to remove the chucking spigot (**photo 28**).



29 The end result is very effective

LETTERS

★LETTER OF THE MONTH

MULTI-PURPOSE FINISHES

Deks Olje from Owatrol Marine is described as a 'flexible high gloss oil varnish for interior and exterior wood'

Dear Tegan,
Firstly, thank you very much for your wonderful and informative magazine. I'm a relatively new reader, having only recently been able to find the time to return to woodworking, which happens to be one of my main passions. Over the years, I've become something of a Jack of all trades, master of none, having first started working with wood as an apprentice boatbuilder on the Isles of Scilly many years ago.

I wanted to tell other readers about a product I now regularly use that comes from those halcyon days of doing the bright work on yachts. It normally turns up in classic boat magazines, so may not be widely known. Called 'Deks Olje', it's available in two types of coat. I usually just stick to the D1 – or 'undercoat' – which has the most beautiful silk finish and being so thin, is very easy to apply. Using a paintbrush or your preferred method, you simply coat the wood until it's saturated, then continue to apply lightly with a rag, moving in circles and polishing as you go. Despite being badged a tropical hardwood oil, I've used it on a multitude of timber surfaces over the years, with oak being my favourite as it really brings out the lovely medullary rays. My memory was jogged when I helped a friend on his boat and suggested this product to him. We ended up buying far too much – I'd forgotten how far it goes – so I took a tin home with me for use on a dilapidated old farmhouse table I had in the shed, which was in need of some major TLC. I thought 'what could possibly go wrong' and am glad to say nothing did, and to this day, that table has withstood numerous hot pans on its surface, wine glasses with no coasters, not to mention many children's crayon drawings!
Best regards, **Leslie Hunter**

Hi Leslie, thanks for taking the time to write in and also, welcome to the magazine! We hope you're enjoying the journey so far? We love a handy hint or workshop tip, and it looks like you've got a corker here! I'm not familiar with the finish myself, but I'm sure some of our readers will be. For those in the know, have you found it to be useful for various other projects besides its intended purpose? The fact a little goes a long way can only be a good thing, not to mention its barrier protection against those dreaded coffee cup rings!

For those interested, Deks Olje D1 and D2 can be readily purchased via online retailers as well as marine supply stores, but being a specialist product, it's fairly pricey. Thanks again for writing in! You paint an idyllic picture of your time on the Isles of Scilly building boats – how wonderful!
Best wishes, **Tegan**

Wooden boat finished with Deks Olje D1 and D2

Ken's wife, Gill, enjoying one of the folding chairs

LOW & LAID BACK FOLDING CHAIRS

Hi Tegan,
My wife has been on at me for years to make her an Adirondack chair, so, when you published Carl Jacobson's 'low and laid back' version – sometimes known as the Kentucky stick chair – in the June 2021 issue, I had no excuse but to have a go.

However, if anybody wants to follow suit, I have a few suggestions. I spoke to a local furniture maker and he suggested Siberian larch for garden furniture and I obtained 150mm × 33mm × 3m from my local Woodstock Timber outlet. I wasn't sure about the No.8 threaded rod, so used the M5 stainless steel threaded version with stainless steel Nyloc nuts and washers, drilling the holes at 5.5mm for clearance. Using the drill for assembly still worked fine, though. I didn't like the steel rod showing between the slats at the front edge of the seat, so I instead turned dowels to fill the spaces. To maintain the taper and curve, working in from each end, I made the dowel lengths 15mm, 18mm and 22mm, with the centre portion all at 25mm.

Carrying handles made using 12mm birch ply...

... which work a treat

Finally, these seats are quite heavy, so I made a couple of carrying handles from 12mm birch ply with turned larch rods. I'd also recommend looking at Carl Jacobson's excellent tutorial on YouTube; it certainly helped flesh out the written information in the magazine.
Regards, **Ken Mackinnon**

Follow up – dulcimer hall table

You know, Tegan, I'm a Scot and as canny as they come, so I couldn't overlook the potential of the offcuts from the main beams of the chairs, so... they became the four legs of a narrow occasional table to take a lamp for the hallway. I turned the lamp, had the fittings from a previous one and, apart from screws, glue and varnish, the only expenditure was £5 for the shade and £6 for the bulb. Now, does that not make me the proverbial Scotsman?

Hi Ken, wow, you have been busy! I absolutely love the chairs and great to see your wife enjoying them too! What a clever idea to make carrying handles – a brilliant and useful touch! I'm incredibly impressed with your ingenuity in putting the offcuts from the chairs to use on another project – it seems that nothing went to waste here! I love the design of your hall table and even better that it displays one of your turned projects. A very elegant addition to the hallway. And yes, you certainly win the prize for canniness! Very well done indeed!
Best wishes, **Tegan**

Nigel Groves sent in this wonderful photo of his young grandson, pictured here teaching his dad how to play Mancala. This particular board is the one Nigel recently made, based on Peter Vivian's article in the September 2020 issue

MANCALA LESSON

Hi Tegan,
Further to my hints & tips on electric hinges and latches, which you kindly featured in the August 2021 issue, I thought you'd like to see the attached photo relating to the making of my version of Peter Vivian's Mancala board. My grandson really likes it, and as you can see, we're starting him young as he's even teaching his dad how to play! Sadly, I never got to the beach due to lockdown, so instead, I painted and varnished some stones from the garden, which make perfect counters.

Once back in stock, I'm really looking forward to receiving my Veritas apron plane, which will be very convenient for little jobs around the workshop, not to mention good for teaching my young grandson the important skill of planing wood!
Best wishes, **Nigel Groves**

Hi Nigel, what a fantastic photo! Thanks for sending it in and for giving us an insight into how your board is being used at home! Your grandson is obviously a clever little chap and no doubt the game is helping with his arithmetic! The board looks great and I think the painted stones work really well as counters – the version I saw used dried kidney beans, although obviously there was no differentiation in colour between the two players' pieces. Keep us updated as to how the woodwork lessons go once your plane is delivered and we hope your grandson picks up your love of the hobby!
Best wishes, **Tegan**

READERS' HINTS & TIPS

AXMINSTER TOOLS We share your passion.

Due to major stock issues with the Veritas range, a decision has been made, in conjunction with Axminster Tools, to substitute the original prize for a similar one within Axminster's Rider range. Rider planes represent traditional, quality plane manufacture and feature a ductile iron alloy body, accurately ground sole and carbon steel blade. The new prize – the **Rider No.5½in Jack Plane** – is not only versatile, but also perfect for flattening, jointing and general preparation.

To be in with a chance of winning this great piece of kit, just send your top workshop hints, tips or pointers – indeed anything that other readers may find useful in their woodworking journeys – to **tegan.foley@mytimemedia.com**, along with a photo(s) illustrating your tip in action. For more information on Axminster Tools, see **www.axminstertools.com**

LATERAL THINKING IN THE WORKSHOP

With no suitable clamps available, Philip utilised the between centres capacity of his lathe, which held the assembly in place

Having been given a bird feeder for my birthday, which was made by my brother-in-law, I happened to notice that it'd fallen to the ground. The reason being that the top was made from two different timbers and as the damp was absorbed, it had expanded, thus cracking the glue joint. While in the process of repair, it became apparent that I needed a clamp with a 75mm throat. Unfortunately, the sash cramps and quick-release clamps I had available weren't adequate for this task, so a bit of lateral thinking was required. Although I've had a lathe for many years, it suddenly became obvious that it offered the perfect solution – it has a throat of 11.5cm and length of 50cm. Obviously the larger the lathe, the greater the parameters. After gluing the top in place, a good sanding was required using 80, 120, 180 and 240 abrasives.

With the timber prepared, the next question was whether to paint the bird feeder or use varnish? With the effect of moisture penetration, the wood had become quite spalted, which, when varnished, would enhance its natural appearance. I chose to apply a coat of sanding sealer followed by three coats of Ronseal outdoor varnish, completing the refurbishment with the addition of a new screw hook.

It's funny – I only intended to glue the broken piece together, but as usual, one job leads to another!
Philip Edlin

Now it's been glued and refinished, the bird feeder is as good as new

WRITE & WIN!

We always love hearing about your projects, ideas, hints and tips, and/or like to receive feedback about the magazine's features, so do drop us a line – you never know, you might win our great 'Letter of the Month' prize, currently the new Trend ¼in 30-piece Router Cutter Set, worth over £100. Simply email **tegan.foley@mytimemedia.com** for a chance to get your hands on this fantastic prize – good luck!

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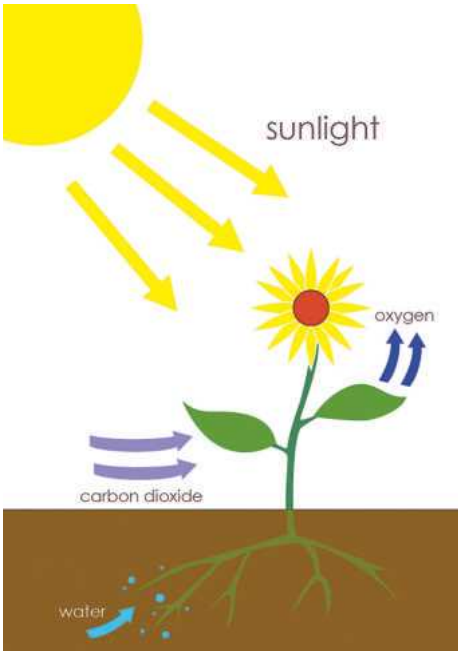
Can wood save the planet?

Looking to the future, building 'green' and taking into account the climate-related benefits of wood could be an important part of any solution, as **Paul Greer** discusses here



1 Energy from sunlight, water absorbed by the roots and carbon dioxide from the atmosphere, produce glucose and oxygen by photosynthesis

The worldwide evidence of climate change is now incontestable, and even people of traditionally very different views and aspirations are equally anxious to address the problems it poses. Moreover, they agree that wood, and trees in particular, must be part of any solution.

Carbon capture

A range of both natural and industrial processes raise the amount of carbon in the atmosphere. This contributes to global warming, something which, left unchecked, has serious – and potentially calamitous – consequences. However, in the process known as photosynthesis (**photo 1**), trees extract carbon dioxide from the air, and convert this gas into solid wood. This achieves a locking-up that is often referred to as 'carbon capture'.

The speed with which many national governments have pledged to plant trees in their millions – or even billions – has seemed cause for optimism, but climate experts have raised concerns, which show the challenges to the international community to be more than just a 'numbers game'. For instance, difficulties will arise if trees are planted without sufficient thought to their location, maintenance or monitoring. Dangers stem, too, from even a minority of governments or commercial concerns parading tree numbers as a 'greenwash' to divert attention from their failure to address carbon issues 'in their own back yard'.

Fast-growing trees like pine (**photo 3**) are proving the most popular of those promised internationally, with about half of these bound for new plantations. Typically, however, such areas consist of one species, rendering them vulnerable to dieback disease, for example, which can wipe out a whole area. By contrast,

2 The environmental and social benefits of tree planting

species diversity offers both damage limitation and a speedier recovery from any blight.

Growers contemplating stiff targets might want to plant imported species alongside indigenous ones. This risks introducing harmful pests, however, and home-grown cuttings may offer a safer way to broaden the genetic range. Strong arguments have also been advanced for much of carbon capture to be achieved through natural regeneration of established woodlands. This would both maintain existing 'capture', while leaving wildlife undisturbed.

Effective partnership

Planting should always be part of a long-term strategy, if we're to have any chance

3 Being evergreen, pine trees keep their leaves all year round, and they're also fast growing

4 The National Forest is an environmental project in central England run by The National Forest Company

5 Forestry Training Centre Inc. runs a course on how to Reduce Impact Logging

6 A 'logfisher' machine extracts a log in Peninsular Malaysia

of fulfilling predictions. However, in Britain, some allowance must be made for the relatively dry recent summers, which have left many trees with shallower roots, and thereby less stable. Targets also depend on saplings being planted promptly, rather than being left in cold storage. An industry representative has declared the 'COVID year' of 2020, having cost a 'bonfire' of no fewer than 10 million of these, leaving Britain – at least initially – well off the pace to meet its projected 30,000 hectares planted by 2025.

Good organisation is essential, yet far from all programs currently enjoy this. People and money on a very large scale are required, but some organisations seem hesitant to commit to either. Some of their uncertainty may be down to Britain's withdrawal from the European Union, which has made what is to replace the Common Agricultural Policy hard to predict.

Public access to most plantations is intended, so landscaping is as important as regeneration. This has been amply demonstrated by a development of the National Forest (**photo 4**), which was started in the Midlands 25 years ago. Since then, within 200 square miles of mixed woodland, its tree cover has shot up from 6 to 21%, while maintaining a population of nearly 250,000, over four towns. Effective partnership, claims a spokesperson, has been key to its success.

'Reducing Impact Logging for Climate'

Between growing trees and making things out of wood comes the vital stage of logging. Where it's performed efficiently, and with an eye to the environment, neither livelihoods nor profits need be threatened. However, as it's often done poorly, a United States program has been initiated. Entitled 'Reducing Impact Logging for Climate' (**photo 5**), it has, through several radical but well-thought-out steps, effected considerable improvements. For instance, ignorance of chopping technique was resulting in falling trees damaging others. However, following appropriate training, the loggers' precision vastly improved, and such damage was greatly reduced. Logging is a very hazardous occupation, and a welcome side-effect has been far fewer casualties (**photo 6**).

Also, but only after felling, about 40% of logs proved to be unsatisfactory for their intended use. Now, however, the introduction of up-to-date technology lets loggers gauge a tree's fitness even before an axe is lifted. Using more durable materials to surface the forest roads means that narrower ones are proving adequate, allowing the huge logs to be removed with less damage to the forest undergrowth and the wildlife it supports (**photo 8**).

The initiative's success is considered attributable to working closely and diplomatically with the logging companies and individual fellers, to convince all concerned that this can be a win-win situation for them, as well as the planet. Part of the evidence – and the reward – is to see creatures such as gibbons, orangutans (**photo 9**) and hornbills (**photo 10**) thriving in the Borneo forests long after the loggers have moved on.

7 Deforestation in Riau province, Sumatra, to make way for an oil palm plantation (2007)

8 Timber elephant moving logs in Burma

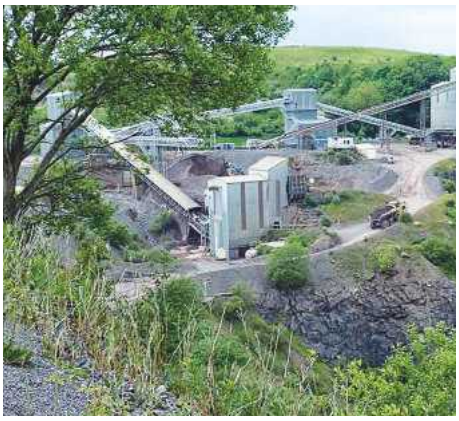
Wood & construction

In terms of environmental well-being, wood's role in construction may prove as valuable as planting trees. One strong argument favouring wooden buildings is their freedom from cement, whose manufacture makes an especially deep drain on carbon (**photos 11** & **12**). However, the building industry is traditionally conservative, and may initially find so radical a change unwelcome. This, though, has not discouraged Dr Michael Ramage of Cambridge University,

9 Thriving orangutan in a Borneo rainforest...

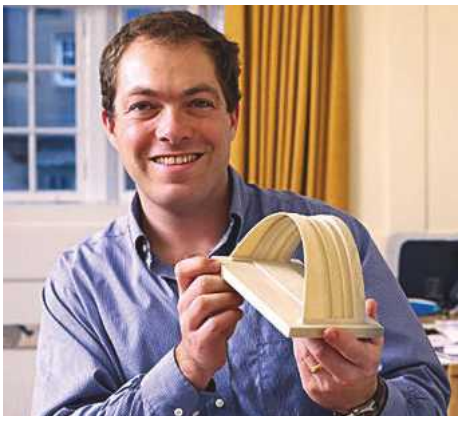
10 ... plus a stunning hornbill

11 The National Cement Share Company of Ethiopia's new plant in Dire Dawa



12 The environmental impacts of concrete

13 Due to stacking in perpendicular layers, CLT allows the manufacture of plates, surfaces or walls



14 Dr Michael H. Ramage – Centre for Natural Material Innovation (CNMI) at Cambridge University

under whose leadership a new construction material – Cross Laminated Timber (CLT) – has been developed.

Consisting of planks of pine wood laid crosswise and glued together, CLT is immensely strong, and can be made into building blocks of any convenient size (**photo 13**). At the time of writing, no wooden building in the world is over 300ft, and while CLT skyscrapers seem possible technically, there may be reasons to favour structures of 10 storeys or less.

Dr Michael H. Ramage (**photo 14**) advocates a long-term vision, with certain trees grown specifically for building purposes, and three or four planted for each cut down. The potential within Europe seems impressive, while tree-rich Canada might alone produce sustainable wood to house no fewer than 1 billion people, world-wide. France is showing the way, earmarking wood as the material used for all new buildings ahead of the 2024 Olympics in Paris (**photo 16**).

At Cambridge, Dr Ramage, whose background is in architectural engineering, leads the Centre for Natural Material Innovation (CNMI). Sponsored by the Leverhulme Trust, its five-year research programme is 'to establish new, sustainable applications for renewable, energy-efficient and plant-based natural materials in the built environment... and mitigate the human impact on climate change'.

The CNMI's fundamental premise is that 'natural materials are an essential component of a sustainable future, but that without modification.... such materials are not up to the task'. This is where the science comes in, and the programme brings together specialists

15 'The Smile' was a hugely successful Landmark Project for the 2016 London Design Festival, made using cross-laminated hardwood

in a variety of disciplines, including architecture, engineering, chemistry, biochemistry, and fluid dynamics. In fact, addressing climate change and other major problems is increasingly being seen as most likely to succeed through specialists co-operating, and being open to ideas on the broadest scale.

Climate-related benefits

Another major wood-related outdoor initiative is with bamboo (**photo 17**). There is a wide range of varieties, of which even the slower-growing are quick compared to most plants, while the speediest shoot up at a rate said to be almost visible. In Indonesia, bamboo was, until recently, seen as invasive and undesirable, but no longer. State-owned degraded land is being used to plant it, much of which, when grown, is cut to 15ft lengths and used in local villages. It's important for bamboo not to be grown by itself, or seen as a cash crop, but solely an initiative whose prime function is environmental. Estimates vary, but even the more pessimistic expect it to contribute to at least 1% of carbon capture by 2050, with the most optimistic rating this as high as 4.5%.

The climate-related benefits of wood are most likely to be greatest where employing it also addresses a social problem crying out for a solution. Britain's desperate need for affordable housing is one such problem, and new wooden properties built to order, which can be erected far quicker than brick-and-mortar counterparts, offer a realistic answer.

16 Computer-generated view of a timber swimming pool complex in Paris, which will be the only permanent venue built for the 2024 Olympic Games

17 Bamboo forest in Arashiyama, Kyoto, Japan

MAKING TIME

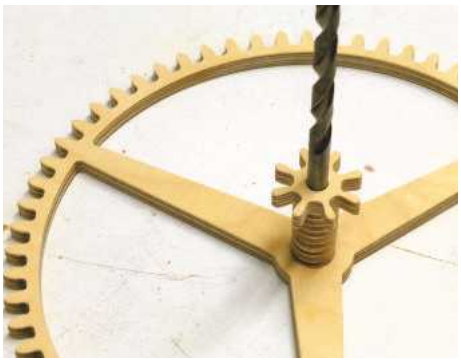
Mechanical devices made from wood are always impressive, and few more so than a working, accurate timepiece, as shown here by **Christopher Blasius**

1 Solidis – my home-made CNC router

2 The wall-mounted frame is the baseplate to which all other parts are fitted

3 The escape wheel and spacer can be centred on a twist drill bit…

4 … and fitted to the lowest frame arbor along with a pinion



5 Align the gear, the small pinion and spacer on a drill bit…

6 … then fit them in place. The clock is slowly taking shape

This straightforward clock is designed as an entry-level device, which can be made by anyone with the time and care to spare; you don't have to be a full-time clockmaker to complete it! Through its simple yet thoughtful design, anyone with a scrollsaw and steady hand can build the clock if they cut the parts carefully and exercise sufficient patience during construction.

Minimal movement

The number of moving parts has been reduced to only the essentials, and as there's no minute hand, the clock doesn't need a complex dial train. By having the hour hand fixed, it's only necessary for the dial to rotate to display the current time; this operating motion gave the clock its name – Rotara. It's easy to read the time from Rotara's face, and you can mark additional quarter hour indicator holes on the hour wheel for improved time-telling accuracy.

Maximum efficiency

Optimised tooth geometry – the size and shape of the gear toothing for smooth running – the carefully calculated frame design and an improved pendulum suspension system all simplify the making of the clock considerably, as well as enhancing its operational performance. The drive weight is attached to a cord, which is wound around the winding barrel. To wind the clock, you simply move the counterweight downwards. It couldn't be any faster and easier. This will give a running time of around 25 hours.

CNC router

I made all the parts for Rotara using my CNC router (**photo 1**). Having been interested in making automata and similar devices for some time, I've developed my own homemade CNC machine to make the cutting-out work simpler and more accurate – it's called Solidis. Scrollsaw enthusiasts will have no problem cutting out the components, and even a hand fretsaw will get the job done if used with care.

The right materials

For making the clock, I recommend using Baltic birch plywood, which is the best plywood available. This material is preferable due to its dimensional consistency and relative resistance to humidity and movement. Far-eastern and poplar plywood should be avoided owing to its poor quality and general unreliability.

The work is made a lot easier if you stick the paper plans to your plywood with a craft glue or aerosol spray adhesive. This leaves no residue when removed from the wood, and ensures you achieve a greater degree of accuracy with the project. To remove the paper from the wood, I've found it's sometimes necessary to heat it a little using a hot air blower.

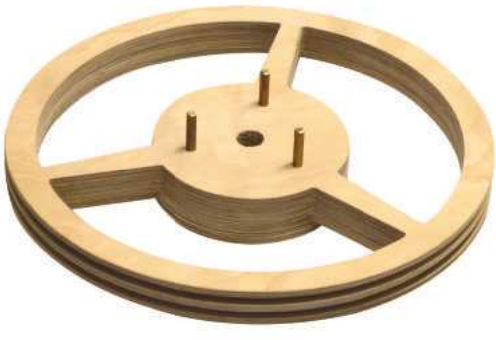
Making the frame

The frame is the baseplate onto which all other parts are attached (**photo 2**). Rotara uses a so-called single frame, which is very simple because tolerances during the cutting process aren't as tight as they would be on a multiple-frame device.

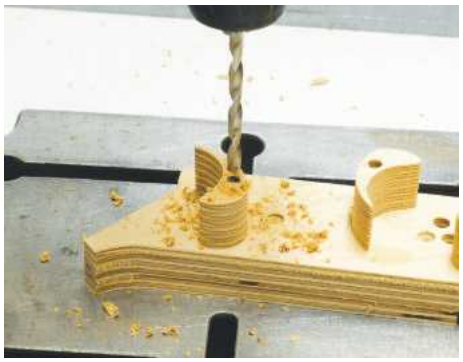
The axles – or arbors – are made from brass rod; this is normally available in the correct dimensions at your local hardware store or DIY shed. You only have to cut them to the correct length. The frame is attached to the wall with two screws, which aren't visible.

Perfectly round

The escape wheel (**photo 3**) is the most important part of the clock. It must be a perfect circle to obtain a uniform ticking motion, but don't worry; this can be readily achieved using a bench-top disc sander. Just take a piece of



7 The winding barrel has three pins fitted to take the ratchets



8 Drill the pivot holes in the ratchet blades after cutting them out

9 The ratchets will engage with the cog on the back of the hour wheel

10 The end of the pendulum bob is drilled to take the adjuster rod

11 The hollow central section of the bob is filled with lead shot…

scrap wood and position the wheel on it so that it overhangs slightly. By using a close-fitting drill bit as a temporary centre, the scrap timber can be clamped to the sander table and the wheel slowly rotated against the disc until it's perfectly round. Once finished, the escape wheel is the first component that can be fixed to the frame (**photo 4**).

Getting into gear

Cutting the gears isn't as difficult as most people think. If you use spiral blades for your scrollsaw, you can cut the teeth with extreme precision. All of the small parts should be drilled before cutting out, because at this point they can be held more securely. To align the holes of the gear, the small pinion and spacer, you can again use a drill bit (**photo 5**). These parts can then be added to the frame (**photo 6**).

Over a barrel

The winding barrel, as its name suggests, is where the cord is wound up, and from which the weight is suspended. It's designed as a sandwich wheel, consisting of several layers. You need to drill three holes for the pins of the ratchet mechanism into the face of this wheel (**photo 7**). The three ratchets (**photo 8**) ensure that the weight is firmly connected to the going train. If you wind up the clock, the ratchet releases the connection and you can then pull the weight without moving the other gears. Fit these in place on the frame (**photo 9**).

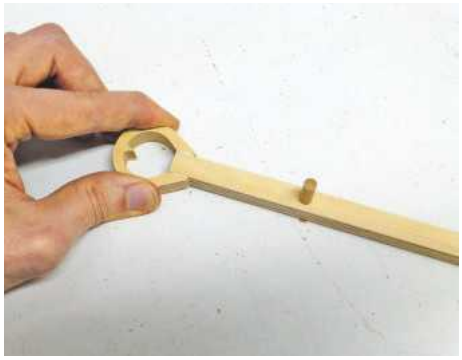
A swinging time

The pendulum regulates the time impulses of the clock. My construction of the bob also employs a sandwich technique. Drill a hole in the end of the central section after cutting to shape (**photo 10**). The middle part of the sandwich is hollow so that lead shot can be poured into it (**photo 11**). These very small lead balls are available from diving and sailing suppliers, who sell them to make up ballast bags and the like.

The pendulum also needs to be adjustable, so I've included a threaded rod at the bottom for calibration. It's important to get the centre of gravity as low as possible. The threaded rod is screwed into the bottom of the pendulum shaft, which is then fitted into the pendulum bob (**photo 12**).

You'll note that the top of the pendulum shaft terminates in a special head, which is the last piece of the pendulum to be fitted.

12 … before being assembled and fixed to the pendulum shaft



13 The pendulum head has a V-shaped internal pin to reduce friction

14 The finished pendulum can now be suspended on its pivot

15 The anchor is drilled to accept the two small adjusting grub screws

16 These can be accessed from each side of the anchor…

17 …and adjusted to bear against the peg on the pendulum

This incorporates a V-shaped pin, which reduces the friction of the pendulum as it swings (**photo 13**). The finished pendulum can now be fitted to the frame (**photo 14**).

A vital link

The anchor connects the pendulum with the escape wheel, and is consequently a very important part of the mechanism (**photo 15**). To calibrate the anchor easily, two small grub screws are set into the end, which attaches to the pendulum (**photo 16**). A tap – and die – can be used to make the threads, or you can simply drive the screws directly into a pilot hole. With the anchor fitted (**photo 17**), you're another step closer to completion.

Telling the time

As this clock has a fixed hour hand, the dial has to rotate twice every day. That's the reason the dial is also known as the hour wheel. The ratchet wheel is fixed to the back of the hour wheel (**photo 18**) and glued in place after using a drill bit to align the two holes.

18 The ratchet cog wheel is fixed to the back of the hour wheel

FURTHER INFORMATION

See a video of the clock being made on my YouTube channel: **youtube.com/user/holzmechanik**.

Available in English and German, plans can be purchased via my website – **www.holzmechanik.de**. These consist of building instructions, a materials list with reference sources, assembly and part drawings. You can print most parts at full-size for ease of cutting. If you'd like to make the parts using a CNC machine, I can email you the digital .dxf file: **c.blasius@holzmechanik.de**

19 The hour wheel can now be set in position – note the fixed hour hand

The hour wheel can now be fitted to the clock, followed by the hour hand, which is fixed in place and allows the dial to rotate behind it (**photo 19**).

Carry that weight

Rotara needs two weights to function fully (**photo 20**). The bigger one is the drive weight; this exerts a constant gravity-aided force on the winding barrel, which is transferred to the going train and drives the whole mechanism. I've made the drive weight from acrylic tube so you can see the lead balls, but you could make it in any shape or material you prefer. The small one acts as a counterweight and ensures that the winding barrel winds up the loose end of the cord cleanly, without tangling.

The clock is now complete, but you may wish to apply a finish. Contrasting stains are always a good idea, and can highlight the various components. Paint is an alternative, but it should only be applied very sparingly. Aerosol paint is a possible option as it'll avoid clogging up the workings and undoing all your hard work!

20 The drive and counterweights complete the clock assembly

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APPLE OF MY EYE

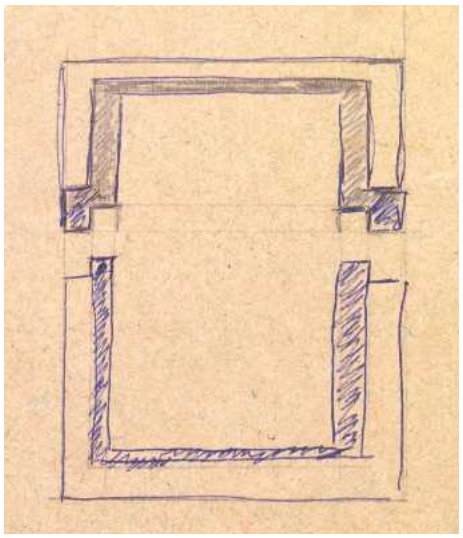
Influenced by the late woodturner **Dennis Hutchinson**, **Les Thorne** tackles the subject of boxmaking, choosing to make a design based on one of Dennis' ideas, using two pieces of contrasting timber that complement one another in terms of grain and colour

During my turning life, I've been extremely lucky to have met so many diverse and talented makers. One such person was Dennis Hutchinson, from Andover in Hampshire, who was a professional furniture sprayer by trade, as well as a woodturner, until his untimely death in 2015. I first met Dennis many years ago at my father's woodturning supplies shop where he was always on the lookout for the next piece of wood, which he'd use in the making of a new project.

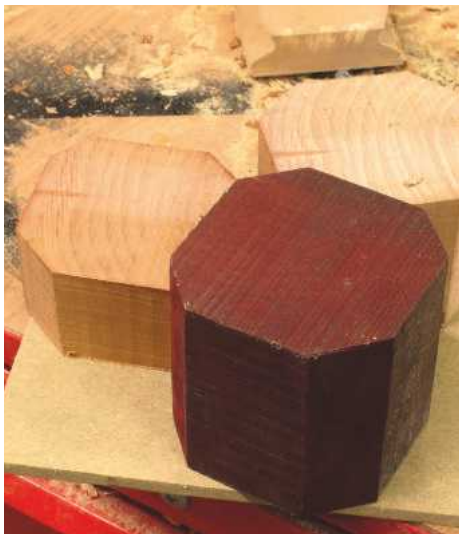
I'm lucky enough to be an honorary member of the Test Valley Woodturning Club, where Dennis was an active member for many years, and this meant that I was able to see his turning skills develop during that time. So what made him a great maker?

Well, one thing set Dennis apart from many of his peers, and that was the finish he was able to achieve on his work. Coming from a wood finishing background meant that he knew not to leave any sanding marks on the pieces he produced. The time he spent finishing was evident in most of his work, especially some of the carved pieces. When I had the pleasure of critiquing his work, I nearly always mentioned the fact you could tell how much he took pleasure in the finishing side of things, especially sanding, which is something that many of us consider a mundane task. The other thing I found was that if you gave him some hints towards improving his work, he'd always take these on board.

The piece I'm making here is based on an idea that Dennis was developing in his final years: making a box from two pieces of wood so the grain and colour of one complements the other. I've decided to use two timbers that have a large colour contrast, but I could equally have used a burr for one part, which would give an interesting effect.



1 The first step is to draw a sketch of the box, which gives an idea as to where the two timber types will appear in the make-up. You don't want too much of the lighter timber showing on the outside



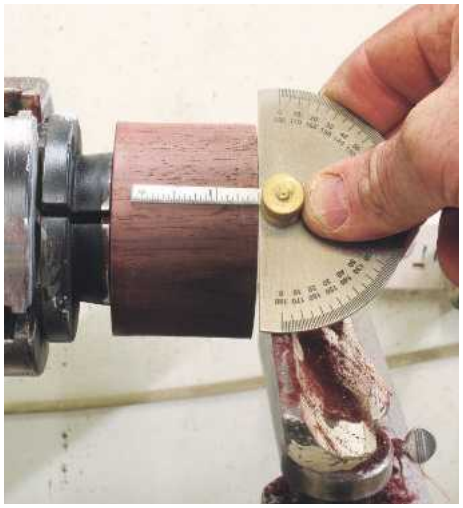
2 Any timber could be used for this project, but I thought I'd use something a little special: violet rosewood and apple. Both are hard, dense, dry, and ideal for boxmaking

3 The next job is to mount the rosewood between centres and make it round before putting a chucking spigot on either end – this is exactly the same procedure as for making a standard turned box

4 When one end of the blank is mounted in the chuck, start to part the lid off. I'm using a 2mm parting tool, which helps to keep the waste wood to a minimum

5 Because the rosewood heats up very quickly, it's worth using a saw to complete the parting off process. Do this with the lathe switched off and be careful not to mark the outer surfaces

6 For hollowing the base, use a spindle gouge. Start in the centre with the flute of the tool pointing at around 10.30. Let the gouge drill a hole, then pivot the tool tip to the left to make a controlled and even cut



7 You need to ensure you go as deep as possible and leave less than 5mm in the bottom. Keep stopping and checking as you go as it's easy to cut too far and ruin the project

8 Squaring off the bottom and sides is best done using a 10mm multi-purpose round skew. Line the tool up with the bed of the lathe and ease the skew down the side of the wood

9 As you go deeper into the piece, the downward forces on the end of the tool become greater. You'll need to decrease the size of your cuts as you go down

10 Accuracy rather than finish is the important point here. As you won't see inside the rosewood due to the apple insert, a pair of bow leg callipers will indicate whether you have parallel sides

11 Next, mount the larger of the two apple pieces on the lathe. Put a chucking point on one end and hold it in your chuck. Take it down to just over that of the rosewood base's diameter

12 Measure the inside diameter of the box as you'll need to transfer this to the apple insert. This is best done using a pair of Vernier callipers

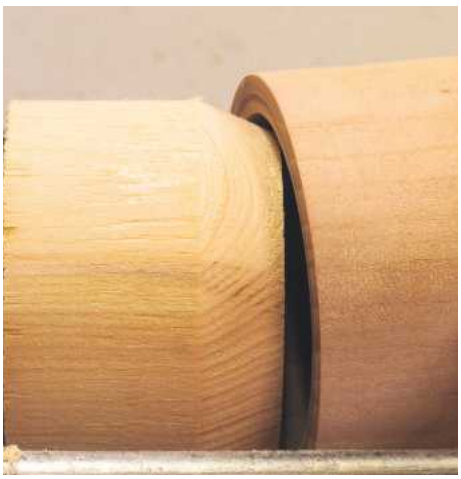
13 The outer mark is the diameter of the hole in the rosewood and the inner mark is where you're going to hollow the box out to; this should leave a nice, thin wall thickness

14 Here you can clearly see the flute position of the tool. The pencil – which is in line with the flute – shows that the tool is being presented at around 10 o'clock, which is a good, safe place to make the cut

15 The round skew is so good at making light shearing cuts and helping you to achieve a good finish. The side of the tool will remove tiny amounts of shavings, leaving you with a surface that requires little sanding

16 The round skew can also be used across the bottom. Keep the tool horizontal and slide it sideways, taking light cuts as you go. Ensure that the points of the tool don't make contact with the wood, otherwise you'll experience a dig in

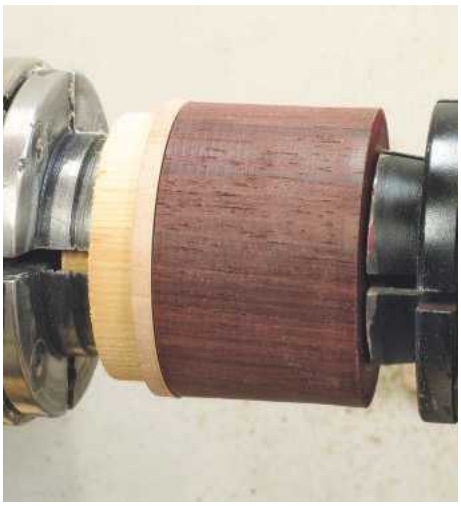
17 A power sanding pad used inside the box is the best option here – I use the 50mm Simon Hope sanding pad, which is a great fit. It'll sand more accurately and generates less heat inside the piece. Heat caused by friction can crack the timber and fruitwoods are particularly prone to this



18 Once the inside of the box is complete, turn a jam chuck and fit the inside of the box onto it. I gauge the size required by first turning a taper and offering the box up, then turn this diameter down to leave a tight fit

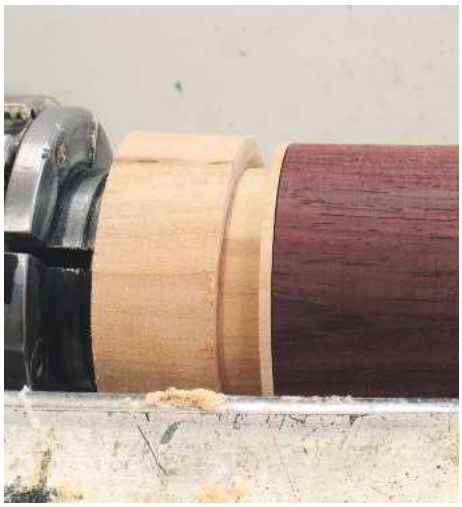
19 Once the apple is mounted on the jam chuck, turn it down so that it fits inside the rosewood base. The little shoulder will form the light timber part, which can be seen from the outside

20 The fit doesn't need to be really tight here, so remember to creep up on the correct diameter rather than going in with guns blazing. Remember that it's much easier to take off as opposed to trying to put back on



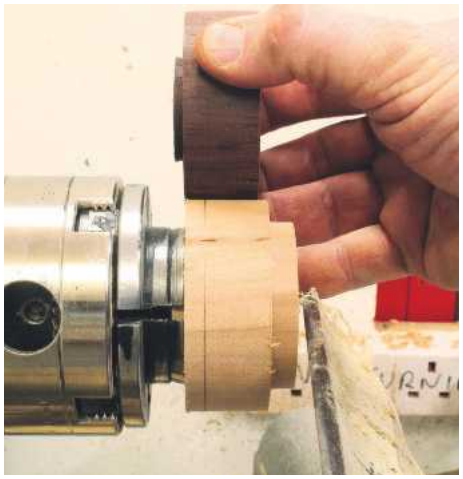
21 This project is made easier by having more than one chuck at your disposal. Here I'm offering up the rosewood to make sure that it fits perfectly. It then needs gluing on using a good quality PVA wood glue

22 The amount of rim you leave on is up to you – I think that less is more, so I removed some of the apple off the top, using a gouge in push-cutting mode. Make every cut count: a dig in here could destroy all your hard work so far

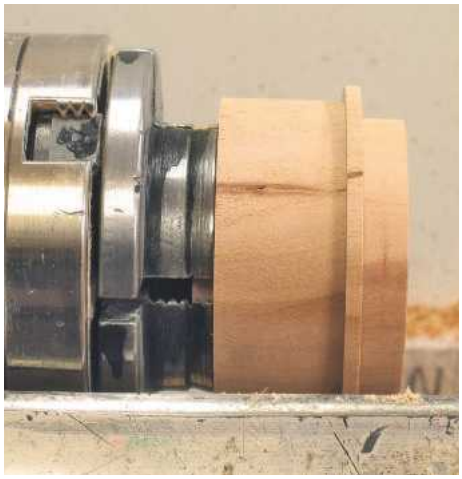


23 Mount the other piece of apple in the chuck, then cut a spigot that fits snugly into the base. You're looking for a fit that goes on easily, with no sideways movement

24 True up the face of the timber using a push cut from left to right, which will ensure there's no tear-out on the outer edge. The lid then needs to be hollowed out and finished



25 Offer up the rosewood lid so you're able to gauge the depth of the apple insert, which obviously needs to fit inside. The pencil mark here indicates where the apple insert should be parted off



26 Turn the outside of the apple down to create a flange, which the outer lid will sit up against. This needs to be parallel otherwise you'll have problems when it comes to fitting the outer rosewood part

27 Mount the rosewood lid into the chuck and hollow the inside to accept the apple insert. Once you've achieved a really good fit, glue the insert in place. Ensure the glue is dry before moving on to the next stage

28 The piece can now be trued up using a spindle gouge. Here, I'm putting a slight concave shape across the joint, which gives the box a waisted appearance

29 With the base mounted in the chuck, now's the time to jam the lid on. If you find the fit is a little loose, you can use a piece of thin paper or kitchen roll, which ensures the lid can't spin

30 Add some masking tape for extra security and use a spindle gouge to cut away the spigot. Support the wood with the tailstock for as long as possible, which will afford you extra protection

31 Add some decorative grooves to the top of the lid using the point of a skew chisel; this adds a little interest to the piece. The rosewood is very dense so a good finish can be achieved straight off the tool

32 This little abrasive holder is great for keeping everything in order when working through the different grades of abrasive – picking up one in the wrong order will often mean that you have to start again

33 You can see from the state of my hand the problems associated with turning colourful timber: you'll find that the red dust from the rosewood will contaminate the grain of lighter wood if you use an opened-grained species

34 The base needs to be reversed onto a jam chuck so the spigot can be removed. To achieve accuracy and maximum strength from the fixing, ensure the top of the box is right up against the shoulder

35 With the help of some masking tape, turn away the spigot, leave the base slightly concave, then add your desired finish – I used sanding sealer followed by gloss lacquer

36 The completed box is very striking and ideal for holding precious little items

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THE INVISIBLE MITRE

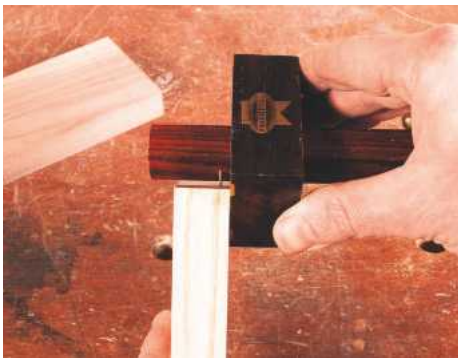
Dovetails are usually thought of as decorative joints, designed to be seen and admired as an example of the craftsman's art. The mitred dovetail rather goes against this, however, as once completed the dovetails are invisible, as **Andy Standing** shows

This feature explains the joint's other name: the secret mitred dovetail. The mitred butt joint is a notoriously weak joint as it relies on gluing end-grain to end-grain. Cutting dovetails inside the mitre obviously gives the assembly considerably more strength. However, this is a pretty time-consuming and difficult joint to make. Unusually the pins are cut first and used to mark the position of the tails. After all your efforts, you're left with what appears to be a standard mitre joint.

Traditionally it would have been used by cabinet- and boxmakers, though today it's more likely to be replaced with a biscuit joint, which can be made in moments. Before you start, prepare your wood so both pieces are the same width and thickness, and cut to length.

1 Take a marking gauge – or ideally a cutting gauge – set to the thickness of the wood and mark a shoulder line on the inside of both pieces

2 Using a marking knife or scalpel and a mitre or combination square, mark the mitres on both sides of both pieces



3 Re-set the gauge to cut the lap. Mark it from the outside face first; it should be around 4mm wide, depending on the thickness of the wood you're using

4 Now mark the inside face, running the gauge stock against the end of the workpiece. Use the same gauge setting as in step 3

5 The marked-out component should look like this, showing the mitre and lap

6 Carefully remove the square section of waste wood to create the lap, using a fine-toothed tenon saw or pull saw

7 Mark out the main elements of the joint. Start by gauging a line parallel to the edge from the shoulder line up to the lap. This shouldn't be set in by more than about 6mm. Do this on both components

8 Mark and cut the pins first. Make a cardboard template that can be stood in the rebate to mark the slope of the joints – this is usually 1 in 8 for hardwoods and 1 in 6 for softwoods

9 It's worth marking the waste areas so you know what to remove, in case you lose sight of what you're doing once you pick up your saw

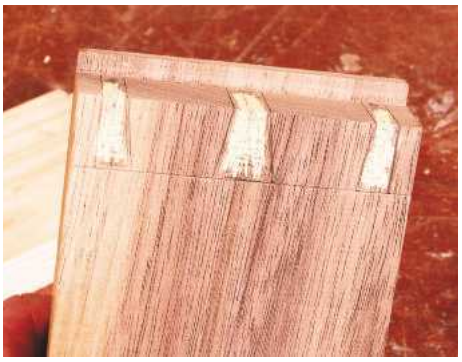
10 Saw down the waste side of the lines with a tenon or pull saw. Angle it so that you're cutting down to the shoulder line while also cutting up to the lap

11 Pare out the waste with a chisel, working from both the face and end of the workpiece. Cut carefully within the lines

12 Cut the mitre with care, guiding the saw blade with the thumb of your free hand

13 Use a chisel to pare away the inner edge of the lap, so that it matches the cut mitre

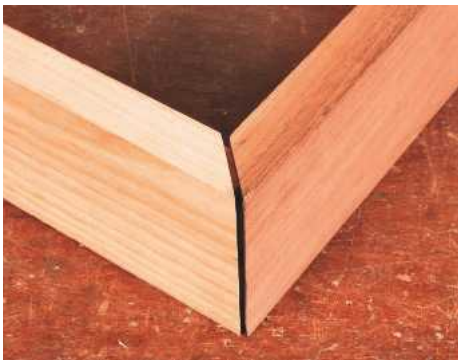
14 Stand the pinboard on the tailboard and transfer the joint positions to the latter using a knife or sharp pencil



15 Again, mark out the waste areas. Chalk is much easier to see than pencil on dark woods

16 Use the same technique as before to remove the waste. Stand the board upright in the vice and support the lap with scrap wood for security. Cut the mitres and shape the lap

17 Test the fit of the two completed components before applying glue. Inevitably adjustments will need to be made to ensure that the joint is as tight as possible



18 Apply a little glue once you're happy with the fit. The two parts should slide together to leave a perfectly fitting mitred corner joint. Cramp it until the glue has set

Where nature drives creativity

1 The 'zebra' striped table legs are one of Chuck's most popular and enduring motifs

Fusing discarded wood with metal and various upcycled items, **Chuck** and **Debbie Spurgeon** of **Wild Woodworks Idaho** create unique pieces using a multitude of techniques and processes

Chuck Spurgeon started honing his woodworking skills aged just 13, when he set up a workshop in his parents' garage. Chuck recently left a long and successful career as a housing contractor in favour of creating wonderful pieces of 'functional art' on a full-time basis. He felt stymied by the sameness of contractor work, and increasingly it seemed that everyone wanted the same things and his unique flourishes were going unappreciated.

Debbie, Chuck's partner in life, art and business, gave him the nudge he needed to focus on his art and craft full-time, and together they launched Wild Woodworks Idaho to showcase their joint creations. Their workshop, nestled in the woods of northern Idaho, is surrounded by stunning views and plenty of wildlife. This serene setting is the ideal place for Chuck's creations to come together.

"Our flaws make us unique"

Alongside Chuck's various machinery and workshop equipment – SawStop table saw, DeWalt sanders and planers, Laguna bandsaw and enough abrasive to alter the curvature of the earth – is his prodigious wood collection. A self-described hoarder, the bulk of Chuck's collection is what others might consider scrap. These flawed or otherwise imperfect pieces are both the inspiration for and medium in which Chuck works, and this sentiment of not just working around, but celebrating the uniqueness of each piece, permeates all the couple does.

"Our flaws make us unique; make us different, and there's beauty in those differences," says Chuck. With this sentiment as a guide, he finds inspiration in any number of places – from Debbie's own glasswork and eye for upcycled goods, to their time spent on the nearby lake and the natural beauty that surrounds them. At any given time, Chuck has 10-20 works in progress. "Most people have a plan, either written or drawn, but I never do," he remarks, "that would feel too much like work." Instead, he lets his projects take form more freely, letting his subconscious work away until a flash of insight leads him to the next step.

Common motifs

Perhaps the best way to understand Chuck's approach is through one of his most popular and enduring motifs: the 'zebra' striped table legs (**photo 1**). As a rule, Chuck doesn't throw any wood away, which inevitably leads to an overabundance of scraps. Every so often he purges the 'shop and tries to find uses for the orphaned castoffs from other projects. Each leg is comprised of between 20-30 individual pieces. He cuts these to shape using a bandsaw, then grinds them smooth before gluing into place. The contrasting grains and colours result in this distinctive striped pattern. While the colouration is striking, the blending of different sized pieces to seamlessly mimic the sloping musculature of a living animal brings the whole piece together.

As with everything from Wild Woodworks, the legs must be functional as well as aesthetically pleasing. Chuck usually has three to four of these legs under construction at any given time, and the finished pieces can be seen supporting everything from small end tables to much larger dining or conference room pieces.

Another common motif found in Chuck's work is a contrasting stripe or line through an otherwise solid piece. This was first born out of necessity. The surface planer Chuck's used for years is relatively narrow for many of his larger-scale pieces, and in order to run such large pieces through the planer, he'd have to cut a curving segment through the centre and plane both halves separately to keep the thickness consistent. With the piece already

2 One-of-a-kind serving board – half epoxy with blue and orange throughout, and half wood

split in two, it was a natural evolution to turn this problem into an artistic flourish by adding the contrasting line between the two pieces. The orange stripe is Osage orange, and the cream-coloured arc, maple. While they provide a nice contrast, the lighter colours also serve to bring out the softer tones in the walnut itself.

Funnily enough, the pair of boards shown in **photo 2** were originally supposed to be one larger charcuterie board. Unfortunately, the piece of black walnut slipped and cracked. As he often does, Chuck rolled with the punches and went ahead with making a matching set. "Many of my best projects came from things I messed up the first time," he says with a chuckle. Yet another argument for his philosophy of never throwing anything away – in fact, much of the stock Chuck uses for things like chopping boards and serving trays are castoffs from other, larger projects. What would normally be consigned to the burn pile instead enjoys a new lease of life as something both attractive and useful.

Bringing the vision to life

One of Chuck's particular skills is blending several disparate techniques in a really innovative way. For example, fashioning one of his signature benches and one of its legs from an irregular slab of aromatic cedar (**photo 3**).

3 Chuck blends several disparate techniques in an innovative way, as seen on this bench in aromatic red cedar

The far side of this particular piece features a waterfall edge with the grain of the bench seamlessly continuing from bench to leg.

Talking us through this technique, Chuck explains that the first step is to select a spot on the slab where the grain is particularly straight, then make the first cut. "Choosing the right spot is essential since you're losing little more than a sawblade's worth of wood. If the grain is too wavy at this point, it won't realign when the pieces are fixed back together and the illusion will be lost." Similarly, the narrower the saw blade, the better. Chuck is then ready to make the complementary 45° cuts along each edge so that when matched back up, they make a seamless 90° angle. Drawing on his skills, Chuck then makes a series of dovetail-type wedges, which help to hold everything together before finally gluing the leg in place. The result is an Escher-esque optical illusion, which is enhanced by the oddities and imperfections of the slab itself.

The nearside of this project is a whole other story. For example, Chuck epoxy-set one of the legs with black walnut branch segments, which he then dadoed into the underside of the bench. Despite the impressive result, Chuck wasn't entirely pleased with the way the piece turned out, as he reflects: "I'm probably the only person that doesn't really like it. That actually happens a lot. The result didn't exactly match what I had in my head." It's precisely this mindset that differentiates a skilled woodworker from an artist. It's easy for someone to be taken by the striking piece

4 Chuck finishing one of his Ecopoxy resin end tables

of wood, the masterful way the grain lines up on the waterfall edge, and the inventive use of epoxy and branches to set it all off, but for Chuck, it fell short of bringing his vision to life.

Using epoxy

One piece Chuck is particularly proud of, however, is an end table made from Ecopoxy resin featuring a black tint, set with black walnut and maple castoffs, affixed to an antique iron base (**photo 4**). Using epoxy in this way is a relatively new adventure for Chuck and Debbie, especially for pieces of this scale. When working with his preferred types of wood, resin is an important tool for filling cracks and knots. This is often the difference between making something functional as opposed to decorative. Mindful of epoxy becoming too much of a crutch, Chuck is careful to use it only when necessary.

Taking some chopping boards as an example, the stripe motif could easily be approximated by resin, but the finished piece would lack the ineffable authenticity that only comes from natural materials and craftsmanship. Using synthetic approximations is also antithetical to their whole ethos of upcycling various scraps and castoffs. For Chuck and Debbie, resin is a means of finding a home for interesting but otherwise unusable wood.

The redwood table shown in **photo 5** is far and away the most ambitious resin-based project the couple have undertaken so far. The slab, cut from the root area of a toppled redwood, 50mm-thick, was purchased by Chuck over five years ago from a gentleman who'd acquired it from someone else 30 years prior. How to do this incredibly rare and compelling slab justice confounded Chuck for years until he became comfortable enough with epoxy to attempt something like this. Such a method allows for the preservation of what makes this so compelling – the irregular oval shape, the oddball arms jutting out in different directions, and the incredible gradients in colour, while also allowing it to be transformed into a functional item.

It would easily have found a home as a display piece, but something as extraordinary as this deserves to be used, appreciated and enjoyed. Chuck spent hours upon hours routing and levelling the top and bottom before and between epoxy pours. The resin process for a piece of this size was definitely a learning curve. In retrospect, Chuck says he'd have done more to prepare the thickness of the piece before starting the epoxy process. Older wood such as this, especially with so many nooks and crannies, really absorbs resin, and as such, much more than usual was required in order to reach the desired thickness, thus producing more waste than Chuck was comfortable with.

Woodworking & antiques

"Learning to use epoxy has been great fun and something nice and new," Debbie recounts. That desire to try new techniques and methods helps keep things fresh for the pair, and as Debbie says: "Every single project we work on is different. Whether it's something similar to what we've done in the past, there's always a twist." Sometimes these twists come in the form of novel types and shapes of wood, other times with differing techniques, but another aspect of Chuck and Debbie's unique creations is their eye for pairing Chuck's woodworking skills with other evocative materials.

Similar to the way Chuck hoards wood, he and Debbie collect all sorts of odds and ends. The antique pedestal table previously mentioned is a good example, and they've used antique birdbaths in a similar fashion. They're currently sitting on an antique grandfather clock, which has yet to find its next purpose, and the same goes for an old corner postbox. While some of these items sit for a while, others come together relatively quickly.

Chuck and Debbie tell us about a discarded oil drum they recently found at an antique mall, which they immediately thought of turning into a rubbish bin fit for an outdoor space, workshop or utility room. The lid is a playful take on a child's pinwheel made from a combination of black walnut, Osage

5 The redwood table pictured here is far and away the most ambitious resin-based project Chuck and Debbie have undertaken to date

6 Vintage Pennzoil rubbish bin with hand-carved multi-wood swirl top. A vintage Mac truck bulldog bonnet ornament serves as a handle

7 Black walnut end table with birdbath base

orange, oak and cherry (**photo 6**). The scalloped edges are all hand-ground, and the grooves gently taper all the way to the centrepiece. The handsome golden bulldog – actually an antique bonnet ornament from a Mack truck – ties in the yellow from the Pennzoil logo. Both items work in concert with the pinwheel motif to recall a sense of playful nostalgia and childhood wonder. In an odd twist of fate, the most difficult part of the whole piece was finding an available bonnet ornament. Due to the fact these are highly collectable, it took the pair months to find one, but many trips to antique shops and failed eBay bids later, their patience finally paid off.

Sourcing vintage ornaments aside, pieces like the Pennzoil oil drum and birdbath table provide a very specific challenge that's somewhat unique to Chuck and Debbie's methods. When affixing woodwork to an upcycled item, Chuck avoids using hardware wherever possible, but sometimes it's unavoidable, as he explains: "Splitting, separating and having too small a pivot point are real concerns when working with such characterful wood."

The table-top in question was cut from a square piece of black walnut displaying beautiful natural grain. Chuck wanted to accentuate the grain and make it look like someone had just taken a bite out of it. He was able to achieve this effect without using epoxy, but that also meant he had to be careful in how he affixed the table-top to the vintage birdbath base without the added strength a coat of resin affords. In this case, he glued a leftover piece of white Corian into a recess cut in the underside of the table, then screwed the base into the Corian. The result is a seamless and sturdy marriage of wood and vintage iron.

The finishing process

Photo 8 shows Debbie taking a final pass at sanding down one of their dining room tables. When it comes to the timber used for mirror frames, however, this tends to be too crooked and gnarled for anything else. Like the table before, Chuck likes to highlight the natural form, curves and fissures that make these pieces so compelling. Often, that involves some subtle carving on his part to accentuate the twists and turns. Chuck tends to use this technique on display-oriented pieces such as decorative bowls and the occasional wall hanging. With the right piece of stock, often saved from the rubbish pile or a rescued piece of driftwood, he's able to use the same subtle carvings and etchings to create something reminiscent of a flowing river.

8 Debbie taking a final pass at sanding down what will be a handsome dining table

While the artistry and craftsmanship displayed in Chuck and Debbie's creations seems almost effortless, an incredible amount of time and labour go into the finishing process. "The hardest challenge is levelling and flattening things, especially for the functional pieces," Chuck reflects. Epoxy is a great help, but even that has its drawbacks. As noted before, older wood can be a lot more porous than it appears, which results in lots of bubbling, in turn leading to more pours and more sanding. "If we'd any idea how much time this process involves, we probably would've found a different hobby," jokes Debbie. But as with all jokes, there's more than a kernel of truth to this. They estimate spending about 80% of their workshop time sanding. When a piece is ready for finishing, Chuck planes it if possible, routs where he can, then the sanding begins with 60 grit abrasive. Some of the larger pieces, such as tables and benches, can be power sanded, but the bulk of the finish sanding is done by hand. After the initial 60 grit round, they then go back with 80 grit, followed by 120, and so on, usually finishing with 320 grit to give that final shine.

As monotonous as the sanding process may be, it provides Chuck and Debbie with plenty of meditative downtime. They ruminate on the innumerable pieces of wood and relics in the workshop, bounce ideas off each other, stare out the window at the forest around them and let their minds wander while their hands are otherwise occupied. Between this and the 3am flashes of artistic inspiration, Chuck is never at a loss as to what the next project will be. Right now, they're currently working on two mammoth tables that would be ideal for a dining or conference room, converting the aforementioned postbox into a wine rack, another coffee table, and several more chopping boards.

Through it all, Chuck and Debbie genuinely do enjoy spending time together working. They've become accustomed to one another's eccentricities, work habits and how they deal with the inevitable frustrations that arise. Debbie knows when to nudge Chuck to walk away for a while, and Chuck is consistently inspired by Debbie's creativity and artistic temperament. Their relationship, as well as their incredible work, is an inspiration to behold.

9 One-of-a-kind axe made using various pieces of wood and epoxy

FURTHER INFORMATION

More examples of Chuck and Debbie's work can be viewed on their website: **www.wildwoodworksidaho.com**

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EXTRACTING BROKEN SCREWS

What to do when things get stuck!

If you've ever used small brass screws in hardwood, you'll have undoubtedly run into issues. **Mike McCrory** offers his advice on dealing with the problem and tips on how to avoid this happening in the first place

If you've ever used small brass screws in hardwood, you'll have undoubtedly run into issues. The metal in a brass screw is notoriously soft and this presents challenges when screwing into hardwood. I was recently working on the final touches of a jewellery box that I'd made using bird's eye maple for the sides, and black walnut for the top and bottom. As I was tightening the final brass screw in the hinge, the screw head sheared off. Disaster! I had to find a solution after coming so far with this special project.

Removing the hinges

I started by removing the hinges. Even unscrewing these was more difficult than expected, and I ended up shearing off another screw in the process (**photo 1**). Both of these problematic screws were close to one another, so I suspect there was an exceptionally hard piece of maple in this spot. After installing and

1 Two screws whose heads have sheared off

2 6mm screw extractor from WoodRiver

3 Preparing the guide with a 6mm hole

subsequently removing the screws, the heads were marred, and I definitely didn't want to have the appearance of stripped screw heads in a brand-new jewellery box, so I replaced them all.

Screw extractors

There's a lot of screw extractors on the market for removing those with a stripped head, but this problem was different. These had no head remaining. If they'd been larger, I might have been able to drill a hole into the screw and used an extractor, but the No.2 (2mm) screws were too small to make this possible. You might think that the brass is soft enough to facilitate drilling the screw out, but it's still hard enough that it'd deflect the drill bit into the wood. You'd never succeed. I did some research online and found an inexpensive solution from WoodRiver (**photo 2**). It's a hollow drill bit designed to bore a cylindrical hole around the screw requiring extraction. The bit has a standard 6mm outer diameter, meaning the hole it leaves can be filled with a standard-sized dowel.

Removing the screw

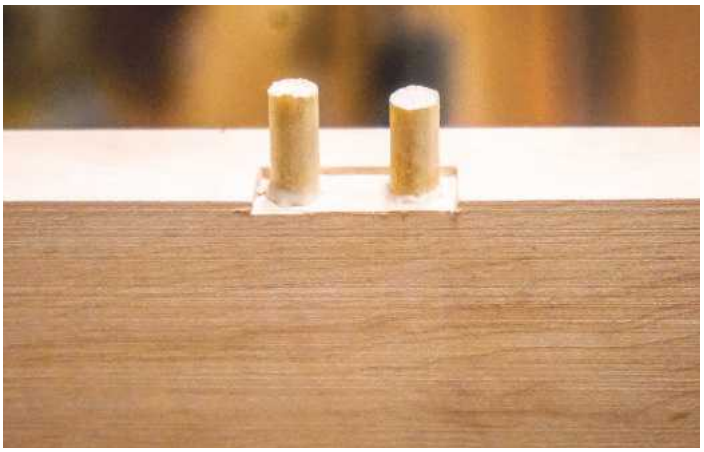
You'd think you could use a drill press with the extractor to afford you good control over the hole you're drilling; however, this bit is designed to be operated in an anticlockwise direction, so my only option was to use a hand-held drill so that I could run it in reverse. It's important to make a guide out of wood so that the extractor bit doesn't skate across the surface when it starts to turn. For my guide, I used a scrap piece of 18mm plywood and drilled a 6mm hole through it so that the extractor fitted snugly into the hole (**photo 3**).

I carefully positioned the guide so that it was directly over the screw to be extracted, and the screw aligned with the centre of the hole. Check to ensure the outer edge of the hole isn't over the edge of the mortise as you want to retain a straight edge along this part. The guide needs to be clamped

4 Drilling a cylinder around the screw

5 Removing a cylinder of wood around the embedded screw using the extractor

6 Cutting dowels to plug the holes

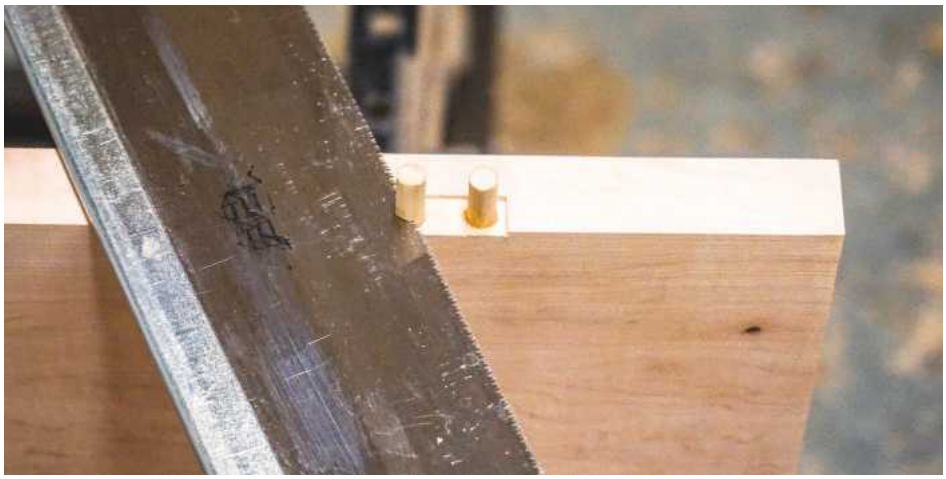


7 Gluing dowels into the holes

TIPS FOR SCREWING INTO HARDWOOD

1. Drill the appropriate sized hole to the correct depth
2. Use a gimlet to pre-thread the wood
3. Use high quality screws. The screws provided with hinges aren't always the best quality
4. Apply a small amount of wax to the screw; this will reduce friction and aid tightening
5. Use the correct size of screwdriver
6. Turn the screw slowly without exerting excessive force

If you follow these tips, you'll likely achieve perfect results and avoid having to go through these steps to extract a broken screw



8 Trimming dowels with a saw

to the piece so that the extractor doesn't cause the guide to move when the bit starts to turn. I then inserted the extractor bit with the drill set to turn in an anticlockwise direction. The bit is hollow and therefore fragile, so run the drill on a slow speed, gently drilling into the piece.

If you drill in far enough, the cylinder of wood is likely to come out easily, held in the end of the extractor, but this isn't always the case. If the cylinder and screw remain in the piece you've drilled into, you may have to pick it out using a small screwdriver and a small set of pliers. You can also try drilling a little more with the extractor, which occasionally results in cylinder removal. This cylinder can easily be removed by inserting a screwdriver through the other end of the extractor, effectively pushing the wood out (**photo 5**).

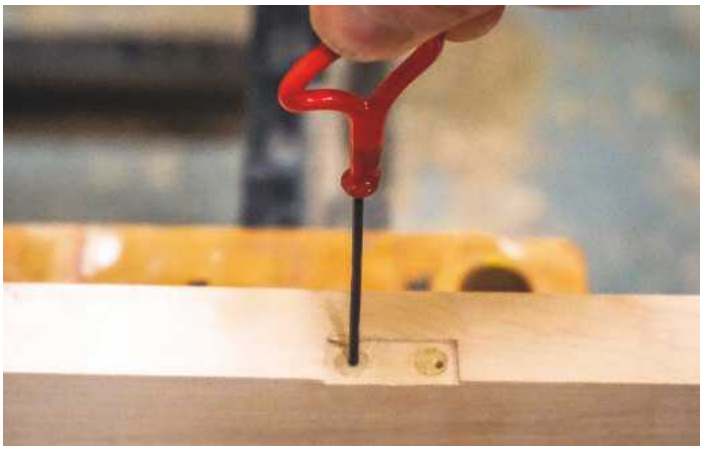
In my case, I was left with two 6mm holes to fill, so I cut two short pieces of dowel that would fit perfectly into the holes left by the extractor (**photo 6**). I put a small amount of glue into the holes, then brushed glue onto the dowels before inserting these into the holes (**photo 7**). Once the glue has dried, use a saw to trim the dowels (**photo 8**) followed by a chisel to carefully trim them flush with the bottom of the mortise (**photo 9**). After drilling new holes for the screws, use a gimlet to thread the holes so that the screw will have less work to do when entering the hole (**photo 10**). Adding a little wax to the threaded portion of the screw reduces friction and facilitates tightening into the wood (**photo 11**).

Lastly, ensure to use a screwdriver that's the right size for the screw. If too large or too small, you'll increase the chances of damaging or stripping the head. I replaced all of the screws with new brass versions so that the heads would look impeccable.

FURTHER INFORMATION

Mike's website – **www.woodumakeit.com** – features various projects plus instructional videos on how to make them

9 Chiselling the dowel flush



10 Using a gimlet to prepare the hole

11 Applying a little wax to the screw threads

12 Using the correct size screwdriver to tighten the screws

NEXT MONTH

Coming up in the next issue...

The Woodworker & Good Woodworking
November issue – on sale 22 October

2020/21 Professional Course student Lennert Koch with one of his final designs

CHIPPENDALE INTERNATIONAL SCHOOL OF FURNITURE 2021 GRADUATE SHOWCASE

In an exclusive feature, the Chippendale School's 2020/21 Professional Course graduates display their fine furniture-making creations

A BOX OF MEMORIES

With only hand and power tools at his disposal, Andy Brough had to think creatively when it came to the design and making of this memory box, which utilises a stunning piece of quilted sycamore in its main construction

THE MOUNTAIN SKI-MAKER

Jamie Kunka of Lonely Mountain Skis is making a name for himself as one of the most exciting hand-crafted wooden ski-makers around. Operating from his Perthshire workshop, he describes the processes behind making a typical ski – which involves half hand and half machine work – all the while using as many sustainable and natural materials as possible

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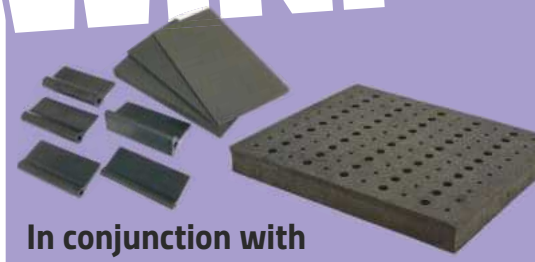

In conjunction with Wood Workers Workshop, we have 5 AukTools contour sanding grips (set of 8) & 5 AukTools router bit foam trays to give away – as reviewed by Phil Davy (p.17)

PLUS ▪ Offcentre tealights ▪ Bedside cabinets ▪ Soduku coffee table ▪ Choosing & using bench planes Display rack for collectibles ▪ Hobo reel & float ▪ Housing joints tech

Did you miss a copy of

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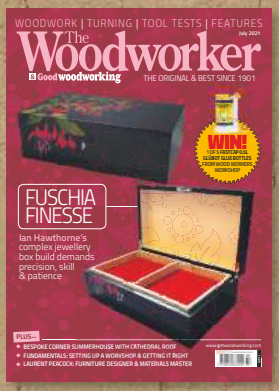

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Please note that we cannot guarantee the availablity of all issues displayed above.

WEB GUIDE

MUSICAL INSTRUMENT MAKERS

FOR SALE

Festool Precisio table saw – includes side/rear extensions, sliding table, 2 × blades, fence, mitre fence, manuals & push stick; £1,250 – buyer collects
07817 308 106 (Cheshire/Shropshire border)

Copies of *The Woodworker* – most issues from Jan 2008–Dec 2015; free to collector
07985 936 293 (Devon)

Emmert patternmaker's vice – brand-new & in box; heavy-duty – weighs 25kg; £300 – buyer collects
07780 607 196 (Hartlepool)

Electra Beckum planer/thicknesser – comes supplied with spare blades; in good condition; £250 – buyer collects
07818 410 591 (Durham)

Heavy-duty SIP mortiser – comes supplied with chisels – in reasonable condition for age; can be seen working on collection; £175
07818 410 591 (Durham)

Holzman ABS 850 dust extractor – single-phase and in excellent condition; comes complete with three-way distribution box; £80 – buyer collects
020 8650 7758 (Kent)

Robert Sorby Deluxe ProEdge sharpening system – used twice; in new condition; £200 – buyer collects
01604 644 197 (Northants)

Porter Cable 7539 variable-speed production plunge router with laser base; 3.25hp; £125 – collection only
0121 382 6095 (Sutton Coldfield)

Record BM16 mortiser with chisel bits – ¼in, ⅜
instruction manual, hardly used; £175 – buyer collects
01626 369 914 (Devon)

Trend MINIMACH portable vacuum clamping bed – totally unused; includes hanging bracket; £30 – buyer collects
01158 406 764 (Nottingham)

Leigh D4R Pro jig – little used. All items shown and in very good condition; £450 – cash only transaction; buyer collects
07890 645 721 (Hertfordshire)

Hitachi U-210 universal woodworking machine – 5 functions; includes spindle moulder block; £300 – buyer collects
07960 406 481 (Torquay)

Hardwood, veneer, mouldings & decorative laminate; £250 – buyer collects
01509 554 311 (Loughborough)

10ft³ of sawn through & through yew timber – mixture of lengths: 9ft, 7ft and 5ft; 1in, 1⅛ 1½
Some small areas of worm damage to sapwood (treated), otherwise OK; call to make an offer and for further details
01924 902 295 (West Yorks)

Wadkin Bursgreen bandsaw – single-phase; 250V; £120 – buyer to collect
07754 368 628 (Cheshire)

Veneering vacuum pump (Becker) – including 4 bags, plus veneers (mainly short); also, DeWalt (DW125) x-cut and bandsaw (DW3401) – hobby use; retirement forces sale – sensible offers only
0121 705 4437 (Solihull)

WANTED

Tenoning table/sledge for Axminster/Jet spindle shaper
07974 853 172 (Bristol)

Tyre for Tormek 2000/T8 drive wheel, or complete drive wheel
Wiltshire (**01793 771 898**)

Kity combination machine (or similar): must feature saw, planer, mortiser, spindle moulder, etc. Carriage paid
+087 2275266 (Ireland)

Australian made Symtec woodturning lathe; in sound condition; must be complete with toolrest – excellent price paid
01454 260 395 (Berkeley)

Three-jaw chuck for mortiser attachment Kit K5. Attaches to planer cutterblock with left-hand thread – both 12mm
01302 817 889 (Doncaster)

Stanley No.1 plane & Stanley No.2 plane – one of each wanted by novice collector
01572 723 976 (Rutland)

Dust extraction spout for DeWalt 1150 planer/thicknesser
023 8089 8123 (Southampton)

Woodworking tools: planes by Norris, Spiers, Mathieson, Preston, Slater, etc. brass braces, interesting rules and spirit levels; top prices paid, auction prices beaten **01647 432 841** (Devon)

Woodworking hand tools, especially old wood and metal planes, wanted by collector. Write to Mr B Jackson, 10 Ayr Close, Stamford PE9 2TS or call **01780 751 768** (Lincs)

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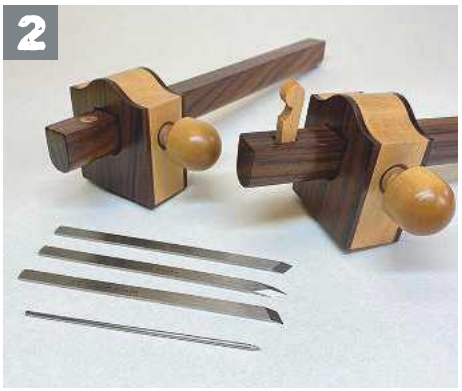
TAKE 5

From complex boxmaking to sculptural woodturning, toolmaking and wildlife carving, this month's **#woodworkerfriday5** selection is sure to brighten your day



1 Amazing 'cube' by Vasko Sotirov – **@vaskosotirov** – white oak sides, walnut tops and bottoms with ebony inlay, ebony rails with walnut strips and white oak drawers/boxes. The boxes slide both ways and feature a magnetic registration in the middle. "The preferred joinery for the inside pieces is loose mortise & tenons – just like a Domino, but a lot smaller. I sorted all the grain orientations to my liking, then marked a mock-up of the joinery before cutting the mortises." Once the internal structure is glued-up, it's held together with Japanese Hatagane clamps. The next step is to chamfer all edges and sand all surfaces

2 Beautiful matched pair of marking gauges in Castello boxwood with Santos rosewood faces, by Derek Jones – **@lowfatroubo**

3 Hand-carved collection of pendants – pygmy elephant (the smallest on Earth), great hornbill, proboscis monkey, papilio karna carnatus butterfly, orangutan and horsefield's tarsier – by Lucia Ferri – **@leshka_woodcarving** – made after spending months on the island of Borneo, with wood she personally collected and responsibly sourced herself

4 Turned and carved tube in maple, around 280mm long, by Chad Eames – **@chadeameswoodworks**

5 'Allegorical Cabinet' in whitened maple for the legendary **@timothy_godbold**, by Caleb Woodard – **@calebwoodardfurniture**

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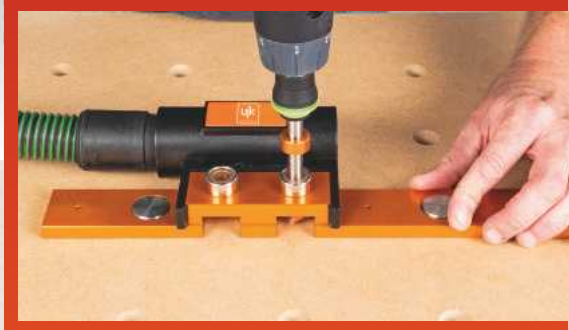

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