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February 2019

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- PETER BISHOP LOOKS AT DESIGNING & MAKING FURNITURE
- RICK WHEATON'S TAKE ON A RESIN-FILLED COFFEE TABLE IN YEW
- A RARE BREED: OWEN EVANS MEETS DULCIMER MAKER TIM MANNING

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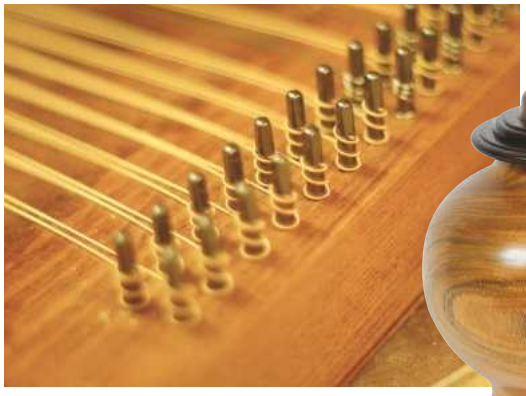



Welcome

February is a strange month and from my point of view, it is one that I am willing to be over before it even starts. Christmas has just been and gone, January is a long and somewhat depressing month, and then we have February, which is short and hopefully sweet. It's not particularly inspiring as it is still cold out and in terms of the woodworking calendar, everything is looking rather bleak, but that could just be my take on it!

I have to admit to feeling slightly stressed as I write this (a week before Christmas) as unfortunately I am in the throes of moving house, with no internet connection while being surrounded by un-packed boxes. I'm sure my outlook will be somewhat rosier by the time the New Year comes around, and I for one am hoping 2019 brings better fortune, not only for myself but for all of you too.

New series for 2019

Looking at this issue and ones ahead, we have some fantastic new series starting, and one of which I'm particularly excited by is from young furniture maker Ollie Allen (see profile in the next issue). As you will come to learn, Ollie does a lot of work with CNC technology and traditional hand techniques, and this is something he would particularly like to cover and share with readers. As well as this, you can expect to see reports on Ollie's various factory visits – being based in Sheffield he's spoilt for choice – including a trip to 'Wood Tools', run by Robin Wood MBE, which will focus on the processes used for making his handmade spoons and tools.

In addition, Jonathan Salisbury will also be starting an 'Apprentice Woodworker' series, which introduces woodworking to our younger readers while delivering an appropriate level of instruction and giving advice on tools, working methods, etc. So in this respect, the coming months are looking pretty jam-packed as far as new and diverse content is concerned, so watch this space.

February content

That's all well and good, but what can you expect to find in this issue? Well, how about joining Owen Evans as he meets the only full-time dulcimer maker in the UK; or being taken through the steps for building a bespoke winged coffin/shelving unit with Edward Hopkins; or if you're new to scrollsawing, or just want to learn how it all works, then give Colin Lloyd's instructional guide a read and it will provide you with a variety of useful tips and techniques. John Lloyd also takes a look at the Laguna P|Flux 1 Cyclone – which claims to be 'the world's most beautiful dust extractor' – and Rick Wheaton takes inspiration from an online project to create a beautiful resin-filled table in yew.

So no matter whether you're a fan of February or not, we hope this issue brings a smile to your face and provides you with the inspiration to continue your woodworking journey with gusto!

Enjoy!

Email tegan.foley@mytimemedia.com

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Technical & Consultant Editor

Dave Roberts
Consultant Editor

50 LAYING DOWN ON THE JOB

Edward Hopkins has the last word

WIN!

To be in with a chance of winning a HiKOKI C3606DA Multi Volt (36V) Brushless circular saw, see page 38 – good luck!

The Woodworker & Good woodworking
FEBRUARY 2019

PROJECTS & TURNING

TECHNICAL

ON TEST

FEATURES

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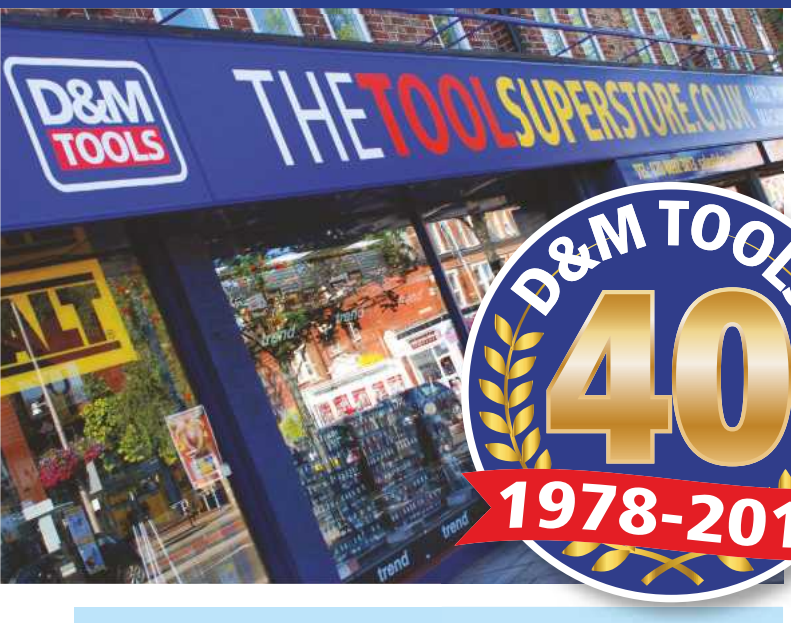

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NEW BOSCH CORDLESS IMPACT DRIVERS

The Bosch GDR 18V-200 C and the Bosch GDX 18V-200 C Professional have the best performance-to-size-ratio compared to competitor models in the same category. Both tools have a maximum torque of 200Nm and feature short head lengths of 126 or 147mm respectively. Therefore, they are more powerful and compact than their predecessor models, and are designed for all connections in installations and in metal and woodwork. In this area, they offer considerable advantages over cordless screwdrivers.

The cordless impact drivers tighten common screws of size 6 × 60mm faster, and also work recoil-free – the torque at the bit or screw is decoupled from the handle. Installers, carpenters or scaffolders can therefore operate the tools conveniently with one hand. This is a particular advantage when it comes to working in small or confined spaces. The cordless impact drivers differ by their toolholders, the new generation of the Bosch GDX 18V-200 C Professional also has a combined hexagon/square toolholder where both screwdriver bits and nutsetters can be used, increasing the versatility of this tool.

The Bosch GDR 18V-200 C and the Bosch GDX 18V-200 C Professional can be adjusted by the Bosch Toolbox app via Bluetooth to user's personal settings. This includes functions such as soft start that enables a particularly well-controlled and precise tool positioning when screwing in wood. Maintenance has also become easier, and users can now receive information about the status of their tool straight to their smartphone. The app also enables repair orders to be sent faster, anytime, anywhere. Connected power tools and services from Bosch Professional provide the user with added value.

Fast & efficient screwdriving

Both cordless impact drivers have three pre-set speed settings meaning tradespeople can now work faster, and more efficiently. The preselected speed minimises the risk of over-tightening and snapping screws. The first setting is designed for small screws, the second for medium and the third for large screws. This corresponds to driving screws in sheet metals, wooden boards and metal profiles. Further control is provided by the accelerator switch.

Both models are equipped with brushless motors for a longer lifetime and are operated by powerful 18V Li-ion batteries. Those who place a value on light weight with a high output can turn to the new compact high-performance battery ProCORE18V 4.0Ah. Thanks to new higher-capacity cells, it is single-layered and thus considerably smaller and more compact than the two-layered standard battery with 4.0Ah.

Both the Bosch GDR 18V-200 C and the Bosch GDX 18V-200 C Professional are now available. All prices are RRP ex VAT and subject to change.

- **GDR 18 V-200 C Professional impact driver** – no batteries, no charger, carton box – £165
- **GDR 18 V-200 C Professional impact driver** – no batteries, no charger, L-BOXX – £180
- **GDR 18 V-200 C Professional impact driver** – 2 × 4.0Ah ProCORE18V batteries, GAL 1880 CV charger, L-BOXX – £360
- **GDR 18 V-200 C Professional impact driver** – 2 × 5.0Ah batteries, GAL 1880 CV charger, L-BOXX – £380
- **GDX 18 V-200 C Professional impact driver/ wrench** – no batteries, no charger, carton box – £175
- **GDX 18 V-200 C Professional impact driver/ wrench** – no batteries, no charger, L-BOXX – £190
- **GDX 18 V-200 C Professional impact driver/ wrench** – 2 × 4.0Ah ProCORE18V batteries, GAL 1880 CV charger, L-BOXX – £370
- **GDX 18 V-200 C Professional impact driver/ wrench** – 2 × 5.0Ah batteries, GAL 1880 CV charger, L-BOXX – £400

See **www.bosch-professional.co.uk**.

2018 NORTH OF ENGLAND WOODWORKING & POWER TOOL SHOW

Visitors to the 2018 North of England Woodworking & Power Tool Show, which took place from 16–18 November at the Yorkshire Event Centre, Harrogate, were thrilled by the range of demonstrations on offer as well as the wealth of trade stands. The show organisers were also incredibly pleased to report a record attendance figure of over 9,000 – the greatest yet – much to the delight of the companies exhibiting. The dates for this year's show are 15–17 November, so be sure to make a note in your diaries.

DIARY – FEBRUARY

1* Routing
4–7 Beginners' woodworking – make a side table
5 Scrollsaws
5* Wood machining
8* Wood finishes
12 Fine-tuning hand planes
12* Spindle moulding
12–13 Woodturning
14 Leigh jigs
15* Sharpening woodturning tools with Tormek
19 Bird, bee & bat boxes
19* Pestle & mortar
21 Tool sharpening
21–22* Woodturning
25 Pyrography
26–27 Wood machining
* Course held in Sittingbourne, Kent

Axminster Tools & Machinery
Unit 10 Weycroft Avenue
Axminster, Devon EX13 5PH
Tel: 08009 751 905
Web: www.axminster.co.uk

1–3 Shaker box making
8–11 Introducing woodturning – bowls, spindles & boxes
22–25 Furniture making for beginners – a dovetailed stool

West Dean College
Nr Chichester, West Sussex PO18 0QZ
Tel: 01243 811 301
Web: www.westdean.org.uk

4–9 Make your own workbench
23–24 Tool sharpening & maintenance weekend
25–1 Make a book case

Chris Tribe, The Cornmill, Railway Road
Ilkley, West Yorkshire LS29 8HT
Tel: 01943 602 836
Web: www.christribefurniturecourses.com

2 Intro to woodwork: basic wood joints
2 Willow basket making
3 Intro to woodcarving
9 Drills in a day
9 Intro to woodturning
17 Intro to spoon carving

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Web: www.aharrisonwoodturning.co.uk

Bennetts Timber (Lincolnshire)
Tel: 01472 350 151
Web: www.bennettstimber.co.uk

Black Isle Woodturning (Scotland)
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Web: www.blackislewoodturning.com

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Brooks Brothers Timber (Essex)
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D Emmerson Timber (Lincolnshire)
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EO Burton, Thorndon Sawmills (Essex)
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Web: www.eoburton.com

Eynsham Park Sawmill (Oxfordshire)
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Web: www.eynshamparksawmill.co.uk

FH Ives (Essex)
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Web: www.fhives.com

Fulham Timber (London)
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Web: www.fulhamtimber.co.uk

G&S Specialist Timber (Cumbria)
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Web: www.toolsandtimber.co.uk

Good Timber (Northamptonshire)
Tel: 01327 344 550
Web: www.goodtimber.com

Horndon Timber Products
Unit 8-9 Orsett Industrial Park
Stanford Road, Orsett, Grays
Essex. RM16 3BX
Tel: 01375 679 999
Web: sales@horndontimber.co.uk

Interesting Timbers (Somerset)
Tel: 01761 241 333
Web: www.interestingtimbers.co.uk

ISCA Woodcrafts (South Wales)
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Web: www.iscawoodcrafts.co.uk

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Web: www.oliverswoodturning.co.uk

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Web: www.owr.org.uk

Stiles & Bates (Kent)
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Web: www.stilesandbates.co.uk

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Web: www.scawtonsawmill.co.uk

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Web: www.surreytimbers.co.uk

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Web: www.sykestimber.co.uk

The Timber Mill (Cornwall)
Tel: 07966 396 419
Web: www.thetimbermill.com

The Wood Recycling Store (East Sussex)
Tel: 01273 570 500
Web: www.woodrecycling.org.uk

Thorogood Timber Ltd (Essex)
Tel: 01206 233 100
Web: www.thorogood.co.uk

Timberman (Carmarthenshire)
Tel: 01267 232 621
Web: www.timberman.co.uk

Tree Station (Lancashire)
Tel: 01612 313 333
Web: www.treestation.co.uk

UK Timber Ltd (Northamptonshire)
Tel: 01536 267 107
Web: www.uk-timber.co.uk

Waterloo Timber Ltd (Lancashire)
Tel: 01200 423 263
Web: No website

Wenban Smith (West Sussex)
Tel: 01903 230 311
Web: www.wenbans.com

Wentwood Timber Centre (South Wales)
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Web: www.wentwoodtimbercentre.co.uk

W L West & Sons Ltd (Surrey)
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Web: www.wlwest.co.uk

Yandle & Sons Ltd (Somerset)
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Web: www.yandles.co.uk

FURNITURE CRAFTS STUDENT & LECTURER AWARDED PRESTIGIOUS MEDAL FOR EXCELLENCE

Royal Leamington Spa College lecturer Jamie Ward has been awarded a coveted Medal of Excellence by educational body City & Guilds. He was recognised for his outstanding knowledge and professionalism as course leader on the City & Guilds Level 1-3 Furniture Making and Wood Machining over the last decade.

The prestigious Medals for Excellence have been awarded by the City & Guilds Group for over 100 years. They celebrate exceptional talent among learners, lecturers and trainers who have achieved great results by not only producing exceptional work, but by going above and beyond what is expected to achieve their goals. This year, just 61 medals have been awarded from over two million students completing courses worldwide.

Jamie said: "It is humbling to receive recognition with this City & Guilds Medal for Excellence. We continue to build the furniture making and wood machining provision at Leamington and this recognises the hard work and dedication that goes into making a course successful. I would like to thank the students and teaching team that support this great department and look forward to another successful year."

Since Jamie has been course leader at the college – part of the WCG group of colleges – he has nominated eight of his students for a Medal for Excellence, all of whom have been successful. The latest success being Matt Brown, age 36 from Aston Le Walls, who was also awarded a prestigious medal this year.

Matt was nominated for being an outstanding student on the furniture crafts course throughout his time at the college. He worked tirelessly in his pursuit of perfection and achieved distinctions for all of his assignments. This dedicated approach rewarded him with a full-time cabinetmaking position at NEJ Stevenson, the Rugby-based fine furniture design and makers, which holds the Royal Warrant as cabinetmakers to the Her Majesty the Queen.

Matt, who completed a Level 3 Diploma in Furniture Design and Making, said: "It is a real honour to receive the City & Guilds Medal for Excellence. My time at the college has been amazing, and to receive this award makes it even more special. I would like to thank everyone who has helped me along the way, from those at college to the continued support I receive from my colleagues at work."

Ian Bown, Production Director at NEJ Stevenson, commented: "Matthew has definitely excelled and made an admirable impression on NEJ Stevenson. Alongside his natural talent, excellence in skill and his depth of knowledge, he is always willing to learn more, listening to instruction and performing to the high NEJ standards. His politeness and attitude is exemplary in every way and he is very much liked by everyone at NEJ Stevenson; he is a credit not only to himself but also the company."

Matt was presented with his award at the furniture crafts end of year show by fine furniture maker Sean Feeney, while Jamie received his medal by Angela Joyce, CEO of WCG in the college's furniture crafts workshop.

Royal Leamington Spa College offers a number of furniture crafts courses; for more information, see **www.wcg.ac.uk/courses**.

From left to right: Jamie Ward with WCG CEO Angela Joyce

From left to right: Matt Brown holding his awarded medal with fine furniture maker Sean Feeney

NEW PARF MK II GUIDE SYSTEM

If you're looking to build your own workstation or multiple workstations, the UJK Technology Parf Mk II Guide System is an invaluable piece of equipment for both professional trades and home workshops alike.

The Mk II is an upgraded version of the existing Parf Guide System. Designed by Peter Parfitt, the latest Parf Guide System is a joint venture with Axminster Tools & Machinery. Manufacturing of the system takes place entirely in Axminster, Devon under the UJK Technology brand name. The design of the upgraded Parf Guide system preserves and guarantees the long-term accuracy of the jig as well as improving the ease of use.

Based on Pythagoras' theorem, the UJK Technology Parf Mk II Guide System helps to produce a bench top with an accurate pattern of 20mm holes. When used with a set of UJK Technology Parf Super Dogs, a guide rail and a track saw, it guarantees perfect, quick and easy 45° and 90° cuts every time.

So, what's the difference between the current Parf Guide System and the latest Mk II version? Firstly, the Parf Mk II Guide System is the ultimate when it comes to the '5 cut test'. It is called the '5 cut test' because you cut the first of the four edges twice to ensure it is parallel.

Secondly, the upgraded version delivers better engineering practice. Previously, (through bad practice) it was possible to elongate the 3mm holes in the ruler (Parf stick) over time when using the simple guide bush. However, Axminster has now found a way to completely eliminate this issue. With the Parf Mk II Guide System, the drill bit never comes into contact with the ruler thanks to the larger 6mm holes. This means neither the drill bit nor the ruler will ever wear out.

Next, rather than just the one drill guide, they've now included two Mk II drill guides. Throughout the majority of the process, you'll use the 1.5mm deep drill guide; however, when the two Parf sticks overlap, you will need to use the 3mm deep drill guide to accommodate the extra depth. What's more, the 3mm drill bit is now supplied in a Festool CENTROTEC holder for quicker, more efficient working at all times. Also, the Parf sticks are more robust, thanks to the pearl chrome finish. Plus, there's no glare or reflection, which makes them easier to work with in bright and well-lit areas.

As before, there's a metric scale on both of the Parf sticks, but it's much clearer this time. The sticks are precise thanks to the high quality manufacturing methods and make useful metre long rulers. Moreover, the holes on the 1m rulers are now numbered. This makes it easier to reference and reduces the chance of making any errors. Axminster have also added in extra holes along both of the Parf sticks. This means it is now possible to make a grid 48mm or 32mm apart in addition to the standard 96mm. If you need to make smaller components, the smaller spacing is ideal for creating a tighter formation.

Finally, as part of a rolling change, both the current Parf Guide System and the latest upgraded version include improved pins. More ergonomic in design, the pins are now easier to remove with less resistance.

To summarise, the new and improved UJK Technology Parf Mk II Guide System is efficient, simple to use and reliable. It is ideal for home workshop and professional trade use. If you're looking to create multiple custom-made bench tops or portable cutting boards in under 30 minutes, this is the tool for you. The Parf Mk II Guide System guarantees perfect 45° and 90° cuts, producing highly accurate results every time and eliminates any potential issues through best engineering practices.

Current selling price is £164.95 inc VAT (valid until 31/08/19) – for more information, please visit **www.axminster.co.uk**.

CORDLESS OR MAINS MITRE SAWS

18V LITHIUM-ION

(36V) Twin 18V Brushless 260mm Slide Compound Mitre Saw

DLS110

BL MOTOR ADT DXT

The saw can be placed flat against a wall

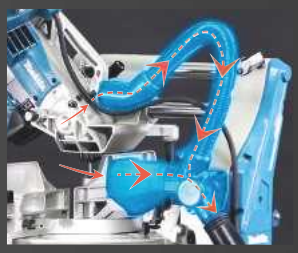
Large removable guide fence and large material base

Brushless motor

BL MOTOR

Max Cut: 91mm x 279mm

Advanced dust extraction system



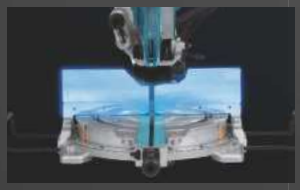
305mm Slide Compound Mitre Saw

LS1219

DXT

The saw can be placed flat against a wall

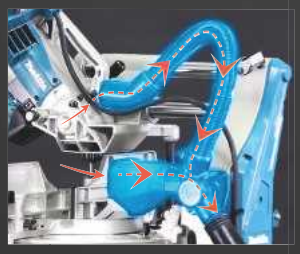
Large removable guide fence and large material base



Laser Line

Max Cut: 92mm x382mm

Advanced dust extraction system



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TREND LAUNCHES NEW CRAFTPRO SAW BLADE

Meeting the demand from end users for an affordable, high-quality alternative blade for DeWalt's DCS577 Flexvolt Worm drive cordless saw, Trend have introduced a 24-tooth 184mm (7¼in) diameter blade, which can be used in both the USA import and UK release machines.

As supplied the saw blade can be used as a standard ⅝in bore to suit the traditional circular spindle drive saws. The unique feature for this blade is the 'knock out' centre, which when removed, gives the unique diamond pattern bore required for use with the DeWalt saw.

With a 1mm plate thickness and 1.6mm kerf it ensures fast cutting and reduced battery strain for longer machine run times. With an Alternate Top Bevel + Raker (ATB + Raker) design tooth and 25° rake, the blade is ideal for medium/coarse, fast cut ripping and crosscut work in 'first fix' type applications. The anti-kickback designed blade offers safer, fast cutting
in all timber-based applications and is suitable for use on hardwood, softwood and man-made materials.

High quality Micro Granular Tungsten Carbide silverbrazed tips and a precision ground, high grade alloy tool steel plate body ensure optimum performance and durability; essential when used with abrasive sheet materials such as ply, MDF, chipboard and OSB.

The CraftPro wormdrive saw blade (Ref. CSB/18424TW) is priced at £29.80 inc VAT. It is available from all Trend Routing Centres and stockists across the UK. For a copy of the Trend Catalogue, or to request further information and details of your nearest Trend Dealer, please call **01923 249 911** or visit their website at **www.trend-uk.com**.

WAGNER INTRODUCES NEW ORION® MOISTURE METERS

The new Orion® line of wood moisture meters continues Wagner's 50-plus year tradition of providing accurate, dependable, non-damaging pinless moisture measurement technology, measuring IN the wood, not just ON the wood, and backed by Wagner's industry-leading seven-year warranty.

Orion® wood moisture meters are designed for professional wood flooring installers/inspectors, quality control managers, and serious woodworkers who need superior accuracy, versatility, and ruggedness in their critical moisture measurement instruments.

The new Orion® line of wood moisture meters builds on the tradition of its popular MMC/MMI predecessors by adding dual-depth measurement, true in-the-field calibration with an integral rubber protective boot plus a rugged case design.

For more information on Wagner Meters, visit **www.wagnermeters.com** or call the worldwide toll-free number **(844) 808-8761** to learn which will work best for you.

HIKOKI POWER TOOLS: THE CORDLESS ERA IS HERE

'The cordless era is here': that is the message from HiKOKI Power Tools as it continues to promote its brand to professional power tool customers across the globe.

As part of the launch of the HiKOKI Power Tools brand (formerly Hitachi Power Tools), the company conducted market research in the form of opinion exchanges, surveys and investigations into its customers' needs. Over 250 tradespeople in the UK engaged in a survey examining their use and preference of cordless power tools:

- 84% of power tool users would consider going completely cordless
- Over 50% of all respondents have more cordless than corded tools in their toolbox or van
- 82% of professional power tools users turn to cordless tools to 'get the job done – anywhere'
- Over 50% of tradespeople prefer cordless power tools because of the added safety they offer – with no cords or mains power onsite
- 13% of professional users had worked on 'cordless only' sites where mains powered tools are just not allowed.

New battery technologies, combined with highly efficient brushless motors, are driving the move to cordless. Together they offer more power and durability than ever before meaning their performance often matches that of their corded counterparts. HiKOKI's research shows that users feel cordless are superior to corded tools as they can take a cordless tool anywhere, are compact and lightweight compared to their corded counterparts and, with no leads to trip on, are safer.

"We have found that the superior experiences for professional users come from being able to 'get the job done anywhere' by using tools that are powerful, durable, and accurate," says Yasushi Fukui, Managing Director of Koki Holdings Europe GmbH and Chief International Business Officer of Koki Holdings Co., Ltd.

"12 months ago, cordless tools represented over 50% of the demand for power tools," explains Simon Miller, Marketing Director for HiKOKI Power Tools UK. "We believe this figure has already grown – and will continue to grow. Our own sales figures shows year on year increases on sales of certain tools, such as cordless circular saws versus their corded versions."

HiKOKI Power Tools' latest cordless innovation is the Multi Volt. The new Multi Volt 36V battery packs have more power than similar sized 18V battery packs – but dimensions and weight remain almost the same, so the Multi Volt battery packs can be used with a wide range of 18V class devices.

"Multi Volt delivers AC power with DC freedom, and as our research shows, professional users are looking to get the job done anywhere," continues Simon. "The era of cordless has truly begun."

For more details, visit **www.hikoki-powertools.co.uk**.

Daniel Harrison's winning 'Grace' table

BEST OF BRITISH RECOGNISED AT MAJOR UK EXHIBITION

Woodland Heritage's Best Use of British Timber Awards at the Celebration of Craftsmanship & Design exhibition aims to promote the use of local resources to produce pieces that have added meaning beyond their basic function.

Held annually in Cheltenham and heralded as 'the UK's largest exhibition of contemporary, bespoke designer-maker furniture', Celebration of Craftsmanship & Design (like Woodland Heritage) is looking forward to its 25th anniversary this summer.

The award is open to all exhibitors (over 70 this year) and judged by a panel during the show, with the criteria including design, species selection, use of timber, craftsmanship and provenance of the wood used; points are awarded to entrants who go out of their way to source timber locally and/or find out where their timber comes from.

The 2018 winner of The Woodland Heritage 'Best Use of British Timber Award' went to 'Grace' circular table by Daniel Harrison Furniture of West Glamorgan and about which the Judges said:

"This beautiful circular table stood out immediately. The figure on the top is just stunning to look at and also to feel – very tactile. The unusual fluted underframe demonstrates great craftsmanship and design. It seems fitting to have 'ash' standing out at this point in time when we are losing so many of our native ash trees to *Chalara*."

Ash is Daniel's favourite timber and as such he wanted to show as many varieties within this piece as possible – olive ash for the top, ripple ash for the base and the use of laminated native Welsh ash for the spokes of the base structure. Daniel commented that: "With the onset of *Chalara* (ash dieback), I thought it important to raise awareness and celebrate one of our finest native tree species."

Highly commended in the Award was 'Corvus' by Beneath the Bark, about which the Judges said: "A curvy version of a classic chest of drawers. The use of burr elm (Scottish) on the drawer fronts is very dramatic. Elm is a beautiful timber and its natural beauty has been exhibited by this piece – even the back has a dramatic grain."

Tom Jones, of Beneath the Bark, combines making furniture with working for a commercial timber yard in rural Suffolk.

The two winning entries both used timber that, due to disease, is either currently hard to source in the UK (elm), or is likely to become increasingly so (ash), highlighting the value of Woodland Heritage's continuing drive to nurture the UK timber stocks of tomorrow for the furniture making industry.

More details on this year's exhibition will be announced shortly on **www.celebrationofcraftsmanship.com**.

For more information about Woodland Heritage, see **www.woodlandheritage.org**.

Beneath The Bark's 'Corvus' chest of drawers

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D&M TOOLS

MAFELL DDF40 DUO-DOWELER

MANUFACTURER: Mafell
D&M GUIDE PRICE: £875 (240V)

The DDF40 Duo-Doweler from Mafell introduces greater ease and efficiency to the task of drilling accurate dowel holes. Its hallmarks are a broad range of applications, a new ergonomic design for easy handling, and absolutely aligned, stable joints. Whether in the workshop or on site, no other hand-held power tool can produce such high-quality joints.

When producing corner joints, partitions or rows of holes, the DDF40 offers not only the precision of a stationary machine, but also the cost savings associated with standard wooden dowels. In addition, the technique of using dowels in pairs already achieves outstanding stability at the dry assembly stage.

The user-friendly design of the DDF40 Duo-Doweler becomes apparent as soon as you catch sight of its ergonomic handle and flat baseplate. Available to buy now as 240V and coming soon in 110V.

MAKITA LS1219 305MM SLIDE COMPOUND MITRE SAW

MANUFACTURER: Makita
D&M GUIDE PRICE: £599

The new LS1219 305mm Slide Compound Mitre Saw joins the family of Makita saws that benefit from the new design of the sliding motor head layout allowing it to be operated close to a wall, making it ideal for bench-mounted applications. The twin slide rails are set at an angle in the rigid aluminium alloy chassis frame, while the rear chassis fixing is positioned right at the rear of the saw assembly. The robust rails allow the saw head to move forward to cover the total sawing zone without the wasted movement of the motor head passing back behind the sawing zone.

The new LS1219 mitre saw has a no-load speed of 3,200rpm and features a bigger mitre and bevel range than its predecessor, the LS1216. This new mitre saw has class leading mitre and bevel capacities – 60° L to 60° R mitre, and 48° L to 48° R bevel – and a front knob enables easy bevel adjustment with easy-to-operate mitre angle lock and one-touch sliding head lock.

The LS1219 benefits from DXT – Deep and Exact Cutting Technology – and the 12in blade has an impressive 72 tooth count, which has been developed to dampen vibration and be super quiet to enhance the work environment. This also improves both durability and reliability of the saw blade and equipment. A lower vibrating blade produces greater cut accuracy, and also reduces wobble, giving a beautifully cut surface.

The robust aluminium alloy main bed is fully machined for accuracy, thus giving a large turning base. The rear fence has adjustable material locks and side holders to support a wide workpiece. The new LS1219 can also be connected to a dust extractor for operator safety.

The electronic controls feature soft start for machine and operator safety; constant speed control; electric brake; double insulation and a laser marker system on the LS1219L model. 110V and 240V versions of this new mitre saw are now available.

PLEASE CHECK OUR WEBSITE – WWW.DM-TOOLS.CO.UK – FOR THE LATEST PRICES AND DEALS

DEWALT DCS334P2 18V XR JIGSAW

This is an excellent heavy-duty jigsaw, says **Phil Davy**, although it is let down slightly by the anti-splinter insert

DeWalt's latest jigsaw is certainly distinctive. The bulbous front end gives it something of a retro feel, if that's possible with power tools. Reminiscent of a vintage American Airstream travel trailer, there's no riveted aluminium here, though it's still stylish. Although it seems hefty when you pick it up, the tool actually weighs 2.65kg with an 5Ah battery fitted, so it's luckily not too heavy. For horizontal sawing any heft is welcome, though this can make the saw tiring if making vertical cuts. Heavily shrouded in textured rubber, the DeWalt almost demands you wrap your free hand around the front end.

Incidentally, this kit includes two XR 5Ah Li-ion batteries, plus a fast charger and T-STAK storage box. Charge time is about 70 minutes, with status LEDs indicating remaining juice via a small button. Like most cordless saws, the battery slots on to the back of the tool.

Complete control

Compared with some jigsaws the on/off trigger is not oversize, though it's still comfortable. There's a push through lock-off button above, a useful safety feature. On top of the handle is the speed dial, ideally positioned just in front of your hand. This is easy to adjust with your thumb without having to lift off the trigger during sawing.

Equipped with a brushless motor, cutting speed is really easy to regulate by gently squeezing the trigger. Variable speed range is from 0-3,200spm, while stroke length is 26mm. Depth capacity in timber is 135mm.

Blade change is a cinch. You open out the hinged, spring-loaded alloy lever at the front of the tool to insert or release it from the mechanism. No sudden blade ejection across the floor! There's a substantial blade support roller, too. A sturdy steel guard keeps your fingers away from the teeth while still providing good visibility when cutting.

Four-way pendulum action is provided, adjusted via a small lever on the side of the motor housing. Although there's a reasonable dust blower built in, this can't be switched off.

Above the blade mechanism are twin LED worklights, almost mandatory on professional jigsaws these days. Effective, they remain on for about 15 seconds after releasing the trigger.

Fast bevel adjustment

The DeWalt is particularly good for bevel cutting, as there's no hex key to have to fiddle with when tilting the baseplate. Instead, you open out the rear steel lever to release, locking again at your chosen angle. Indexed at 0 and 45° either side, I'd always check with a small engineer's square when returning to the 0 setting (or 90°). To be

This kit includes two XR 5Ah Li-ion batteries, plus a fast charger and T-STAK storage box

Charge time is about 70 minutes, with status LEDs indicating remaining juice via a small button

Like most cordless saws, the battery slots on to the back of the tool

The speed dial is easy to adjust with your thumb without having to lift off the trigger during sawing

To change the blade, you open out the hinged, spring-loaded alloy lever at the front of the tool to insert or release it from the mechanism

A sturdy steel guard keeps your fingers away from the teeth while still providing good visibility when cutting

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To be honest, almost every jigsaw I've ever used has needed a tweak to recalibrate for complete accuracy. There's a basic protractor scale at the rear

honest, almost every jigsaw I've ever used has needed a tweak to recalibrate for complete accuracy. There's a basic protractor scale at the rear.

The alloy and steel baseplate is durable, with a rigid plastic shoe provided when cutting veneered surfaces or similar. This simply hooks over the base and clips in place. A clear plastic anti-splinter insert is included, though I found this a sloppy fit in both baseplate and shoe. An old design, perhaps? Although many woodworkers may never use this accessory, it's still a useful device when you want the cleanest possible cut on veneered or MFC boards.

For dust extraction, you clip on a clear plastic shield around the front of the tool, then slide a lengthy extraction tube along the baseplate and connect together

Dust extraction is no afterthought here. First, you clip on a clear plastic shield around the front of the tool, then slide a lengthy extraction tube along the baseplate and connect together. It makes the saw bulkier, but that's a small price to pay for a cleaner working environment. Extraction is effective, though anti-static still makes dust build-up inside the shield annoying, so it's not so easy to see the cutting line. This jigsaw is AirLock-compatible, which are plastic adaptors that twist and lock your hose securely to a DeWalt vacuum extractor.

Sawing 14mm engineered oak flooring and making curved cuts in 12mm ply revealed just how easy this tool is to control. Swapping to an extra long blade I made a variety of cuts (including 45°) in 40mm oak worktop offcuts, which the DeWalt coped with pretty well.

Conclusion

The very responsive variable-speed trigger gives you fantastic control. This is an excellent heavy-duty jigsaw, though it's let down slightly by the anti-splinter insert. No blades are included, either. If you already have DeWalt batteries, you should be able to buy the tool bare for around £210. For those woodworkers who prefer a body grip version of the tool, this will be available soon at a similar price. Warranty is three years when registered.

The rigid plastic shoe simply hooks over the base and clips in place

Sawing 14mm engineered oak flooring…

… and making curved cuts in 12mm ply revealed just how easy this tool is to control

SPECIFICATION

No load stroke rate: 0-3,200spm
Stroke length: 26mm
Bevel capacity: 0-45°
Max cutting capacity (wood): 135mm
Max cutting capacity (steel): 10mm
Weight: 2.1kg

Typical price: £444
Web: www.dewalt.co.uk

THE VERDICT

PROS

- Precise trigger gives great control; fast blade change and bevel setting

CONS

- Anti-splinter shoe disappointing; no adjustable dust blower

RATING: 4.5 out of **5**

MICRO FENCE – EDGE GUIDE

Phil Davy takes a look at this beautifully made router accessory, which is ideal for boxmakers and cabinetmakers who demand precision

A disadvantage of some routers is the edge guide that's provided with them. I can think of one or two models that seem little more than an afterthought, with no fine adjustment possible. Of course, a router can be used for approximate rebating, grooving or whatever, but most woodworkers rely on these power tools for their accuracy and versatility. Accuracy can be difficult to achieve if the fence cannot be fine-tuned, especially for decorative inlay work or similar. Help is at hand, though, by way of the Micro Fence – Edge Guide.

The Micro Fence is not exactly new, but it's only recently become available in Britain. Dreamt up back in 1992 by father and son team Richard and Jack Wedler in California, it's evolved over the years to become arguably one of the most sought after routing accessories. As a system you can add attachments for routing circles, ellipses and more, though these aren't exactly cheap. Supplied with various screws, spacers and fences, what exactly does the Edge Guide consist of?

Engineering quality

The main body is a sturdy L-shaped bracket, machined from 9mm thick aluminium. An adjuster mechanism is fitted to this and consists of a finely-threaded screw plus a rotary depth collar. This is laser-etched with very clear graduations, enabling you to tweak a setting easily. A full rotation (via the end adjuster screw) equals 1mm of travel, with increments of ½₀th of a millimetre. In fact, the Micro Fence is designed to be used in conjunction with a dial calliper, so you get some idea of the precision here.

The fine adjuster travels on a pair of 8mm diameter stainless steel rods 175mm in length, which also pass through the L bracket. Knurled brass thumbscrews enable everything to be locked solidly in place. Also included are two 300mm long rods with threaded ends, which can be easily swapped when required. At their other end, the rods are screwed into a mounting bar, with three pairs of threaded holes for adding various Micro Fence optional accessories.

A final pair of short rods are spaced to fit your router. The version I tried had 85mm rod spacings, a fairly standard size, which fits smaller DeWalt, Trend, Elu and Makita routers, among others.

Two pre-drilled, 177mm cherry facings are included, which are screwed to the edge of the guide for straight routing. The deeper facing can be notched out to suit a cutter when used for flush trimming work or similar.

Curved routing

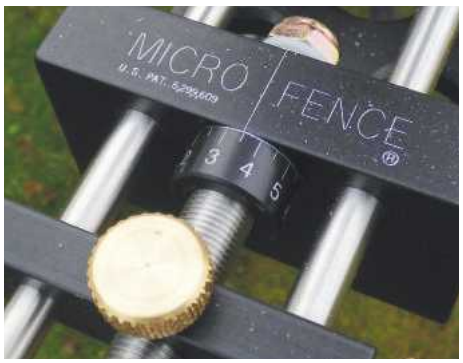
Although it may sound complicated, the Micro Fence is dead easy to use. Set the collar to zero, then slide its fine adjuster to the approximate width setting. Lock the outer brass screws, then rotate the collar to fine-tune, finally locking with the centre thumbscrew. Make your first cut, then (using the dial) adjust the width setting in or out as necessary. Using a calliper to measure inlay or check a groove width makes absolute precision possible.

You're not restricted to straight edge routing with the Micro Fence. A pair of half-round Delrin spacers enable it to be used against curved edges, creating two points of contact as you move the router. This takes some getting used to, so unless you're used to this technique, it will pay to practice on plenty of scrap material first.

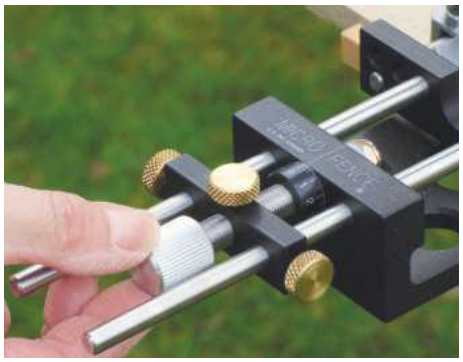
Conclusion

Fantastic if you do decorative work where your cutter may not be an exact match for the banding

Micro Fence – Edge Guide components

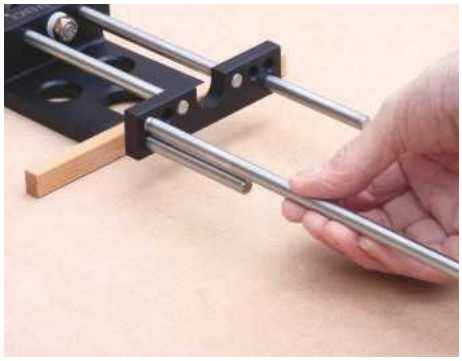


The rotary depth collar is laser-etched with very clear graduations, enabling you to tweak a setting easily



A full rotation equals 1mm of travel, with increments of ½₀th of a millimetre

Knurled brass thumbscrews enable everything to be locked solidly in place



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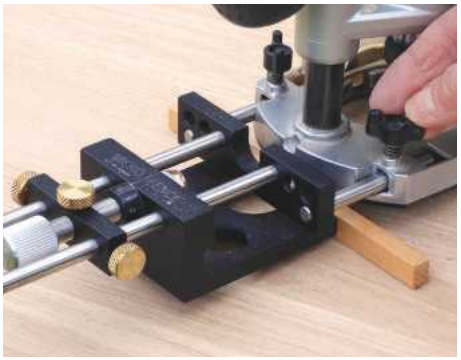
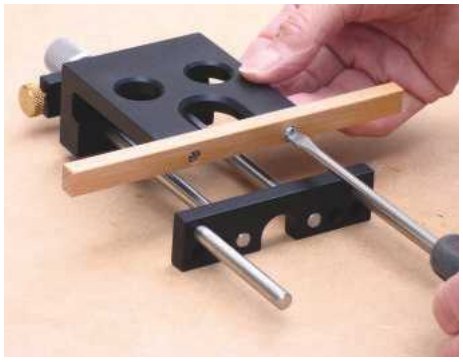


A final pair of short rods are spaced to fit your router



Two pre-drilled, 177mm cherry facings are included, which are screwed to the edge of the guide for straight routing

Although it may sound complicated, the Micro Fence is dead easy to use

A pair of half-round Delrin spacers enable it to be used against curved edges, creating two points of contact as you move the router...

or inlay, the Micro Fence – Edge Guide would be ideal for boxmakers or cabinetmakers where imperfections can stick out like a sore thumb. Beautifully made, it offers absolute precision, though this obviously does depend on you keeping it held tightly against the workpiece. It's the sort of product Veritas would make if they produced gadgets for power tools. But don't assume it will transform a budget router into a precision tool, though. There may be too much play in some cheap routers, which makes them inaccurate from the start.

The price will probably put the Micro Fence out of reach of all but the most dedicated woodworking perfectionists. Costing more than many routers, it's not likely to be a quick buying decision. It is, however, a superb power tool accessory.

... this takes some getting used to, so unless you're used to this technique it will pay to practice on plenty of scrap material first

SPECIFICATION

Applications

- Dadoing
- Rabbetting
- Mortising & V-grooving
- Slotting/veining
- Drawer construction
- Flutes & reeds
- Inlay work
- Sliding dovetails, and many more routing operations

Typical price: £249.95
Web: www.woodworkersworkshop.co.uk

THE VERDICT

PROS

- Precision engineered guide; micro adjustments easy to make

CONS

- Very expensive; be prepared to raise your woodworking standards...

RATING: 5 out of **5**

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LAGUNA P|FLUX 1

John Lloyd takes a closer look at the Laguna P|Flux 1 Cyclone – 'the world's most beautiful dust extractor'

The stylish Laguna P|Flux 1 Cyclone

According to Laguna Tools' sales literature, they produce 'the world's most advanced clean air shop solutions', which is definitely an encouraging starting point, and the 'P|Flux 1', the model on test here, 'creates a whole new paradigm' – possibly not their marketing department's best, or most understandable, work – perhaps 'new concept' would have been a bit snappier? But it doesn't end there, they apparently also produce 'the most beautiful single stage dust extractor to hit the market in years' – a bold claim, although 'beauty' is not a feature that I would instinctively put at the top, or in fact anywhere, on my list of 'important things to look out for when buying a dust extractor.' But what's wrong with having some elegant kit in the workshop that isn't just offered in a standard 'woodworking machinery green'?.

Generation 2 Cyclone

The Laguna P|Flux 1 certainly does have a certain style about it, with its racy matt black paint job, shimmering black lettering and bright yellow pin-stripes. The important question, however, is whether this machine is as good at collecting dust as it is at looking broodingly sinister, or maybe that should be, stylishly sophisticated, in the corner of the workshop? At the heart of all these bold claims is 'G2C' – that Californian marketing department's at it again – which stands for 'Generation 2 Cyclone'. The big difference, then, is the cyclone, and Generation 2 is presumably better than Generation 1, but they're not really something that is earth shatteringly new. Big, commercial extractors have been fitted with cyclones for years, and Mr Dyson certainly pinned his flag very firmly to this particular mast some time ago, but cyclone technology still isn't that common in smaller workshops, which is where Laguna seem to be pitching this extractor. So what's the big difference? Well, most of the smaller and mid-sized extractors on the market are the 'Dalek type', these have a big fan in the middle, a plastic bag dangling underneath, and a voluminous, inflating, permeable fabric bag perched on top. All the dust and chips get sucked into the machine through the big fan, and, with the help of some gravity, it's all supposed to end up in the dangling bag, but an awful lot heads up into the fabric bag, this being the filter through which all of the air from the fan escapes, but the bag isn't fine enough to filter the smaller bits of dust, and quickly gets clogged, which means much less suck! The clever bit about a cyclone is the way it creates a vortex, which encourages chippings, and dust, to separate out from the airflow, before they get to the fan, let alone the filter. The air going through the fan is, therefore, relatively dust free, making the fan more efficient and helping to maintain airflow. Also the filter, in this case a HEPA filter, which traps 100% of particles down to 1 micron, stays unclogged for longer – again, helping to maintain airflow, and a healthy working environment.

The control panel with 'Smart Sensors' – 'Bag Full' and 'Filter Clean' LEDs

The remote control is a nice touch, and really useful

The big difference is the cyclone, which helps to keep the filter clean and maintains airflow

After 'docking', just push down the big lever and you're done

A sensor in the Smart Drum lets you know when the bag is full

Self-assembly construction

But before we get too carried away with the joys of cyclonic dust collection, we have to get past the fact that Laguna require you to become intimately involved with their machine just after it gets delivered – yes, I'm afraid it's self-assembly. I can't comment on how easy or difficult this is because the test machine was delivered to me all in one piece, but there is a really good, step-by-step, video on YouTube, in which a man wearing a Laguna T-shirt certainly seems to find the process pretty straightforward; but there are many pieces to bolt together, some of them pretty heavy, which I imagine could take someone without a Laguna T-shirt several hours...

'Smart Drum'

Emptying bags on dust extractors generally seems to come under the heading of 'unpleasant jobs to leave to someone else if at all possible' and is rarely accomplished without redistributing, at least some of, the contents around the workshop, but the P|Flux has a 'Smart Drum'. It might not actually be 'smart', but it does work very well: put a bag into the drum, wheel it into the extractor and push the big lever down to complete the 'docking'. During this procedure, the 'auto negative pressure' pipe engages, which stops the bag from getting sucked up into the cyclone, and the bag gets sealed around its top edge. Or it can be used without a bag. Reverse the procedure to change bags – simple, quick, easy – and no re-distribution of the bag's contents – maybe this is quite smart?

... or just look in the window

Twin inlets come as standard

To add to all of this cleverness, there's a window and sensors in the drum, and an LED to let you know when it needs emptying. A small amount of dust is bound to get through to the filter, which also has a sensor to let you know that it needs a bit of a clear out, but connecting a hose from the main inlet to a port in the base of the filter ensures that any dust dislodged from the filter, perhaps with a blast from an air-line, will head off back to the cyclone, so no escaping clouds of dust.

Conclusion

There's a hand-held remote 'start/stop' that I thought was probably just a bit of a gimmick, but I actually found it to be quite useful, and thanks to the acoustic lining and no chips clattering through the fan's blades, the P|Flux is remarkably quiet. It's stable, and, for a reasonably big bit of kit, it scoots around the workshop from machine to machine very easily; it also has twin inlet ports, meaning two machines can easily be hooked up at once.

In conclusion, I can see that the self-assembly might have the potential for being a little troublesome, but you do only have to assemble it once. This is a good looking, quiet, mobile, machine; the cyclone seems to be very effective, maintaining good 'suck'; the HEPA filter keeps the air nice and clean and safe; it's easy to empty and has some nice little touches that I wouldn't necessarily expect to find on a machine of this size. As you might expect, for all these good things you have to pay a bit more, but it does do a fine job with great panache.

Bag changing couldn't be easier; the Smart Drum is actually pretty clever...

Filter cleaning is easy and dust-free with an air-line and a length of hose

The HEPA filter takes care of dust down to 1 micron and the acoustic lining keeps everything remarkably quiet

SPECIFICATION

Motor: 1,100Ww (1.5Hp)
Power supply: 220-240V/50Hz/1PH
Recommended breaker size (MCB): 20 Amps (Type D)
6ft 3 wire cord with no plug: Yes
RPM: 2,800
Control panel: Anodised aluminium
Hand-held remote control: High frequency
Canister clean warning: LED
Drum full warning: LED
Airflow (traditional method): 1,786 m^3/hour (1,051cfm)
Airflow (realistic method): 1,224 m^3/hour (720cfm)
Max static pressure: 256mm in water (10.1in)
Inlet diameters: 1 × 150mm or 2 × 100mm (1 × 6in or 2 × 4in)
Impeller: 340mm (13.5in) – steel radial fin (Balanced ISO 1940)
Drum collection capacity: 145l octagonal drum
Bag hold down: Auto negative pressure
Canister filter type: HEPA 100% @ 1 micron
Filtration efficiency: 99.2% @ 0.4 micron
Canister cleaning: Use external air compressor
Canister filter dust collection: Metal end cap with 4in window and quick release
Decibel reading: 70 dB(A) @ 3m
Drum collection bag layflat size: 810 × 1,090mm
Dimensions: 1,168 × 610 × 1,753mm
Weight (net/ship): 122kg/150kg

Typical price: £2,014.80
Web: www.lagunatools.uk

THE VERDICT

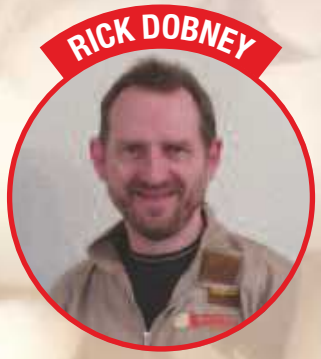
PROS

- Cyclones give excellent, consistent, airflow; simple, quick, hassle-free emptying/bag change; remote control; clean air; filtration down to 1 micron with HEPA filter; 'bag full' and 'blocked filter' warning lights; quiet; mobile

CONS

- A cyclone and all of those 'pros', unsurprisingly, make this a more expensive bit of kit; self-assembly required; requires a separate 20 Amp breaker

RATING: 4.5 out of **5**



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THE JOY OF DOVETAILS PART 2

In the next part of this series, **Michael Forster** moves on to looking at the marking and cutting of dovetail tails

Even after doing hundreds of them, I still get a buzz out of hand-cutting dovetails. I know that for many woodworkers there's a certain mystique about it, but there's no reason for that to be the case. It's just a matter of attention to detail, and some meticulous marking and cutting – much like woodworking in general.

Last month, I gave a general introduction, focusing on the tools and skills it would be helpful to acquire. This month, we'll be marking and cutting the tails and next month, we'll scribe and cut the pins and get the joint together. Then in the final article, we'll add a little refinement and have a go at the decorative and challenging London and Houndstooth versions.

I'll be working with a couple of pieces of hardwood, usually about 100mm wide and, say, 10mm thick. It's less complicated at first to use pieces of the same thickness as it only means setting up one gauge for marking the shoulders. I personally like to use contrasting timbers – light for the tails and dark for the pins – as this really highlights the joint.

Facing the facts

First, let me clarify: for dovetailing purposes my convention is to make the outside surfaces the face sides. This is the side we mark up and from which we work – and which will show most on the finished job – so all ways round it seems logical.

The first task is to square up the ends, for which I use my trusty shooting board (**photo 1**). Then we need to mark out the tails, beginning with a shoulder line. Set the cutting gauge to a hair under the thickness of the workpieces and gauge a line across both sides of both pieces, and the edges of the tail piece only (**photo 2**). The line across the faces can be relatively light – you'll want to plane that away at the end of the process – but the shoulder line across the edges of the tail piece

1 Begin by squaring up the ends – a task made light and easy by this simple shooting board

2 Use the cutting gauge to slice a nice, fine shoulder line around the ends of the timber

3 Cutting the edge shoulder line deeply into the tail piece will help later on

4 Running a pencil along the line makes it more visible and aids accuracy

5 Using an awl – or one leg of the dividers – set the half-pin marks about 5 or 6mm from each edge – a scrap of wood makes a handy gauge

should be good and deep (**photo 3**), the reason for which will become clear as we progress.

Highlighting the shoulder line with a pencil (**photo 4**) will improve visibility and help avoid letting the saw overrun the line.

Plotting the tails & pins

Now for the really easy bit, which is the part I most used to fear. 'What's the correct proportion of tail to pin?' 'How can I work out the spacing?' Lots of scribbling of mathematical processes (my worst subject at school and ever since) would take place on scraps of timber and it all got out of hand – which was quite unnecessary. The simple method I now use works for any number of tails from two to infinity and not only is it easier than a ruler and pencil, but it's much less open to error – win-win!

An adjustable square (or thin scrap of wood) and a pair of dividers will sort everything out very nicely, thank you (**photos 5-8**). The first point to bear in mind is that the 'half-pins' at the end need to be reasonably substantial to prevent splaying when the joint is assembled. I normally make them about 5 or 6mm at the tip (exact size doesn't matter but they should be the same). So that's the setting for my square – or the thickness of my little slip of scrap wood.

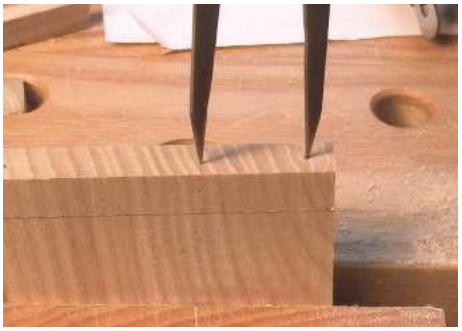
Follow the photo-strip through until **photo 8** and you'll have a little series of pin-pricks showing the tails and pins on the end of the timber. The next stage (**photos 8-11**) involves squaring those marks across the end and angling them down the face (**photo 12**).

At this stage, many makers recommend running the face lines further beyond the shoulder line for visibility. I don't, as I find it safer to stop them exactly on the shoulder line. When the line stops, so does my saw and I'm less likely to end up with visible over-cuts on the face of my finished work. (Why on earth would I want a line where I emphatically don't want a cut?).

And with that process, we've finished marking out our tails (**photo 13**) and are ready to start cutting and still be back in the house in time for tea and doughnuts.

Cutting the tails

The moment has come: time to put that marked-up tail board in the vice and apply those assiduously-practised sawing skills. Because of that practice, you can cut straight to the line without leaving an allowance for paring back. Not only does that save you time but it is much more satisfying and will also enable you to cut finer and

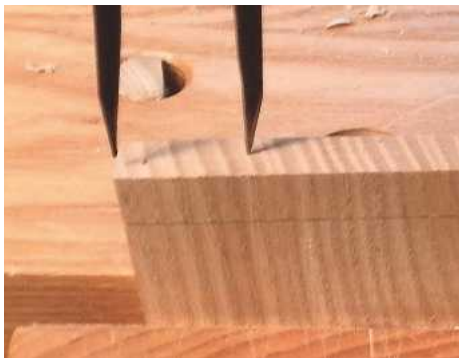


6 By guestimation, set the dividers to about a third of the width between the half-pins

fancier dovetails that I'm going to show you later, which simply have to be cut that way.

Cut each cheek right down to the shoulder line and stop on the line (**photos 14-16**). Stopping short wouldn't be a disaster but would leave some fiddly clean-up to do; over-running would leave those tell-tale marks on the face of the job. Should that happen, don't berate yourself too much about them at this stage – regard this is a practice piece and resolve to keep practising.

With all the saw cuts made, we now need to remove the waste, beginning with the fret saw. Drop the blade down the saw-kerf to a few



7 Lightly step them across and adjust by trial and error until the point lands a few millimetres past the other half-pin mark. The gap indicates the width your pins will be

8 When you're happy with it, step across again, stabbing in at each point, then repeat the other way. That's three nicely-spaced tails pinpointed

9 Place the tip of the pencil in one of the stab marks…

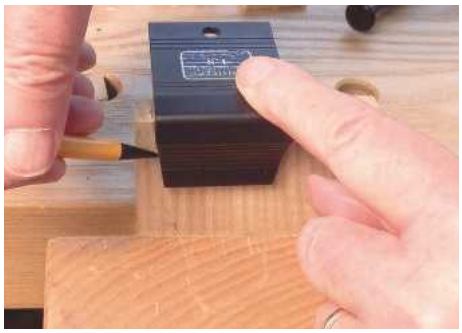
millimetres above the line, and work it back and forth as you turn to cut horizontally across the waste between the tails a few millimetres above the shoulder line (**photo 17**).

Be careful here not to nick the edge of the tail. It helps to apply a little finger-pressure to the chip so that it breaks away before that can happen.

Next we need to chisel out the remaining waste down to the shoulder line (**photos 18-20**). I sit down on a stool for this, resting my left elbow on the bench to steady my hand, which has a light hold on the chisel. I also like to have the workpiece firmly held down to the bench-top with a holdfast. Starting in the centre of the socket, take thin slivers, working back to about 1mm from the shoulder line and tapping about half-way through, then work to left and right until the corners are clean before reversing the timber and repeating from the other side.

Now for that crucial final millimetre, which will determine whether the shoulder line is nice and crisp or ragged – and this is where the cut line really helps. Carefully feel the tip of the chisel into the gauge line (**photo 21**). A light grip on the

10 … and slide the template up until it touches it



11 This dovetail 'saddle' marker lets me mark the end and face in one operation, reducing the risk of error

12 That's a nice clear mark

13 Repeat across the board and don't forget to mark the waste so that you know which bits to cut away

14 I use a 'pinch' grip to control the saw as I start the cut, with the saw flat on the timber – it's easy to check and tweak the alignment

15 Then track down the line to the shoulder

16 Repeat this until all the tail cheeks are cut down to the shoulder line

17 Remove the bulk of the waste between the tails with a fret saw a few millimetres above the shoulder line

18 With a stool in position and the workpiece clamped down, I'm ready to chisel out the sockets

19 Position the chisel to take fine slices, working back towards the line

20 Use a mallet to tap gently through to about the mid-way point, then move the chisel back and repeat to take fine slices

handle steadies the tool without exerting heavy pressure that can twist the tip out of the line. Sight through to the square, ensuring that the chisel handle is leaning minutely forward, and give a firm but controlled tap to set it firmly in the timber before driving it about half-way through. Repeat this, moving the chisel right into the corners of the socket as before, and then turn the timber over to finish the job from the other side.

Sawing the shoulders

The remaining task now, before we scribe the pins, is to cut the shoulders at each edge of the timber. The gauge line, cut deep into the edge, will enable a high degree of precision in positioning the saw. To exploit this to the maximum, take a chisel a little wider than the thickness of the board, position it on the waste side of the line and push in to create a V-shaped trough (**photo 22**). This should give you a nice little trough with a right-angle edge at the line (**photo 23**) against which you can position the saw.

You will then need to cut down to the tail, precisely following the line on the face (**photo 24**). This is something else you might like to practise on scrap. Practice doesn't just make perfect – it builds confidence!

And that's probably it. I say 'probably' because there is often a little cleaning up to do no matter how careful you are. Often, there's a tiny step in the corner of the shoulder. A sharp chisel used as shown in **photos 25** & **26** will soon take that out, but be patient – you don't want a chisel nick in the corner of the tail.

The final task is to use a square and check that it seats down to the shoulders on both sides of each socket (**photo 27**). If you've slightly undercut the sockets, that should be fine, but it's worth checking.

And that's the tails cut. This has taken a long time to describe, but trust me – it gets quicker with practice as the skills become embedded. And for myself I still get a buzz out of seeing a row of neatly cut tails just waiting to be scribed.

21 For the final cut, position a square behind the chisel and feel the chisel into the gauge line. You might like to tilt the handle a shade forward to undercut slightly, ensuring that the shoulders will seat down nicely

22 Position a chisel about 2mm on the waste side of the shoulder line and gently but firmly push towards it

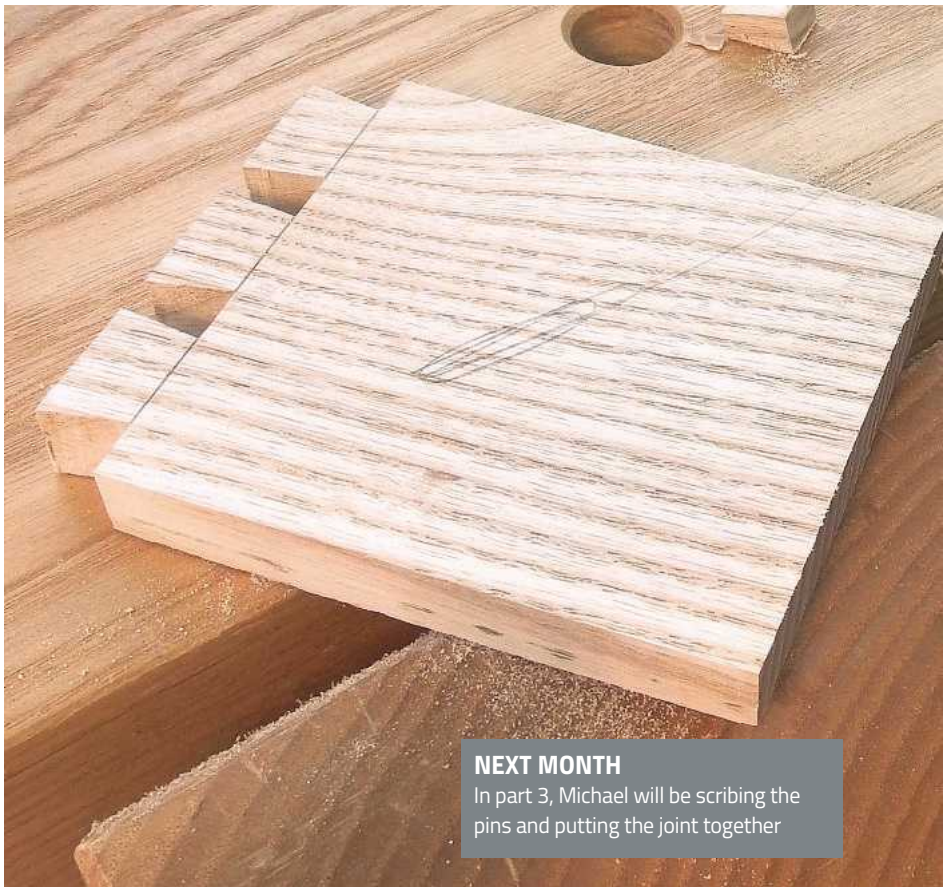
23 This will turn the line into a trough with one vertical side to position the saw perfectly for the shoulder cut

24 Rest the saw against the shoulder, line it up vertically and cut down to the tail, stopping carefully on the edge of the tail

25 Remove any tiny step in the corner with a sharp chisel – note the pressure holding the back flat on the cheek of the tail

26 Then repeat if necessary with the chisel against the shoulder

27 Check the internal shoulders with a square



NEXT MONTH
In part 3, Michael will be scribing the pins and putting the joint together

28 A nice set of tails

SUPPLIERS

Some of the kit will be available at local DIY outlets, and you might find it worthwhile looking at craft markets – something like a vintage cutting gauge, for example, could well be a bargain buy there. For the more specialist kit, you should be well catered for by any of the following (far from an exhaustive list, but all very much recommended):

Axminster Tools & Machinery – **www.axminster.co.uk** – a vast range of hand and power kit, good returns policy and customer service

Workshop Heaven – **www.workshopheaven.com**

Classic Hand Tools – **www.classichandtools.com**

Wood Workers Workshop – **www.woodworkersworkshop.co.uk**

So there you have it: four great sources of kit, all run by craftspeople with a passion for woodworking and a solid base in skills, experience and enthusiasm. Happy hunting!

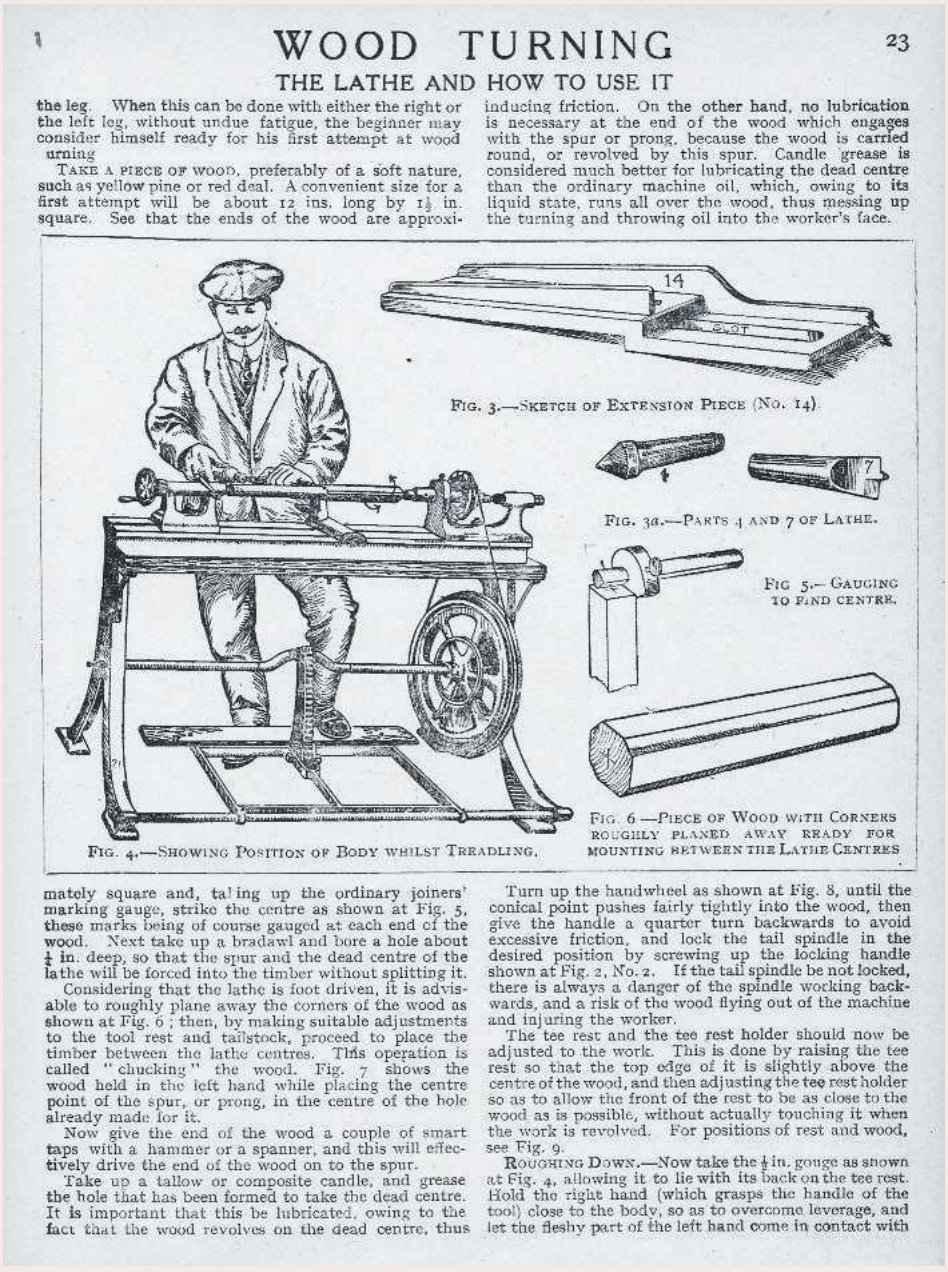
The treadle lathe & how to use it

An encounter with a Victorian treadle lathe sends **Robin Gates** to *The Woodworker* archives of 1919 in search of information on these magnificent machines

Two things held me mesmerised on a visit to Hereford's excellent Waterworks Museum last autumn. One was the mighty triple-expansion steam pumping engine, the oldest of its type in the UK still working, and the other was a beautiful treadle lathe of the mid-19th century displayed – and still turning – in the Victorian workshop.

Although used originally to turn metal, this sturdy yet shapely machine is principally identical to a treadle woodturning lathe – from the gleaming bed, tailstock and toolrest, to the headstock and cone wheel linked by belt to the driving wheel, crank and treadle. Indeed, the lathe of that time was typically fitted with both large- and small-diameter driving wheels for turning wood and metal, respectively.

Leafing through old copies of *The Woodworker* for information on these magnificent machines, I found what I was looking for in the February 1919 issue, where the lead article 'Wood Turning' begins a series on 'the wood turning lathe and how to use it', which ran to the end of the year. Reprinted here is the third page, illustrating the correct stance for treadling while turning, and 100 years on it's also worth noting the natty turnout of the mustachioed woodturner, with his collar and tie, three-piece suit, and newsboy cap!



WOOD TURNING 23

THE LATHE AND HOW TO USE IT

the leg. When this can be done with either the right or the left leg, without undue fatigue, the beginner may consider himself ready for his first attempt at wood turning

TAKE A PIECE OF WOOD, preferably of a soft nature, such as yellow pine or red deal. A convenient size for a first attempt will be about 12 ins. long by 1½ in. square. See that the ends of the wood are approximately square and, taking up the ordinary joiners' marking gauge, strike the centre as shown at Fig. 5, these marks being of course gauged at each end of the wood. Next take up a bradawl and bore a hole about ¼ in. deep, so that the spur and the dead centre of the lathe will be forced into the timber without splitting it.

Considering that the lathe is foot driven, it is advisable to roughly plane away the corners of the wood as shown at Fig. 6; then, by making suitable adjustments to the tool rest and tailstock, proceed to place the timber between the lathe centres. This operation is called "chucking" the wood. Fig. 7 shows the wood held in the left hand while placing the centre point of the spur, or prong, in the centre of the hole already made for it.

Now give the end of the wood a couple of smart taps with a hammer or a spanner, and this will effectively drive the end of the wood on to the spur.

Take up a tallow or composite candle, and grease the hole that has been formed to take the dead centre. It is important that this be lubricated, owing to the fact that the wood revolves on the dead centre, thus inducing friction. On the other hand, no lubrication is necessary at the end of the wood which engages with the spur or prong, because the wood is carried round, or revolved by this spur. Candle grease is considered much better for lubricating the dead centre than the ordinary machine oil, which, owing to its liquid state, runs all over the wood, thus messing up the turning and throwing oil into the worker's face.

FIG. 3.—SKETCH OF EXTENSION PIECE (No. 14).

FIG. 3a.—PARTS 4 AND 7 OF LATHE.

FIG. 4.—SHOWING POSITION OF BODY WHILST TREADLING.

FIG. 5.—GAUGING TO FIND CENTRE.

FIG. 6.—PIECE OF WOOD WITH CORNERS ROUGHLY PLANED AWAY READY FOR MOUNTING BETWEEN THE LATHE CENTRES

Turn up the handwheel as shown at Fig. 8, until the conical point pushes fairly tightly into the wood, then give the handle a quarter turn backwards to avoid excessive friction, and lock the tail spindle in the desired position by screwing up the locking handle shown at Fig. 2, No. 2. If the tail spindle be not locked, there is always a danger of the spindle working backwards, and a risk of the wood flying out of the machine and injuring the worker.

The tee rest and the tee rest holder should now be adjusted to the work. This is done by raising the tee rest so that the top edge of it is slightly above the centre of the wood, and then adjusting the tee rest holder so as to allow the front of the rest to be as close to the wood as is possible, without actually touching it when the work is revolved. For positions of rest and wood, see Fig. 9.

ROUGHING DOWN.—Now take the ½ in. gouge as shown at Fig. 4, allowing it to lie with its back on the tee rest. Hold the right hand (which grasps the handle of the tool) close to the body, so as to overcome leverage, and let the fleshy part of the left hand come in contact with

Pulley mechanism

Turning to the lathe itself, it was the chain and pulley mechanism linking treadle and crank which first caught my eye. This is a distinctly different arrangement from the simple hook or 'pitman' seen on the Hereford lathe and, there being no mention of it in the article, I delved into John Jacob Holtzapffel's book *Hand or Simple Turning: Principles and Practice*, published in 1881. Holtzapffel attributes the chain linkage to 'the late Mr Clements' but seems not to have been a fan. 'There is a smooth and agreeable action in the chain,' says Holtzapffel, 'but its elasticity and stretching under the pressure of ordinary work, greatly detract from its apparent advantages; the friction of the numerous pins as the chain bends around both the crank and the pulley is also but little less than the steel crank hook, the rigidity and durability of which offer great recommendations.'

Returning to the article of 1919, we are cautioned against buying a lathe that is too small or too lightly built because 'Lightly built lathes are useless for good work, as their construction is such that they do not absorb vibration.' Considering the forces in play while treadling and perhaps roughing down an eight-sided piece, it may be imagined that not just size and weight, but also good balance in all moving parts would be essential, with everything well lubricated for a true and easy motion.

Hand-&-foot tools

Having familiarised with the various parts and workings of the machine, we are warned that our 'first difficulty will be learning to treadle... Both feet should be used in turn... Much depends upon the poise of the body whilst changing the foot, and there is need for perseverance until easy and continuous running is obtained.' At this point I was reminded of learning to ride a bicycle when, applying pressure to the pedal before the crank had passed the vertical, the machine froze and I fell off. Success in working the lathe, we are told, lies in standing with the whole weight of the body on one leg, while working the treadle with the other leg, 'but moving no other part of the body in unison with the leg.'

As an advocate of working with hand tools I'm inclined to suggest hand-and-foot tools are even better. Surely, in this age of dwindling fossil fuels and diminishing manual skills, the treadle lathe is a natural for revival.

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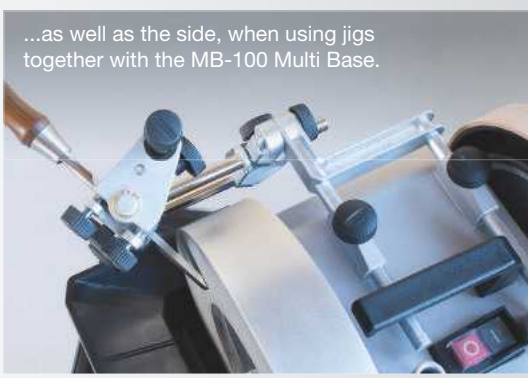

...as well as the side, when using jigs together with the MB-100 Multi Base.

For more information on the Tormek Diamond Wheels, visit **www.tormek.com** or UK Importer BriMarc **www.brimarc.com/tormek**

THE NUMBER 36, TORMEK & THE 2018 SCHOLARSHIP WINNER!

The 2018 Tormek Scholarship Award in the UK was recently awarded to Dan Wall from Worcester. Dan created a stunning table, 'No.36', during his time at the Peter Sefton Furniture School in Upton-upon-Severn, and the prize – a Tormek Wet Sharpening System – will be very useful as Dan continues to design his own pieces.


2018 Tormek Scholarship Award winner, Dan Wall

Dan decided to venture into woodworking in pursuit of a career change from supporting children and prior to that thermal engineering, choosing a creative and skilled profession that he could enjoy into retirement.

With practical skills that began at secondary school, Dan had made some basic woodworking around his home, which was more construction than furniture, enjoying creativity with raw materials. He says: "I didn't have particular skills in this area before undertaking my course," which makes his winning work even more startling.

He first came across Tormek at the Peter Sefton Furniture School where he began with tool sharpening, preparation and preservation. As well as teaching the whetstone techniques, the school was fortunate enough to have Tormek systems available for the students. And this was his introduction to Tormek.

Dan designed the piece to be deliberately challenging to test both his ability and get the most value from the course. The main focus was to produce a piece that was visually striking but maintained practicality. Dan designed a table, the dimensions of which are all divisible by 36 – hence the name 'No. 36'.

The material choice was very important. However, Dan's choice of wenge is unforgiving on tools. It was crucial for him to keep all his tools in prime condition, and this is where Tormek made the difference. "Wenge is synonymous with blunting tools and being difficult to plane, so I had to ensure that my chisels and blades were in top condition for almost every cut. This would have been prohibitively time consuming without the help of the Tormek Sharpening System. The ease of use and performance that the system offers me make it an essential addition to my workshop."

With the course allowing Dan to pursue any idea he could practically achieve, he worked on the piece for over seven months at college with shared resources for around 100-150 hours. There was no brief as such and this provided him great freedom; in turn Dan hopes the piece inspires conversation and curiosity.

Since completing the course at the Peter Sefton Furniture School, Dan has gained work for an established bespoke furniture maker where he is developing his skills and understanding of the trade. He continues to design his own pieces and hopes to show these next year.

To find out more about the Tormek Scholarship, see **www.tormek.com/uk/en/about-tormek/tormek-scholarship-award**


Dan's stunning 'No.36' table

Photographs by
Dave Hutton

LUTHIER'S LUTE

In the second part of this project, **Shaun Newman** discusses the making and attaching of the lute's soundboard and fingerboard

In part 1 I described a little of the background to the lute, its origins and history. I then went on to describe the plans and jigs needed to make a start, and how to prepare the bowl back of the instrument, then came a description of how to make the neck and peghead.

29 A bookmatched set of Engelmann spruce for the soundboard

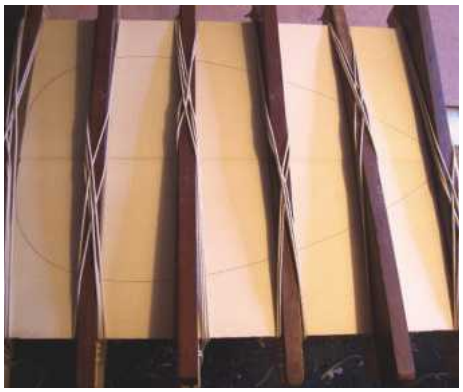
The soundboard

As with virtually all stringed instruments this is the most crucial component. Poor quality wood or incorrectly made or applied bracing will have a detrimental effect on the sound quality. It is well worth spending a few extra pounds on the spruce for the front. I usually choose Sitka or Engelmann spruce and will always look for master grade or the nearest. Either way, the bookmatched boards should have very narrow grains with no run out.

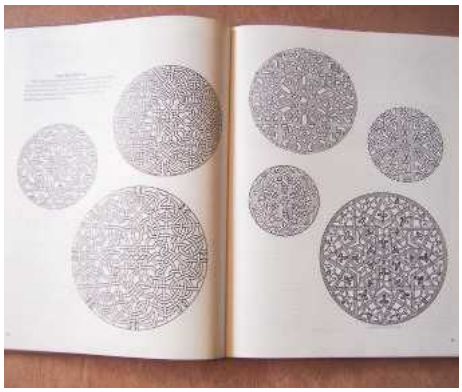
Spruce boards are normally supplied in thicknesses of between 5 and 3.5mm and as a 'bookmatched' set (**photo 29**). Eventually, to obtain the best possible responsiveness and resonance, the soundboard will be reduced to around 2mm in thickness. Before then the two boards must be joined along the centre. First, the edges to be joined must be planed true and then checked for squareness. I usually sand the edges square with a sanding stick made from an old spirit level, 600mm long with abrasive attached to the edges with double-sided tape.

The two boards are then held in a 'wedge and lace' jig until the Titebond cures (**photo 30**). When the soundboard is removed it is delicate as no bracing has yet been attached, so considerable care is needed while it is being handled.

Once out of the wedge and lace jig, the soundboard can be reduced in thickness, and by



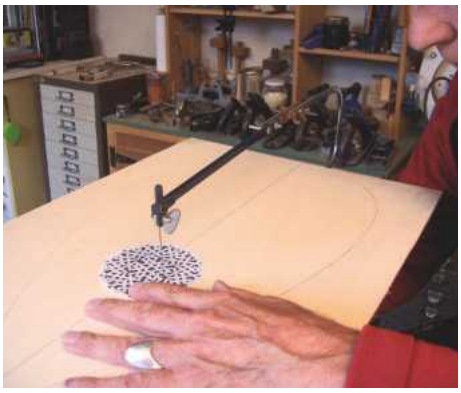
30 The soundboard in the wedge and lace jig



31 Some rosette examples in Robert Lundberg's book *Historic Lute Construction*

32 A photocopied rosette pattern glued into place

33 My 'long reach' fret saw



34 Fretting out the gaps in the design

now it is scarily thin and needs extreme TLC, no more so than when the rosette is carved into the sound hole.

The rosette

The rosette is perhaps the greatest challenge in the construction of a lute. The patterns seen in some older instruments are truly astonishing, and of course were cut out by hand using inferior tools to those of today. I am always in total admiration of the early lute makers' craft.

To begin, a pattern should be chosen. I chose a popular design attributed to Georg Gerle, the Austrian maker, which is thought to date from around 1580. I love the design as it constantly changes as you look at it. One moment the square profiles emerge, then the curved, then the over-under knot-like patterns, followed by the rather Moorish looking shapes and so on. By now the soundboard is just 2mm thick, so it is advisable to strengthen the area below where the rosette will be positioned with some thin model-maker's plywood. I used a piece of 1mm thick three ply from a local model shop and this helped give me confidence as I was cutting out the rosette. When the pattern has been chosen it can be drawn onto the soundboard in pencil, or for greater symmetry and accuracy, I chose to photocopy the design from RZ Taylor's book *Make and Play a Lute*. There are also many beautiful designs in Robert Lundberg's book *Historic Lute Making* (**photo 31**). The photocopied rosette design can be glued onto the front of the soundboard and work can then begin on cutting it out (**photo 32**).

Some makers use nothing more than a surgeon's scalpel to create the rosette, but I found it more practical to use a fret saw to take out most of the waste wood and to finish the job with a scalpel and very sharp 2mm chisel. The 'Two Cherries' ones are good for this job, particularly for the over-under work. My normal fret saw did not have the reach to get to all of the parts of the rosette, so I extended the reach by buying an old second-hand one and cutting the frame off with a hacksaw, then bolting it onto my existing fret saw, which had the benefit of making the reach almost twice as long (**photo 33**). It helps if you have arms like a gorilla at this stage! (**photo 34**).

35 The soundboard bracing pattern

36 The brace ends are scalloped

37 Nails act as anchor points for the elastic bands

Bracing the soundboard

When the rosette is completed it is time to consider the bracing pattern. If the soundboard were not strengthened with braces it would collapse under the pressure of the strings bearing down on the bridge. There are many different bracing patterns, but most consist of a series of horizontal struts 15mm high and 5mm wide with smaller, angled ones on the treble side and a hockey stick shaped one on the bass. In some lutes a couple of the horizontal braces run under the rosette and are visible. As the rosette area has been strengthened, this can be avoided by running those struts up to the edge of the sound hole (**photo 35**).

Once the braces are all in place the ends should be scalloped down to a height of 3 or 4mm from a position of around 5cm from the end (**photo 36**). In some lutes, the ends are left at the same height as at the centre of each strut, but this can give rise to buzzing if, perhaps, the soundboard is not fitted to the bowl with surgical precision. I realise that I am breaking with tradition in using this approach, but my experiences in guitar making have shown me that if ever an interior buzz occurs, it can be fixed through the sound hole. This is not possible if the sound hole has a carved rosette in it.

Attaching the soundboard

Traditionally the soundboard would simply be glued around the edge, which attaches to the bowl, having a little extra support if the brace ends are left at the same height as the centre point. This makes for a potentially weak structure, so for this lute I am again breaking with that tradition and using kerfed linings similar to those used in classical guitar making. The method involves making another jig.

This is really a frame that is made in such a way that it can be held in a vice, i.e. it is attached to a piece of 4×2 timber running along its underside. The cross arm is to prevent the outer edges of the jig from bending out of an exactly flat plane. The frame has nails tapped in around the edges (**photo 37**). These nails are anchor points for long elastic bands that will be used to hold the bowl down firmly onto the soundboard while the adhesive is curing. The frame is intentionally made oversize and small blocks are attached on either edge, each 2mm from the exact outline shape of the bowl (**photo 38**). This prevents the bowl from moving outwards when it is squashed down by the elastic bands, which exert an extraordinary pressure.

The kerfed linings are made from lengths of mahogany 15mm high × 7mm thick. These pieces are planed along one edge to form triangular strips. Around a metre in length is plenty. The inside edge of the triangle, that is the hypotenuse, must then receive saw cuts that run almost through to allow the strips to bend easily (**photo 39**). They are then glued in place with the help of small clamps. They should be left slightly proud of the upper edge of the bowl, later to be levelled with a flat sanding stick around 600mm long. The linings do not run around the entire inside edge of the bowl as small gaps are needed for the brace ends. Care must be taken to ensure that the gaps are in exactly the right place as otherwise the ends of the braces will foul on the linings and make the task impossible (**photo 40**).

The soundboard may now be attached and held in place on the jig by the bands (**photo 41**). Clearly where the narrower end of the soundboard meets the neck there will be a ledge 2mm high. This will allow the fingerboard to sit in exactly the same plane as the soundboard when it is later fitted.

After the adhesive has cured the edges of the soundboard should be trimmed flush, but the overlap onto the neck should be left for later attention.

Binding the soundboard edges

Older lutes had no edge bindings, leaving the join between the bowl and soundboard vulnerable. For this lute I am inserting bindings, which will protect the edges from any damage. The bindings are made from two strips of ebony 2mm thick, 6mm high and around 650mm long. They are bent on a hot iron to conform to the outer edge of the bowl and placed into position in channels that are routed around the top edge of what is now a three-dimensional structure.

I have routed many hundreds of yards of binding channel over the last 30 years and by far the best method I have discovered is to use the small hand-held router made by Bosch known as the 'Colt'. A bearing-guided cutter is fitted that will create a rebate 2mm wide and 6mm deep allowing an exact fit for the binding (**photo 42**). The lower ends of the bindings meet as a butt join at the tail end of the lute, but the ends that go in the opposite direction are inset into the edges of the neck for around 4 or 5mm. These insets will later be covered by the fingerboard. To keep the bindings in place as the adhesive cures, strips of strong masking tape are used. This method seems primitive, but it is very effective and commonly

38 Small blocks prevent the bowl from bulging outwards

39 Kerfed linings in mahogany, ready for use

40 Small spring clips hold the linings in place as the glue cures

41 Long bands hold the bowl down onto the soundboard

used by luthiers (**photo 43**). Once the tape is removed, the bindings can be cleaned up with a sanding stick in preparation for the next stage.

Preparing the fingerboard

The fingerboard on a lute is much thinner than on a guitar or even a ukulele; it is just 2mm thick to enable it to lie flush with the soundboard once it is in place. It is prepared from a billet of ebony around 3mm thick, 75mm wide × 250mm long. It is planed true on both sides and brought to a thickness of 2mm (**photo 44**). There are several options to consider at the point where the end of the fingerboard meets the soundboard. One method is to cut 'bee stings' into the top edge of the soundboard with corresponding shapes cut into the end of the fingerboard. This is a tricky operation, so for this lute I chose to make a 'V' shape instead. By now the traditionalists will be tearing their hair out and ready to subject me to a flogging, but it is time for yet a further break with tradition.

Early lutes had gut frets, which reduced in thickness progressively as they moved down the fingerboard. Each fret was tied with a special knot and this method allowed for the frets to be moved to change the pitch of individual notes. This was very important at the time as there was no standardised tuning and no specific way of setting the instrument up for playing. A common approach was to tune the first string up until just before it breaks and then to tune the others to that one. Now that tuning is standardised to A=440 there is no need for moveable frets, so the fingerboard is slotted to receive medium gauge classical guitar ones.

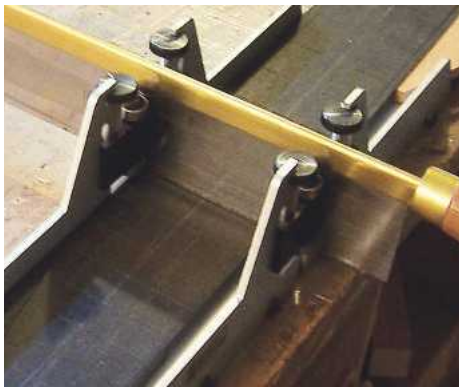
44 The fingerboard under preparation

42 The Bosch 'Colt' is ideal for routing out the binding channels

The fret slots should be cut into the fretboard while the edges are still parallel. This way all slots will be at 90° to the nut end of the fingerboard and there is less risk of intonation discrepancies. A fine dovetail saw is good for this job, though specialist fret cutting saws can be obtained (see suppliers list), and several suppliers sell fret slotting jigs made of metal with bearing-guided blade holders that guarantee a precise cut (**photo 45**). Unless the maker is going to produce more than one fretted instrument, a standard mitre block can be used and the depth of cut can be measured with a simple device made from a small, thin, flat piece of steel. A piece of masking tape is placed along one edge of the steel away from the edge by the depth of the fret tang; this simple device can be inserted into the cut from time to time to ensure the correct depth (**photo 46**).

NEXT MONTH

In the March issue, Shaun shows you how to attach the fretting and fingerboard, prepare and fit the tail strap and bridge, before attaching the strings and finally tuning up

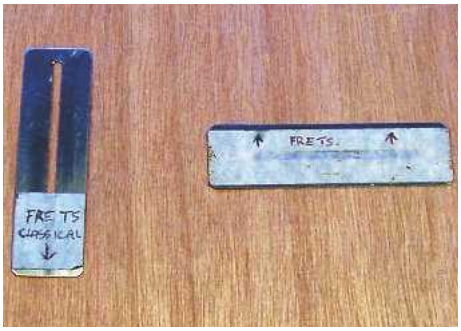


45 A specialist fret cutting tool

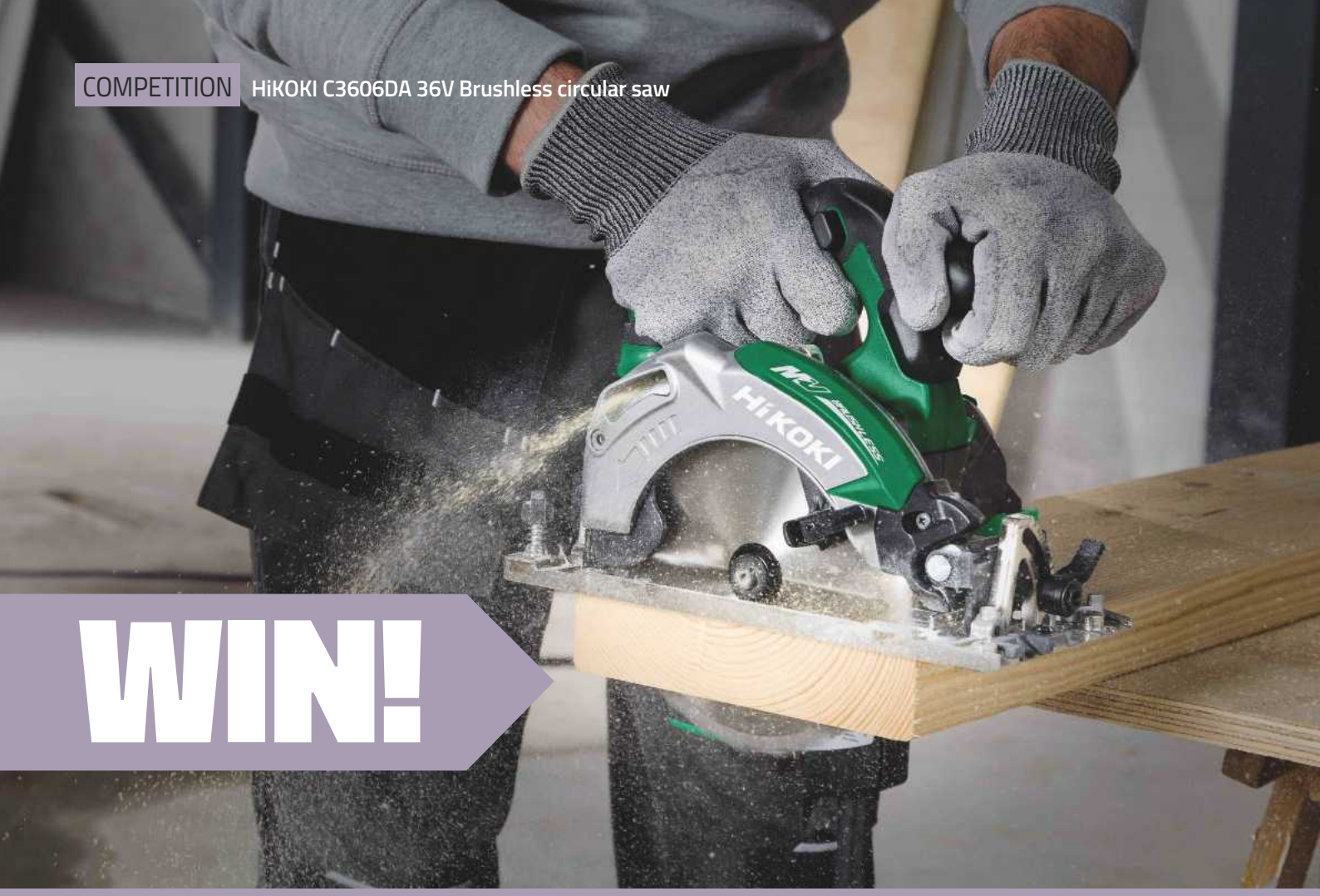
43 Masking tape holds the bindings in place

SUPPLIERS & SOURCES OF HELP

- The Lute Society for plans, sheet music, literature and lists of teachers – **www.thelutesociety.co.uk**
- Touchstone Tonewoods – for timber and tools – **www.touchstonetonewoods.co.uk**
- Tonetech – as with Touchstone – **www.tonetechluthiersupplies.co.uk**
- Stewart-Macdonald – for plans, tools and all manner of luthiers' supplies – **www.stewmac.com**
- The Guild of American Luthiers – for plans and literature – **www.luth.org**
- David Dyke – for timber and tools – **www.luthierssupplies.co.uk**
- The Early Music Shop – for specialist strings, cases and pegs – **www.earlymusicshop.com**
- The Luthiers Nook – for pegs – **www.luthiersnook.com**
- Madinter Wood – for music, pegs and timber – **www.madinter.com**
- Keystone Timbers – for exotic timber – **www.tonewoods4luthiers.co.uk**
- Strings Direct – for all manner of strings – **www.stringsdirect.co.uk**
- Dictum – for pegs, timber and tools – **www.dictum.com**
- 'In the Making', Vimeo, a film about the work of Steven Gottlieb – **https://vimeo.com/96809354**
- *Historical Lute Construction*, Robert Lundberg. Published by the Guild of American Luthiers, 1972 – possibly the most comprehensive book on lute construction available
- *Make and Play a Lute*, R.Z.Taylor – published by Special Interest Model Books, 1983



46 Depth gauges for frets



WIN!

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Supplied with 2 × 2.5Ah Multi Volt batteries and fast charger, the HiKOKI C3606DA 36V Brushless circular saw features high overload capacity, high cutting speed and silent mode reduces noise and improves motor efficiency. It benefits from a maximum cutting depth of 66mm and features soft start for improved control. A blower function and LED worklight ensure high visibility when in use and a fluorine coated base allows for smooth cutting. Compact and lightweight in design, it benefits from having a 165mm blade and a no load speed of 4,300rpm.

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- 36V Multi Volt batteries for higher power output similar to mains powered tools
- Batteries are compatible with existing HiKOKI 18V tools
- Offers unprecedented power output of up to 1,080W
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- Four-stage battery level indicator with diagnostic function
- Compatible with existing 18V chargers and the new UC36YSL
- Compact and lightweight – similar size and weight to existing 18V 5Ah and 6Ah batteries

Technical specification

Dimensions (L × W × H): 292 × 188 × 262mm
Weight: 2.7kg
Blade diameter: 165mm
Bore: 20mm

HOW TO ENTER

To be in with a chance of winning the HiKOKI C3606DA Multi Volt (36V) Brushless circular saw complete with 2 × 2.5Ah Multi Volt batteries and fast charger, just visit **www.getwoodworking.com/competitions** and answer this simple question:

QUESTION: WHAT IS THE BLADE DIAMETER OF THE CIRCULAR SAW?

The winner will be randomly drawn from all correct entries. The closing date for the competition is **1 February 2019**

Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd and HiKOKI Power Tools (UK) Limited are not eligible to enter this competition

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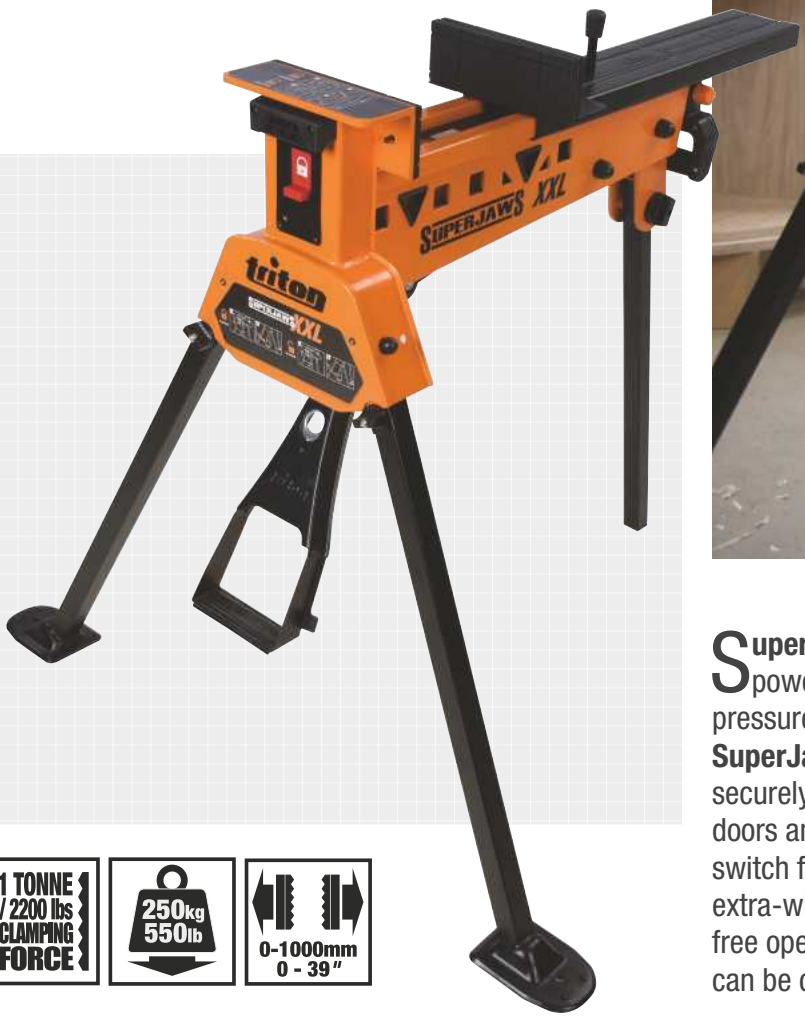

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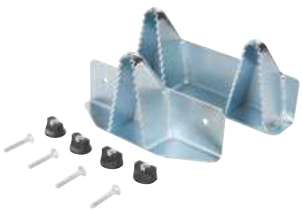

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THIN COLD STEEL

In praise of solid-state technology: **Dave Roberts** admires the subtlety of one of the woodworker's simplest tools

As if last month's hibernal reflections weren't chilly enough, the scything second-hand of the year is now sweeping towards the shortest day. When its cold, blue edge passes overhead, keen as the east wind, you'll find me in the Old Kitchen – the chaotic corner of the house that presently passes for a workshop – keeping my head down, and warming my fingers on a task so prosaic that I almost hesitate to mention it…

Oh, all right. I've been using a cabinet scraper to produce crisp edges where a painted surface meets a sharply defined corner. I realise that painted furniture isn't everyone's cup of tea, but you can have too much of a plain, wood-grained thing; and as someone who'll be spending the next year or two beating off the tyranny of stripped wood with a loaded paintbrush, I'm all in favour of the variety that man-made colour provides. Like any finish, of course, paint has to be well-applied. I know of at least one modern maker that sprays its furniture, then lightly drags the wet paint with a dry brush in what is, I suppose, a commercially expedient way of replicating the 'artisan' appearance of a hand-painted finish. I just try to paint carefully, though in doing so I find that masking certain edges is a tedious and sometimes imprecise business: the tape itself can get in the way of the brush's stroke, and can encourage a build-up of paint so that, instead of the colour feathering out cleanly to nothing, it forms a ridge along an edge, which may be faint but still not the desired result.

Easier by far, I think, is to dispense with masking tapes where possible, and to paint at a slight angle towards an edge – which in any case is normal practice, I think – so that the brush runs off the painted surface. This approach gives a fairly clean transition with only a little over-brushing onto the adjacent surface; at least, I never have much because I tend to paint with what you might call a variation on the dry-brush technique. I carry only enough paint on the brush as is needed to colour the surface with a thin, uniform layer, and without the need for any of the brushing-out required by a heavier application. This very sparing approach sometimes means having to apply three coats rather than two to achieve the necessary opacity, but then I don't have to worry about commercial expediency and prefer the resulting finish: it looks more like solidly dyed wood, if that makes sense, rather than wood that has been almost enamelled with a skin of paint. In fact, though it takes longer to achieve, the dry-brush result can look remarkably like that sprayed-and-brushed finish…

You can have too much of a plain, wood-grained thing; there's something tyrannical about too much bare wood

Anyway, it's in cutting back any stray paint to leave a clean edge that I've been using the cabinet scraper – a humble tool with neither moving parts nor the honed and polished cutting edge of a plane iron; instead it has only a burr, a fine hook of turned-over steel (See 'Scraper sharpening').

In praise of solid-state technology

When pushed or pulled over timber, however, this burr will cut fine shavings not just from straight-grained woods but from burrs, wild grain, or timbers prone to tear-out, and do it more consistently than those honed and polished plane irons. Bowing the cabinet scraper's spring steel also allows the depth of its cut to be varied: a deeply bowed blade will take heavier, cleaning cuts, while a shallow bend or even a straight blade will take cuts light enough to produce a finished surface. Not that scraper blades need to be straight or the surfaces flat: the curves of shaped and goosenecked cards allow them to be used on all manner of profiles.

It is this lightness of touch that gives the lie to the cabinet scraper's seeming crudeness:

it's a tool capable of very delicate work, partly, I suspect, because your fingers are so close to the cutting edge that you're able to feel it addressing the surface, and to finely judge the pressure applied to create the cut. The example that I remember being given of the cabinet scraper's potential for finesse was in the dressing back of lipping applied to veneered boards: the delicacy and controllability of the scraper's action makes it possible to plane the lipping flush with the veneered face without the risk of accidentally cutting through the veneer as can happen if a pass with even the sharpest and most finely set block plane is misjudged.

Crisp & even

Given all this potential, you can see why I hesitated to explain how my scraper is currently being employed: dressing off stray paint is pretty small beer, but the scraper's rigidity and its fine cut produces a uniform transition from paint to bare wood that is at once crisp but subtle. And it's easy to do, too, though in tackling paint I've found that it pays to make two passes with the scraper.

The first pass comes after priming to remove any over-brushing and, by using the cabinet scraper with only the lightest of touches, to cut a very fine chamfer on the primer – though really, it can hardly be anything but fine given the thickness of the paint. The primer's feathered edge is covered with colour when the top coats are applied so that, when you dress the edges for the second time, you'll only be tidying the very edges of the coloured coat, leaving a crisp boundary between paint and bare wood but without the risk of exposing the primer, which would create a fine keyline between the two that may, depending on the contrast between primer and top-coat, be unsightly.

This isn't a perfect science, of course; with the sort of woods that you're most likely to paint – redwoods, or perhaps a workaday

Apologies if I've shown you this before: a vivid example of man-made colour working with natural grain

A CASE FOR PAINT

A little over three years ago, when Chris Schwarz was the guest tutor at David Savage's workshops in Rowden, he shocked some of the students by proposing they paint the tool chests that were one of the projects set by the man behind the Lost Art Press. "Most were talking about putting on a high-style finish," the US maker said, "but magnolia" – from which the chests were made – "isn't a pretty wood." Though a serviceable timber, its patchy colour and figure, he maintained, mean that, "you can't see the form of the chest until you unify it with a paint finish. In fact, it looks like hell 'til you do!"

If paint was good enough for Gillows of Lancaster, Chris Schwarz would argue, it has a place in modern woodworking, too

Sparing application: a near-dry brush technique – applying just enough paint to colour the surface with a thin, uniform layer – avoids the heaviness that thicker coats bring to a painted surface

hardwood like tulipwood – the edges may not be ruler straight, and slight imperfections may be highlighted by strong contrasts where colour meets timber. That's part of wood's 'warmth', however, and what's more important is the fact that the scraped edge will be crisp (and certainly crisper than that produced by sandpaper) but without the all-then-nothing hardness that masking tape can lend to an edge.

My scraper isn't only on paint cleaning duty, mind; I'm also preparing the inside faces of some large cupboards which will be given a simple sanding sealer finish, and it's here that the scraper is ideal for warming winter-cold fingers: the friction quickly heats the blade meaning a cabinet scraper is anything but simple cold steel. To avoid the discomfort, some people invest in one of Veritas' smart nylon-bodied scraper holders – which also, in allowing you to set the required bow/depth of cut, takes the strain off your thumbs. My solution? Stop often for tea.

It isn't just straight lines: shaped and gooseneck scraper cards can be used on all manner of profiles

The scraper's fine cut produces a uniform transition from paint to bare wood that is both crisp but subtle

SCRAPER SHARPENING

Scrapers are available in various shapes and thicknesses but the common denominator is that, to work well, their edge needs to be sharp, and the burr that defines this sharpness must be uniform. If there are any marks on the cutting edge of the scraper you'll need to file it so that it's flat, smooth, and square to the face of the blade. While you're about it, it's an idea to radius the square-cut corners of a rectangular scraper to prevent them catching and digging into the workpiece.

Use a sharpening stone to polish the edge of the scraper and remove any file marks which would otherwise appear as interruptions in the finished burr, and leave flaws in the scraped finish. When you're done, use the stone to gently grind the faces of the scraper and remove the wire edge created by your filing; ensure that the blade remains flat on the stone.

To raise the burr, use a burnisher, which is held perpendicular to the scraper; pressing firmly and running the burnisher along the length of the scraper will splay the corners of the cutting edge enough to create a fine 'hook' on both sides of the blade, just large enough to snag a fingernail. This burr will be enough for very fine scraping, but can be enlarged to produce a more aggressive scraping action by angling the burnisher at between 5° and 10° to the blade.

Providing you don't damage the cutting edge, you can refresh a work-dulled scraper by running the burnisher along it to turn over a fresh burr

An HSS burnisher is used to turn the burr on a scraper's edge – or you could use a screwdriver. Sharpening all the edges of your scraper will give more working time between resharpening, but also means there are more edges to maintain. Lazily, I tend to sharpen just one edge, and use insulating tape to save my fingers from the other long side

NEXT MONTH

From the vantage point of new year it'll be possible to see spring on the very far edge of winter, and we'll be back out among the Borderlands with wood engraver Bob Guy

A **RARE** SPECIES

Owen Evans talks to **Tim Manning**, the only full-time dulcimer maker left in the UK, about his love of specialist instruments and how he goes about making one of his signature pieces

To many who hear the words, hammered dulcimer, at first you'd be forgiven for thinking it was a new and unfamiliar instrument. However, its angelic sounds have been popular since the late Middle Ages and the Renaissance, but some say even earlier than that. While most of Tim Manning's instruments look like they belong in a medieval banquet, his handcrafted ancient pre-pianos are a hit with some of the world's most famous cultural institutions. "The Bolshoi Ballet have just ordered one from me that is a custom light-weight hammered dulcimer. A fellow came here in person to pick it up all the way from Moscow," says Tim.

Frome-based Tim has been hand making hammered dulcimers for over 25 years from his business, Music Magic. The percussion instrument produces musical tones when its strings are hit by small, spoon-shaped mallets. Many countries have their own version of the hammered dulcimer, particularly in Eastern Europe, Iran, India, China and the rest of Asia, but it's close resemblance to the Iraqi and Iranian santir have put its roots way back to Babylon circa 1600-911 BCE.

"What got me into making the dulcimer was the fact it looked very technical," explains Tim. "It looked more complicated than playing guitar because a guitar just has six strings. Some of them are up and some of them are down. On one string, you've got two notes, which is quite an unusual thing in itself."

Famous clients

As just one of a handful of dulcimer craftsmen around the world, he's been kept busy by a glut of clients, some of whom are quite famous indeed. "I sold one to Peter Gabriel who used it for *OVO*, the soundtrack to his famous Millennium Dome Show in 2000. When I bought the album, I found out that Richie Havens (who famously sung the folk song *Freedom at Woodstock* in 1969) was singing over my dulcimer! Seeing another

FURTHER INFORMATION
Find out more about Tim's dulcimers (and Aeolian harp) business, Music Magic, by visiting **www.hammereddulcimer.co.uk**

One of Tim's more unusual projects includes restoring the dulcimer of a 18th century automaton

Tim Manning with one of his completed hammered dulcimers

specifically created for the Royal Ballet Company's Winter's Tale was also incredible," adds Tim.

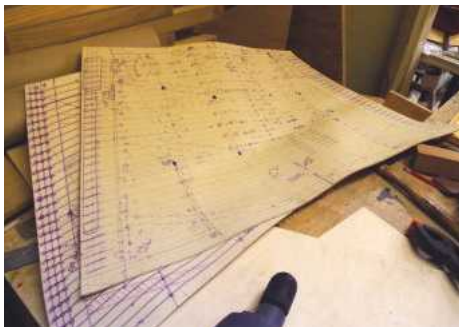
The design of a dulcimer begins with making a pattern and selecting the size of instrument. Size is determined from the outside in. Many have different layouts, tuning patterns, size and weight, although the way they are played hasn't really changed for hundreds of years. Tim explains that they can all vary according to what a customer wants. For example, the instrument for the Bolshoi Ballet had to be considerably lighter, while one for the Horniman Museum in London had a continuous bridge top made of stainless steel.

On an average dulcimer, the treble bridge is on the left of centre, with the bass bridge on the right. The lowest sounding strings, the bass strings, are the longest and they are those to the left of the bass bridge, which is the one on the right. The next highest are to the right of the treble bridge and then to the left of that.

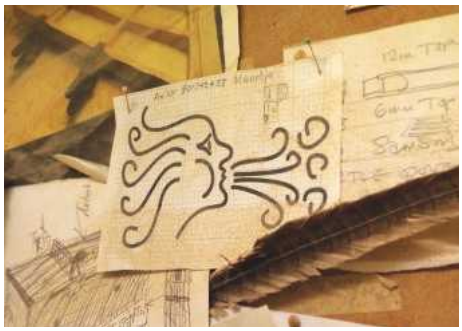
"One of the things that gives a dulcimer its sound is the fact it is undamped; the strings just resonate all the time. What other instrument can claim it has that?" comments Tim.

A form will be made to shape the upper and lower curves of the dulcimer, so before the pattern is cut, a partial pattern is made of this shape so that both top and bottom match.

And depending on the order, smaller models are usually ready in six to eight weeks, while larger instruments can take up to three to five months to complete.



Using a template to design the instrument

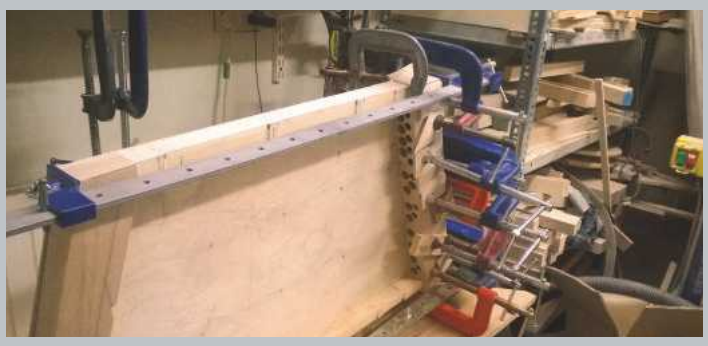


A design for an Aeolian harp, one of Tim's other specialities

The future of specialist instrument making

A rare species, Tim is just one of two dulcimer makers left in the UK and you have to wonder if anyone will be there to take on the mantle if, and when, he inevitably retires. But after 25 years making these very special instruments, is he still in awe of them? "I've been doing this for so long that sometimes I ask myself why I still make these plinkity plonk instruments," he laughs, but ultimately the passion still very much remains for what he does. Overleaf Tim explains what goes into making one of his hammered dulcimers.

MAKING A DULCIMER



Drilling holes into the dulcimer destined for the Bolshoi Ballet, to make it lighter

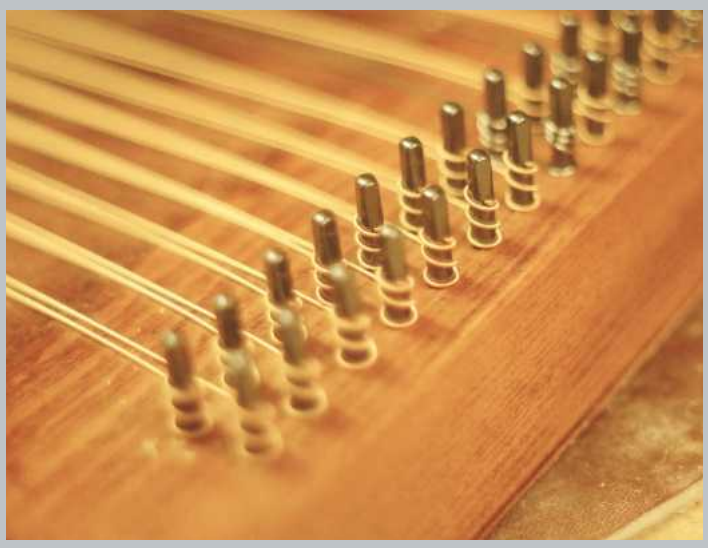
Birch plywood

Dulcimers are built on a birch plywood European species timber base then there's a wrest plank on the right, so named because you have to wrestle with the tuning pins. Tim uses beech for that, as it's the traditional timber and holds the pins really well. The plywood is birch, so he puts a plank each side, and a pin block on the left for the hitch pins. He uses ash for the frame rails, which go on the back and front of the instrument. As a trapezoid shape, it's got a short piece at the front and a long piece at the back. Tim chooses ash due to its resistance to bending.

Attaching the soundboard

Attaching the strings

Tim has several methods of attaching the soundboard, but in this instance it is fixed to the sound-box. Sometimes it fits into a rebated slot in the planks, or sometimes on the top. Tim puts struts on the bottom of the baseboard, which like 'Samson', hold the wrest plank and the pin blocks apart. They have to be strong because the tension on a dulcimer is about one tonne pulling from side to side. Looking at the instrument, it's quite hard to imagine it, but the force is unbelievably powerful.



Pins have to be hammered in

Strings

The strings on a dulcimer are found in pairs of 24 (48 in total). Each one of those pulls at 18kg, so the side to side joints have to be 100% perfect as there is so much tension. The two struts running on the top and bottom are supports for the bridges that run on the soundboard at the top of the instrument. Tim then cuts the sound holes and places the top.

Clamping up

Mini clamps for dulcimer hammers

An even spread of pressure is maintained with lots of clamps

You need lots of clamps. You can get away with four or five on the bottom as you work on one piece at a time, but in order to clamp the top onto the bottom and all the way around, you've got to use 20 or so to maintain an even pressure. Tim can go in a variety of different ways after that point, as some of the instruments have got angles on the side. For example, some are designed so that the soundboards fit in the slot – i.e. in a rebate – which means the soundboard itself is taking a lot of the tension side to side, as there aren't any struts in that direction to do this. For certain models, Tim sometimes uses a rippled sapele or maple edge binding for the soundboard.

Tuning pins

Tim prefers to use a composite of wood for the bridge, while other makers have used one solid block

On the right-hand side, there are 5mm diameter tuning pins. A hammered dulcimer has two strings per note, which are tuned separately to the same frequency to achieve the sound of one note.

The 4.6mm diameter holes are smaller than the pins; they've got a very fine thread on them, so as you screw them to the right to tension the strings they go down into the wood. The tuning pins are not screwed in when they are fixed; Tim uses a hammer, which is tough because in a sense you are compressing the sides of the hole. He used to use nails for the hitching of the strings, but now he buys specially-made German hitch pins that do the job. Normal nails will work but they will go rusty (which isn't very good as many dulcimer players want to play a dulcimer in all weathers).

The problem with plywood

German-made piano wires are the preferred option for dulcimer strings

In the early days, instrument makers obviously didn't used to use plywood, but the problem is that there is such a lot of tension on the dulcimer, so you really want everything glued. If you look at a lot of the old dulcimers, they've got cracks on the back and on the bottom. The trouble is that two pieces can vibrate together and it sounds almost like a distortion, like an electric guitar effect, which isn't what you want for that instrument.

SETTING PERSONAL GOALS & CHALLENGES

In the second part of this new series, **Anselm Fraser**, principal of The Chippendale International School of Furniture, looks at setting goals and objectives with your woodworking

Last month I looked at the mental benefits that woodworking can bring, citing a book, *Flow: The Psychology of the Optimal Experience*, by University of Chicago psychologist Mihaly Csikszentmihalyi.

He describes such things as the challenges involved in a creative pursuit and the degree of concentration as "elements of enjoyment" – the things that free our minds and give us greatest satisfaction.

Those elements are found in abundance in woodworking and is the reason why, for example, Help for Heroes, the charity for injured ex-Services personnel, and NHS Great Glasgow and Clyde, promote woodworking classes.

The reason why woodworking is so good for mental well-being is that it's an effective form of art therapy. You aren't just doing one thing, you're starting with raw wood and, step by step, working it into something beautiful or useful. In effect, you are using multiple parts of your brain and challenging yourself to think in new and creative ways.

In that sense, woodworking is a 'whole-brain activity.' The mental activities involved in planning, designing, and the hand-eye co-ordination involved in the woodworking processes, fires up every part of your brain.

SMART woodworking

The first element, psychologists agree, is setting goals and objectives, and this is what I'd like to look at this month because your woodworking objectives should be specific, measurable, achievable, realistic, and timely (in other words, SMART). It doesn't matter whether you're an amateur hobbyist or a professional furniture maker, SMART thinking to a healthier and more productive you is all about setting clear objectives that are challenging but not impossible.

For example, you might love to beat Usain Bolt's record for the 100 metres, but there would be no point in setting that as a goal. It would simply end up in disappointment. Instead, what you could do is set a goal to get a little fitter and take up jogging.

Equally, in a woodworking context, you can't set yourself a goal of making a chest of drawers by next Friday if you don't know much about the subject. First decide what skills you need to acquire, and what smaller and more basic pieces you could work on first to hone your skills.

A 2017 student embarking on making a Windsor chair

It's a process of setting smaller objectives in pursuit of that larger goal of a chest of drawers. It's about setting out a timetable for achieving them that doesn't involve you working until 3am every night (and do remember that working with machinery or dangerous tools should never be attempted when tired). In achieving each smaller objective, the idea is to keep your morale high by not setting unrealistic targets or timetables. The whole idea of woodworking is that it should be fun, and demoralising yourself takes away the fun.

I have always felt that a skill learned with pleasure is a skill that you'll retain for a lifetime, and one of the great pleasures of woodworking is that there is always something new to learn.

But in learning new skills and closing in on that chest of drawers, don't set goals that are too easy. There should be a small element of risk to push you along and keep you motivated.

It's putting yourself in a 'discomfort zone' – a mental place where there is some doubt and uncertainty about whether you're going to satisfactorily meet your objective on time.

Think of Noah, for example, one of the world's first woodworkers. God gave Noah the task of building an Ark out of cypress wood, 300 cubits long, 50 cubits wide and 30 cubits high. This means that the Ark, if it ever existed, would have been about 450ft long, and the size of a four-storey building. Noah would have had to learn a great deal, setting lots of smaller objectives, to fulfil his goal of building the Ark. Yet Noah was an amateur; the RMS *Titanic* was built by professionals.

FURTHER INFORMATION

To find out more about courses offered by The Chippendale International School of Furniture, see **www.chippendaleschool.com**

LYING DOWN ON THE JOB

Edward Hopkins has the last word

I know this is a bit weird, but it's not as weird as it looks. It's quite sensible to make your own coffin. It relieves those left behind of one more thing to sort out; it saves them money, and it means you can have a bit of fun. What you probably don't want, though, is an empty coffin sitting in the living room for years and hopefully years before it is needed. So in the meanwhile it had better be something else.

A rectangular box measuring approximately 24 × 72 × 16in (600 × 1,800 x 400mm) could be mounted horizontally on a kitchen wall as a cupboard fitted with three conventional doors in a frame as the lid, but even thinking about that is sending me to sleep. Plus, it would be really annoying to have to suddenly take down an intrinsic part of the kitchen and burn it or bury it without knowing what to do with all the jars, packets and boxes that had lived so happily there. You probably wouldn't do it.

A bookcase is more appropriate. Maybe a case not just for books but CDs, bottles, photographs, boxes, trinkets and mementoes? A case of special things. 'Twas then I thought of wings. If the lid were split in two head-to-toe, both parts could be flipped round and hung behind the case. I saw a circular light as a head in proportion with the coffin as a body. With the wings behind, it became an angel, larger than life (how big are angels?) holding and protecting my personal effects; protecting me in a way, and so becoming a guardian angel!

When my personal effects became ineffective, shelves would be removed, the light dismantled and the wings folded close over my corpse. If the wing tips were shaped to represent feathers, those tips could fold down over the head end of the box. It could look as though the wings (detailed somehow and painted yellow) were wrapping round me. That would be nice. What then of the box itself?

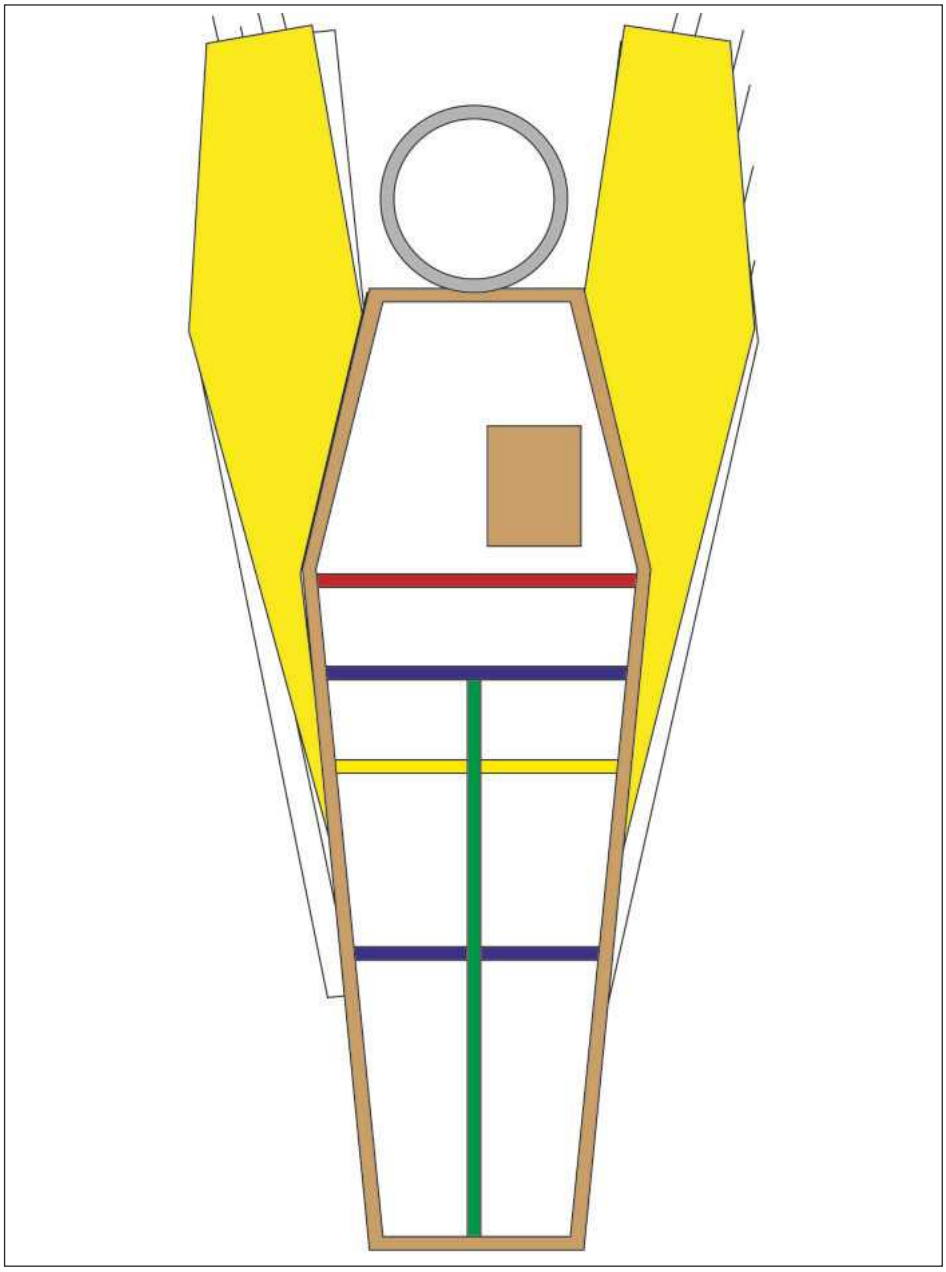


Fig.1 The original coffin-angel roughly drawn in Adobe Illustrator

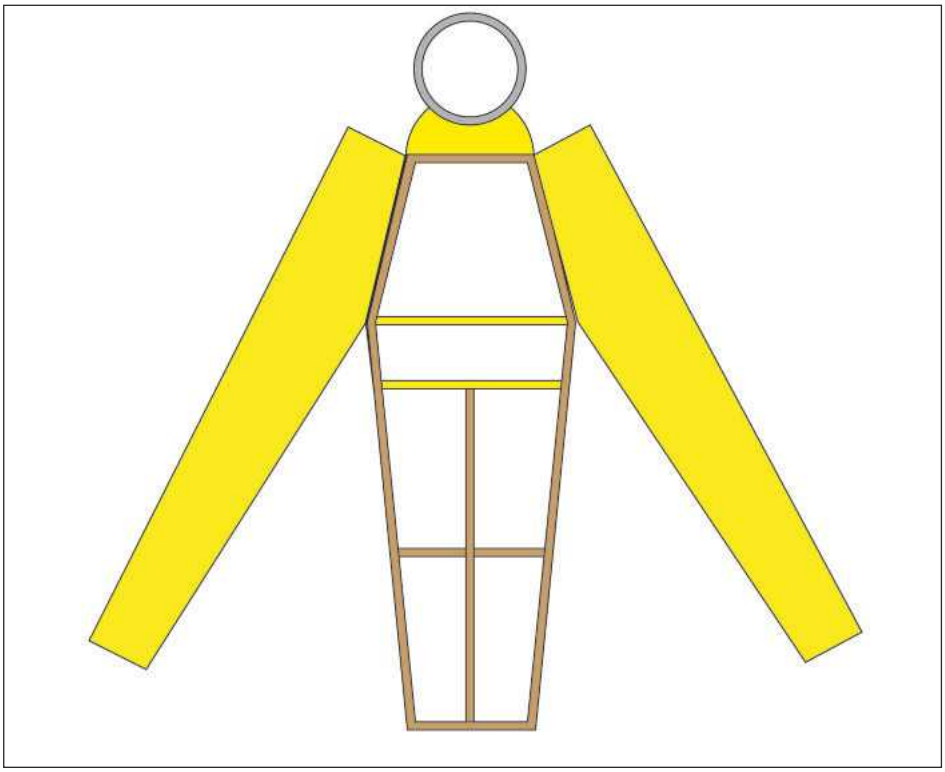


Fig.2 Second attempt at drawing the angel

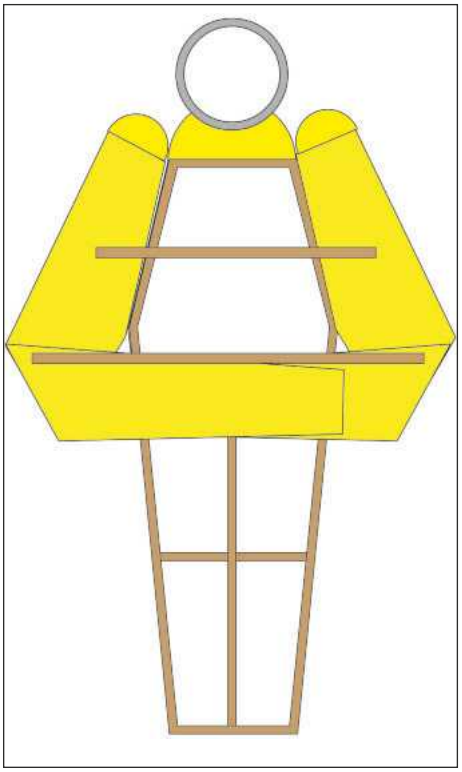


Fig.3 The arms, folded

Whoever comes to my funeral will know that I am, sorry, was, a woodworker, and when they see an unusual timber coffin, they will know that I made it. I can then have the last word. I can speak without fear of contradiction. I can say anything I like. Of course, I will be respectful. Some of the attendees might be upset, so I don't want to make things worse. And anyway, this is a serious project. So what is it that I'd like to say? And how?

Boxing clever(ish)

The simplest construction would involve three panels along each side. I'd say it on those panels. They will be cut from far-eastern ply, as will be the floor of the box. I thought initially to make the whole thing in pine, but it would cost me quite a lot of money, and that doesn't feel right. It never feels right, but here it would seem self-indulgent. Anyway, if I make too good a job of it, there might be a reluctance by those left to burn/bury it. I don't want to give them that quandary.

The ply I will use is scratched and stained and splattered with smears of glue because it has been the top of my work-table since I made it. I've flipped it over once, so both sides are worn. I want to replace it with a new sheet – a gift to myself while I can still enjoy it. I can sand down the ply and clean it up but it will never be perfect.

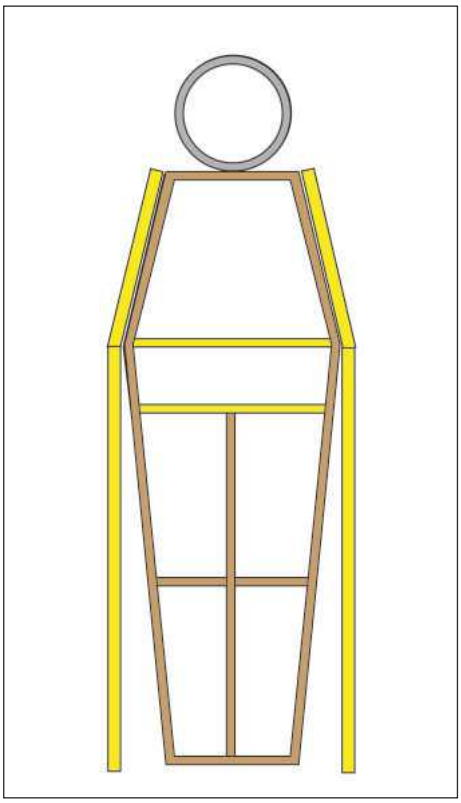


Fig.4 Drawn again with wings no longer wings, but her cloak folded back on her shoulders

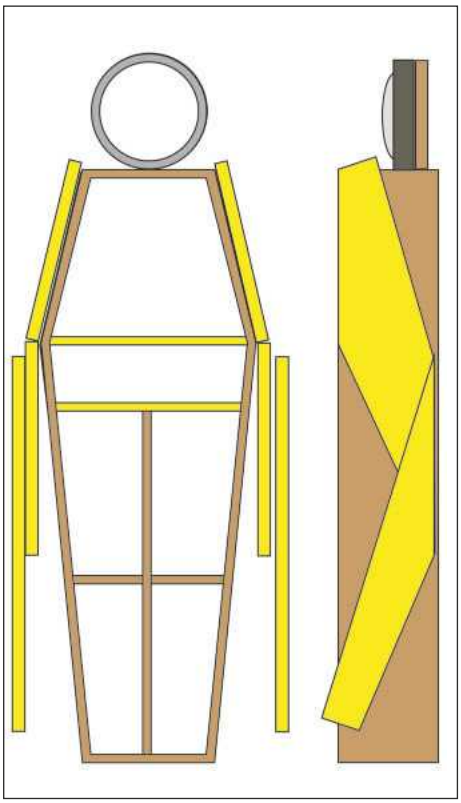


Fig. 5 The cloak itself would need to be folded or it would project too far back

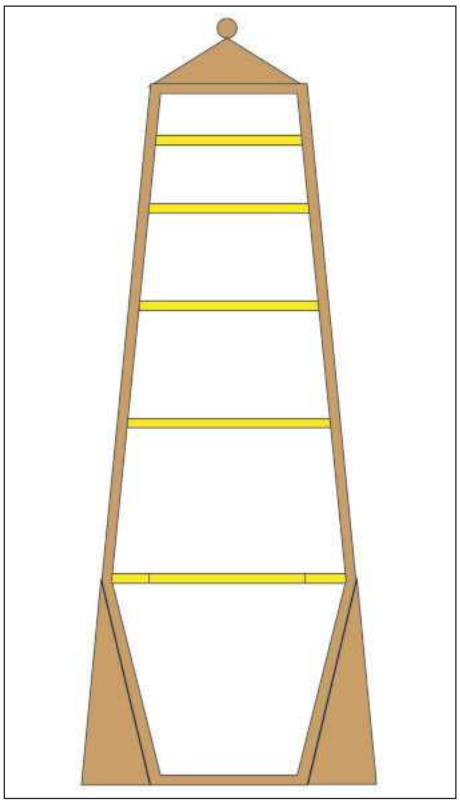


Fig.6 This shape reminded me of a 'banjo' longcase clock and for a second or two I thought of putting a movement where my feet would be

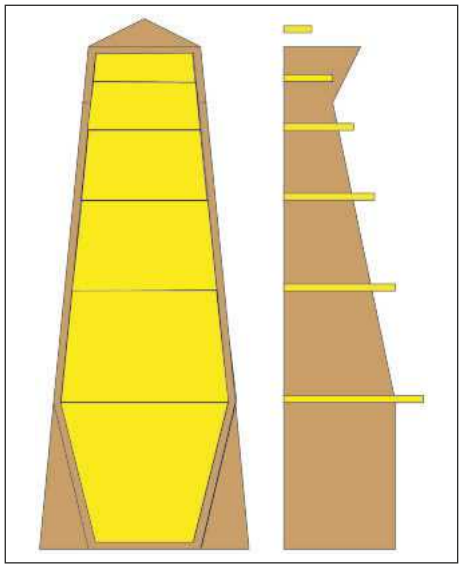


Fig.7 The lid presented a problem

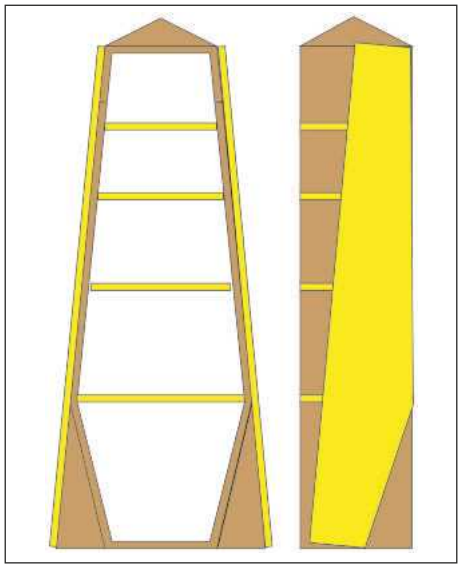


Fig.8 The lid flaps are hinged back against the sides and the shelves are from extra material wherever I want to place them

I don't want it to be perfect. I don't need it to be perfect. These panels will be representative of me.

I want to raise a smile (if, and especially if, it's the last thing I do). I see colour. I've always liked bold colours and bold shapes, so I think that they will feature. How you get a coffin to crack a joke, at present, escapes me.

I drew my coffin-angel roughly in Adobe Illustrator (**Fig.1**). I wasn't sure. I didn't like the shelves or that box in the place of a heart, but the general idea seemed pleasing. I had another go (**Fig.2**). Here the lids hinge from the elbow-head line of the coffin, but they are enormous on the wall and more like the wings of a bat than an angel. Not that I have anything against bats. Or vampires.

I hinged the batwing so that the (disappearing) angel folded her (his? I'll stick with her) arms (**Fig.3**). For a moment she began to look Egyptian. Egyptian sarcophagi are brightly coloured: maybe this was it? But no. The next thing I heard was 'Otter's tongues? Weasel noses?' or whatever the vendor is selling at the games in the *Life of Brian*. My angel had turned into a woman in the cinema selling ice-cream in the intermission. OK. Hold your nerve. Stay with it. I'm giving birth to a hybrid. I drew a larger shelf supported by her arms, and another shelf on the level of her heart, shorter and narrower as the lines converge on the light. Not a bookcase but a display case – almost a sideboard – showing things that I am close to and especially grateful for; reminding me to be grateful: an angel after all.

I seem to have talked myself into it. Now all I have to do is make it. Well, not quite all. These drawings are two dimensional and small. Angela will be 7ft (2,100mm) tall, 4ft (1,200mm) wide and 16in (400mm) deep (I'm no ectomorph). She's meant to be an angel, not a bouncer. When we meet in the flesh (as it were) I'll have to pay her bulk some attention. She needs to lose weight wherever she can.

Stop. That worries me. I drew her again with wings, no longer wings but her cloak folded back on her shoulders (**Fig.4**), which meant that she had to be raised from the floor a little – possible but not ideal. But the cloak itself would need to be folded (**Fig.5**) or it would project too far back. This would be the least massive angel, but also the least dramatic. I'm beginning to feel punch-drunk and Angela is starting to look half phone-box half robo-warrior. I think it's time to do something else entirely.

9 Here's one I made earlier: a jig for routing a slant. I adjusted the angle of the ramp and the cuts were made in a matter of minutes

10 A nasty joint, I confess, but more important for location than strength as the heavy ply base will reinforce the lower pair of joints. The screw holes are chewed up through repeated assemblies, but screws too will be secondary to the large slanting glued area. I had originally thought to assemble this panel separately then offer it up to the side, but cramping would be all but impossible, and I did want a tight join. Instead, I rub-glued the two angled stiles beforehand and married up to them

Farewell Angelina

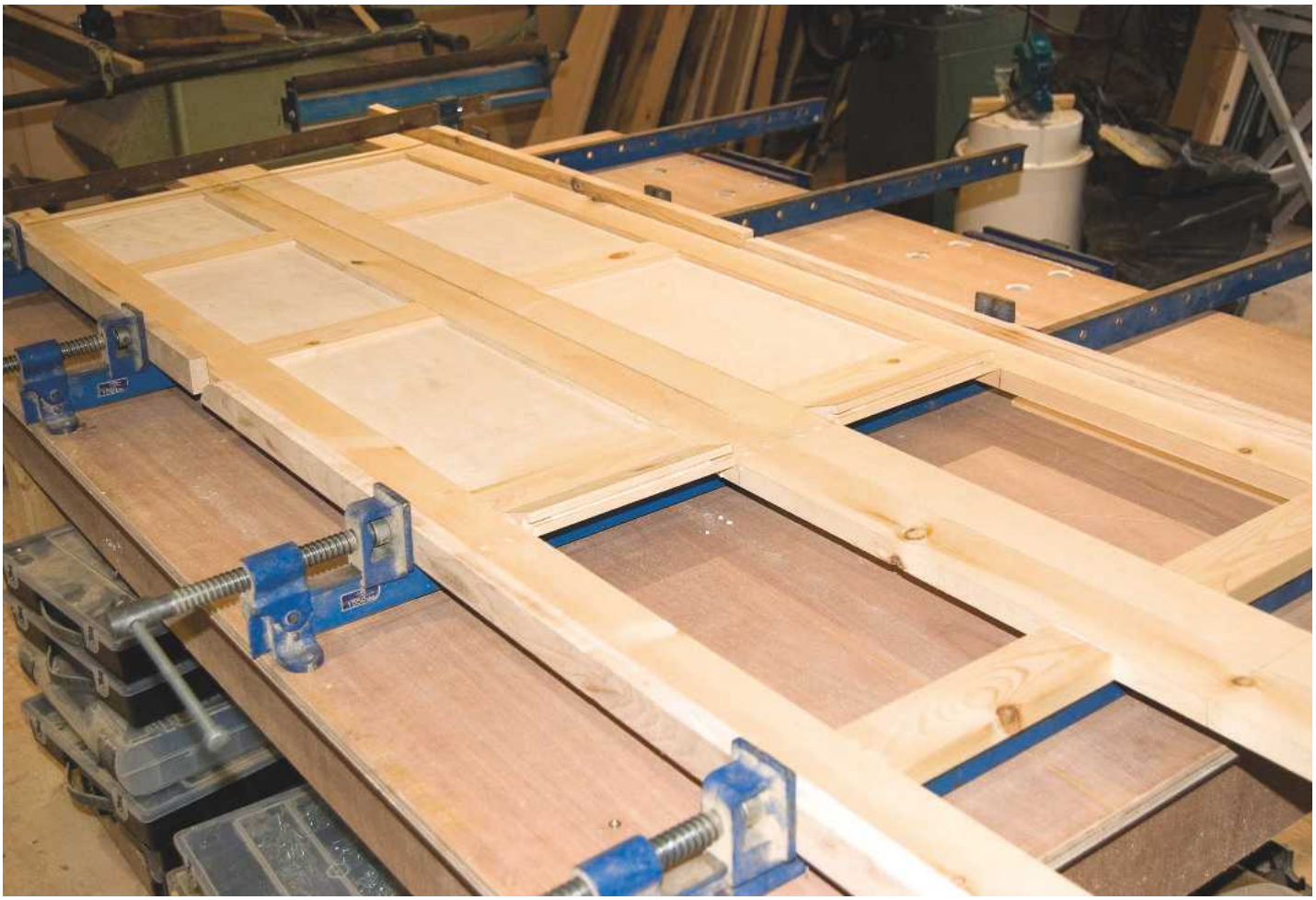
She had to go. I was sad to see her leave: we were getting on so well, but she was just too big. She would dominate my living room, and however brightly I painted her, there's a danger that she'd be an angel of death. I'd rather live alone. But I still want a coffin.

I stood myself on my head (**Fig.6**). This shape reminded me of a 'banjo' longcase clock and for a second or two I thought of putting a movement where my feet would be (without any), but immediately jettisoned that idea as it would look like a count-down clock. You only have so much time left, Edward, me old mate, so you'd better make the most of it: tick tock; tick tock. No thanks.

As a straightforward (if rather deep) bookcase, the shelves could be made of the coffin lid (and probably not painted yellow). Buttresses would be necessary at the base for stability. The top could have a pediment. I'm feeling better now. It almost doesn't look like a coffin at all. And one more thing: I am not uniformly corpulent. My ribcage is my (horizontal) high point, followed by my nose and then my toes. It looks to me as though I go in a pretty straight line from my chest down to my ankles before veering back up for my feet. This could help lighten the bookcase, and now that I'm upside down, it would diminish in the right direction. I think I've just complicated the woodwork, but I'll have to take that on the chin (normal sized chin).

Before I get that far, I'm going to have to mock myself up as a corpse (aka; lie down) and measure exactly how much space I occupy. It is pretty difficult for a corpse to do anything at all, but I'll try my best. I'm going to draw it out again in principle, and query the precise dimensions later. See you soon.

Right. **Fig.7** presents a problem. The lid (now coloured yellow only for consistency) can be chopped into sections to form shelves, but they, of course, are trapezoidal! Not a convenient shape.



11 I used 4mm birch ply (which serendipitously I had bought with another project in mind) instead of the thick far eastern I'd anticipated. Durability is not required in a coffin. For once, style overrides substance

And there's one little strip left over (shown hovering). I can't see a way out of this.

Back to a parallel box (**Fig.8**). It doesn't normally take this long – I hope I'm not tiring you – now the lid flaps are hinged back against the sides and the shelves are from extra material wherever I want to place them. I think I'll bring back the yellow paint. This works, but is it exciting enough?

It's looking like a sentry-box now. That's alright. Then I had a thought about hinging. Unnecessary. Unless I want to close my display case from time to time, at which point my decor becomes positively Transylvanian, the hinges won't get much use. I'd tell James to take them off and use them again. Nails or screws will do. (He'll have to saw the buttresses off as well.) The doors can become wings again, I heard Angelina whisper. But let's not force the issue. Let's make it and see.

So I did. By now I didn't have much choice. It went well. The angled joint (**photo 9**) was unpleasant, but it worked. Nothing much went wrong. I had a little kerfuffle with the shelves because until I'd fully screwed the sides to the ply base, there was flex in the box and that confused me. I sanded the whole thing down and today have prepared it for painting.

12 I made a plinth for the base, but it looked like the afterthought it was. And I had trouble levelling everything up, so it got the chop. The case then hovered a couple of inches in the air, which isn't a reference to me ascending (upside down) to heaven, but is nevertheless a nice touch. Hovering cabinets are not common

The return

I know why I do this. It happens a lot, but it has just happened again with force: I cramped the (unpainted) lids onto the back. To keep it simple, I aligned them with the box, leaving them protruding above the top. Having gingerly eased and pivoted the thing off the bench, I turned it round, then turned myself around and walked away. I stopped, paused, and turned again to judge my first reaction.

I smiled! My heart smiled! She was back! Angelina had returned, and brought a touch of the Egyptian with her after all. The wings lifted the eye from the coffin shape and she flew! It was a palpable feeling in my chest. I thought that the joke would be the coffin, but the humour now was the display case. I know I made it, but a lot of this is beyond me. Was it me? Was it her? I don't know. A bit of both. That's what I love about making things. That's what I love about woodwork. As for the side panels, I think I might write, 'Row, row, row the boat gently down the stream, merrily, merrily, merrily merrily; life is but a dream.'

13 I'd left the top over-length too in case I wanted to cap or crown the coffin. Now I decided to go for brisk lines, so they too saw the saw. Astonishingly, I managed to cut the lid too short (makes you wonder, doesn't it? Does me) so I had to add a pediment to fill the gap. Happily, the pediment adds that little whiff of Egypt

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RIVER TABLE REWORKED

Taking inspiration from a similar project found online, **Rick Wheaton** makes his own resin-filled table using a plank of 1.6m long split yew

1 The piece of yew, which remained in my garage for a year

Last year – at Yandles' annual wood fair in darkest Somerset – I bought a 600mm wide plank of split yew, 1.6m long. It was quite beautiful, and the grain, markings, colours of black, cream, and even some pink, all shouted "Make me into a coffee table, NOW!". But the project stalled; I was completely unsure how to deal with the deep split, or what kind of legs would look good under such a magnificent piece of timber.

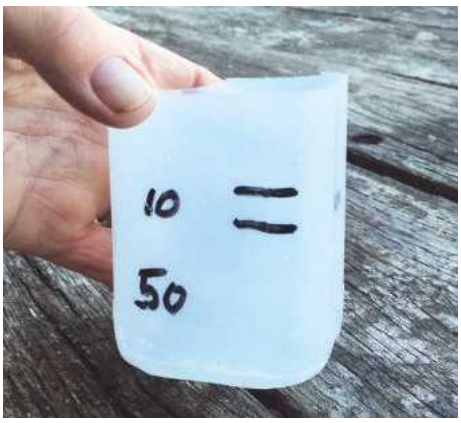
Eventually, fed up with stepping around and falling over it in my garage (**photo 1**), I did what any child of eight would do – I asked Mr Google. In no time I'm YouTubing deep into the marvellous world of the 'River Table', and flirting with the idea of matt black steel support frames.

These seemed obvious choices: readily available epoxy two-pack resins would fill and stabilise my plank; and a minimalist designed steel under-frame would support it while allowing this heavy length of wood to be the centre of attention.

I bought a litre of West System's 105 clear epoxy from Axminster Tools & Machinery, and immediately liked the simple mixing instructions: one part hardener to five parts of resin. You can order either fast or slow hardener, but I'm using '206 SLOW' here. The ratio is easy with a marked up plastic bottle – 50mm + 10mm (**photo 2**). Note: these liquids are NOT friendly to skin or eyes, so please take care when mixing and ensure to wear glasses and gloves.

Working on the split

With the plank on the bench, I carefully cleaned out the split with a wire brush, vacuuming up the dust (**photo 3**). My split was full of loose bits and pieces, and in a few places deep enough to have opened right through to the other side. I chose the



2 Easy mixing ratio

3 Cleaning out the split

4 Sealing the estuary

5 Shaping the ends

best side for the top, and flipped the plank to seal the split holes that had gone through – splits narrow enough to be sealed with a really good quality adhesive tape. At one end, the split had opened up into a wide 'estuary' and this needed a sticky tape dam to contain the resin (**photo 4**).

I felt a more interesting shape to the saw cut ends was needed (**photo 5**), and once this was done and the plank flipped back – dead level now, otherwise the resin will run out one end – I made a small mix and painted the sides and bottom of the split. I used a good quality brush (loose bristles would mess things up) and didn't worry about any resin splurging out onto the top surface; this would be sanded off later.

6 The first proper pour

The pours

Once this 'paint coat' had set, I made the first proper pour (**photo 6**). Like most catalyst-induced systems, two-pack epoxy gets warm as it sets; this can cause heat build up, and the instructions were to keep the pours to about 10mm.

7 Warming the bubbles

Small bubbles seem to appear from nowhere: if they don't rise to the surface and pop by themselves, you can encourage them with gentle heat from either a heat gun or a blowtorch (**photo 7**). Needless to say there is a fire risk here, so care is therefore needed.

My plank was about 50mm thick, i.e. five pours were needed, and I left an hour or so for each layer to set. It's obviously a good idea not to make any dust while waiting; in clean air each of the layers should bond seamlessly to the one below.

Finishing the table

Once all the pours were complete, I left it for 48 hours to completely cure, and removed the tapes ready for the sanding. I have one of those semi-orbital jobs, and was quickly able to flatten any rough areas, including spilt resin, going through the grades from 150 grit (**photo 8**). I ended with 400 grit, which gave me a cool matt finish, though I polished the actual resin 'river' with metal polish to give it a nice shine.

Lastly, I gave the top six liberal coats of Danish

8 Surface sanding

9 A coat of Danish oil

10 Mock-up leg

11 The steel leg

oil (**photo 9**) leaving each coat to dry fully for 24 hours, roughing up slightly with 1,000 grade wire wool between applications.

The legs

Now for the legs, or leg! I was delighted with the top, was in no rush to finish, and played around for a while with legs in various shapes and sizes. Because steel was always an option, and I wanted it to be as unobtrusive as possible, I settled for a single leg, pretty much copying this bench mock-up (**photo 10**). I wish I could say my welding was up to scratch, but it's absolutely not. Happily I found a local fabricator who was able to weld a steel plate either side of a chunky length of RSJ (**photo 11**). I also asked him to drill a load of countersunk holes around the rim of the top plate, and the final task was to screw the split yew firmly in position.

The only thing left is to find somewhere to put the darned thing – I like it so much I can't bring myself to give it away (**photo 12**).

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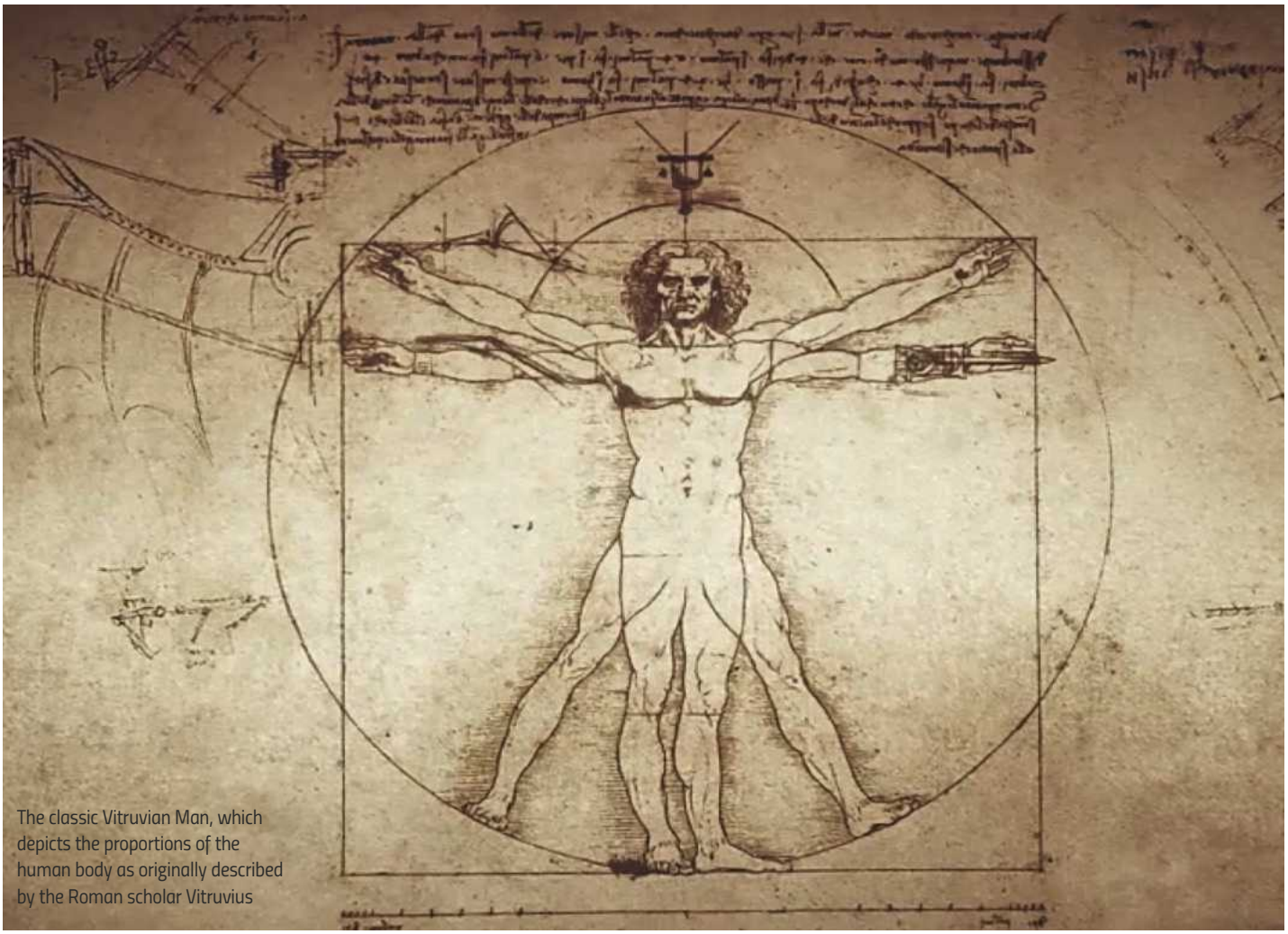


The classic Vitruvian Man, which depicts the proportions of the human body as originally described by the Roman scholar Vitruvius

DESIGNING & MAKING FURNITURE

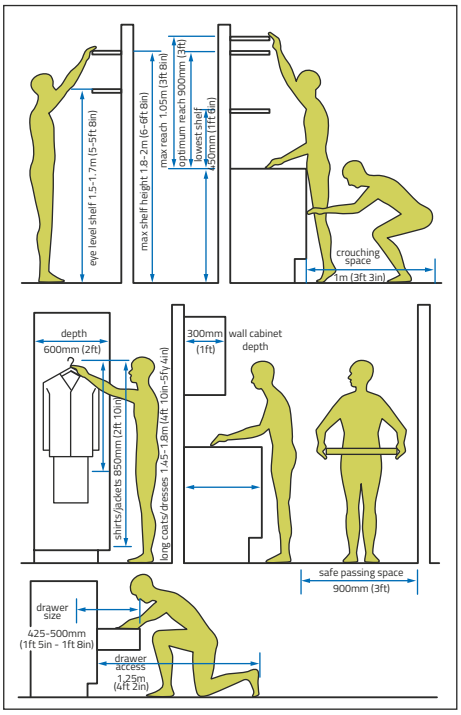


Fig 1. Storage unit proportions

How do you make your furniture designs pleasing to the eye? Looking to nature is the best starting point, says **Peter Bishop**

Some pieces of furniture appear pleasing to the eye and, more rarely, some don't. Has the designer of the said piece applied, consciously or subconsciously, some sort of magic that makes it look good. Or, at the other end, deliberately ignored every thought about how their concept will look, feel or work?

Does it matter we wonder? Well, yes, I think it does. Ever since Leonardo first drew the Vitruvian Man, the drawing of two men superimposed in a circle, it has been a visible concept. His drawing depicts the proportions of the human body as originally described by the Roman scholar Vitruvius, hence the name. Old Vitruvius simply stated that the human figure was the principle source of proportions in classical architecture. Buildings and other 'things' like furniture are designed (when local building regs allow), with this in mind, we hope. So are there two things at work here: good design that fits the human body and, secondly, that pleases the eye?

Fitted furniture

There is a Golden Ratio, and various other derivatives, that can be used to create design that is pleasing to look at and use. Its source is much of nature and the way the universe is constructed. This we subconsciously recognise and that's what makes good design feel comfortable to us. Now I'm not going to philosophise any further. A quick internet search will throw up more than enough information for you to interpret as and how you will. I'm just going to give you some common examples of what you should and shouldn't do.

Furniture fixed and fitted into defined spaces, such as a recess alongside a fireplace or along a length of wall for cupboards, is restricted by the size into which it must fit. But we then do have choices on the size and proportion of the doors and surrounds, for example. The width of the outer facings that frame the door or doors will not be much different from the width of the door frames themselves.

Imagine a 900mm wide space with a surround made up of 150mm material. It would not look right especially if the door frame material was 75mm. I can't imagine anyone doing this but I suspect it might have happened. And the doors themselves? Would they be short and fat or tall

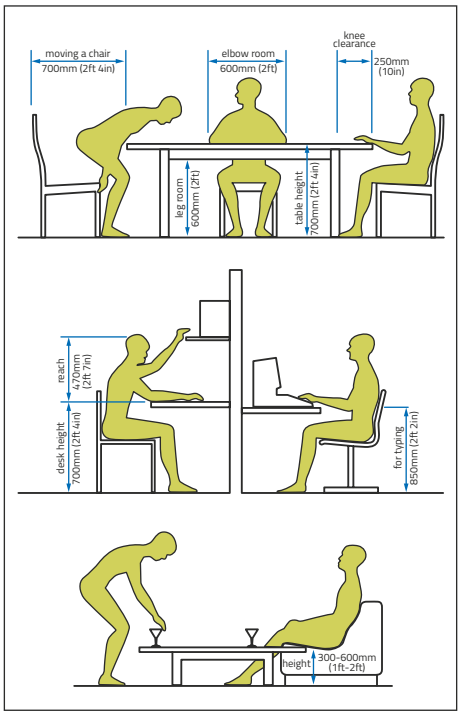


Fig 2. Table proportions

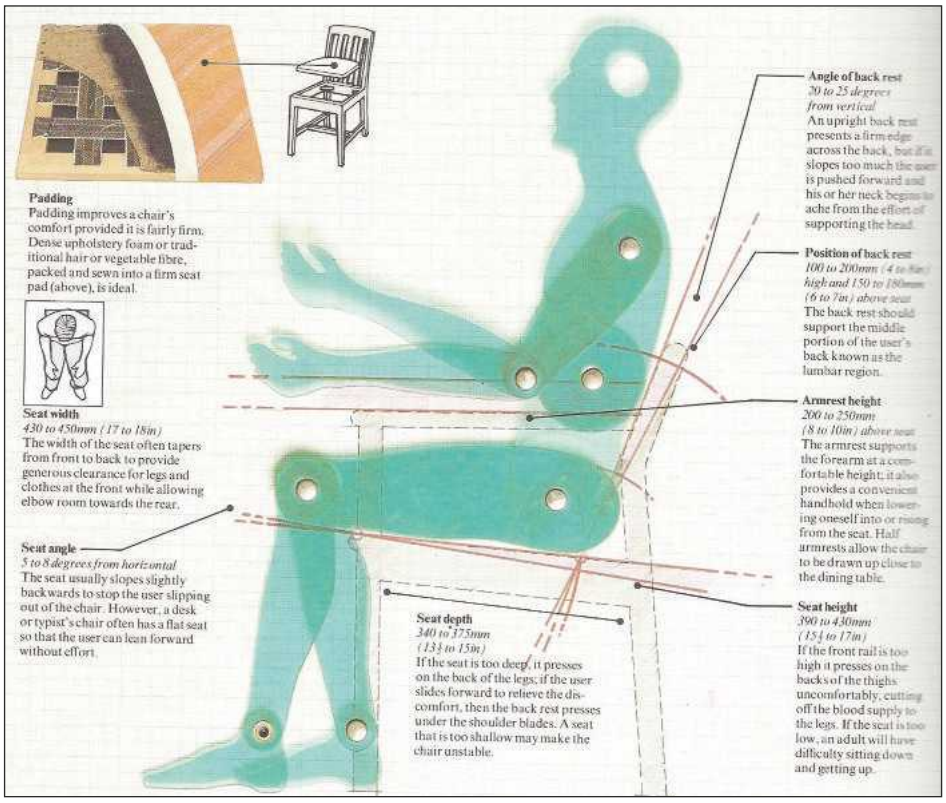


Fig 3. Chair proportions

and thin, a single or a pair? This is where a scale drawing before you start, even if it's only a rough one, will help you to decide on the component sizes and their relationship to each other. If you can, a full-size drawing of any project is best. With this to hand you can see exactly how the finished job will look and work.

Apart from what it looks like, fitted furniture needs to be functional. There are some basic rules that should be applied when designing these units and **Fig.1** shows how some of these work.

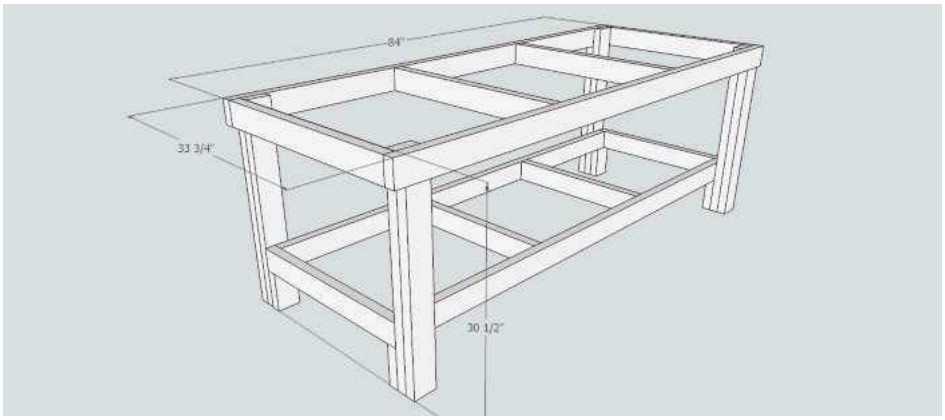
Freestanding furniture

Freestanding pieces of furniture, such as chests of drawers, are a fine example of how good design makes the piece more desirable. Graduated drawers, from a deeper one at the bottom working up to a shallower one at the top, are most pleasing. Work out an incremental reduction that suits the overall size of the piece and that, maybe,

The iconic 'LC4 Armchair' by Le Corbusier

The 'Cherry Golden Ratio Chair' by Bellwether Furniture

UTOPIA's 'Bamboo Fibonacci Cabinet' brings the Golden Ratio into your home



Golden ratio workbench frame, constructed using SketchUp

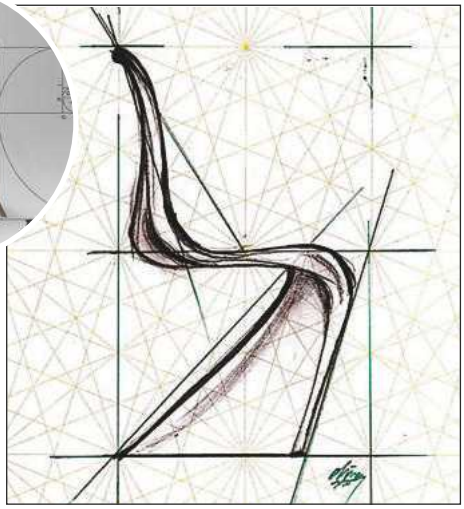
The Golden Ratio used in staircase design

Configured geometry is designed and created to represent form, proportion and joinery

In Peng Wang's "Fibonacci Shelf', the metal shelf applies the principles of the Fibonacci sequence

Zha Lianghao's 'Doberman Chair'

'Golden Section' coffee table by Laurel Hoover



London designer Olivia Lee has created a sketch pad with grids based on the mathematical principle of the Golden Ratio. Called 'The Golden Rules', the pad allows users to sketch guided by proportions

also fits in with the stock in hand from which it will be made. Drawers that are the same width appear to be a bit blocky. Even a small, subtle reduction as you go up is more desirable.

What about tables and chairs? How often have you visited friends and relatives or your local eatery and had to struggle to get your legs under a table or avoid that misplaced leg? If you have to sit for too long trying to avoid your neighbours' elbows you'll be cramped and uncomfortable. We all know that sometimes space is limited but wherever you can there are some basic principles that should be applied (**Fig.2**).

Seating

And the chairs! Some seats are too deep, some too high, and some you have to fight to get in or out off. Office furniture, for example, should be designed in such a way that you can sit and work comfortably at a desk for several hours at a time. Most modern chairs will have height adjustment allowing some variations from the average to be accommodated. If you're vertically challenged or extremely tall, then none of this will work for you. I guess we'll all have to increase the proportions of our designs over time as the general population gets taller by the decade (**Fig.3**).

Further research

I hope this has whet your appetite; however, more research is needed when you set about designing your unique, individual project. Or, you could of course simply copy something that's already proved to be a success!

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AROUND THE HOUSE WITH PHIL DAVY

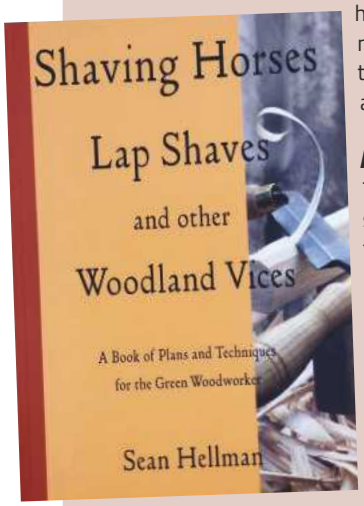
I seem to mention my local timber supplier (a national builders merchant) frequently these days. Although the quality of their softwood is generally pretty good, they've recently introduced a rather daft health and safety policy. There used to be several freestanding steel trestles for cutting timber to length, though these have now gone. Rob, the sales guy, told me that this was because of new health and safety measures, which in reality meant he held the timber against his leg while sawing and attempting to support the 4.2m length of timber with his free hand! Bonkers, or what?! I was still allowed to saw if I wished, but would probably have to sign my life away first… Rob told me he'd like to remove the computer desks from the sales office as a H&S measure to see how the sales staff coped…

BOOK REVIEW

SHAVING HORSES, LAP SHAVES AND OTHER WOODLAND VICES

Any visitor to Yandles Show in recent years will probably have been intrigued by Sean Hellman's fantastic craftsmanship – his delicate fan birds are exquisite. As a green woodworker, the shavehorse is one of his fundamental tools. The Workmate of the outdoor woodworker, these portable benches tend to be more complicated than they appear, not just a bundle of firewood lashed together at the last minute. In this book he explains how to build several versions to get you started if you're keen to delve into this area of rustic woodwork. Essentially, a shavehorse is a type of vice that doubles as a seat while working wood. Usually made from green timber, the author suggests you can use new or recycled timber, or material straight from the woods.

Unlike most benches, every shavehorse is different, so after an initial brief history Sean considers ergonomics, including overall size, weight and leg splay angles, as well as a glimpse at designs such as the Smarthead horse. Chapter two discusses relevant materials and tools and introduces techniques such as drilling round, angled mortises with the aid of jigs.



A hugely practical manual

The detailed construction of several shavehorses follows, beginning with the Dumbhead Plank. Line drawings are basic but more than adequate, suiting the subject matter well. Dimensions are imperial only – no metric here! Sean's own delightful Easy Rider horse adjusts to suit body shape, and is suitable for most wood shaving tasks. The simple Spoon horse is self explanatory, while the traditional English Frame horse is the type commonly used by chair bodgers. One of the most fascinating types featured is the Folding horse, designed and made by a Japanese professor. Several variations are shown of each particular shavehorse style, often pictured with their maker in action. Short chapters on standing, bench and bowl horses follow, before descriptions of building lap and stick shaves – these can even be stuffed into a rucksack for complete portability. Cleaving brakes and hoop shaves are discussed next, while the final chapter examines drawknives in considerable detail. The essential tool associated with shavehorses, there are handy tips on its use and keeping edges sharp.

Construction of the Easy Rider shavehorse

This hugely practical manual is packed with solid information, whether you're a seasoned green woodworker or just getting started. Photos are numerous and help to explain the text nicely. Definitely a niche book, it's fascinating stuff if you fancy delving into green woodworking crafts.

THE VERDICT

Sean Hellman,
published by Crafty Little Press

Price: £16.95 (plus P+P)

Web: www.craftylittlepress.co.uk

Rating: 4.5 out of 5

Steps for making the Dumbhead Plank shavehorse

'Ben's shaving horse', made by Sean Hellman

OUT & ABOUT

WESTONBIRT WOODWORKS SAWMILL

When I visited, a crane was lifting some of the substantial roof trusses into position

From green oak, all joints were cut on site…

A soggy December's day didn't seem to delay progress on Westonbirt Arboretum's latest project, a pair of new oak-framed buildings to house a sawmill and timber store. A further development of their Woodworks site, the long-awaited mill will soon enable visitors to buy a variety of sawn timber that has grown at the Arboretum. Previously, when trees had been felled there was no way of processing the trunks without getting in an outside contractor to mill the timber. A new bandsaw mill was recently imported from Poland, its size dictating the shelter was constructed around it after installation. Alongside this building will be a Drying Store for seasoning the freshly sawn boards.

Back in the early '90s the location had been a plant centre, more recently taken over by chairmaker Paul Hayden, longtime chum of *Good Woodworking* (see Around the House, Autumn 2018). His courses are run outside in the yard, with pole-lathes under cover for when the weather is less favourable.

Traditional techniques

Project manager Chloe Gilbert explained some of the history to me: "The Woodworks yard sits in a bit of a flood plain, which is also a frost pocket, so the plant centre didn't work as a business venture. It lends itself to green woodworking crafts and courses, though, and will become part of the established programme of managing timber from both Silk Wood and the old Arboretum."

When I visited, a crane was lifting some of the substantial roof trusses into position. With no central supports (to make room for

… with tenons pegged after they'd been slotted into their mortises

the machinery), the roofing involved some tricky geometry. With timbers up to 200mm in section, you have to get everything fitting correctly first time. From green oak, all joints were cut on site, with tenons pegged after they'd been slotted into their mortises. Framing pins, a familiar tool for timber framers, ensured that joints pulled up tightly.

Constructed by Perchard Structural Timberworks, both new structures will soon weather and blend in with their surroundings. Located just below the Stihl Walkway, this gives visitors to the Arboretum a great view of the expanding Westonbirt Woodworks site. Hopefully the sawmill will be in action pretty soon, so we'll bring you an update then.

Framing pins, a familiar tool for timber framers, ensured that joints pulled up tightly

SHED WATCH
PICK & MIX

Readers of a certain age will remember being able to buy loose nails or screws from their high street hardware shop. I have fond memories of buying quantities of nails (wrapped in newspaper) with my pocket money on a Saturday morning. I was no more than 10 years old, but the thought of what could be made was exciting. Several trees in the garden ended up with nails embedded in them, so I can only hope these survived my attempts at building tree houses and platforms.

While generally more economical, it can be frustrating having to buy a pack or entire box of screws or bolts of a particular size when you actually only need one or two for a project. No problem if you get through a wide range of sizes fairly often, but when a box sits on the shelf for several years gathering dust it does make you think.

An impressive quantity, this seemed to be a couple of quid well spent

B&Q have recently introduced a Pick & Mix system for those of us buying small quantities

Whether in response to customer requests or not, B&Q have recently introduced a Pick & Mix system for those of us buying small quantities. With three bag sizes (costing £2, £4 and £6), you choose the appropriate bag and fill it with drywall or coach screws, nuts, bolts or washers. No nails, sadly, but it's a great way to save money if you only need one or two specific items. The only requirement is that you must be able to seal the bag closed before reaching the till. Largest screw size appears to be 6 × 140mm, so out of curiosity I decided to check just how many screws I could stuff inside the smallest bag. An impressive quantity, this seemed to be a couple of quid well spent. Let's hope they extend the scheme to nails, though with so many sizes and types it could be tedious trying to sort them once you'd got home.

Perhaps DIY stores would consider introducing newspaper as wrapping material one day…

SPRING PROJECT
BREAD BIN

Takes: Days!
Tools you'll need: Circular or table saw, biscuit jointer, router, sander, bench planes, shoulder plane

BREAD & BUTTER

The lid of **Phil Davy**'s poplar, oak and softwood bread box doubles up as a cutting board

1 You'll need to glue boards together to get sufficient height for the box. Check edges are straight first

2 Once the glue has cured, remove any dried beads and true up the surface with a bench plane

3 Cross-cut panels as required, running the saw against an edge guide or batten for accuracy

Searching for a suitable container for storing my daily bread, it soon became obvious that a bread bin can be made of steel, terracotta, wood, or almost anything within reason. The main requirement was for its contents to stay fresh for as long as possible, though the bin needed to look good on the kitchen worktop. It made sense to combine the lid with a cutting board, which would be hardwood. Originally I'd wanted to recess a knife into this for storage, but it would have meant making the board somewhat oversize to house the long blade.

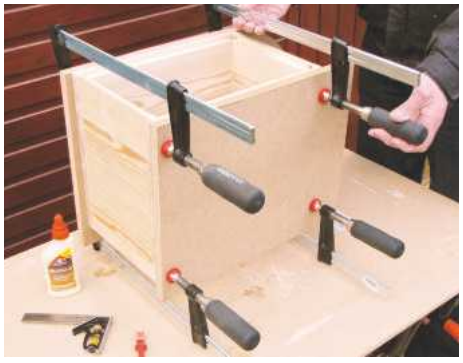
Base the bin size on the largest loaf you're likely to consume, so buy one first and work from that. External dimensions for my bin are 340mm wide, 225mm deep and 295mm high. I used PAR softwood, though you may want to reduce the thickness down from 20mm. The completed bin is quite heavy, though it will probably stay put on the worktop and is unlikely to be moved. Poplar was used for the base, simply because I already had some at 8mm thick from another job. Don't be tempted to use MDF for this project or for any surface that will be in contact with food. If you want ventilation holes, these can be drilled somewhere near the top of the ends. Most bins don't have them, though there's some debate about whether they prolong the life of the bread or not.

I used oak for the lid, gluing together two pieces to get sufficient width. A rebate is routed around the underside to keep it in place on the bin. You can use either side of the board for cutting bread, so if you want to keep the upper surface free of knife marks, simply flip it over. I finished the oak with three coats of Rustins Chopping Board Oil, also used inside the bin to make cleaning easier. Bread will start to go mouldy after a few days, so you'll need to wash out the inside from time to time. The outside of the bin was painted with General Finishes Milk Paint.

4 Trim sawn ends with a plane to get them dead square. A shooting board is handy for this task

5 Mark out positions for No.20 biscuits in the panels and cut matching slots with your biscuit jointer

6 Rout a rebate along the inside edges of front, back and sides for the base. Use an offcut to check depth



7 Assemble the box with PVA glue. Measure across diagonals to check for square, adjusting cramps if necessary

RUSTINS CHOPPING BOARD OIL

Whenever food comes into contact with wood it's important to use a safe finish. For the breadboard I used Rustins Chopping Board Oil, a waterborne product that's easy to apply. It consists of a blend of natural plant oils plus Eradibac, an anti-microbial additive that kills MRSA and E-coli on contact. As with more familiar oils you need to wipe off the excess, though drying is rapid so you've only got about five minutes. It can be applied by brush or cloth, with water and detergent clean-up. A 250ml tin costs around £12; see **www.rustins.co.uk**

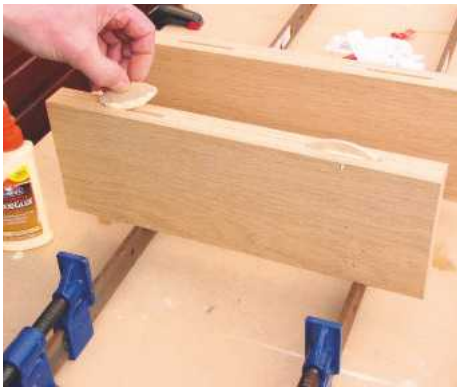
8 Cramp the box to the bench top and trim slightly proud end-grain flush with a finely-set plane

9 Mark out and saw the base slightly oversize. Plane edges until this is a snug fit in the rebates

10 Apply glue and pin the base to the box. Pre-drill holes at the ends to prevent the timber from splitting

11 Rout vertical and bottom edges with a bearing-guided round-over bit. Lightly chamfer the top edges

12 Plane up suitable hardwood for the breadboard lid. Ideally this should be at least 25mm-thick



13 You may need to glue pieces together to get enough width. Biscuits simply help to align the surfaces

14 True up the top and bottom and cut the lid to size. With box above, mark the positions of rebates

15 Rout a rebate all around the lid to a depth of about 5mm. Clean up with a shoulder plane or abrasives

16 Round the edges of the lid and sand with fine abrasive paper. Brush on three coats of food-safe oil finish

17 Fill any defects and sand the box. Finish with paint or varnish, using oil on the inside surfaces

18 Denib with fine abrasive when oiling or varnishing. Use the lid either way up for cutting bread

19 The completed bread box should look something like this

SCROLLSAWING FOR BEGINNERS:

WHAT YOU NEED TO KNOW

Colin Lloyd shares his many tips and techniques on using scrollsaws, from deciding on materials, to making your own patterns, to choosing a suitable machine

After only eight years of intermittent scrollsawing, I'm no expert and so this is not an expert guide to scrollsaw practice. But I'm close enough to being a beginner to appreciate the beginner questions and answers that more experienced scrollsaw users take for granted. I began scrollsaw through a process of just doing it, reading relevant books and viewing online videos, and have got to the point where I usually make a decent job of it. This is a starter article enabling anyone who wishes to have a go – can – and with care produce acceptable work. Allied crafts that can benefit from scrollsaw use are 'flat' marquetry and 3D marquetry (intarsia), but I have no experience of these crafts – yet.

1 A Hegner Multicut 2S scrollsaw

What is a scrollsaw

Scrollsaw is just the inverted mechanised version of fretwork that many of us did in school woodwork classes way back. Instead of moving a hand-held fretsaw around a fixed piece of wood, a scrollsaw worker moves the wood around a motor-driven vertical oscillating blade.

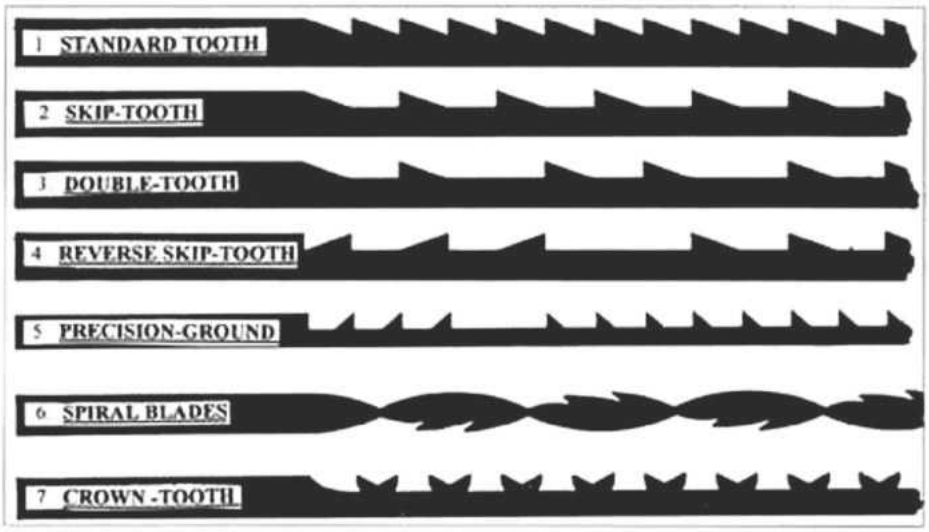
Different types of scrollsaw

There are many available on the UK market from well-known makers and suppliers such as Axminster Tools & Machinery and Clarke. Unless you plan to just cut external curves (as a bandsaw does) or large area internal cut-outs, you will need a scrollsaw capable of using pinless blades. Unlike pinned (pin-end) blades, which fit into hook-like holders, pin-less (plain-end) blades are held in clamped jaws and allow you to do much smaller internal cut-outs as you only need a blade-sized hole to thread the blade through. Pinless blades are more available, and in a wider range of types and sizes, from suppliers such as Workshop Heaven. Most scrollsaws also use the parallel-arm principle, which means that the blade follows a nearly vertical cut. I've only had two scrollsaws – a Delta 40-530 bought cheaply second-hand from eBay so that I could see what scrollsaw was all about. It worked OK but was quite noisy, especially when blades, inevitably, broke. Then, again on eBay, I graduated to a second-hand Hegner Multicut 2S (**photo 1**) when I realised I liked doing scrollsaw. Many people say Hegners are the best, but all I can say is that it does everything I need. I would regard the most important feature of a scrollsaw as the ability to quickly and easily clamp and un-clamp the blade. You will be doing this a lot and a quick, positive blade clamping and tensioning arrangement will save many hours of work. In terms of size, most hobby scale scrollsaws will allow you to cut full-size patterns into an A3 size piece of wood. Just go for one you can afford or visit a supplier or friend who can show you what one does or what you need. Even the Hegner I bought had some shortcomings, which required me to make some modifications for efficient use.

Scrollsaw blades

There are eight main types of blade, which come in many sizes and are all 125mm (5in) long. They vary in the style of tooth layout and the thickness of blade (which defines cut width), depth of blade (which defines how tight a curve you can cut) and number of teeth per inch (TPI). Seven of these types are for wood and similar materials (**photo 2**), and the eighth is for metal.

For a beginner I recommend using 'skip-tooth' blades of various sizes. They are not expensive; a pack of 12 will cost you around £2. You can find



2 The most common types of blade

cheaper ones on eBay, but I use Pegas or Olson blades. Cheaper ones tend to wear rapidly, break easily and not follow a true path. I have never found a use yet for anything other than 'skip-tooth' blades and while Pegas offer these in 14 sizes – from 2/0 (blade thickness: .0087in, TPI: 28.2) to size 12 (blade thickness: .0197in, TPI: 1.5) – I invariably just use size 3, 5 or 7 depending on the intricacy of the pattern and the thickness of the wood material. I cut all the pieces for the Rocking Horse Shop (featured in the September 2018 issue) 'Mini-Rocky' rocking horse in 6mm plywood with a single No.7 blade. Avoid the spiral blades. You might imagine that these make the job easier as they cut in all directions, but they are difficult to control and tend to wander.

Seeing the wood for the trees

Most scrollsaws come with a dust blower, which blows the dust away from where you are cutting. Many of these are reciprocating bellows operated by the lower arm. **Photo 1** shows the Hegner's yellow bellows between the motor and the arm support. On used machines of some age, these may have perished and replacements are not cheap. A better and cheaper solution all round is to buy a tropical fish tank air supply pump and attach this to the blower pipe.

Suitable materials

A perfect material for a beginner is plywood: it's cheap, easily available in many thicknesses and doesn't have some of the problems that normal grained wood has. Choose plywood that has at least one face free from knots and other surface blemishes. But grain pattern can add to the appearance in the final product, e.g. simulating clouds, terrain, etc. For 'picture' scrollsaw, where a scrollsawed pattern sits on top of a (usually) dark background, I generally use 3mm plywood. Anything thicker and the backing will not show through very small cut areas – anything thinner and you begin to lose the 3D effect that scrollsaw work is all about. 3mm plywood also means that the often very thin bridges of remaining wood have 'strength in depth'. Bridges in plywood, with its cross-grained construction, are less likely to break than in normal open-grained type wood. Yes, you can get very close-grained wood that is as durable, in the scrollsaw sense, as plywood, but this tends to be more expensive than plywood in itself and on blade wear.

Patterns

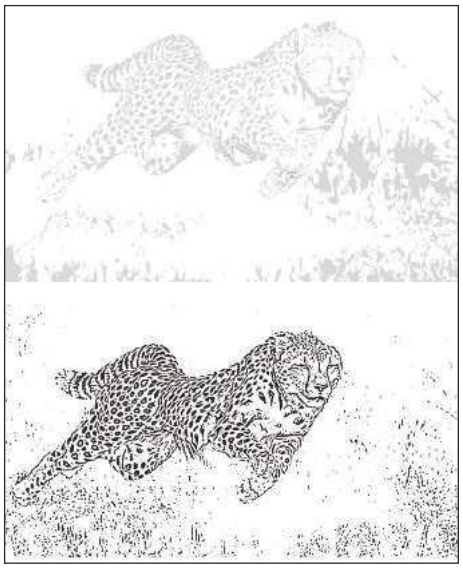
There are many books of patterns available to buy online. If you are after a specific pattern or type of pattern (tigers, eagles, etc.) then an image search for free scrollsaw patterns will reveal many options. I may be wrong but I believe that Copyright Law allows you to produce scrollsaw products from any internet image for your own non-profit use. The bigger the image (X-Y pixels) the better, but for scrollsaw purposes you can re-scan into a bigger image with many image editors, such as GIMP or Photopaint.

Making your own patterns

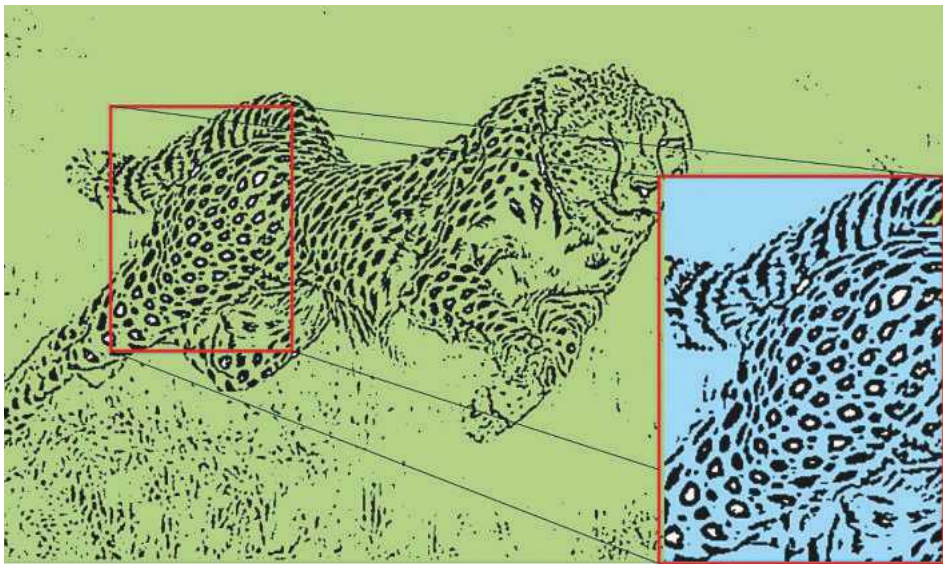
Scrollsaw work relies on the contrast provided by the cut-outs against the dark background. This is why zebras, giraffes and tigers are common scrollsaw objects. Where the photo has little contrast between features – e.g. the human face – it is difficult to produce an acceptable image without dropping into caricature.

Nevertheless the process of producing a scrollsaw pattern has a common theme, even if this involves some inventiveness at times. The ultimate aim is to produce a monochrome pattern through a process of altering the image colour to grey scale, then manipulating the brightness/contrast until you arrive at a pattern that contains only one colour (apart from white). To describe this process fully would require an article all by itself, but I have recently discovered a website that does this automatically using personal, uploaded images (see **http://online.rapidresizer.com/photograph-to-pattern.php**). **Photo 3** shows the automatic version of my cheetah scrollsaw pattern (as shown in the September 2018 issue) below my pattern.

There is still work to be done on the 'automatic' image, not least to convert the black colour to light grey. Many online and book patterns have just black outlines. A black outline makes it difficult to see where you have cut and where the blade is going due to the pattern line, the cut line and the blade having the same colour. Also if the pattern cut-outs are not 'filled-in', then it becomes confusing as to which is inside and which is outside the cut-out; this becomes critical



3 Comparison of my pattern versus online conversion



4 Highlighting unconnected island creation

5 Drilling positions on an easy pattern found online

6 Don't be tempted to cut out the large area first

when cutting very fine bridges. Many PC image manipulation packages will provide a 'bucket fill' option to convert individual black areas to grey.

A better solution is to use a 'colour replacement' option to replace all black pixels with grey. There is also a need to make certain that there are no 'islands' – areas of wood that are surrounded by cut-outs – which will drop out when the cuts are made. My method is to do a 'bucket fill' on any of the white areas with a contrasting colour (you may need to convert the pattern back to multi-colour RGB for this to work). The 'bucket fill' will show up any 'islands' present (these will remain white). You will then have to erase an area of the pattern cut-out adjacent to the island in order to provide a bridge into the rest of the pattern. **Photo 4** shows the online image after conversion to fully monochrome, then 'black to green' bucket fill, and finally 'white to grey' bucket fill – the latter revealing the white 'islands' in the pattern – some shown in the enclosed area, which are enlarged in the blue area.

The 'islands' in the rectangle are all within proposed cut-outs, so they can be converted to grey, but others may not be and then grey areas will need to be erased to provide the bridging.

When satisfied with the pattern, print onto paper and using spray or brush craft glue, attach to the front face of the plywood, after first reading below for preparation of plywood front face.

Scrollsaw cutting

The delicacy of some of the bridges in the final product means that any finishing work that can be done before starting to cut saves a lot of heartache and frustration when the accidental catching of abrasives breaks a delicate bridge. I always sand the top surface to a fine finish, and grain fill if the plywood surface and your expected result requires it. If you know what finish you plan for the result (Danish oil, varnish, wax, etc.) you could give a single coat of this to provide extra strength to the remaining wood during the cutting. I prefer not to – the advantages are outweighed by the disadvantage of the finish tending to clog the blade and the cutting process, although not so much for wax.

Various books on scrollsawing advocate many practice cuts (straight lines, curves, etc.) before attempting to do a proper pattern. It may be my impatience that says actually doing a pattern is the best way to learn. This is not to say that you should try to create a complex intricate pattern from the word go – just choose a simple design that will allow you to go through all the processes to create an acceptable piece of art.

My 'beginner' recommendation is *Wildlife Portraits in Wood* by Charles Dearing, obtainable from Amazon, which provides patterns from simple to complex, and these allow you to practice and advance your skills while still producing scrollsaw portraits that you will probably keep or give to friends rather than just creating test pieces.

Each of the areas to be cut out will require an access hole to be drilled to allow the blade to go through. The size of the hole depends on the size of the blade chosen and the size of the area to be cut out. Always use the smallest numbered blade possible – for 3mm plywood I prefer a size 3 blade. This is a sort of rule-of-thumb for me – the number and size of blade matching the thickness of the plywood. This is different to many blade size/wood thickness recommendations, but for beginners this ensures that the frustration of blade breakage is much less.

Then match the drill size to be just larger than the width of the blade – generally 1.5mm or 2mm. Drill furthest away from the edge as shown by the yellow dots in **photo 5**. The drill will tend to slightly split the plywood on exit even if a sacrificial backing piece of wood is used, so it's best to keep the split as far away from the subsequent cuts as possible. The split, if minor, will disappear with the cut-out.

Each machine has its own method of clamping and tensioning the blade. I prefer to clamp the bottom of the blade and pass it up through the hole and then clamp the top. Other scrollsawers clamp the top first. The teeth, in operation, have to face towards you and downward for a clean cut on the top face of the wood. With small blades this can be difficult to see, but running a finger along the blade will differentiate between sharp and smooth. Tensioning is usually by way of a lever, either at the front or back of the top parallel arm. For the musically trained, pinging the blade under tension should give a nice 'C above middle C' sound. Under-tensioning tends to let the blade wander when cutting, both side-to-side and back-and-forth. Over-tensioning tends to lead to premature breakage. Most scrollsaw machines have a tilting table to allow cutting at an angle, and these are mainly used for marquetry and inlay work. The angle indicator is not always that precise – use a small right angle square against the blade and adjust if necessary.

LET'S CUT...

... but not before discussing safety issues. In my book, an appreciation of danger is better than an assumption of safety, so I'm not going to prescribe anything other than to ask the beginner to consider the following and make up their own mind.

Blade contact – as I say further on, careful use will lead to nothing more than a nicked fingernail, but thin gloves or those rubber finger covers that bank tellers once used to count money might be useful if unsure. Some people recommend using a piece of cardboard to control the wood and keep your fingers away from the blade. I suggest this just adds another variable to be controlled, but this is down to personal preference.

Eye protection – I've never yet had any reason to use anything other than normal glasses, which I need for close-up work.

Dust masks – the process makes very little dust and most of that falls beneath the table or is blown off by the blower.

Face masks – probably wise if cutting glass or metal, but again, I've never had a situation where I felt the need.

Fatigue & visitors – these are the real safety hazards. I tend to do no more than an hour's work before giving it a break, and ask people to knock on the door so that I can stop work calmly.

So we are now ready for the first cut-out. Nearly all machines come with a device called a 'hold-down', which is meant to stop the wood rising off the table during cutting. Some of these 'hold-downs' also have a safety area that partially encircles the blade. At first, by all means use this feature until your confidence grows, but nearly all scrollsawers dispense with this contraption at the earliest opportunity – they are more trouble than they're worth. Your hands provide a much better 'hold-down' and, as for safety, you are not dealing with a chainsaw here. I often have my fingers within millimetres of the blade. The most that will happen will be a slight notch into your fingernail.

Always make certain that you are directly in front of the blade. Trying to cut from the side (even slightly) will produce a wayward cut – your eye-hand coordination is not set up for this without training. I have scribed lines parallel to the blade into the scrollsaw table to make certain I can always orientate myself to the blade.

As in all woodwork, let the tool do the job – you are just there to guide it. Cutting has two controls: cutting speed determined by the machine and feed-rate determined by you. Choose a cutting speed that you are comfortable with – too fast and the blade may run away with you or burn the wood if your feed-rate isn't fast enough. Too slow and you may become impatient and try to force the blade to cut. Beginners should err towards slow cutting rate and slow feed-rate – increasing both as confidence grows. A good starting point would be about 400rpm – not a hard and fast rule but better than just saying 'slow.'

There are many different ways to cut the curves and there are books and online videos, which illustrate scrollsawers' personal way of doing this. The different methods all concern how to cut sharp angles and large changes in direction. You may ask why not start with straight line cuts rather than these curves. In practice, cutting straight lines and perfect circles are the most difficult scrollsaw actions. Curves are easier because slight deviations from the pattern are very seldom noticeable and nobody is going to compare the original pattern to the final product.

Just two cutting procedures

1) Other than for very acute angles, you can just turn around when you get to the point of the angle. Just relax, back the smooth edge of the blade against the wood, turn the wood so that the toothed edge is now facing both you and the next part of the pattern, then start cutting.

2) For very acute angles, cut up to the apex of the angle, then move the blade, without turning, back along the 'just cut line' for a short way, then cut across the grey area in order to approach the apex from the other side.

Another rule-of-thumb I have is to maximise the amount of wood remaining. It might seem the best option to cut out the large areas first, but I would try and resist this. It means that the cut-outs around this large area are increasingly unsupported when they are cut out. I start from one end and gradually work my way down the pattern, making certain that the remaining bridges have the maximum support at all times. In **photo 6** showing an otter I created from a photo, cutting out the large area at the bottom would mean that the immediate cut-outs around this large area would be exposed and easily caught and broken off when moving the image to the next cutting location. So I started on top of the head and worked my way down, leaving the large area until last.

Even when cutting out the smaller areas, I try and cut in such a way that maximises the support that the remaining wood can offer to both the cut line and the bridge between. In **photo 7**, the black areas have already been cut out. Note: I have avoided cutting the long area representing the giraffe mane. For the next cut out, starting from the access hole, the red line shows how I would start the cut. This means that both the bridge area and the rest of the pattern have the maximum support from the surrounding wood for the longest time until the cut-out is complete. Note I have cut towards the already cut out areas but also towards the area of thickest wood. If I over-cut slightly before the turn, it's not a disaster. I then run parallel to the adjacent cut-out – slight deviations here are easily controlled.

Remember – it's the remaining wood that is important, not the pattern. So if you feel unsure, try cutting further inside the grey area to leave bigger bridges.

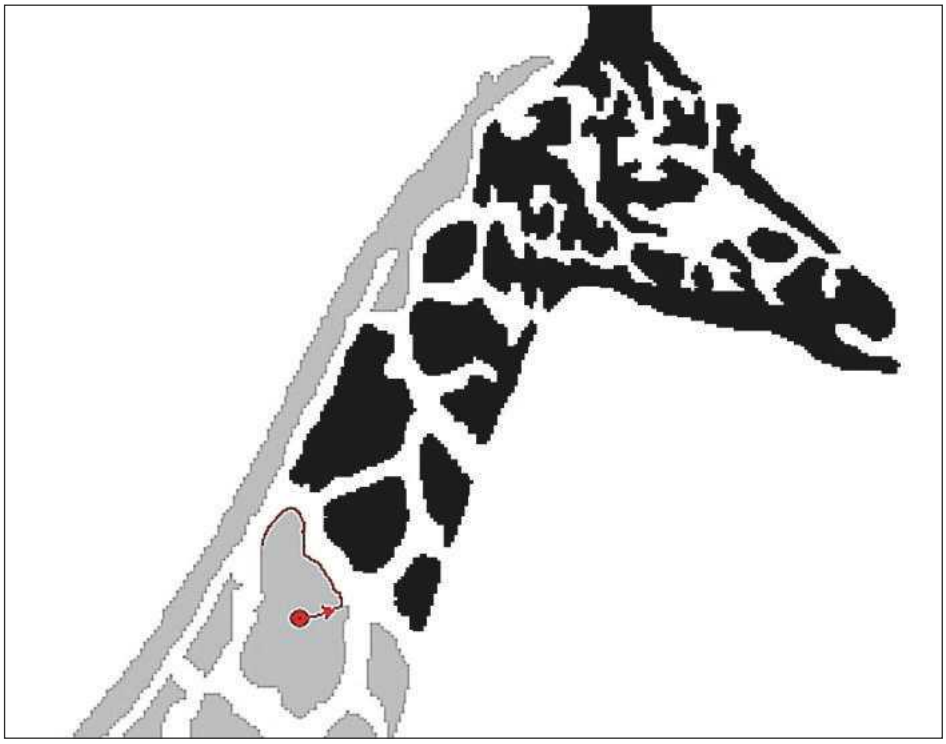
You may find a preference for cutting in either a clockwise or anti-clockwise direction (as in **photo 7**). Try to develop both, as there will be instances where the above 'rules' mean you have to 'go the other way'. Resist the temptation to remove the pattern paper from the wood to see how you are getting on. Not only does the paper keep the image clean, but it also provides another, albeit thin, form of support to the image.

Finishing

When all the cutting is done, remove the remaining pattern with white spirit; this seems to work with most craft glues. Brush on carefully, wait and the paper will peel off. Some bits may be left behind plus some of the glue on the wood, but careful re-applying of white spirit will clean this up. I now apply a thin coat of finish to both protect the top area and to strengthen the wood, making certain the finish goes into the wood exposed by the cutting action. With plywood, especially as the blade ages, slight splinters tend to form on exit from the back ply of the plywood. This can be most effectively dealt with by firstly, and carefully, using a sanding block to remove the major splinters, and then using rat-tail files and slivers of fine grade abrasive to remove the remaining splinter edges that may be partially obscuring the cut-out areas. How fastidious you are about this is up to you, but concentrate on the large cut-outs first – on the smaller ones you might not see the difference.

To accentuate the image, a backing sheet of thin plywood or cardboard painted black (I prefer to use ebony wood stain as it produces a deep matt black) needs to be made. I will leave framing to the individual.

Scrollsawing is a cheap, easy and satisfying craft capable of making flat portraits as described above but also items such as Japanese table lamps, Christmas decorations and so much more – imagination is all you need. As the main photo shows, the machines take up little space and can be stored in a cupboard when not being used.



7 Cutting procedure for maximum wood support

LETTERS

★LETTER OF THE MONTH

WOODWORK VARIETY

Hi Tegan,

In an age where so much information is available via the internet, some might question the value of a printed magazine. I eagerly look forward to receiving my copy each month, and for me, one of the strengths of a publication is the variety of topics which can be covered in a single issue. And when it comes to woodwork, what an amazing diversity we find. Firstly, there is the huge variety of materials – numerous hard- and softwoods as well as sheet materials, each with their own particular characteristics and uses. Then there is the range of tools to work those materials – from hand tools, through to portable or bench-mounted power tools through to large floor-standing machinery. But perhaps, most impressively, is the variety of woodworking activities that can be carried out – carpentry, joinery, furniture making, turning, carving, scrollsawing, intarsia, pyrography, green woodworking, marquetry, box-making, toy-making, instrument-making – to name but a few, and within each of these categories an almost endless number of sub-activities and projects. So keep up the good work as together we celebrate the rich variety within this wonderful craft.

Regards, **Charlie Sanders**

Hi Charlie, thank you very much for your email – it has certainly put a smile on my face!

I'm very pleased that you're enjoying the mix of content we're featuring in the magazine and I must express my gratitude to my team of authors, as without their help and expertise in various areas of woodworking/woodturning/furniture making, the publication would not be what it is.

We do our best to keep the diversity of content rich and interesting for all, and while this can sometimes be a difficult job (with ever-decreasing budgets, etc.) we soldier on as best we can!

If there is anything you'd specifically like us to feature, then do let me know and we'll do our best to find an author who can cover it!

Many thanks again for taking the time to write in and I do hope you continue to enjoy the publication.

Best wishes, **Tegan**

OLD TOOLS & MACHINERY

Hi Tegan,

On the old pieces of kit theme, I thought I'd share some of my working old power tools. Most older tools, domestic or commercial, last well providing they were not laboured continuously.

The WolfCub drill in the foreground still works though it needs a new power cord as the 'current' one's insulation has disintegrated with age. At a garage sale some years ago, I sold a West German Bergin drill and another larger working Wolf drill that was made in the UK and, like this WolfCub, was not doubly insulated as like the tools of more recent times. The interesting thing about the Cub was that it was made in London whereas I thought the larger Wolf was made elsewhere in the UK.

The early '70s Makita D handled router came with a 3m cord and parts are still available. Black & Decker made tools (and employed staff) all around the globe; a sample as mentioned later. The non doubly insulated saw (1960s, I bought with earnings from my childhood 'paper run') only had sleeves rather than bearings, so care had to be exercised in not 'pushing' the tool during work. This was a very good lesson for use of all power tools (then and now). I also have a ⅜in B&D drill (now stored in a shipping container) that came in a metal carry case and cost me approx $18 new (and somewhat dearer than my Stanley smoother of the same era) when I earned ½ cent per paper sold. When I finished my paper run in year 10, the owner of the shop told me I was the best paper boy ever! Folk also had accounts and I would walk the suburbs to collect the money and was often attacked by owners' dogs who couldn't pay the weekly or fortnights' accounts. My dad couldn't understand my buying such tools and chastised me over the purchases. He changed jobs (solid plasterers were no longer in demand) and moved on to suspended ceilings in mostly high rises and hospitals. That ⅜in drill got more than a fair workout for many years drilling pop rivet holes day in and day out (dad's Aussie-made Bosch was too big and too heavy for the job).

Ranald's selection of old woodworking tools and machinery comes from all over the world

On with the selection shown here, the B&D work wheel (with various accessories not shown) was made in Canada. The pistol handled ¼in router that looks like a drill was made in Melbourne, Australia. My Lamello (not shown) was made in a couple of places; the Metabo motor in West Germany; the Hitachi TR12 in Japan; the baby Wolf lathe was made in London; the Elu router is Swiss whereas my Elu lathe (not shown and little used) was made in West Germany. My 4ft linisher (1970s) has a hole sanded into the motor housing and was made in Taiwan: the motor needs a compressed air blowout occasionally. I'm really happy some manufacturers have started redefining themselves in the UK rather than selling the throwaway stuff from China. I hope the US, Canada, New Zealand and Australia follow suit.

Regards, **Ranald Millar**, Australia

Hi Ranald, it's great to hear about your old tools and thanks for sharing the photo – that's certainly a fine selection! Long may they continue to deliver good service!

Best wishes, **Tegan**

CONSTRUCTING WARDROBE DOORS

Dear Editor,

I recently completed some built-in wardrobes for my bedroom and while not perfect they were of a quite reasonable quality. The only black mark was the doors. I constructed these (about 6ft × 2in) using 16mm melamine-coated chipboard mainly to minimise surface preparation before painting. To achieve a panelled effect, I glued and lightly pinned 2.5in strips of 8mm HD MDF to the front face of the door. Then to get a really good finish for painting I used Gesso (rabbit skin glue and whiting) on the MDF. Subsequently the doors exhibited a pronounced bow.

I am aware of the need when veneering to veneer both faces to avoid distortion, but was very surprised that this effect extended to melamine-coated board that I had hitherto regarded as dimensionally stable and also the surface area of the MDF was much smaller than the door.

Secondly, during the construction I used Blum hinges, which are of excellent quality but their catalogue and technical information runs to nearly 850 pages and could be characterised as loads of data but little information (very Germanic!).

I do wonder if tips on achieving flat stable doors would not be a suitable subject for a future article and perhaps tips on using lay-on hinges for us idiots as well.

Best regards, **Mike Matthews**

Hi Mike, with any unsupported sheet material (no matter how stable it may seem) always try to do the same on the reverse side as the face. Different if it's fixed rigidly around the edges, but wardrobe doors are either just hinged or sliding, so there's potential for them to distort, albeit slightly. I suspect adding the gesso didn't help, unless this was also done on the reverse side as well? The Editor and I are currently discussing plans for an article on fitting Blum-type hinges, so look out for that later in the year. In the meantime, if any readers have any knowledge on the subject or any particular technical expertise in this field, then do get in touch and let us know.

Best regards, **Phil Davy**

A LOVELY PAIR OF WOLF CUBS

Dear Editor,

In connection with your Wolf Cub appreciation letters, here are my two: the battle-scarred hero in the foreground is a '¼in Wolf ¼in Light Production Drill – Type EGeh, serial No.897143, 220/230V 2,800rpm. Ect. London W5'.

I purchased this drill in around 1962, in a closing down sale at Atkinsons motor cycle shop and metal stockist, opposite East Ham Town Hall, at the junction with Barking Keppel Road. It was priced at £14.50 but I paid £5 for it – the bargain of a lifetime!

This drill has decoked and ported 80 navy cylinder heads, motor cycle and car rotary burr cutters and polishers, as well as being used for drilling holes. I've only had to purchase one new set of bearings and brushes and it still works perfectly! It uses a different trigger mech to the standard model.

The other 'boxed set' I have is a 'Do It Yourself' kit bought in Brentwood in around 1966. It's still in very good condition as has had little use. Everything is still present including the paper work. There is some current leakage due to it being clogged full of wood dust, which had become damp. Once cleaned out and dried, however, it'll be fine. The trigger jams more than it connects, and I have considered fitting a foot switch. It is a very well balanced tool, especially overhead. If anyone knows where I can buy spares or of anyone who can fix this tool, please get in touch. The serial number is 5273997, it runs at 207W and also cost me £5.

Yours sincerely, **Bob Tilbury**

Hi Bob, thanks for your hand-written letter and for sending in photos of your Wolf Tools. Aren't these a pair of beauties! It's great to see both still in their original boxes and with all the accessories intact. If you're anything like me, then you'll love reading old memorabilia and the two leaflets shown here really help to transport the reader back to the '60s – a time when things were very much different, but a love of woodworking still prevailed.

Best wishes, **Tegan**

Bob's Wolf Cub drill can be seen here with the box in which it was originally supplied, plus a range of accessories

Original leaflets for both tools...

... giving instructions and here showing the contents of the 'Do It Yourself' kit

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!

READERS' HINTS & TIPS

veritas innovation in tools

For the next 13 issues, in conjunction with Veritas and BriMarc Tools & Machinery, we're giving one lucky reader per month the chance to get their hands on a fantastic low-angle jack plane, worth over £250! Ideal for shooting mitres, working end-grain and initial smoothing, this must-have hand tool also features a combined feed and lateral adjustment knob for fast, accurate changes to depth of cut. To be in with a chance of winning this fantastic piece of kit, just email your top workshop hint or tip to **tegan.foley@mytimemedia.com**, and if you can, please also attach a photo illustrating your tip in action. Good luck! To find out more about Veritas tools, see **www.brimarc.com**

Here are three of my workshop tips:

STORAGE BOARD FOR TOOLS

I use a board to store my hand tools. I draw around each one with an indelible marker pen, which makes it easy to see where each tool lives. When I have finished using a tool it goes back on the rack, which ensures I always know where it is.

Using a marker pen on his storage board, Bob drew around all his tools, which makes it easy to tell which one goes where

MAGNETS FOR TOOLS

I stuck some small neodymium magnets to the case of my Record Power 350S bandsaw using CA adhesive. I use these to store all the tools needed to set it up and keep it adjusted. You are much more inclined to keep the bandsaw fine-tuned when you don't have to hunt about for the correct-sized Allen key!

Using small neodymium magnets helps Bob keep all his metal tools to hand when it comes to using the bandsaw

NO MORE TANGLED CABLES

Fed up with all the cables getting tangled on my hand-held power tools, I cut all the cables short and fitted cable connectors. I only use one tool at a time and have a long cable with the opposite end of the cable connector fitted to a plug. Only one cable to store and no tangles! Remember to attach the male side of the connector to the power tool and the female part of the connector to the power cable for safety.

Best regards, **Bob Orr**

Bob decided to cut all the cables on his hand-held power tools short, which ensures no more tangling during use or when in storage

Dave's herb jars are based on the 15th century blue and white glazed pottery that originated in the Chu Dou region of Vietnam

ORIENTAL MEDICINAL HERB JARS PART 2

In part 2 of this series, **Dave Roberts** shows how to complete the base and lids of this pair of apothecary delights

Last month, we shaped and hollowed the bodies for this medicinal herbal jar project, and here, I'm going to show you how to form the bases and lids.

TOOLS YOU'LL NEED
- Screw chuck
- Combination chuck
- Jacobs chuck
- 50mm Forstner bit
- Parting tool
- 9mm gouge
- Hollowing tool
- 6mm scraper
- Detail gouge

Turning the base

The dovetail that was used to grip the body in the chuck will now become the foot of the jar but first you'll have to make yourself a jam chuck. All you need is a screw chuck and a scrap piece of wood. Turn it so that it just fits inside, by about 20mm. This needs to be a push fit; make sure it's not too loose. Bring the tailstock up for support while you turn it and face the bottom off first. You can stop the lathe and place a steel rule across the bottom to check it's flat. Then, use the gouge to turn the rest of the foot. Sand and finish the base.

How to make the lid

The lid is turned in Macassar ebony. The piece I used was big enough to make the two lids and the grain runs horizontally. Of course, by using one piece to get two lids the grain pattern and colour will match.

Put the blank between centres and turn a dovetail to match the jaws on your combination chuck. When you put the blank into the chuck, make sure it's tight before you start turning.

The lid fits over the container. You can turn the recess with a parting tool but don't make it a tight fit because if the container moves slightly (which it probably will), the lid will get jammed on and won't fit properly. Leave it slightly bigger by 1mm or so, then you'll be able to remove the lid without any problems.

You can use the gouge to turn the inside of the lid but you may find using a 6mm scraper will be easier to finish it off. If the scraper is freshly sharpened and you take light cuts, you will get a superb finish, especially on a timber like ebony. It's a case of the harder the better. Use soft timbers, like pine, and the grain will tear out.

Once the inside is turned, you can part off the top. To finish it off completely you will have to part it off, turn another jam chuck and jam it on. You can bring the tailstock up for support while you turn it; this will guarantee it won't come flying off. When it's all turned, remove the tailstock and turn a 6mm diameter hole, 4mm deep for the finial.

Ebony is one of those timbers that demands a good finish; any little sanding mark will show up. I usually sand up to 600 grit and then finish off with '0000' grade wire wool. Then you can seal

1 To turn the bottom, put the container onto a jam chuck. Support it with the tailstock

2 Use the gouge to turn the bottom flat and to round over the base

Dave with one of his completed Oriental medicinal herb jars

the lid with sanding sealer, When it's dry, rub it back with more '0000' grade wire wool. This will flatten the surface and leave it ready for a coat of polish.

The finial

The finial is turned in lignum vitae. You can hold the piece of timber in a combination chuck or on a screw chuck. Holding it on a chuck allows you to finish the top of the finial completely. If you hold it between centres, you'll have the problem of the tailstock getting in the way and you will have to finish the top of the finial by hand.

Turn the finial to the finished diameter; use the parting tool to turn the fillets and a detail gouge will turn the rest. Keep all the detail crisp and sharp and also be careful when you sand it; you don't want to remove the fine detail. The last job is to turn the 6×4mm spigot, then glue it into the lid.

Finishing off

I always get more pleasure in turning a matching pair than just one single item. Striving to get the pieces the same is a real challenge. This can be quite daunting for some turners, especially those who have just started woodturning.

When designing something, don't make it too complicated because the more bumps and curves you put on the first item, the more have to be transferred to the second item. That's when things get difficult!

3 Cut the recess in the lid with a parting tool. Make it a loose fit

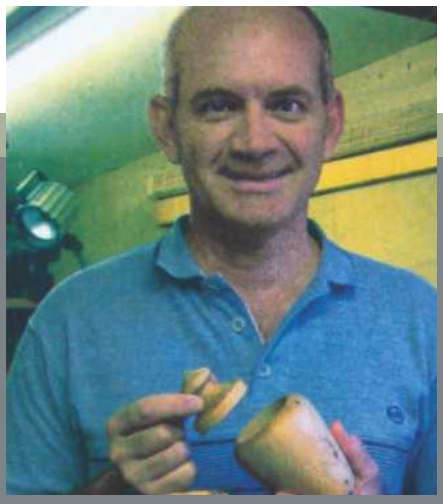
WHAT I'VE LEARNT FROM DAVE

Australian turner Bill Goldsmith tells of a recent lesson at the lathe from Dave, during a visit to the UK...

Fair dinkum, after being asked to say a few words about Dave Roberts I was flabbergasted and honoured but didn't hesitate to start belting out a few words on the keyboard. I've only known Dave for a few weeks, which is also the length of my woodturning experience. We were introduced by a mutual friend and immediately struck up a bond. After 30 odd years of woodturning he has done or seen it all and my 'birth' into woodturning could not have had a better Dad.

Dave has only to have a casual conversation with me and I feel that the gates to woodturning heaven have been opened. However, it's worth noting that my first, and most repeated, conversation with Dave was about safety. He has taught me to feel the wood, not just look at it. It's proved a great advantage, having a friendship with rather than fighting my timber blanks. Now I let them tell me what I need to do. Dave's message was not to fight the wood but to go with the natural flow and this is the best way to finish as well as start a project.

Dave also told me of the mysterious ways of listening to the lathe. This was a 'how to stop your work from flying across the workshop' lesson. If the sound from the lathe changes, take the hint and stop. It may only be a loose piece of timber lying against the lathe, but it could be a piece of nearly finished work heading for your head.



Australian turner Bill Goldsmith

Back to the lesson. Dave tells me about looking at the opposite side of the work, the 'horizon' of the piece, as you turn. This is one of the most valuable lessons: you need to turn and have faith in your tools and your hands; this is something that only comes with constant turning, making mistakes and then learning from them. In saying that, it's not about turning all day everyday, but turning to develop ideas, to have fun and not necessarily to create a finished piece.

Shape, style, form, flow, feel, stops, beads, grooves, are lots of words you'll learn, but the most important word is enjoyment. I feel I learnt more in a few weeks from Dave than I could from a year of formal training. I've been very lucky to have Dave as a mentor; his passion and ability to interpret the materials are a wonder. I only hope it doesn't take me 30 years to be able to turn as well as him but, hey, who cares?

FOR BEGINNERS

On a project like these containers, it's worth making yourself a template. I generally use the cardboard from a cereal packet. As you're turning the container, you can stop the lathe from time to time and offer the template up to it. This will give you a good indication of how the profiles are developing. Vernier callipers are also a great asset, plus, of course, a keen eye

NEXT MONTH

Learn to make a mini Roman masterpiece as Dave passes on some architectural turning tips

4 Bore out the centre with a Forstner bit; this will make it easier to hollow

5 Turn the top of the lid and part it off with a fine parting tool

6 Use the parting tool and a detail gouge to turn the finial. Keep the detail crisp

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IN THE DOCK

Peter Bishop's clever design for an iPad docking station helped to solve his daughter's problems at work

FACT FILE
Time to make: Four hours if you're quick!
Materials: Any decent timber
Skill level: Novice plus
Essential tools: Basic set of hand tools
Useful tools: Powered saws if you have them

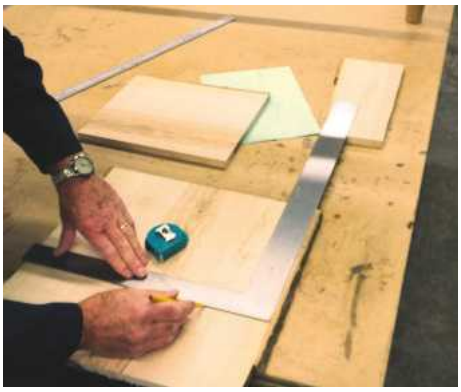
This was one of those quick, creative projects that I love. My daughter works in the hospitality sector and she came home one day talking about buying an iPad docking station for their bar, which could be used for pricing and recording drinks, etc. (She's at Brinsop Court – check it out if you have time; it's a fantastic, period venue). It piqued my interest and I thought to myself that I could make one of those pretty easily, so, without telling her, I headed off to the workshop the next Sunday morning on a mission.

Please note that although many of these images show machines unguarded for clarity, you should ALWAYS ensure that when operating equipment the appropriate guards are in place.

A simple reading slope

I'd done my research. The docking station was a simple reading slope with something to hold the iPad in place. I took some English ash, planed both sides, and decided it would be nice to retain some of the waney edge/bark as a feature. I worked out a rough size for the front – 310 × 250mm – and a slightly smaller piece for the base. Using a sliding bevel, I then decided what the angle of the slope should be and cut a couple of triangular pieces. Plonking it all loosely together it looked as though it would be about right.

1 I started out with some English ash that was already planed both sides



2 Keeping the waney edge means you need to mark as close to a right angle from it

3 An adjustable sliding bevel helps set the angle of the slope

4 The two angled pieces are cut and tested

5 A recessed strip at the bottom stops the iPad moving too far left and right and another finishes it off at the top

6 The front is screwed onto the back assembly

7 Now the bottom goes on

8 The retaining frame is checked for square

9 Hinges onto the frame first, then…

10 … it's fitted to the main body – nearly done!

Battens & supports

Into the underside of the slope and the top side of the base I cut some trenches to accept the two support pieces. This would help me to line it all up correctly and make the whole job a bit firmer. Having located, drilled and countersunk all the fixing screw holes, I then made two slim battens to locate the iPad on the slope face. One batten went at the bottom, and was cut out to fit the width of the iPad and the other at the top. This top one was rebated to take the small hinges I would use for the front frame. I fixed all these separate components together simply using stainless steel screws – no glue!

11 Completed iPad dock from the back…

12 … and side

Making the frame

The front frame was made from some small stuff that finished about 25mm wide × 12mm thick. A tiny little slip in mortise & tenon joint sorted the corners. I glued and clamped it up using my frame making kit and left it while the glue cured. Later on I fitted a pair of small brass hinges to this frame and then secured that onto the front of the slope. Just for a bit of extra stability, I later added a couple of small lugs to the inside of this frame; these helped to stop the iPad moving from side to side. And that was it, job done, so I handed it over for its 'field trials!'

ME AND MY WORKSHOP

Stuart Lamble

We take a look around the workshop of Cornwall-based designer and maker, **Stuart Lamble**

Stuart sanding some material for one of his lighting projects

1. What is it – and where is it?
A 16 × 8m shed I built myself on Tinney Farm, near Bude, Cornwall.

2. What's the best thing about it?
It's at the end of my garden, nestled in the woods. It's mine!

3. And what's the worst?
I can't think of anything I don't like about it. It's 30 seconds from my house.

4. How important is it to you?
It's my life's work – a dream – and what I've always wanted.

5. What do you make in it?
Functional sculptures, some fun stuff, but mostly lighting. See more examples on my website – **www.stuartlambledesigns.com**.

6. What is your favourite workshop tip?
Keep it tidy.

7. What's your best piece of kit?
My hands.

8. If your workshop caught fire, what one thing would you rescue?
Some lovely yew I've had hanging on my wall for years.

9. What's your biggest workshop mistake?
I'm always cutting myself with a Stanley knife, and forgetting to light the sawdust stove the night before.

10. What's the nicest thing you've ever made?
My kids. Can I say that?

11. And what's the worst?
I've made some horrendous fitted furniture. Scribing is not my forte.

12. What's the best lesson you've learned?
Make sure you enjoy what you're doing.

13. If you won the lottery, what would you buy for your workshop?
Central heating, so I don't have to worry about the stove.

NEXT MONTH

In the next issue, we step inside the impressive workshop of Facilities & Maintenance Manager, Bob Wyatt, who lives in Alberta, Canada. We'd love to hear about your workshops too, so do feel free to send in a photo of your beloved workspace, and please answer the same questions as shown here – just email **tegan.foley@mytimemedia.com**

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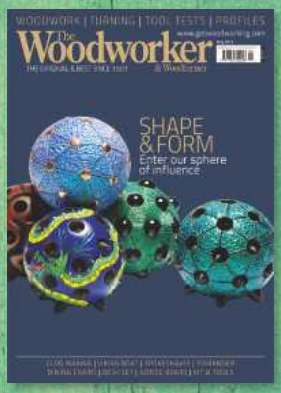

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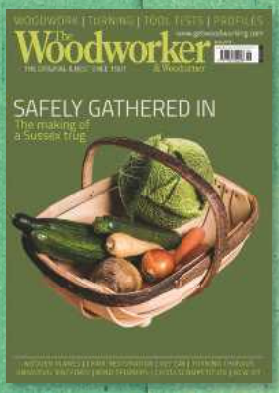

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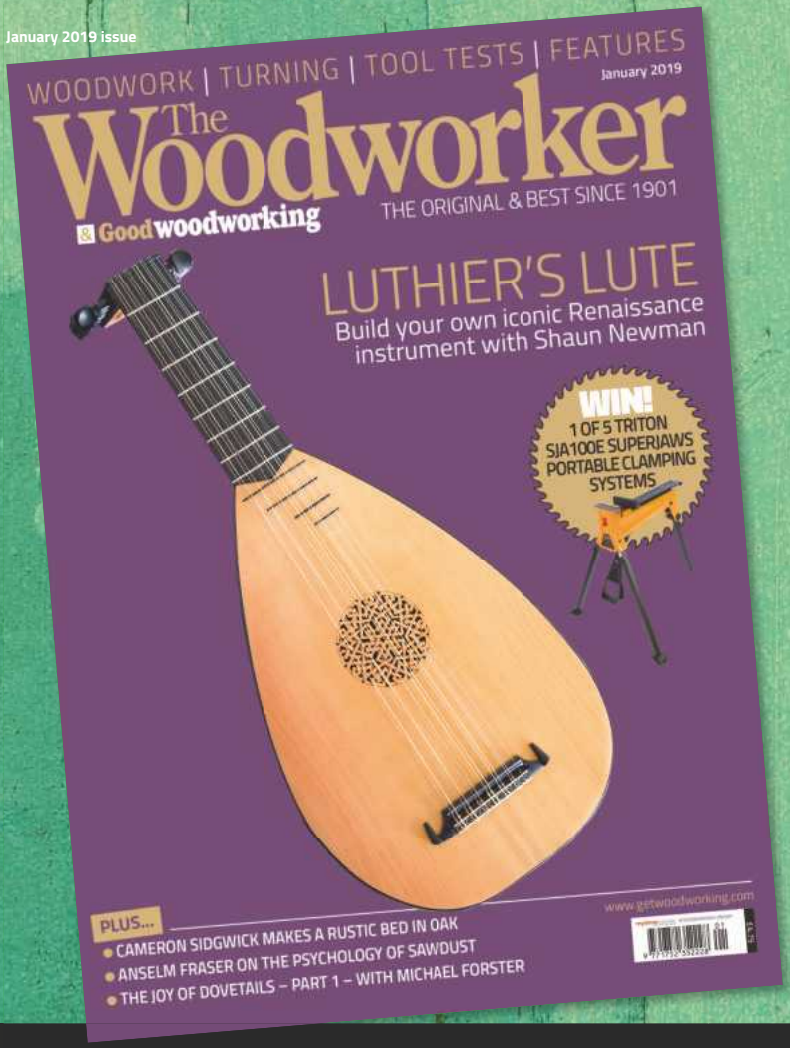

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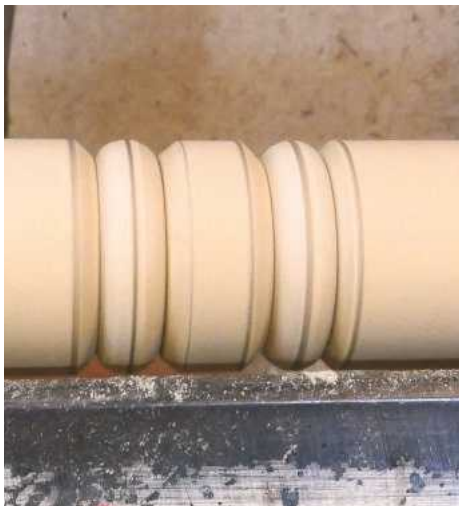
COPY TURNED CANDLESTICKS

Les Thorne's candlestick pair offers turners a good opportunity to practise their copy turning skills

Copy turning seems to be a dying art and more and more people are getting into woodturning with an artistic slant. Saying that, though, I frequently get asked as to how I turn two things the same without using an automatic copy lathe. In this article, I'm going to show you a few tricks of the trade in terms of how to achieve a perfect match. At the last national competition held at Carpenters' Hall in London, it was quite interesting to see that the category for a pair stated that the items didn't need to be an identical duo. This led to quite a diverse competition with some very interesting pieces that definitely didn't match. I spend a significant amount of my turning life making multiple copies of someone else's work; I wouldn't worry too much about plagiarism, however, as I'm sure that the 18th century Georgian turners will not mind my attempts at their work. Designing your own candlesticks can be a daunting prospect, so if you aren't sure then use the internet or look at *Classic Forms*, a book complied by Stuart Dyas, which is well worth the investment. From my point of view, I don't get to make candlesticks (once a mainstay of a turner) very often and I have to say that I really did enjoy making the ones shown here.

1 Correct marking out is one of the most important things to do when approaching copy turning. I thought I'd have a little practice before starting the project. Here you can see I've marked out some 10mm wide beads

2 With each movement of the tool you need to learn how to remove the correct amount of stock. Mark the centre of the beads with a pencil line to keep the diameter constant

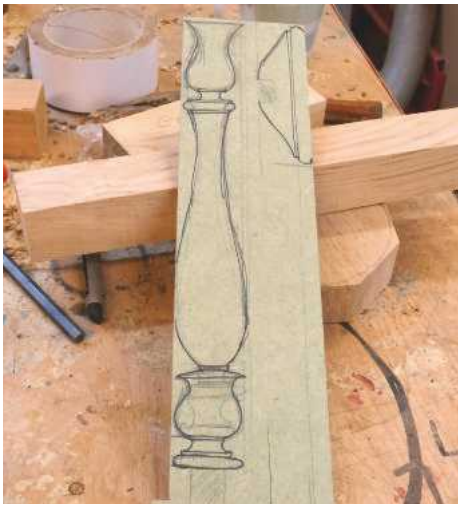


3 Absolutely perfect – perhaps I should try doing this for a living! These are cut with one movement from the line to the left and then one from the line to the right

4 Mark out coves with a pencil line showing the width of the detail. The signature gouge, with its short bevel, will give a perfect finish even on pine

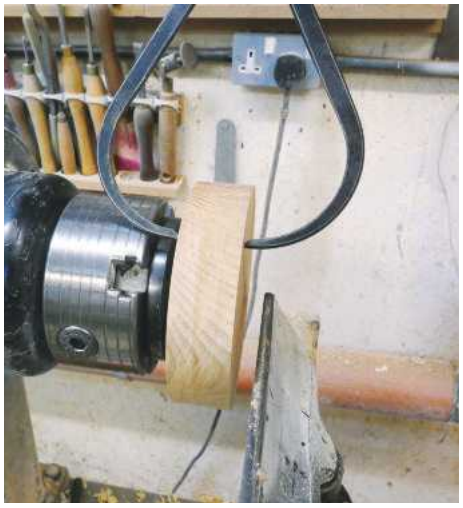
5 Use Vernier callipers to measure the width of the lowest part of the cove. In practice, I tend not to bother measuring these, preferring to do as much as possible by eye

6 I'm now ready for the real thing. I seemed to have plenty of ash so cut some timber 140 diameter × 35mm for the bases and 325 × 40mm square for the stems



7 I drew on my experience when it came to designing a simple yet elegant design for the candlestick. The shapes that I've put together are very classical with more than a nod to the Victorian era

8 The base can now be mounted onto a screw chuck. The blank is quite narrow so I shortened the screw by using a MDF spacer. A push cut with a bowl gouge is the best way to true up the wood

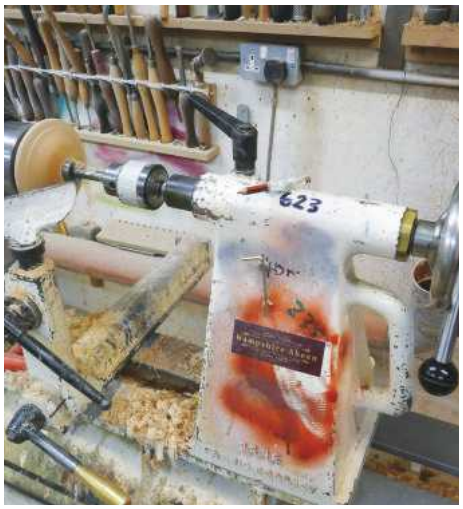


9 To get them both the same you need to start with blanks of the same size. I used a long-grind bowl gouge with a pull cut to size the timber to my callipers

10 Here I've drawn out the base onto the end of my rod; this means I can transfer the positions of the shapes easily onto the spinning blank. This keeps the base and stem designs together

11 Shaping is best done with the tools you feel most comfortable with. The 10mm round skew chisel is perfect for taking a full width cut down to the fillet on the edge of the base

12 The rest of the shaping, including the bead on the edge and the ogee design, is completed using a short bevel signature gouge. Wherever possible, cut with the grain, so that the bevel of the tool is in contact with the surface



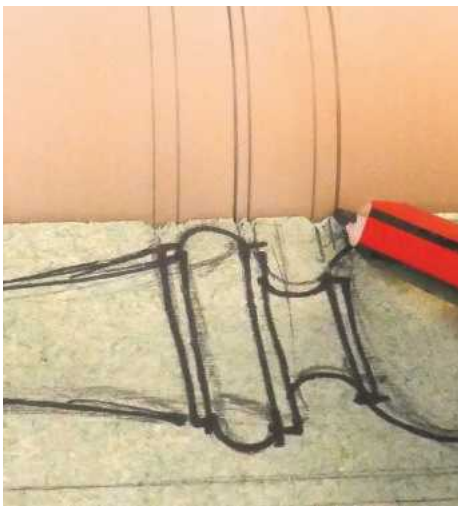
13 I've got a new addition to my big Oneway lathe – a speed handle for the tailstock, which will make drilling much easier. I used a 30mm sawtooth machine bit to drill a hole around 20mm deep

14 Another useful thing you can add to your lathe is a moveable collar on the stem of the toolrest. As I have to move the toolrest through 90° when turning the base, it will stay at the same height as I move it, thus saving time

15 Both bases have to be the same so I used a plastic gauge, which was originally for marking out shapes of tiles to check both ogee shapes on the top

16 It's easier to drill the hole for the candle cup first. I have a drill in the headstock and a drive centre in the tailstock. Hold the square wood against the toolrest and advance the wood by turning the hand-wheel

17 Bring all the positions of the details to the edge of the rod, then use a knife to notch out a small 'V'; this will help to keep the correct position of the pencil when it comes to marking out



18 Transfer all the marks to the spinning wood; I always use a 4H pencil to mark the lines as it doesn't wear as much as a softer pencil. The line will also be cleaner and more accurate

19 Take the low points down with a 3mm parting tool. I'd do all the sizing cuts if it didn't weaken the whole spindle, but in this case I'm only doing the top section, which will keep the strength in the lower part of the stem

20 When working on something this thin, a bevel rubbing cut with the skew chisel will always be the best option. You can see how I have the point of the tool under the surface of the wood with the excess stock being removed as I traverse the tool through the shape

21 The spigot, which fits in the base, can be turned down to size using the 10mm round skew. It's important to get this the correct size so the glue joint is as strong as it can be

22 One of the most pleasurable cuts in woodturning is the planing cut with the skew chisel. Lock the tool to your body, ride the bevel and slide the tool along the rest

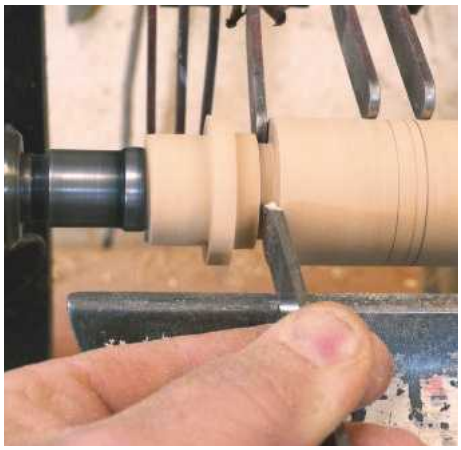
23 Whoops! I seem to have misjudged the thinness of the piece and have a spiral caused by vibration near the top. This can be solved by supporting the wood with your hand while making the cut – something that will require some practice

24 The production technique of sanding is to do it behind the work so you don't have to remove the toolrest. This also means that you have a good view of the shape, which ensures you don't round over the crisp details

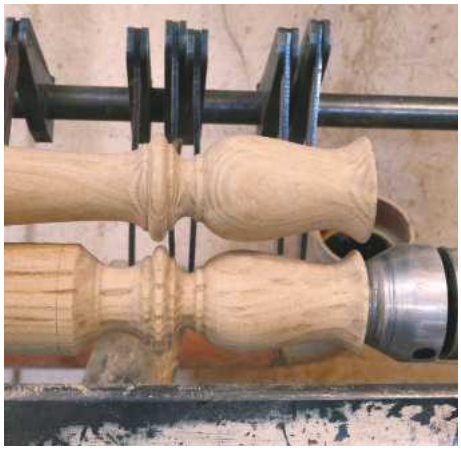
25 More measuring devices than you can shake a stick at! I've collected many pairs of callipers over the years and on some projects have used up to 20 pairs, all set to different sizes

26 Vernier callipers are more accurate as they don't tend to flex as you present them to the spinning wood, but do remember to grind off the points so they don't grab the wood. Don't show this to an engineer, though, as they tend to go into a cold sweat when they see it!

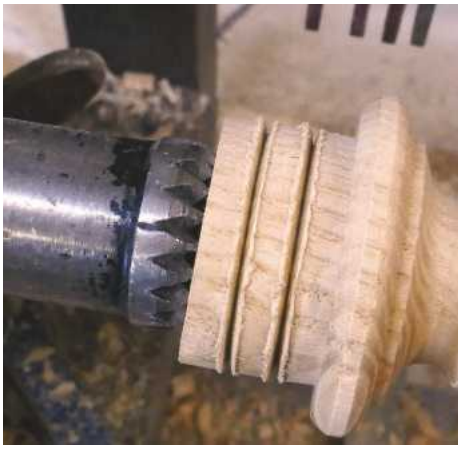
27 Now comes the clever bit. A number of years ago, these copying fingers were shown to me by Gary Rance. They are set up so that they just touch the original before falling down



28 Now it's just a matter of cutting a slot until the finger falls and you therefore end up with the perfect size every time. This does prevent you from picking up the wrong set of callipers, which can be very frustrating



29 It's worth offering up the first one every now and again to check how you're doing – so far so good here, especially as the ogee shape on the end is a difficult form to copy



30 If you make the spigot slightly too small, try plunging the tip of the skew into the timber and it will create a groove by pushing the timber up either side, thus making the timber a little bigger in diameter

31 These are cheap and cheerful candle cups, which are available from Axminster Tools & Machinery. In order to make the whole thing safe, you have to use an interface between the candle and the wood

32 I turned the recesses in the bottom of the bases 3mm deep so that I could fill them in with a piece of hardboard. I turn these by trapping a few of them between centres and making them round

33 Before I baize the bases I need to seal and polish the turnings. I prefer to use spray acrylic sanding sealer and if I'm going to use a wax, a microcrystalline one is preferred as it's more durable than a beeswax equivalent

34 I always try to cut sanding sealer back with the lathe switched off; this means that I'm less likely to cut through or smear the sealer all over the work. A Nyweb pad in the equivalent of '0000' wire wool is best for this

35 The dreaded 'B' word. Putting baize on the base of your work is not something to be ashamed of if it's done well. I use a circle cutter to make it as neat as possible, which is much better than a pair of blunt scissors

36 The completed candlestick pair in ash

NEXT MONTH

IN PROFILE: OLLIE ALLEN

We speak to award-winning furniture maker and recently crowned Young Tradesperson and Carpenter of the Year, Ollie Allen, whose collaborative work includes utilising CNC techniques and CAD packages to create truly unique pieces

Coming up in the next issue...

The Woodworker & Good Woodworking
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TOOL TWEAKS & CONVERSIONS

Robin Gates makes a chisel plane, grinds a screwdriver for woodies, flattens whetstones on the bathroom scales, sharpens disposable Surform blades, and deploys a cabinet scraper on reclaimed timber

A TASTE OF JAPAN

Using the Axminster Precision Pro lathe, Ian Wilkie demonstrates some interesting projects that can be turned using it, the first of which are these lovely Japanese Kokeshi dolls

PLUS ▪ Miniature turned dome temple – part 1 ▪ On test: Clarke CTS16 254mm table saw The joy of dovetails – part 3 ▪ Woodworker's encyclopaedia – part 1 ▪ Make a chess board with Dremel ▪ Me & my workshop – Bob Wyatt

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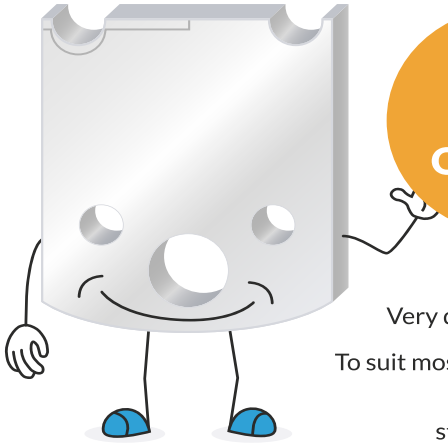

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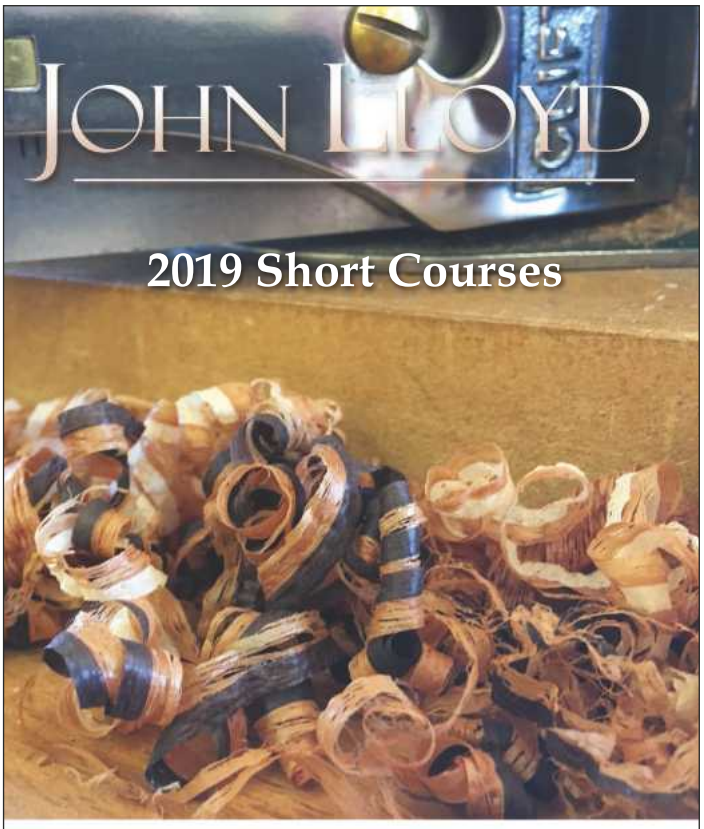

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FOR SALE

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01403 263 564 (West Sussex)

Small Swiss bandsaw; 73 blade; new small scrollsaw; cross saw & various carpenter's tools – call for details
01952 618 304 (Shropshire)

WoodRat – one of the originals, in very good condition – precision tool, hardly used; £100
01206 826 615 (Essex)

Tormek 1204 tool grinder & extras – in good condition; £80. Also, Leigh Super 18 dovetail jig & VRS vacuum kit – never used. Some tooling; £150
01698 262 531 (Lanarkshire)

Veritas 5¼in bench plane; £150. Also, Veritas MKII honing guide; £30
01444 246 922 (West Sussex)

Kity 609 combination saw bench/spindle moulder with some tooling; £1,000. Also, Plano press clamp; £150 and Record mortiser; £50
01833 631 427 (County Durham)

Record Power RHMS-Mk11 router table – as new, used once, buyer collects; £175
07598 280 644 (Manchester)

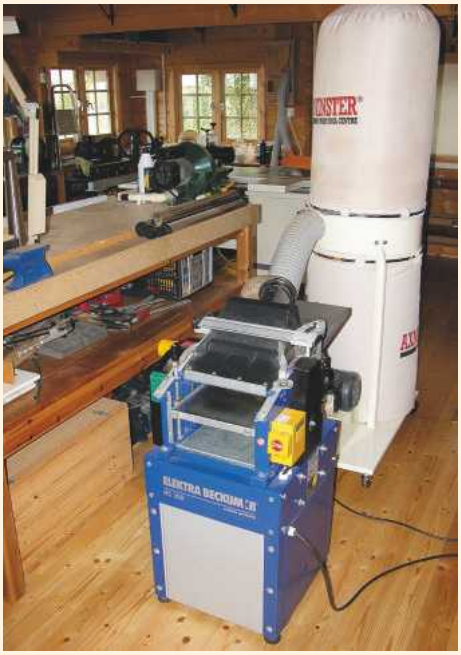
Japanese bevel edge chisels – special alloy, set of five, unused; £200 inc postage
07910 357 291 (Wolverhampton)

Multi 12in saw bench – 16Amp, single phase – a good, clean machine & little used; £300
01371 870 759 (Essex)

Table saw attachment for Myford ML8 wood lathe – includes table, fence, bed attachment, arbor & 2 × blades; £25 plus postage
01288 355 427 (Cornwall)

Elektra Bekum BAS 315 bandsaw – excellent condition, had only light domestic use. Moving forces sale; £200 – could transport
07971 617 911 (Devon)

Axminster mortiser on stand – red & white model – call for details
07541 409 835 (Leeds)



Elektra Beckum HC260K planer/thicknesser with an Axminster ADE2200 extractor & spare blade set – all in very good condition; £350
01278 457 619 (Somerset)

Coronet Mk3 lathe – upgraded to 1hp motor & fitted with Record variable speed. Comes with scroll chuck & jaws, outboard turning attachment plus several toolrests. In very good condition; mature owner has stopped turning – collection only; £245
07816 371 694 (Newcastle on Tyne)

Tyme Cub bench-mounted lathe; 36in bed with chisels, chucks, callipers, books, blanks & accessories; £350
01619 623 730 (Manchester)

New record No.52½ vice; £80; Record No.4/No.4½/No.5 planes; £45 each, transition plane; £50 plus P&P
07743 916 152 (Essex)

Delta two-speed scrollsaw – open to offers. Is heavy but could be sent at a cost
07541 409 835 (Leeds)

Stanley Bailey block plane – new – 15-12-020 – in packaging. Swap for coffin plane; + £30 – will pay for postage
07541 409 835 (Leeds)

Record Power premium 10in bandsaw with two spare blades – buyer to collect; £110. Also, Draper bench grinder with tool sharpening equipment; £25
07917 344 048 (Northants)

Coronet No.1 wood lathe with chucks & tools on a bench; £180 ONO – can deliver at cost – call for details
07944 526 089 (Stoke-on-Trent)

WANTED

Fence plus guide rails for a Wadkin 10in AG5 table saw
07724 386 061 (Wrexham)

Back Issues of *The Woodworker* from 2013–2016 – to replace copies lost in an over-enthusiastic study clear out!
07858 382598 (Leicestershire)

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

Spiers/Norris/Henley planes wanted by private collector; any quote beaten. Ring Ron Lowe on
01530 834 581 (Leics)

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)

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)

BOOK YOUR FREE AD

Please publish this advertisement in the next available edition of *The Woodworker*. I am a private advertiser and have no trade connections
PLEASE TICK: FOR SALE ❑ WANTED ❑

- This space is available only to private individuals wishing to buy or sell woodworking machinery and tools.
- The maximum value of any item for sale must not exceed £500. A small fee is payable for items offered at over £500; please ring 01689 869 852 for details.
- Each coupon is valid for one free insertion in the next available issue.
- The publisher accepts no responsibility for errors or omissions in this section.

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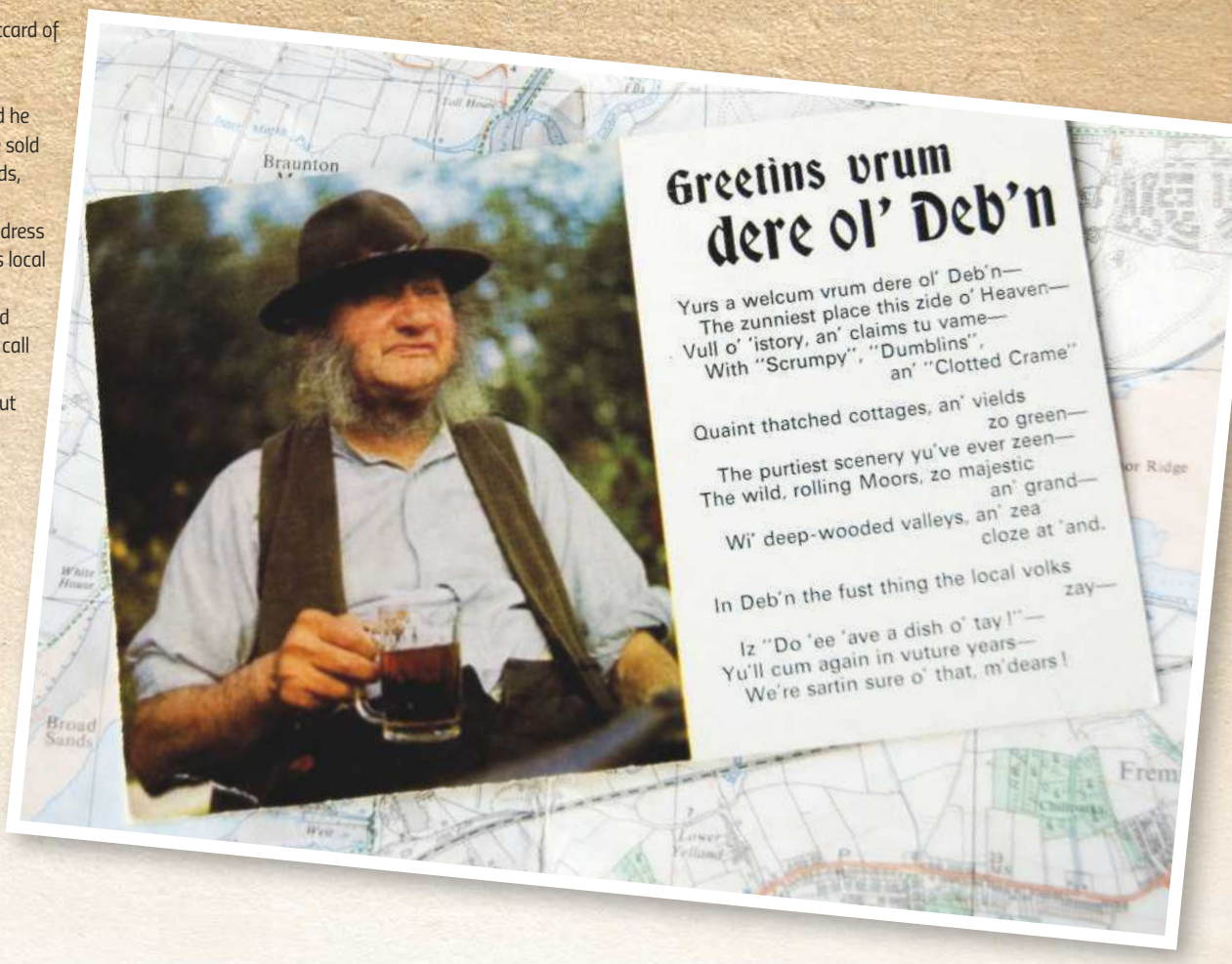

You've probably seen this postcard of a genial West Country codger. Apparently it was taken by an opportunist photographer, and he gave the man no payment. He sold the picture to Salmon Postcards, and the card became popular. Henceforth, the codger would dress accordingly, and sit outside his local pub. Holiday makers and passers-by recognised him and bought him copious drinks. I'd call that a result. (There is a moral in their somewhere, but I'm not sure what it is)

Postcard courtesy of **J Salmon Ltd**

AFFABILITY...

... and affluence

When someone acquires a piece of your work, they take a piece of you. Paradoxically, more of you remains. Just as well really. I'm not being romantic or whimsical. The relationship between the artist/craftsman and the customer is important. They're not buying a thing. They're buying a thing made by you. Meeting you (or even hearing about you), they are glad to know you, and want to enjoy your company* so they buy a slice of it. Thankfully, as I said, your company benefits too.

I went to an exhibition of an artist's work. I do him the disservice of forgetting his name. He was, and his work was, impressive. I remember wild animals (I think. It was a long time ago) but I remember especially the Taj Mahal. I haven't seen the Taj Mahal but I've seen enough of it through media to recognise its magnificence. There it was, a canvas 4ft by 5ft of a misty morning with cattle in the foreground, drinking from the river. I couldn't possibly afford it, and anyway it would seem like a fraud, or a misguided dream, seeing as I haven't been there. So I didn't. But I chatted to the artist; a lovely man, and signed his mailing list. The next year I received an invitation to a private view.

Now you see it

There! Did you notice? Did you see what happened? I was drawn back in with a (small) sense of privilege. An invitation to a sunny Somerset afternoon with drinks and nibbles. We wandered round the flowering garden, and then met him again in the half-timbered hall (I am being romantic/fictional now, but only just). It was a good afternoon. The thing is this: I wanted to buy something! I still couldn't afford it: there wasn't any real danger, but I wanted to. Want is the seed of action.

I'd been slightly hypnotised, entranced. It's like being shown a menu when you didn't know you were hungry and suddenly you are: and your table is ready – please come this way! It's called marketing. Psychology. Not what the object is, but what the customer thinks it is; and your way to awaken their want.

Marketing doesn't have to be cynical. No-one squeezed my wallet while I was there. But I'd been hailed; brought alongside; prepared. This is what you have to do. Sorry: it is. And before you turn on me: no; I haven't done it myself, which, I think, is partly why I have remained relatively poor.

The artist/craftspeople that thrive are the ones who put themselves out there. Confident (at least on the outside); outward-going; the sort of people who give you all the time in the world, if only (necessarily) for a few minutes. Extroverts. Part-time actors. I really am not being dismissive. If anything I am envious. I don't have it in me.

To buy or not to buy

You're familiar with the notion of a marketing budget. It largely remains hypothetical. You can't waste money on advertising, you tell yourself; and that stall at a fair was far too dear. I know. Most of us don't want to promote ourselves, and therefore we don't. You either have it, or you don't, and it's hard to switch. But you can make small moves, just for the sake of it. Hire a hall, invite a party, lose several hundred pounds and gain the goodwill of your customers and putative customers (offer some small affordable things if you can, it all helps). Offer affability. Don't pretend. It's another thing you have to want to do*. And you have to be able to do it. Before you have guests, you must have... yes, you guessed it, a guest list so that when an interested party comes up to you and says how much they like your Taj Mahal, you can sign them up. Plant seeds. Water them.

* This requires you to be somewhat affable. Not all woodworkers are affable, no matter how hard they try. If you are not affable, it's probably best to take a back seat, arrange terms, and get someone to be affable for you.

More than just a hobby, this is your craft

Making something these days is much more than just a hobby. Axminster Craft lathes are designed to meet the demands of dedicated creators and deliver the performance you need to perfect your projects.

Axminster Craft **AC355WL Lathe**

£499.96 Inc.vat **104792**

Perfect for those woodturners looking to move up from a smaller lathe or as a first lathe for the more ambitious newcomer.

Stand **£89.95** 104794

Axminster Craft **AC240WL Lathe**

£199.96 Inc.vat **105118**

Well suited to anyone new to turning, those with limited space and turners wanting to buy quality at an attractive price.

Axminster Craft **AC305WL Lathe**

£329.95 Inc.vat **105119**

A more advanced, compact woodturning lathe for home use which will give you years of trouble-free turning pleasure.

Bed extension **£74.95** 504511

Axminster Craft **AC370WL Lathe**

£399.96 Inc.vat **105116**

A powerful lathe with plenty of capacity and variable speed enabling the user to turn in either direction. The floor stand is included.

Curved bowl rest **£15.95** 400401

Two great offers

*Buy any Axminster Craft woodturning lathe and receive a **FREE 3-hour introduction to woodturning session** at any of our stores…*

*or get **25% off a 2-day course** at either the Axminster or Sittingbourne Skill Centres.*

See us at the
Midlands Woodworking Show
Newark Showground
22 & 23 March 2019

AXMINSTER
Tools & Machinery

Visit one of our stores to see the quality of these lathes and arrange a demonstration, search **axminster.co.uk/axminster-craft** or call **0800 371822**.

For the complete Axminster experience and to keep up with Skill Centre courses, events, news and much more, browse our website or follow us on social media.

Prices may be subject to change without notice.

Axminster • Basingstoke • Cardiff • High Wycombe • North Shields • Nuneaton • Sittingbourne • Warrington

Trustpilot 9.7/10

Coronet Herald Heavy Duty Cast Iron Electronic Variable Speed Lathe

"I found the lathe a delight to use. Functionality wise, it did everything I asked of it without fuss and components stayed put when locked in place...I think it is a great midi-lathe which will suit many turners' needs, capacity and space wise."
Woodturning 317

"With large blanks mounted you can use the variable speed control to keep the machine stable and vibration free...Would I recommend this lathe? Yes without a doubt, it's well designed and built to a high standard."
Online Review

"**The new Herald - Sets a new standard**
It surpasses my expectations by a country mile! The size is ideal for the turner with limited space, has outstanding capacity for its footprint and is very quiet indeed... Record Power most certainly have a winner."
Online Review

Heavy-duty spindle lock and 24 point indexing

Features the latest motor technology to deliver huge amounts of torque from the 750 W output motor

Rotating headstock features accurate angle stops and can swivel 360°

5 YEAR GUARANTEE

ONLY £999.99 Inc. VAT

Shown with optional leg stand.

Specifications

Maximum bowl diameter:	533 mm
Maximum between centres:	508 mm
Maximum swing over bed:	355 mm
Spindle speeds:	96-3890 rpm
Motor input P1:	1000 W
Motor output P2:	750 W
Thread:	M33 x 3.5
Taper:	2 Morse taper
Weight:	48 kg
Size:	W870 x D290 x H252 mm

BUY SAME TIME

16011 Cast Iron Bed Extension	£149.99	**Save £30**
16013 Cast Iron Outrigger	£39.99	**Save £10**
16015 Tubular Stand	£129.99	**Save £20**
16012 Bench Feet	£59.99	**Save £10**

Prices valid until 31.08.2019. E&OE.

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Incorporating some of the most famous brands in woodworking, Record Power's roots stretch back over 100 years.