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October 2018



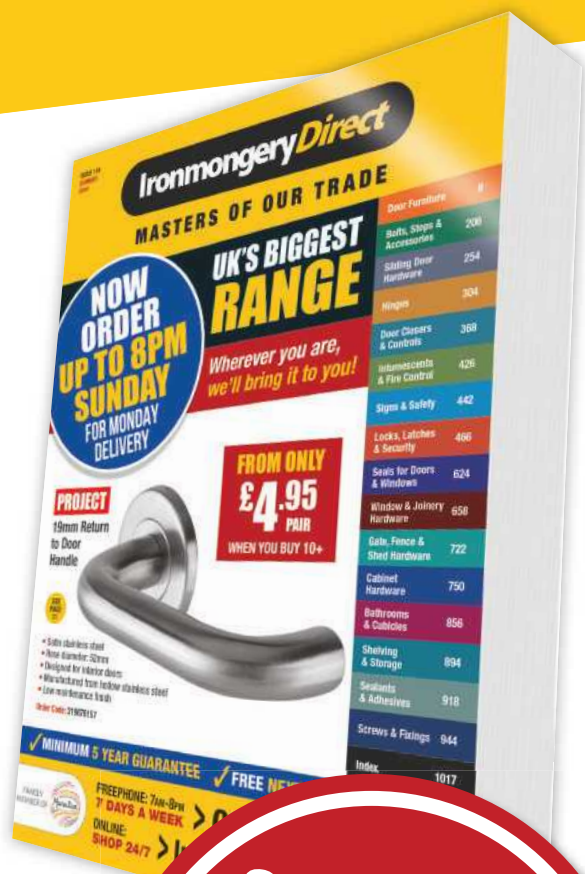
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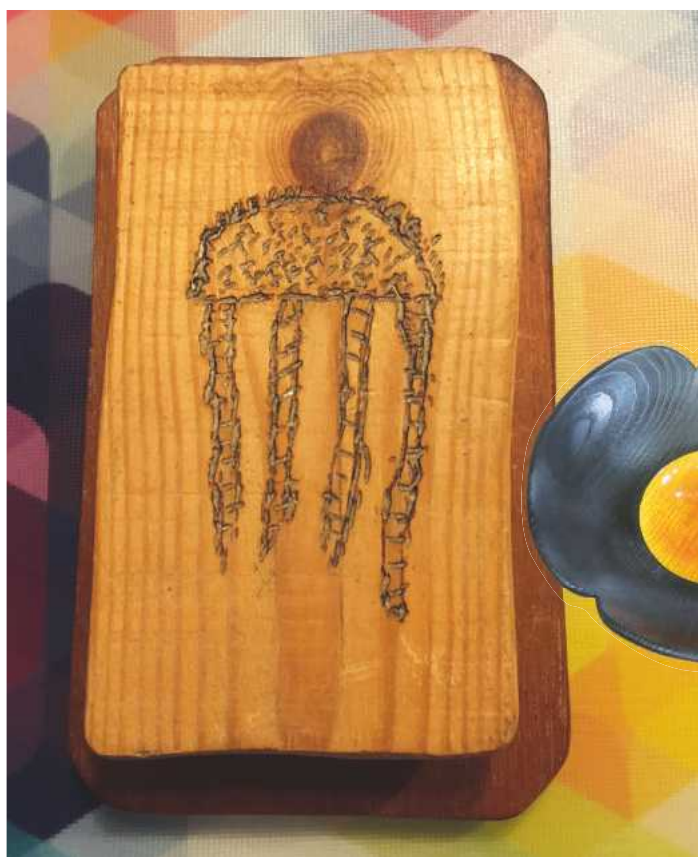
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Welcome

Back in issue 324 of *Good Woodworking* (2017), readers may remember me talking about one of my mum's old woodwork-loving friends, and me sharing the story of how we'd met up having not seen each other for many, many years. We had a fantastic day out in Brighton, reminiscing about times past and it was great to hear how his love of woodworking had only grown stronger over the years. In fact, having just retired, his plan was to try his hand at pyrography and he was also looking forward to going on a chairmaking course for his upcoming birthday, which his children had organised for him. Unfortunately, however, a few months ago, I heard that despite his cancer being in remission, his health had gradually deteriorated and he'd sadly passed away as a result. This news obviously came as a huge shock to me, and of course even more so for his family. What was even more upsetting was the fact we'd only been in contact a few weeks previously, when he'd been asking my advice on the best pyrography machine to buy.

Although I wasn't able to attend the funeral, I did say goodbye in my own small way, and only a few weeks ago his daughter came to visit me. I hadn't seen her since we were teenagers, as she lives in Australia, so it was so lovely to reconnect with her again after all these years. To my surprise, she'd bought something for me – a gift I had made for Steve when I was in secondary school woodwork class, some 20 years ago. On the back was an inscription I had made in Biro, which, although faded, was still readable, wishing him a happy birthday. Apparently it had been found when family members were clearing out one of his workshops, and I was immensely touched to learn that he had kept it all

this time. As you can see, it's not exactly a masterpiece, but I recall enjoying making it, and my woodwork teacher, Mr Boyers, was impressed with my rather basic skills.

It's not apparent from the front, but the top piece (which displays a very crudely pyrographed jelly fish – I have no idea why I chose that design?!) is joined to the back piece (please don't judge my poor coping saw skills too harshly!) by a simple wooden clothes peg, which is then hot-glued into position. The hinge action acts as a would-be holder for pieces of paper, etc., although I'm not entirely sure how effective it is!

I remember wanting to use two contrasting pieces of wood (although I can't for the life of me remember the species) and I took great pleasure in 'burning' on my design. Sadly, I have no further examples of things I made in woodwork class all those years ago, but I'm very pleased to still have this piece, as it now has even more significance.

I'm sure many of you have similar stories to tell, about how others have touched your lives and how special objects find a way of making their back to you. Or perhaps you have made a commemorative piece to mark the passing of a loved one? Either way, things we've made with our hands are powerful objects, and ones that should be treasured forever.

Tegan

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We endeavour to ensure all techniques shown in this issue are safe, but take no responsibility for readers' actions. Take care when woodworking and always use guards, goggles, masks, hold-down devices and ear protection, and above all, plenty of common sense. Do remember to enjoy yourself, though

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In the first of a brand-new series, Richard Chaloner looks at one of the most fundamental woodworking skills, which is the key that unlocks the fun of working in wood – keeping your tools sharp

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OCTOBER 2018

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Published by MyTimeMedia Ltd.
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UK and Overseas Tel: +44 (0) 1689 869 840
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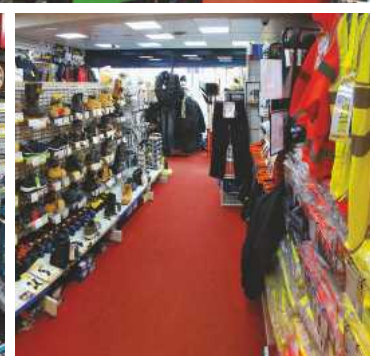
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USING ROUTER PLATES

Using a router table brings a complete range of new techniques and level of accuracy to your work along with the additional safety aspects of using your router in a controlled manner.

A key part of a router table is fixing the router and coping with various sized cutters. The common practice for overcoming these issues is to use a router plate with insert rings, but which size and what material with so many available?

The American standard size is $9\frac{1}{4} \times 11\frac{1}{2}$ in (235 x 298mm) and this will fit the majority of tables on the market, but some manufacturers have their own non-standard sizes. The thickness and material used for plates also varies from 6.4mm in either plastic or metal to the more robust 9.5mm phenolic, or, best of all, aircraft grade aluminium used by the best manufacturers. The 6.4mm plates will sag with all but the smallest and lightest of routers. Also, the thinner plates don't always have built-in levellers for matching up to the surrounding table top.

The best quality plates from JessEm and INCRA not only come with levelling screws but also lead pins for free-hand bearing work or guide bush routing if the plate is able to accept these.

This is dependant on the design and fitting of the interchangeable insert rings, which may be either plastic or metal. JessEm's plastic insert rings have the advantage of not damaging your



cutters if accidental contact is made, and they can be drilled or routed to suit the exact diameter of your cutter. The INCRA metal insert rings give the flattest of surfaces to run across and are available with pre-cut slots for below the table. They also benefit from Clean Sweep dust extraction, which offers a great advantage when cutting full grooves or finger joints that can't be extracted from the above table fence extraction.

The INCRA MagnaLOCK™ router plate has all of the above features plus unique magnets set within the plate to perfectly hold the insert ring and allow for very quick change over. I have worked closely with the INCRA design team to develop and produce the 621625-T plate, which is pre-drilled to accept the most common UK routers with above the table height adjustment, including the Trend T11, plus the following models: Bosch 1619, DeWalt DW621 and DW625, and Elu 177 when fitted with the Router Raizer. **Peter Sefton**

For further information on JessEm and INCRA, see www.woodworkersworkshop.co.uk.

NEW TAPES MORE THAN MEASURE UP

One of the most commonly used trade and DIY products is undergoing something of an overhaul, thanks to Olympia Tools.

The company, which distributes hand tools and workwear under the Roughneck brand, has launched a new range of professional tape measures, which raise the bar through their quality and ease of use.

Known as Roughneck Tough Tapes, the new products benefit from a number of impressive external and internal features. Externally, this includes an attractive and durable heavy-duty, chrome plated case as well as a strong belt clip.

Internally, they employ a high-performance shock absorbing recoil mechanism as well as powerful blade brake. Based on Auto Brake™ technology, this securely locks the extended blade in place with no slippage, facilitating more accurate

measuring. The blades themselves also boast a variety of carefully considered and equally advantageous features.

These include a large and magnetic double-ended hook, which enables easier one-person use. The blades are also painted with lead-free paint as well as nylon coated for greater durability and complete rust protection. In addition, to make the tape measures simpler to read, they are wider than normal at 27mm and feature Roughneck's patented E-Z Read® graduation on the upper side of the blade.

This graduation offers both metric and imperial measurements and has every $\frac{1}{16}$ in marked with a number. This saves users the time and effort of counting notches while simultaneously helping to reduce the margin for incorrect measuring. On the reverse of the blade is a second graduation featuring metric and imperial measurements only.

The new Tough Tapes are available in three lengths: 10m (33ft), 8m (26ft) and 5m (16ft); see www.olympia-tools.co.uk to find out more.



DIARY – OCTOBER

2 Pyrography
2–3* Bowls & platters
5* Introduction to Leigh Jigs
8–12 Hand dovetailed box in hardwood (new)
9* Routing
9 & 10 Beginners' woodturning (five days)
11* Spindle moulding
13* & 18 Pen making
15 Scrollsaws
16* Sharpening turning tools with Tormek
22 Tool sharpening
22–26 Five-day beginners' woodturning
23* Christmas decorations
24 Bandsaws
24–26 Woodcarving (new three-day course)
30* Tool sharpening
* Course held in Sittingbourne, Kent
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13 Chairmaking – part III
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Makita's Auto-Start Wireless System (AWS) technology allows the new 36V DSP601ZJU plunge saw to automatically connect to the compatible Makita dust extractor, saving the effort of manually switching it on.

A unique chip is supplied with the new plunge saw that enables the user to pair it up with the selected dust extractor. Once paired, it will automatically start once the saw trigger is pulled.



The DSP601ZJU is powered by two 18V Lithium-ion batteries in series to supply energy to the 36V DC motor drive system. It generates as much power as the AC mains machine, driving the 165mm blade up to 6,300rpm and providing a maximum cutting depth of 56mm with the vertical blade setting. The bevel range is -1° to +48° and the position of the cutting line is always the same regardless of bevel angle. Splinter-free cutting is achieved by engaging the depth stop, which enables a 2mm preliminary groove to be cut before the full depth of cut is made.

The new plunge saw is equipped with a variable-speed control dial, soft start and electric brake, and the innovative Automatic Torque Drive Technology (ADT), which automatically changes the cutting speed for optimum operation; effectively by sensing the load conditions on the blade and adjusting the power supply to maintain drive shaft speed.

Makita has also introduced a new 1m guide rail, which is sure to be a popular choice for use with this new plunge saw as well as other tools in the Makita woodworking range. It has a replaceable splinter guard, anti-slip strips on the underside and top running strips for a smooth glide. A new guide rail bag is also available, which is designed to hold two guide rails, up to 1.5m in length, and a connector, all designed to provide ultimate protection for these high performance accessories.

The new DVC864LZ twin 18V (36V) Brushless L-Class dust extractor is the first extractor to feature the new AWS technology. It has maximum sealed suction power of 9.8kPa with the powerful 36V motor system. Up to 10 tools can be paired to the DVC864LZ via AWS at the same time. To find out more, see www.makitauk.com.

PAUL SELLERS' OPEN DAY

After working with wood for over 50 years, both in the UK and USA, Paul Sellers has become an internationally known woodworker who has the most subscribed to woodworking YouTube channel in the UK. Paul and his team release episodes on the subscription site, woodworking masterclasses, and also YouTube, which allows his followers to build projects along with him, from the comfort of their own workshop. The newest website, Common Woodworking – www.commonwoodworking.com – has been created to provide all the information and skills a beginner woodworker needs to get started. Paul films all of his videos in a custom-built brick garage-style workshop within a studio, and this was recently opened up to Paul's audience to give them an opportunity to visit the new premises in Abingdon, Oxfordshire. An exhibition of



Paul's favourite projects proved particularly popular as many could see the original pieces they had built themselves. A technique video was also filmed to a live audience followed by a Q&A session.

Similar events to this will be running a few times a year; to find out more, see www.paulsellers.com/paul-sellers-events.

CORDLESS FEIN DRILLING TAKES ANOTHER LEAP FORWARD FOR UK USERS

FEIN started innovating in the late 19th century combining the power of an electric motor with a manual drill to develop the world's very first power tool. The heavy drill, which weighed 16.5lb, was powered by a large but relatively weak DC electric motor that didn't turn very fast.



The world's first power tool may seem unwieldy and unproductive by modern standards, but it was the beginning of FEIN's 150 years of power tool innovation, having re-developed the electric drill on multiple occasions during that time.

Last September that innovation led to the launch of 10 new cordless drill/drivers, and the ASCM 12 and 18 represent the hero machines of the 10. These offer four-speed capabilities, 'Power Drive' settings and quicker changes of accessories for application work, all of which are supported by a new battery range.

Mike Yorke, Director of MY Wood Designs Limited, bought his first OMT eight years ago when he needed a tool to sand a very intricate set of spindles on a banister. He received the tool tested at the end of 2017 to help FEIN UK as it celebrated its 150 years in power tool manufacturing. He uses the machine when working with MDF and timber materials and the machine delivers well when drilling pilot holes, countersinking into timber, and screwdriving connecting pieces of material. Before dropping the machine from a great height, and needing to orchestrate a repair, he also found the battery indicator very useful, as it clearly shows the amount of juice left in the battery before delivering any heavy drilling.

FEIN then took the next step of adding more machines, launching a new cordless mag drill in September and now, in the UK, the company is proud to launch its new rotary hammer drill – the ABH 18. The new drill enables the end-user to drill up to 20mm in concrete, combining drilling, chiselling and hammer drilling in one tool. It weighs just 3kg, with low vibration settings, similar to the technology in FEIN's renowned range of multi-tools.

"On the construction site and when undertaking metal construction jobs on site, you need powerful cordless power tools that deliver the same performance as mains-powered tools," says Product Manager Thomas Blank. "The main intended area of application for the cordless rotary hammer drill is securing metal structures on buildings, where holes of between 8 and 12mm are needed. The new FEIN cordless rotary hammer drill, with brushless motor, is therefore designed for these very sizes."

What's more, both the battery and tool benefit from having electronic SafetyCell Technology, which protects the hammer drill from overload, overheating and total discharge, and shuts the tool down in a fraction of a second. In 1867, Wilhelm Emil Fein founded the company with a promise to manufacture electrical equipment that met the demands of customers while consistently looking at innovative solutions for the industry. 150 years later, the company continues to deliver on that promise.



To find out more about the new FEIN hammer drill, see www.fein.com/en_uk/drilling/rotary-drills/abh-18-0378022. Any end-users who purchase between £1-2K of cordless product will also qualify for free accessories/machines worth hundreds of pounds; to find out more, see www.fein.com/en_uk/news/promotions/3-steps-to-a-cordless-future-0785.

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BWF MEMBERS 'BUILD IT BETTER WITH WOOD'

The British Woodworking Federation (BWF) has launched 'Build it Better with Wood', a campaign designed to make wood the construction material of choice by celebrating its many benefits in the built environment and promoting the vast range of woodworking and joinery expertise available in the UK.

Wood has many significant advantages as a cost effective, versatile, high-performing and truly sustainable building material that can be used in a broad range of applications. And with around 700 BWF members across the UK, there is no shortage of highly skilled and trusted suppliers to choose to build with. "Build it Better with Wood isn't just a statement," says Iain McIlwee, BWF CEO, "it embodies the values of this organisation. The 21st Century is waking up to the potential of timber and we are working with a growing network of customers and specifiers to ensure they appreciate the benefits of building with wood. But, as a supply chain, we cannot be complacent and rely on the inherent qualities of the material – we can do more to be healthy, sustainable, efficient and safe. Every member joining the BWF is visited and audited against our Code of Conduct. This means our community is made up of people who share these values and that customers can be assured they are working with a supplier who is committed to best practice in all areas of operation, including customer care and complaints, technical expertise and training, environmental impact and waste as well as employment, education legislation and health and safety.

With wood delivering on so many levels, from its aesthetic beauty through to its environmental benefits, and the woodworking sector boasting craftspeople and engineers of the very highest calibre, the proliferation of wood in the built environment presents exciting opportunities for the construction sector."

The BWF has produced a range of resources for members to support compliance and to help promote the many benefits of building it better with wood, encouraging those considering a build or renovation to choose this material. For more information, visit www.bwf.org.uk.



FANGFEST '18

Paint a picture or make a pot, a basket, a wooden spoon or even a rocking horse! See how the experts do it and have a go yourself!

Fangfest – Fangfoss Festival of the Practical Arts – is a popular annual village event, now in its 20th year, celebrating traditional art, crafts and providing two days of fun and fascination in the heart of the East Riding of Yorkshire.

Craftspeople and artists will show their work, and you can also expect to see demonstrations of clay pot throwing and raku firing, painting, plus woodturning, stone carving and rocking horse making. You can have a go at many of the crafts on show, as well as being given the opportunity to buy top quality artefacts direct from the makers. There are bargains galore and something for all the family. Fangfest also includes its own flower festival, scarecrow hunt, archery, fun fair, ice creams and a marvellous display of classic cars.

Taking place from 1–2 September in Fangfoss Village, find more information on Facebook – www.facebook.com/fangfest – or call Jane Cook at The Rocking Horse Shop on 01759 368 737.



DICKIES WORKWEAR LAUNCHES NEW ONLINE COMMUNITY

Dickies Workwear is calling on tradespeople to have their say on its clothing and footwear – including new designs – by joining its brand-new Dickies Ambassadors programme.

Launched in partnership with Vision Critical, a leading customer intelligence software provider, Dickies Ambassadors is a secure, online insight community that current and potential customers are invited to join in order to engage in ongoing conversations with the company.

By sharing their views, tradespeople will help shape the products and directly influence the future of the business. They will also benefit from exclusive offers, competitions and get sneak previews of upcoming workwear collections.

"One of our core values at Dickies is a focus on constant innovation," says Marketing Director James Whitaker. "This approach has allowed us to remain the global leader in performance workwear, and create products that go above and beyond the expectations of those who rely on them. The Dickies Ambassadors community is a key initiative to fuel that innovation with constant dialogue and interaction with consumers, and we're eager to get it off the ground."

Those who wish to join the Dickies Ambassadors are invited to sign up at www.dickiesambassadors.co.uk. Following the UK launch, there are plans to expand the programme in France and Germany. To find out more, see www.dickiesworkwear.com.



NEW EXTRA FINE JAPANESE ROUND FILES

Made in Japan, these round files perform superbly when working on internal curves, opening up holes or expanding slots. They are suitable for working on wood, plastics and other similar materials.

These Japanese round files are ideal for carvers, cabinetmakers, musical instrument makers and sculptors and are capable of the accurate removal of timber on difficult or awkward-grained wood. Producing miniature shavings, the file removes material very quickly and the resulting surface is much smoother, requiring only a little sanding.

Blades come in three sizes – 3mm, 5mm or 6mm in diameter – and are fitted with a comfortable textured moulded rubber grip. The cutting length is 90mm with a pitch of only 0.7mm. The extra fine teeth are milled and chemically etched for maximum bite. The total length of the file is 200mm. There is also an 8mm fine version available, with a cutting length of 185mm and a comfortable wooden handle.

For more information and pricing, see www.axminster.co.uk. tools-from-japan.



HONOURS FOR HONOR & OTHER WINNING CHIPPENDALE SCHOOL STUDENTS

Five graduating students at the Chippendale International School of Furniture have been awarded special prizes for the craftsmanship and design excellence of their work.

The school, in central Scotland, takes students from around the world on 30-week professional courses, with the 2017/18 intake coming from Ireland, New Zealand, Italy, Switzerland, Germany, USA, Singapore, Trinidad & Tobago and the Falkland Islands.

Student of the Year was awarded to Honor Dalrymple, from East Lothian, a former structural engineer, whose training has given her particular design skills – for example, being able to visualise in 3D, understand structure, and the strength and limitations of materials.

"The beauty of Honor's work, which included a cabinet, oak desk and chairs, was exemplary, said school principal Anselm Fraser. "Her designs were excellent and the quality of her making was sublime." She was presented with her graduation certificate and winner's Quaich.

Students' Choice of the Year was awarded to Gianluca Caregnato, from northern Italy, who originally studied agriculture at technical school. His signature piece was an art nouveau-inspired desk in oak with walnut veneer, with the main part of the desk requiring 54 intricately-formed pieces of veneer.

This year saw a public vote at an exhibition of students' work in Edinburgh, with the Punters' Prize being awarded to Timothy Low from Singapore. His signature piece was a funfair console-style cabinet, made from layers of bendy ply and sycamore, with a hand-carved little girl on its front who has lost her balloons. The multi-coloured balloons, set in resin, are floating away across the cabinet's top.

The Best Design Award was won by Isaac Young from Suffolk, whose drinks cabinet, complete with a complex opening mechanism, was designed to look like the kind of safe a bank would keep its money in overnight. It comprises MDF veneered with wenge wood, and is all the more remarkable since Isaac came to the Chippendale school straight from school.

The Best Portfolio Award was won by Darren Christie, a qualified zoologist from the Falkland Islands, whose work included an elm and fumed oak jewellery box, which he made for his wife, complete with brass hanging pegs for necklaces, and drawers for other items.

The Richard Demarco Prize 2018 was awarded to John Grillo, a former business intelligence analyst from Denver, Colorado. The prize is given by the celebrated arts commentator to the student whose work not only displays design and woodworking skill but also exceptional artistic talent.

The prize was specifically awarded for John's stunning round dining table, made from some 40 pieces of intricately-cut walnut, with a dozen pieces of pepperwood veneer to form a simple, flowing yet geometrically complex design.

Lastly, The Chippendale Society Award, given this year to mark the 300th birthday of Thomas Chippendale, was won by Vanessa Johnston from Seattle.

Vanessa was awarded the prize by Dr Adam Bowett, chairman of the Chippendale Society, for the quality of her craftsmanship, design and the coherence of her wych elm and olive ash furniture collection, which includes a table, bedside tables, chair, and an intricate clock.

"Each year the quality of our students' work seems to get better and better, and this year has been no exception," finishes Anselm. To find out more about the school, see www.chippendaleschool.com.



2018 Student of the Year, Honor Dalrymple



LAGUNA LAUNCHES IN UK AND EUROPE

Laguna Tools was founded in Laguna Beach, California. Now over three decades later, the company is a market leader in the American woodworking machinery market. Introducing new and innovative design solutions, coupled with exceptionally high quality manufacturing standards, has enabled the company to earn a well-deserved reputation both in their home market and worldwide.

Laguna are pleased to be launching their range of woodworking machines in Europe, with all having been redesigned to meet CE regulations while retaining the innovation that sets them apart from the competition.

These machines will be available through a network of specialist independent retailers in the UK, Ireland and Europe. Having already launched their ground-breaking Cyclone and extraction range, further exciting products such as bandsaws, lathes, table saws and sanders are planned for release later this year and throughout 2019.

To find out more information and locate your nearest stockist, please visit www.lagunatools.uk.

PROPOSED OFFENSIVE WEAPONS BILL COULD HAVE AN IMPACT ON ALL

Some of you may already have heard of the Government's plans to move forward with legislation that will aim to reduce the availability of sharp blades to those who wish to use them as weapons. While the majority of us would absolutely commend any action that reduces this risk, the proposed legislation will make it impossible for anyone, including professional tradesmen, hobbyists and craft enthusiasts, to have any bladed tools delivered to their doors from responsible and trusted internet retailers, such as Craft Supplies Turners Retreat, Classic Hand Tools, Workshop Heaven and many, many more.

If the proposed legislation's wording is interpreted as we believe it to be, that will constitute **ANY** everyday edged tool, including not only knives but firewood splitting axes, carving gouges, chisels and nearly every other woodworking tool you can imagine.

Despite numerous representations to the Home Office and the Metropolitan Police, offering alternative solutions that will reduce the availability of blades to those who wish to use them as weapons, the Government are still insisting on going ahead with a proposal that will have a major economic impact on everyone involved in the tool making/ selling industry.

This legislation also compromises the rights of those people who are house-bound, who would find it difficult to travel to bricks and mortar shops.

As part of the woodworking industry and supporters of all those companies who are likely to be affected, we urge as many readers as possible to sign the online petition – <https://petition.parliament.uk/petitions/222776> – and to support the removal of Article 15.

Many within the woodworking industry are already heavily involved in the petition, aiming to get the Government to recognise that what is being put forward in its current wording won't significantly do anything to prevent the rise in knife crime that this legislation attempts to tackle. Something needs to be done to make sure bladed tools are used to make things and not utilised as weapons, but this ruling needs lots more discussion in order to find a workable solution.

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DEWALT DCS577 54V XR FLEXVOLT 190MM HIGH TORQUE CIRCULAR SAW

MANUFACTURER: DeWalt

D&M GUIDE PRICE: See website

New to the XR FLEXVOLT range from DeWalt is the 54V DCS577 cordless worm drive style high torque circular saw. The blade is oriented to the left of the brushless motor, which delivers an incredible 2,400 Max Watts Out and the handle is at the rear to optimise line of sight when cutting. An electronic brake helps stop the blade after the trigger is released. Bevel capacity is 53° with stops at 45° and 22.5°. The saw makes smooth, accurate cuts and delivers long runtime with a durable, high-grade magnesium shoe and an efficient brushless motor. This new circular saw cuts to a depth of 65mm at 90° and the supplied rafter hook makes it convenient to hang the tool on the jobsite. This saw is also Tool Connect Tag-Ready™ so you can easily track it by attaching a Tool Connect™ Tag (sold separately). It's ideal for wood cutting applications such as oriented strand board (OSB), plywood, hardwoods, dimensional lumber and flooring. Professional framers, concrete formers, carpenters and general contractors can boost their productivity with this tool. Available as a body only machine or as a kit with 2 × 54V 6.0Ah/2.0Ah XR FLEXVOLT batteries, charger and soft holdall.



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BRUSHLESS



METABO – NEW LiHD 4.0AH & 8.0AH BATTERIES

MANUFACTURER: Metabo

D&M GUIDE PRICE: See website

Thanks to new LiHD technology, Metabo is the only manufacturer in the world to cover the entire power range – 400 to 3,200W – from standard machines to unique system solutions. Applications previously reserved for only the most powerful mains powered machines can now be handled cordlessly. The new LiHD battery packs are now available with 4.0Ah, 5.5Ah and 8.0Ah.

The new 4.0Ah battery is significantly flatter than a standard Li-ion 4.0Ah version as well as 100g lighter, thanks to its unique single cell row.

See the **D&M Tools** website below for further information.

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ANDREW STRICKLAND

A few years ago, Andrew Strickland decided to take a leap and spend an entire year learning to be a furniture maker at the Peter Sefton Furniture School – he has since launched a small business. Andrew commented: "Once I got to Peter Sefton's school I was exposed to his amazing machinery set up; his workshop is fully equipped with both Hammer and FELDER kit. Working on those, I could see how accurate and reliable they were, making the decision easy for me when it came to setting up my own workshop. Why would I go somewhere else when FELDER supplies all the machines I need for my workshop under one roof?"

After completing the course, Andrew attended an open day at FELDER's UK HQ in Milton Keynes, where he purchased a N4400 bandsaw, an A3-31 planer/thicknesser from the Hammer range, plus a KF 500 professional saw spindle moulder and an AF22 dust extraction unit. Andrew continued: "At the open day, it was amazing to see the kit that I wanted to purchase



and then the bigger machines such as the CNCs. It was fantastic to go and check out the entire range. The sales team were really helpful; I was probably at the smaller end of the ordering scale but they treated me like

any other customer. I had a three hour meeting with the team, going through all the options and configurations available to me."

Talking about his machines, Andrew says: "The first one I bought was the N4400, which is suitable for producing curve work, ripping down material, cutting veneers, which I can do accurately, plus ripping timber down to 1mm with a high fence – it's very versatile. I also have a A3-31 with the spiral cutterblock due to its sheering action. I use a lot of European walnut and sycamore in my furniture making. Ripple sycamore in particular is prone to chipping out but with the spiral cutterblock, this is not an issue at all. I also ordered the digital dial having used it at Peter Sefton's previously. When thicknessing, you need to know the measurements to the nearest 10th of a millimetre. It is repeatable accuracy and gives me the confidence to push myself and achieve better results every time."

"My new favourite piece of kit is the KF 500 professional; it's amazing for panel work, and I can convert 8x4 boards down, fine size my veneer work and, with the spindle, work off templates for curved pieces and tenoning. It's amazingly versatile, as well as solidly built, reliable and accurate; I can constantly take the outrigger and crosscut fence on and off, and it cuts 90° every time."

See how a range of machines from FELDER can benefit your workshop at www.felder-group.co.uk or call 01908 635 000 for more information. You can also watch the full testimonial on YouTube by searching for 'FELDER GROUP UK TV'.

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AXMINSTER MB1931 BENCH-TOP THICKNESSER

Compact and very capable, if you're in the market for a bench-top thicknesser then this model from Axminster would certainly be a serious contender, says **Colin Simpson**

I have to admit I am quite a fan of Axminster kit. I have five of their chucks, numerous lathe accessories, many of their power tools, a pillar drill, one of their lathes and a recently acquired trade-rated slow bench grinder. So I was delighted when they asked me to test their new, hobby-rated thicknesser. Can I give this an

unbiased test, given that I have already admitted to being a fan of Axminster? Well, yes I can, but read on and judge for yourselves.

First impressions

The thicknesser came well packaged with expanded polystyrene protection during transit

and cable ties to prevent movement of the thickening head. My first impression when I unpacked it was that it was a well finished, reasonably sturdy machine. The main frame of the MB1931 is cast and the covers are made from plastic. Plastic, I thought. Might there be a durability issue here? Certainly it cannot



A useful compartment on top holds the blade setting jig and tools



Installing the rubber feet into the casting on the base



Close any gap here by adjusting the in- and outfeed tables...



... by screwing these bolts in or out

be as strong as the metal covers on their CT-330 thicknesser, but then I have to be careful not to make those comparisons. The Axminster CT-330 is trade-rated whereas the MB1931 is designed for hobby use and is over £300 cheaper. As such, it would be unfair to expect the same quality and features of the more expensive machine.

There is a useful compartment on top of the thicknesser to hold the blade setting jig, spanner and hex keys. The infeed and outfeed tables fold up when the machine is not in use and both have rollers to facilitate easier feeding of the stock. The instruction manual is included and I found this to be clear and informative with lots of explanatory photos.

Assembly

There are a couple of simple user assembly tasks to perform and these are explained clearly with photos in the user manual. Firstly, there are four rubber feet that need to be pushed into the casting at the bottom of the machine, and secondly, the rise and fall control handle needs to be bolted on.

Setup & adjustment

As with all machinery, it is always worth checking the accuracy of the factory setup and adjust as necessary. In this case I checked the level of the infeed and outfeed extension tables to make sure they were level with the main mirrored bed. More accurately, I made sure that the rollers on both tables were level with the main bed. In my case, I needed to adjust the infeed table slightly. This adjustment is covered by diagrams in the user manual and is achieved by undoing two lock nuts and screwing two bolts in or out underneath the tables. I had to tip the machine up to do this, but bolting it to a workbench would make this adjustment difficult. Most thicknessers of this



A mismatch between the actual height and what the scale reads

type have the same means of table adjustment. The user manual also shows how to check that the cutterblock is parallel to the mirrored bed and if it isn't, how to adjust it. In my case – and I would really like to think in every case – no adjustment was necessary as the factory assembly just happened to be spot on.

A few niggles

On closer inspection of the MB1931 I do need to mention a few niggles. Irritatingly, the scale showing thickness of the timber (or, if you prefer, the height of the cutter above the centre table) bears no resemblance to the actual thickness of the wood (or height of the cutter). When the scale reads 150mm the actual thickness is 165mm. There is a minor adjustment you can make on the pointer, but it will not adjust to take into account a 15mm difference. The scale on the machine is stuck on to the plastic housing and, were this my thicknesser, I would be tempted to prise it off and stick it on lower down. I did have cause to visit Axminster during the review and mentioned this to them. In fairness, we did check another thicknesser and found the scale to be accurate, so perhaps I was just unlucky with the machine they sent me?

Another irritation concerns the rise and fall handle. One full turn will raise or lower the cutterblock by 1.6mm. There is a scale below



The rise and fall knob and scale, but no indicator...

the rise and fall handle, indicating positions for 0.4, 0.8, 1.2 and 1.6mm, which shows how much stock will be removed. However, there is no pointer to indicate how far the handle rotates. I suppose you could judge it by the position of the horizontal arm, but a pointer would be more accurate. I therefore decided to make one.

My third, minor niggle is with the cutterblock cover. This has a chain attached to it, which is in turn fixed to the main body of the machine. I cannot see the point of it and it gets in the way when you replace the cover after refitting the blades. Initially I thought it was there to prevent losing the cover, but its size makes this unlikely. The only other explanation I can come up with is a health and safety one. The fact it is chained to the machine means you are unlikely to forget to replace it. If it is not in place then the blades are exposed, which could potentially cause injury to the operator. Chip extraction would also not be possible. If it is a health and safety device, then it is not a very good one. A micro switch would be far better, but I fully acknowledge that this would increase the cost.

In use

To put the machine through its paces, I began by connecting my extractor to the dust outlet and started both up. Noisy, but then these machines are. I would definitely recommend ear defenders. I first planed a 70mm wide piece of softwood,



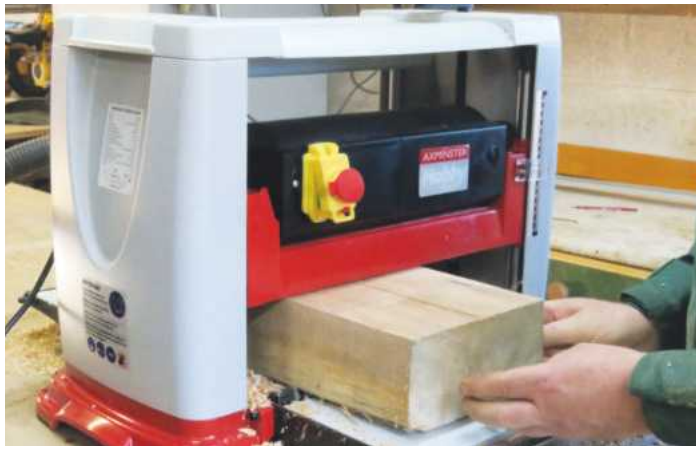
... so I decided to make one



I am not convinced of the need for this chain



As expected, the machine planed this softwood very well



It also coped well with this oak

taking a very light cut just to see what kind of finish would be produced with new blades. There are two blades and I thought this might give a slight ripple effect on the wood, but I was wrong – the planed surface was very acceptable. The specification states that the maximum depth of cut is 2.5mm, so I adjusted the height to take off this amount and ran the same piece through. Again it coped, but left a slightly inferior finish, as I would expect. Now for some hardwood. I ran through a 190mm wide piece of oak, which wasn't fully dry. Light cuts were great and I gradually increased the depth of cut. When I took off 1.5mm the machine coped but the motor was labouring a little, so I decided not to take off any more in a single pass. I don't believe there is any point in pushing any piece of kit to its stated limit and I think 1.5mm is a perfectly acceptable amount for a machine of this type to cope with.

Next I ran through a 310mm wide board of mahogany and again I was pleased with the way the thicknesser coped and the resultant surface finish. There was a little snipe at both ends of all the wood I ran through, but this is common on all thicknessers of this type and is unfortunately difficult to eliminate.



The blade alignment jig is quite easy to use



The bolts securing the blade holder were very tight – use a good spanner

Blade changing

Changing the resharpenable blades is straightforward and is clearly shown in the manual. To do this, you first need to remove the cutterblock cover and the manual suggests you must remove the top cover. Certainly it is easier to change the blades with this removed, but I think, in practice, you may well be able to omit this step altogether. Strangely, a hex key is not provided to remove the four bolts that hold the top cover in place.

My other observation during this process is that some of the bolts holding the blade holder in place were very tight and the cheap, pressed steel spanner supplied was barely adequate. I suggest you use a better quality 8mm spanner to prevent damaging these bolts. Installing the blades is simple, however. The blade sits on two springs located in the cutterblock. The supplied jig holds the blade down on these springs so that the correct projection is achieved while you tighten the bolts. To conduct a thorough review of any machine, I believe it is necessary to use it for some time. With that in mind, I had a fairly large pile of oak that I needed to thickness, so I spent a morning running that through the MB1931. I was very pleased with the machine and the result.

Conclusion

Would I buy one of these machines? The niggles I have pointed out may well be the same as you would find on any other thicknesser in its class – and on some that are more expensive. It would be an interesting exercise to compare similar machines from different manufacturers, like a *Which?* test. The thicknesser benefits from a supplied three-year warranty and, were I in the market for a similar machine, this model would certainly be a serious contender. ✂

For more information on why snipe occurs and suggestions on what can be done to reduce it, see Colin's technical article on page 20

SPECIFICATION

Cuts per minute: 18,000
Cutterblock diameter: 48mm
Cutterblock speed: 9,000rpm
Dust extraction outlet: 50mm
Feed speed: 7m/min
Knives: HSS (resharpenable) × 2
Max depth of cut (thicknesser): 2.5mm
Max planing width: 318mm
Max thicknessing capacity: 153mm
Min extraction airflow required: 390 m³/hr
Weight: 30kg
Overall L × W × H: 600 × 360 × 480mm
Power: 1.8 kW
Voltage: 230V

Typical price: £389.28

Web: www.axminster.co.uk

THE VERDICT

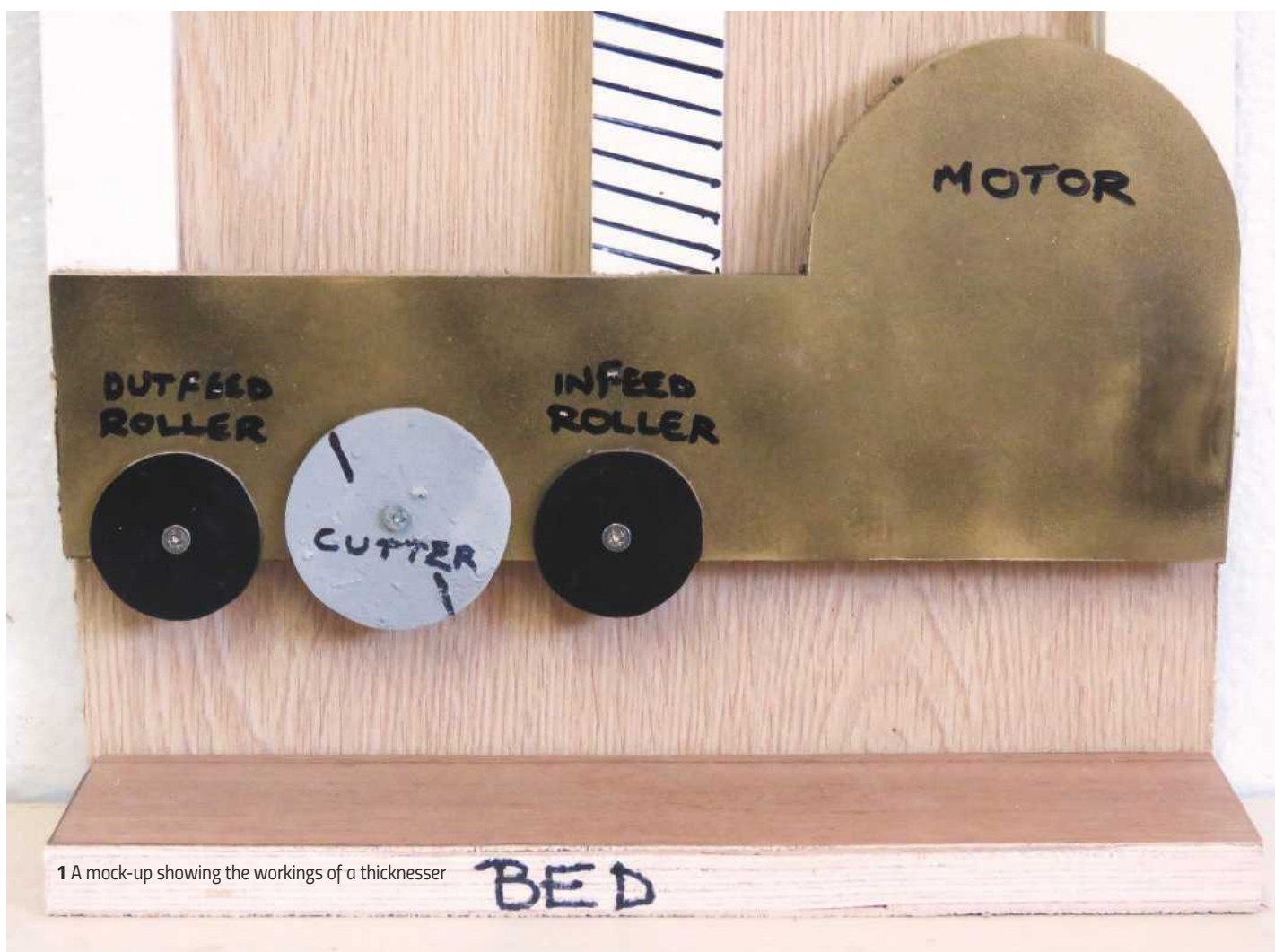
PROS

- Three-year warranty; easy blade setting
- difficult to get wrong; great surface finish
- at least with sharp blades

CONS

- Inferior spanner to loosen bolts; don't take the stated maximum cut on anything other than narrow softwood; minor niggles as described in the main text but none were show stoppers

RATING: 4 out of 5



1 A mock-up showing the workings of a thicknesser

UNDERSTANDING & REDUCING SNIPE

Following his review of the Axminster MB1931 bench-top thicknesser, **Colin Simpson** explains why snipe occurs as well as offering various suggestions on what can be done to reduce it

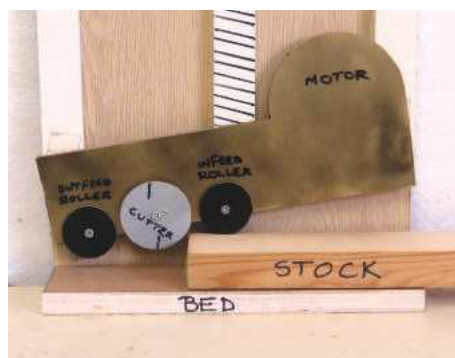
In my review of the Axminster MB1931 bench-top thicknesser, I commented that snipe is a very common occurrence on this type of machine. Here's my explanation as to why it occurs and a few suggestions on what can be done to reduce it. Please note that in this article I'm using the Axminster MB1931, but would like to emphasise that the snipe problem is not unique to this machine.

What is snipe?

Snipe is a deeper cut on the leading or trailing edge (or both) of a piece of wood after it has passed through a thicknesser. There are a few causes for it and properly aligned in- and outfeed tables will go some way to reduce it. However, for the reasons I will explain, this is unlikely to eliminate it completely. I built a quick model of

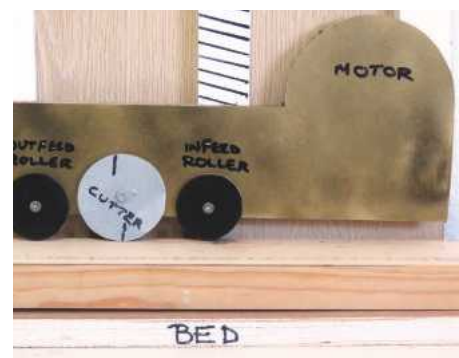
the main workings of the thicknesser to help understand the causes of snipe (**photo 1**).

As the wood is fed into the machine, the

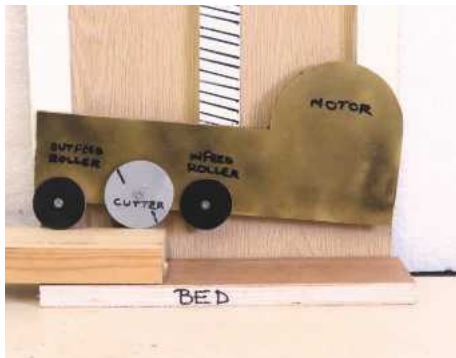


2 Stock under the infeed roller can make the work tip up...

top surface first hits the infeed roller. There is a little up and down movement in this roller, but as the wood goes underneath it the whole cutterblock assembly tips up slightly on the four rise and fall columns. **Photo 2** shows this movement, greatly exaggerated for clarity. This lowers the cutterblock slightly and when the wood progresses it goes underneath the outfeed roller and this causes the cutterblock assembly to tip back, slightly raising the cutters and therefore taking a lesser cut (**photo 3**). The opposite happens at the trailing end of the wood. As the stock leaves the infeed roller, this allows the cutter assembly block to tip down, meaning a slightly deeper cut is made in the wood (**photo 4**).



3 ... then tip back as it meets the outfeed roller...



4 ... and then tip down as the wood leaves the infeed roller



6 Simple blocks to hold the cutter housing rigid

So what can be done to reduce or make snipe less of an issue? The simplest way is to accept it and thickness your stock before cutting it to length. That way any snipe will be in the waste at each end. If you are thicknessing lots of pieces – bed slats, for example – feed in a sacrificial piece first and then butt up each successive piece to the trailing edge of the previous one (**photo 5**). The last piece should be another sacrificial block. This method ensures both the in- and outfeed rollers have stock between them and the bed of the thicknesser, thus reducing the snipe problem.



5 Feed stock through the machine so that the pieces are butted up against each other

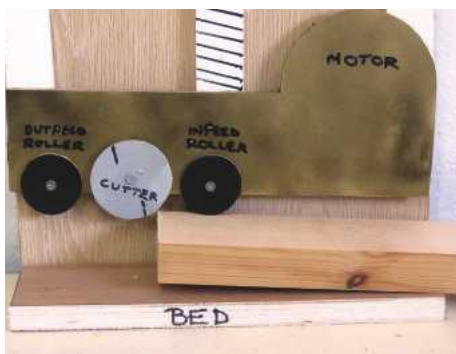
Another way of reducing the snipe issue is to make up two blocks as shown in **photo 6**. The area coloured in red is the exact dimension of the final thickness you want your stock to be. These blocks are placed on either side of the thicknesser bed and the cutterblock is lowered down to rest on the red areas. This should make the cutter block assembly more rigid and less prone to tipping (**photo 7**).

Snipe can also occur if you are thicknessing long stock that the tables cannot support well. The weight of the stock sticking out of the

machine can cause the leading edge to tip up into the cutter (**photo 8**). If you are regularly thicknessing long stock, you might consider making a longer bed and securing it to the machine. **Photo 9** shows my bed, which was made from an offcut of kitchen worktop. I know this reduces the overall thickness capacity of the machine, but how often do we need to run 150mm thick stock? I would be very interested to hear readers' comments on this explanation and the methods they have used to overcome the snipe problem, so please do get in touch. ✂



7 Place the blocks on each side of the table



8 Long stock can tip up into the cutter but ...



9 ... a longer table reduces the chances of this happening

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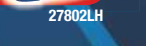
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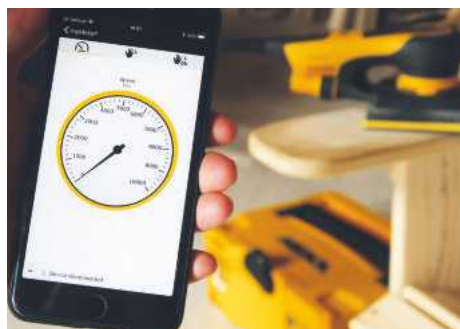


MIRKA DEOS ORBITAL SANDER

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

The Mirka DEOS 353CV is a compact and very lightweight orbital palm sander, which weighs just under 1kg. Its ergonomic credentials are noticeable straight out of the box and it sits very comfortably in the palm of your hand. The switches and controls are all easy to use and enable quick changing of speeds during various sanding

operations. If you've not used a Mirka sander before, the first thing you'll notice is the unusual paddle switch located on top of the machine, which is used to facilitate fuss-free switching on and off, but it also enables fast control of the different speed settings. This delivers a hassle free 'pick up and go' ability when working in the workshop or on site.



Bluetooth connectivity to the MyMirka App



The ergonomically designed paddle switch



Power switch, speed adjustment and indication light



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



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



Sanding between coats of finish



The 81 x 133mm DEOS base pad showing extraction holes



Base pad fitted with Abranet sanding sheet



The Mirka T-LOCK systainer case

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

MyMirka smartphone app

The palm sander not only features the unique paddle switch for fast speed control, but it also has a positive and negative option, which allows the user to set a top speed limit. This means you could set a 50% speed level and when you fully press the paddle switch, it will not go any higher than this. Changing the power limit is indicated by the consistent green indicator light, which gives a red flash each time the increase or decrease switch is engaged. Unless you download the MyMirka smartphone app – which allows you to connect to the orbital sander via Bluetooth – there is no way of gauging which speed setting the sander is on. The app shows the real time running speed along with the vibration level and you can monitor this to ensure it's not getting too excessive. I can report that while I was using the sander, however, it didn't reach anywhere near the stated excessive vibration limits.

Abrasive sheets

The Mirka DEOS has an 81 x 133mm base with a 3mm orbit. The base pad is covered in extraction

holes, which ensures dust-free sanding when paired with the Mirka Abranet abrasive sheets; these allow dust particles to pass straight through the abrasive and not clog up like traditional sanding paper does. I would highly recommend sticking to using these sheets as they will increase the performance of the sander.

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

Exceptional sanding

While working in my cabinetmaking workshop, I found the DEOS exceptional for sanding in awkward areas due to its low (10cm high) profile. The 1kg weight makes it perfect for one-handed sanding operations overhead, especially if you are working for long periods of time. I used the Mirka a great deal for sanding between coats of finish on tall kitchen cabinets and found its compact weight really made the job easier along with the truly exceptional level of dust extraction. There is nothing more frustrating than sanding overhead only to have dust falling in your face! I paired the Mirka with my Festool CTL extractor and found the Festool hose adaptor fitted over the Mirka dust port and held itself securely in place, and plugging into the dust extractor power outlet gave instant auto-extraction as soon as I turned the sander on.

I have used many grades of Abranet sanding sheets with the DEOS – from 80 to 320 grit – on different materials and the dust extraction

I experienced has been consistently excellent. The sanding finish quality is very high and better than that seen on circular orbital sanders, which can leave swirls on the surface of the piece you're working on. This is where the DEOS' 3mm orbit really comes into its own, as it noticeably reduces any swirls and allows you to achieve the very best finish possible.

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

Conclusion

While I wouldn't recommend the DEOS for initial heavy sanding work, it is nevertheless ideal for lightweight and finishing work, especially for cabinetry, and being able to delicately reach into corners of panels and doors, etc. is a big plus. I could see this sander being given a permanent place in our workshop and having had it on test for a few weeks it will be missed, but I will certainly consider purchasing one in the future.

The DEOS is one of the most expensive sanders in its class, but if you're thinking about buying one it's worth taking note of the unique features, which, in my eyes, really do set it apart from the competition. ✂

FURTHER INFORMATION

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

SPECIFICATION

Motor: 250W brushless

Weight: 0.97kg

Orbit diameter: 3.0mm

Pad size: 81 x 133mm

Rating: Industrial

Speed: 5,000-10,000rpm

Voltage: 230V

Sound power level [Uncertainty K]: 80 dB(A) [3.0 dB]

Sound pressure level [Uncertainty K]: 69 dB(A) [3.0 dB]

Vibration sanding [Uncertainty K]: 2.6 m/s² [1.5 m/s²]

Typical price: £518.62

Web: www.mirka.com/uk/uk



A hose extractor can easily be fitted over the dust port



The removable power cable

THE VERDICT

PROS

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

CONS

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

RATING: 5 out of 5



RUSTIC CHARM



Follow **Jake Williams'** simple steps for carving your own wooden spoon for the kitchen

For a cooking spoon that will be used, you'll want to choose a hardwood to ensure the utensil will hold up to potential daily use. Woods like hickory, maple, ash, oak, walnut and cherry make very good cooking spoons. I typically use pecan wood because it is readily available to me here in South Louisiana, but you can choose whichever timber is native to you, so long as it is food-safe. All of my spoons come from fallen trees and limbs that I have picked up myself; I then make the spoon blanks and other items from these. You do not have to make your own blanks, however; you can simply buy untreated hardwood from your local timber yard and cut your own from it. ✂



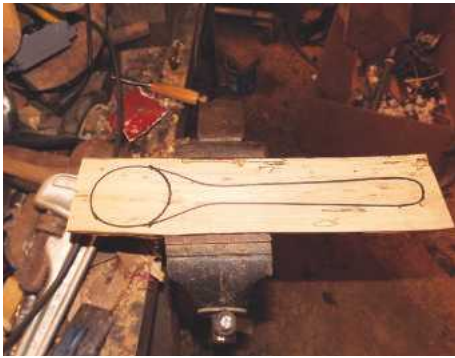
2 To establish the basic shape, I use a cheap wooden spoon that I've had for a while, which acts as a template



1 The first step is to mount the spoon blank in a vice



3 I really like the shape/design of the spoon shown here: it is simple but offers many options in terms of choosing the depth and intended purpose



4 This particular spoon will be used for basic cooking, so I add a curved line to outline the perimeter of the shallow bowl, which will then be carved out



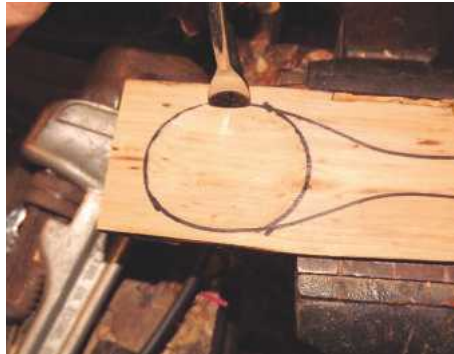
5 Using a large gouge, begin to remove the bowl section of the spoon. Work from the bottom to the top and top to bottom, rather than side to side, as this will prevent splitting and tearing of the wood



6 Depending on the depth you are trying to achieve, it will not take long before you have your bowl roughed out. I suggest cutting out the spoon's exterior shape after carving the bowl; this will allow for compensation of potential errors. It is not uncommon to get a little too ambitious and cut past your bowl outline, or experience some tear-out. With extra wood on the side of your outline, you can almost always correct any miscues



7 Using a spoon gouge, finish defining the shape and contour your bowl to the final depth. Unlike the previous tool, the spoon gouge should be carefully used in all directions in order to clean up any previously made tool marks as best as possible



8 Continue to 'dish' out the bowl area of the spoon, then once complete, you're ready to start sanding the bowl part



9 I typically use a bandsaw to cut out the spoon, but for the sake of this article, I used a hacksaw. The result is just as good, but the process does take a little longer. A jigsaw or hand saw could be used just as well



10 To cut out the spoon without cutting into the curves and contours, simply make a series of horizontal marks up to the spoon's outline



11 Next, cut along the horizontal marks to remove each block of wood. Be careful not to cut into your spoon. Don't worry if your outline looks rough and uneven at this stage – it will be addressed in the next step



12 Next, use a wood rasp to rough out the back of the bowl and handle. The rasp will remove a good amount of wood, so be sure to begin with a blank that is thick enough to account for the loss of wood later in the shaping process



13 A half-round file (shown closest to the bowl) is a good substitute for rasps when it comes to shaping the curves and contours of the handle, as well as the area where the handle meets the bowl



14 After shaping with the rasp and file, use a coarse sanding belt to finish shaping the spoon to its final form. For the back of the bowl and handle, you'll want to use a two-handed 'flossing' method to achieve a nice rounded contour. By 'flossing', I mean taking one end of the belt in your left hand, the other in your right, pulling down with your right hand, then pulling down with your left, and repeating



15 When you compare this photo to the previous one, you can see how much nicer the shape is looking after using the 'flossing' sanding method



16 To achieve your final desired shape, repeat the same sanding method on the handle as used on the back of the bowl



17 By now, you should pretty much have your final shape. All that's left to do is some progressive finish sanding. Starting with a coarse grit abrasive (60 grit), sand away all previously made tool and sanding marks from the handle and back of the bowl. Once all marks are sanded away, progress to a slightly finer grit (100 grit). Continue working up to finer grit abrasives, sanding out all marks, until you reach 300 or 400 grit. Since this is a cooking spoon that will be used often, there is really no need to go any higher than 300 or 400 grit for the handle and back. On the inside of the bowl, I personally don't use one finer than 220, for the same reason just mentioned



18 Front view after final sanding...



19 ... and rear view



20 There are many different food grade oils that can be used to seal the wood. I personally use whatever I have to hand in the kitchen, which is typically vegetable, canola or olive oil. I used vegetable oil to seal this spoon. I typically apply a liberal amount upon completion, let it dry for a day, before applying another coat and leaving for a day or two before use. I have used coconut oil in the past and it looks great, but it is solid at room temperature and leaves a heavy residue feel once the oil re-solidifies after application. It always fascinates me how sealing pecan with oil completely transforms the colour of the wood. It takes on a much darker, richer look compared to the lighter colour of the unsealed timber



21 Once oiled and left to dry, the carved spoon is then ready for use

FURTHER INFORMATION

To find out more about Jake and see some of his other projects, visit his website:

www.tool-school.com



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STRIKE A CHORD

In the final instalment of this three-part series, **Shaun Newman** takes us through the final steps of making an early Viennese guitar

In part 2, I described how the soundboard and its rosette are made and fitted before moving on to show how the back of the instrument is constructed. When fitted, the guitar is then ready to receive the bindings and purflings.

Bindings & purflings

The bindings on a guitar are there to protect the edges of the instrument from damage; the purflings are decorative and on this guitar only fitted around the soundboard. Both are let into the edges of the guitar by cutting a channel around the outside edges of the instrument. The bindings are made from strips of rosewood just 2mm thick and 6mm high. They should exceed the length of half the perimeter of the guitar by around 60mm and be trimmed to the exact length after they have been bent to shape on the hot iron. The purflings for the front are made from strips of walnut and sycamore in an alternating

pattern (**photo 58**). Each veneer is 0.5mm thick and 2mm deep, so if three sycamore and three walnut pieces are used the channel should be 3mm wide for them and a further 2mm for the bindings. There are no purflings for the back,



58 Examples of bindings and purflings

so the channel is just 2mm wide and 6mm deep (**photo 59**). The front of the instrument requires two channels – one each for the binding and purfling (**photo 60**). For both the back and the front of the guitar, it is as well to start gluing the



59 Binding channels in the back



bindings and purflings into place at the centre of the tailblock. As they arrive at the heel the front ones are inlaid into a channel, which will be hidden by the fingerboard. For the back they must be cut exactly to length, as it is not easy to hide the join. Before attaching the bindings and purflings, I use parcel tape to help the binding tape to adhere more securely (**photo 61**). Strong masking tape is used to hold everything in place as the glue dries (**photo 62**), and once the tape has been removed the bindings and purflings can be levelled and cleaned up with a thumb plane and/or sanding



60 Binding and purfling channels in the front



Photograph by Dave Hutton

stick (**photo 63**). Just before that operation the parcel tape needs to be removed and care is required here while dealing with the soundboard as the soft spruce grain can easily tear.

When the back has been cleaned up a small heel cap can then be fitted. Sometimes 19th century guitars would have a bone heel cap, but in most cases, the maker would use a scrap of ebony or rosewood left over from a previous project. On this occasion, I decided to fit a heel cap of ebony, which would contrast nicely with the maple (**photo 64**).



61 Parcel tape helps the binding tapes hold firm

The fingerboard

The fingerboard on a Staufer guitar is rather different in its design than most fitted to classical guitars. For one thing it has 22 frets where most classicals have 19 or 20. It is also reduced in width from fret 12 (i.e. at half the string length) to fret 22. Then, it is not attached to the soundboard from fret 12 but sits a couple of millimetres above the surface to help give the instrument a larger vibrating surface. This means that the underside of the fingerboard from the nut to fret 12 is raised from the top face of the neck by around 2mm. This can be achieved by attaching a 2mm ebony veneer on the underside of the fingerboard from the nut end to fret 12, or by some careful plane and chisel work. From the end of the 'step' that is created, the fingerboard is tapered just enough to ensure that when the strings are pressed against frets lower than No.12, the underside of the fingerboard does not come into contact with the soundboard. It is as well to dry-fit the fingerboard with cramps to test this as it is difficult to work on the underside of the lower part of the fingerboard once it has been glued into place.

The fingerboard itself is made from a billet of ebony 500mm long, 65mm wide and 7-7.5mm thick. When finished, the part that is glued to the neck should be no thinner than 7mm. At the nut



62 The bindings held in place on the back with strong masking tape



63 Cleaning up the bindings and purflings



64 The ebony heel cap held in a cam clamp

the fingerboard is 48mm wide and 58mm at fret 12. The bottom corner of the fingerboard is tapered to the centreline of the guitar (**photo 65**).

The fret slots can be cut with a dovetail saw, using the right-angle slot of a mitre block, or a specialist slot cutting tool provided by luthiers' suppliers (**photo 66**). It is important to test the depth of cut frequently as too shallow and the fret will sit proud causing buzzes; cut too deep and the tensile strength of the combined neck and fingerboard can be compromised. A small piece of thin metal with a masking tape line set to the depth of the fret tang works well as a depth gauge and is easy to make (**photo 67**).

The frets are cut from lengths that can be bought from luthiers' suppliers such as Stewart-MacDonald. I used standard classical fret wire made from nickel silver (**photo 68**) and each one is cut to around 6mm over length, which helps to give an overlap that can be held between the finger and thumb while the fret is tapped into place. A hammer with a rubber, nylon or brass head should be used to get the frets tightly seated, and the best is the 'dead blow' hammer, which has a nylon-faced head that is filled with lead shot. This helps to prevent the hammer from bouncing back at each blow, ensuring the fret does not bounce back either.

Once the frets have been safely located, the ends can be snipped flush, filed to exactly 90° and then angled to around 60° for comfortable playing. This can be achieved using a couple of simple, home-made tools. Lengths taken from two files are attached to hardwood blocks, which have a 90° and 60° angle respectively planed along them. The lower edge of the file protrudes around 5mm

and when the block is run along the top of the fingerboard the fret ends are nicely trimmed (**photo 69**). From time to time, small jagged parts are felt at the fret ends, and these should be carefully removed with a safe edge file.

Finally, the tops of the frets should be tested for evenness. Any standing proud should be levelled with a file until they are the same height as the others and the top of the fret 'crowned', which requires care to recreate the domed profile. Some makers run a flat whetstone over the frets until all have been touched and then each one is carefully re-crowned. This should not be necessary if the fingerboard was truly flat after it had been fitted and all of the frets are properly seated, however.

The fret spacings are as follows: nut to fret 1 – 34mm; to fret 2 – 66mm; to 3 – 95.5mm; to 4 – 124.5mm; to 5 – 151mm; to 6 – 177mm; to 7 – 201mm; to 8 – 223mm; to 9 – 244mm; to 10 – 265mm; to 11 – 284mm; to 12 – 302mm; to 13 – 318.5mm; to 14 – 334.5mm; to 15 – 349.5mm; to 16 – 364mm; to 17 – 377mm; to 18 – 390mm; to 19 – 402mm; to 20 – 413.5mm; to 21 – 424mm; to 22 – 434mm. For the instrument to play in tune the spacings should be carefully observed, and each fret slot should be exactly parallel with the inner face of the nut, i.e. the top edge of the fingerboard.

The bridge & decorative 'mustachios'

It is very common to see highly decorative 'mustachios', as they were called, fitted to the bridge of early 19th century guitars. Some Italian guitars (e.g. those made by Gennaro Fabricatore) from a similar period had them covering the larger

part of the lower bout of the instrument. Stauffer was more restrained in his designs, and the one illustrated is a less complex example. Before tackling the decoration, it is necessary to make the main body of the bridge. This is shaped from a billet of ebony around 180mm long, 30mm wide and 9mm thick. The billet must be planed flat on the back and front and the longer edges should be exactly parallel. The ends of the bridge billet are tapered down from 9mm to around 3mm and the taper is on a gradual curve. The top parts of the bridge decoration are first shaped with a fret saw and then with warding files. A housing is cut 2mm wide and 5mm deep to accept a bridge saddle made from ebony (**photo 70**). Some Stauffer guitars did not use a bridge saddle as the action could be regulated by the adjustable neck. As this guitar does not have that facility, a saddle is useful so that the action can be altered with relative ease, either by shaving a little away from the underside of the saddle to lower the action, or by using a shim to raise it. Some guitarists have several saddles tucked away in their instrument case so that they are able to raise or lower the action at short notice.

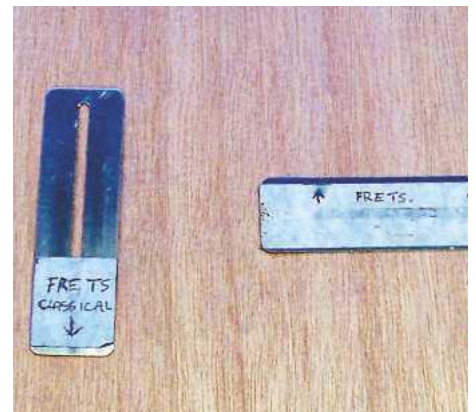
The next task is to locate the correct position for the bridge. First two 2mm holes are drilled down through the saddle housing each around 4mm from either end of the slot. This will be used to help locate the bridge accurately. The inside edge of the saddle housing should be 604mm from the top edge of the fingerboard, and the centreline of the bridge should sit directly over the centreline of the guitar. The position of the two 2mm holes needs to be marked through onto the soundboard and two further 2mm holes



65 The ebony fingerboard under preparation



66 Cutting the fret slots



67 Home-made fret depth gauges



68 Nickel silver fret wire before cutting



69 Home-made fret edge trimming tools



70 The bridge roughly made showing the saddle slot

drilled exactly on each spot right through the spruce. If a cocktail stick is then broken in two and passed through the two holes in the saddle slot, the bridge can be placed into exactly the right place by also passing the sticks through the holes in the soundboard. The sticks help to prevent the bridge from moving when it is glued and cramped into place and are simply snapped off both inside and out when the glue has dried.

Before gluing the bridge into place, the string spacings must be determined and a set of six holes drilled to accept the bridge pins. Such pins are normally around 30–32mm long and 5 or 6mm thick at the widest part of the taper. The angle of the taper is normally 5° but can also be 3° depending on the manufacturer. They can be turned on a small lathe, but this takes a lot of time, and they are not expensive to buy. The ones illustrated are rather special. Stauffer used quite large mother-of-pearl dots in the ends of his bridge pins, and these are difficult to locate now, especially since the restrictions on the movement of some types of shell from, for example, the USA. The ones I used came from Graph Tech in Canada and are known as 'Presentation' bridge pins as they have the larger mother-of-pearl dots – see supplier list at end of this article (**photo 71**).

It should further be noted that bridge pins can be slotted or unslotted. The slots are to allow the strings to be gripped tightly on the bridge so if unslotted ones are used, it is necessary to cut small grooves in each hole to allow the string to pass through. I used slotted ones here.

Once everything is in order with the upper part of the bridge and it has been cramped into place, the 'mustachios' can be tackled. These are made

from four pieces of ebony each 1mm thick and measuring 60 × 60mm. Two are laminated with epoxy with the grain running at right angles between each piece. The other two are similarly treated and when the epoxy has cured all four are stuck together with a piece of newspaper between them and fish glue. The grain on the top piece of the four must run in the same direction as the bottom piece. When the fish glue has dried a piece of white paper can be glued onto the top of the stack, and with the grain running horizontally, the mustachio design is drawn onto the white paper. A white address label will serve well for this purpose.

The design is then carefully cut out with a fine blade fitted to a small fretsaw (**photo 72**). Once the design has been cut out and satisfactorily cleaned up with needle files, the assembly is dropped into hot water, which, after a while, will dissolve the fish glue and the two halves can be separated. The good thing about this approach is that any slight error will look intended when the two halves are laid out like butterfly wings, so there is no need to worry about the blade going slightly off track! The mustachios are then coated on the back with a fine layer of Titebond and held in place on the soundboard with weights. Using as little glue as possible will make the clean-up much easier. At this point a small strap button may be fitted into the tail end as these 19th century guitars were sometimes played while standing (**photo 73**).

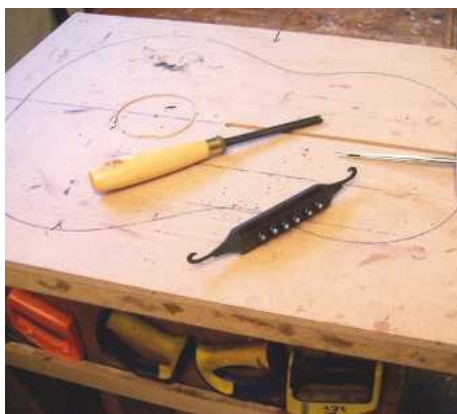
The top nut & bridge saddle

On modern guitars these are usually made from bone but on this instrument, ebony is

used in keeping with the tradition. The saddle is made to fit the slot in the bridge and sits around 4mm above the top surface of the bridge on the bass side, and 3mm on the treble. These measurements are a rough guide to begin with, and when the strings go on may be adjusted according to the type of action required. Some guitarists who enjoy playing fast runs and scales will often look for a low action, as is the case, for example, with Flamenco players. Others look to a high action to be able to get more tone colour from each note. This is very much a matter of personal taste. The edge of the saddle nearest the tailblock is sloped downwards to allow the string to sit comfortably on its way to the bridge pin. At the other end of the fingerboard the nut is also made from ebony but is thicker at around 5mm (**photo 74**). The height of the nut should allow the strings to sit just 2mm above the height of the fingerboard and requires six grooves so the strings can be held in place as they are struck. The grooves that hold the strings in place in the nut may be lowered if the player wants a low action at fret 1. The top 'E' string (also called No. 1) is usually no more than 3mm from the edge of the fingerboard on 19th century guitars, whereas today on a full-sized classical guitar, it can be as much as 6mm. The bass 'E' (No. 6) string sits at around 2.5mm from the edge. As with the saddle, the back of the nut should be sloped down towards the headstock (**photo 75**).

Finishing

There are many ways to finish a guitar, from French polish to oil, from urea formaldehyde resin to nitrocellulose lacquer. Over the years



71 The bridge pins in place



72 Fretting out the 'mustachios'



73 The mustachios and strap button in place



74 The ebony nut and saddle before finishing



75 The nut in place ready to accept the string grooves



76 General Finishes acrylic resin



77 A simple support to hold the guitar steady during finishing



78 The guitar in its custom-built case

I have come to appreciate the water-based, low VOC and therefore environmentally friendly acrylic resins produced by General Finishes in the USA (photo 76). As the finish is water-based it can be imported without restrictions and happily does a very good job. While applying the finish it is helpful to support the instrument for at least part of the operation, particularly as the weight alone can make your arm ache (photo 77). No more than three or four coats are required, rubbed down with 400 grit abrasive between applications and then buffed with polishing compound. Both gloss and satin are available from Stewart-MacDonald, and also from various suppliers in the UK.

Stringing up & tuning

Good quality strings are vital for any classical guitar, and although original Stauffers may well have been strung with gut, modern strings are far superior. If the maker wants to stay with tradition, then gut strings are still available from, for example, the Early Music Shop in Saltaire or

London. Some makers use 'nylgut' strings, which are halfway between nylon and gut. For me, however, the best are D'Addario EJ45 nylon ones in normal tension.

The strings must have a 'stop knot' at one end to pass through the hole in the bridge and be held in place by the bridge pin. At the other end they are simply threaded through the hole in each roller and brought up to tension with the usual 'EADgbe' regimen.

A suitable case

The final task is to make a case, although cases for smaller guitars are available from good music shops. The case is really just a box lined with foam rubber covered in crushed velvet. A neck support should be put in place and a method of keeping the instrument firmly located is necessary. Hook-and-loop strips hold the neck nicely (photo 78). It is a good idea to fit 90° hinges to the lid as guitars are often damaged by lids falling on them while they are taken out of, or put into, the case.

SUPPLIERS

- **Alpenholz Pahler** – fine quality maple and spruce in keeping with the Stauffer tradition – www.alpentonholz.de
- **Stewart-MacDonald** – timber, tools and accessories (including drawings). USA based, therefore 20% tax needs to be added to most purchases – www.stewmac.com
- **David Dyke** – timber, tools and accessories. UK based – www.luthierssupplies.co.uk
- **Tonetech** – as with David Dyke – www.tonetechluthiersupplies.co.uk
- **Touchstone Tonewoods** – as with Tonetech and David Dyke – www.touchstonetonewoods.co.uk
- **Tonewoods4luthiers** – timbers, particularly exotic – www.guitartonewoods4luthiers.co.uk
- **Graph Tech** – 'presentation' grade bridge pins – www.graphtech.com
- **Strings Direct** – strings for all types of guitar – www.stringsdirect.co.uk
- **Rubner Tuners** – via 'Rosette Guitar Products'. USA based – www.rubnertuners.com
- **The Early Music Shop** – a source of authentic strings for 19th century guitars – www.earlymusicshop.com

The body depth, bracing, quality of the Alpine spruce and the excellent strings will bring the Stauffer to life and be able to hold a concert audience spellbound, creating an instrument that is ideal for the 19th century classical guitar repertoire. Great composers such as Sor, Regondi, Aguado and many more have all written gems for instruments such as the one made here. ✕



79 The Stauffer is ideal for the 19th century guitar repertoire



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STAYING SHARP

In the first of a brand-new series, **Richard Chaloner** looks at one of the most fundamental woodworking skills, which is the key that unlocks the fun of working in wood – keeping your tools sharp



1 A natural slate stone, an Arkansas stone, a combination oilstone, and three Japanese waterstones of different grits, all from my workshop

“Take a sharp chisel!” say the directions in that otherwise helpful and comprehensive woodworking book. Good advice, of course, since blunt tools are much more hazardous in use than extremely sharp ones, but I wonder how many beginners and hobbyists have shrugged, and said to themselves: “OK, but how do I get it sharp?” Keeping your tools sharp is the key that unlocks the fun of working in wood, so let’s look at this most fundamental of skills.

If you ask a dozen different woodworkers how they create a sharp edge on their chisels the chances are you will hear a dozen, slightly different, answers. Woodworkers tend to be an opinionated bunch at the best of times, and discussions on sharpening can really bring this out. Some prefer oilstones; others prefer waterstones, diamond impregnated laps or even abrasive papers.

Of course I have my own particular prejudices, but I am broad-minded enough to state that there is no ‘correct’ sharpening method other than the one that allows you to create a sharp edge.

With this in mind let’s look at what the sharpening process is aiming to achieve at the business end of your chisel.

Not all chisels are created equal

There are lots of different types of chisel, but they all have in common the idea of a flat back, and a bevel on the other side that terminates in a sharp edge. A flat back is fundamental to chisel design; you want it to be able to slide smoothly across the wood removing material as it goes. That will never happen if the cutting edge isn’t flat down at the front of the tool. Bevels are a different story, though, and the angle depends on the use the chisel is intended for. A light bevel-edged paring chisel is going to be used relatively gently and needs a low bevel angle so that it cuts easily, whereas a chunky mortise chisel that you’re going to wallop with a mallet needs a more robust bevel to withstand such treatment.

As well as different types of chisel it has to be said that there are also a range of qualities. The most extreme example of dreadful chisels



I ever encountered were those brought into my woodwork evening class by a hopeful gentleman who had purchased them off a market stall. "They were really sharp when I got them," he told me, but the edge had deteriorated quickly, and could I show him how to sharpen them. The chisels had 'Made in China' stamped on them, with a very bright finish, which I thought odd. Nevertheless I set to work on them using the college oilstone. After a few moments, a brownish line began to appear along the edge, and closer inspection showed this to be copper. They were in fact copper chisels that had been plated in chromium! The plating had produced a very temporary sharp edge, but once blunt they were finished. This was back in the late 1970s, though, and Chinese manufacture has come a long way since then.

You may have heard older woodworkers moaning that modern tools aren't a patch on those fine chisels from Sheffield that they obtained in their youth. Well, as an old woodworker, I have to say that they're mostly right. I still use a $\frac{1}{2}$ in Marples that I've had for over 50 years and it really does take, and importantly



2 A western and a Japanese chisel. The Japanese tool has been manufactured with a hollow ground back, which makes sharpening faster

keep, a superb edge. The steel used to make chisels is a compromise. It needs to be hard enough to take and hold a sharp edge while at the same time being soft enough to resist the application of force without snapping. I have seen more than one stout mortise chisel snapped in half by over-zealous students who have pounded it deeply into the timber in an attempt to cut a mortise more quickly, and then tried to wrench it out by forcing the handle in different directions. The only interesting part of the experience is that one can observe the granular structure of the steel across the break; evidence of that compromise in action. In recent years all the chisels I have bought have been of Japanese manufacture. Japanese chisels have laminated blades, a sole of exceptionally hard steel and an upper layer of softer steel that is very resistant to impact damage. Japanese steel is rightly famous due to the edge it can take and these chisels really do stay sharp longer; perhaps even longer than my old Marples.

There are other features of Japanese chisels that I really like. Most western versions have a tang – a spike of steel formed on the blade at the handle end – which is driven into a pilot hole in the handle to hold it onto the blade. One obvious drawback is that the handle will tend to split if the chisel is used heavily, so you often see a brass ferrule at the base of the handle to minimise the risk of a split handle. Japanese chisels have a socket on the blade instead. The handle is fitted into the socket, and using force on the chisel simply makes it tighter. Japanese chisels also have a steel ring around the end of the handle. This sits a little below the end of the handle so that a small mushroom of timber spreads over it. This cushions the impact of blows onto the handle. Japanese chisels are intended to be used with a steel hammer, rather than a

wooden mallet, and the handle design coupled with the laminated steel blade make them very robust.

Get the edge

And so on to sharpening. Chisels have two bevels at their tip, at slightly different angles. The first is the grinding angle, which is around 25° for most chisels, and at the very tip is the honing angle, which is around 30°. Most chisels here means bevel-edged and firmer chisels that don't get much impact in use. Mortise chisels tend to be more robust so the grinding angle is usually around 30° and the honing angle around 35°, giving them more strength to resist the force they



3 Flattening a waterstone using a piece of plate glass and wet and dry paper. Keep everything well wetted and rub the stone back and forth until it is flat again



4 I like to cross my thumbs on the back of the chisel and press down lower on the blade with the first two fingers of both hands. I find this helps to keep the chisel angle constant

need to endure. Why grinding angle? Well because most people like to use a grinder to obtain the main bevel. It is quick and fairly straightforward, and I like to have my chisels hollow ground on the main bevel as it means that the honing edge, the bit you need to sharpen, is fairly small. This makes sharpening quicker and easier.

There are jigs and devices that you can obtain to keep the chisel in the right place on the rest, but I prefer to hold it between finger and thumb and simply not move them until you are finished. This is quick and easy – a feature that always

appeals to me. A piece of card with a 30° edge can be used to help set up the toolrest on the grinder at the correct angle. Keep moving the chisel across the face of the grinder and remember to quench the tip in water often; if you don't, the tip can get hot. If it gets too hot the steel begins to discolour, telling you that it's been damaged and therefore lost its hardness. You really need to avoid this. If you wonder whether it's time to quench, then do it now! Keep your fingers in position when you quench, or examine how the bevel is going, so that you can return to the grinder at the right angle.



6 Check your sharpening by paring some hardwood. This bird's eye maple comes off in smooth, controllable slivers



5 Try to use yourself as a jig. Keep your elbows locked and rock back and forth from the hips. Your hands and forearms move as rigid supports for the chisel and really keep it at the desired angle

Let sharpening commence

Now you can begin the sharpening process proper. Here we enter the oilstone vs waterstone vs diamond lap vs abrasive paper debate. Oilstones are the traditional British way. They are hard-wearing and fairly cheap. Waterstones are fast cutting and can produce a really sharp edge; however, they are quicker to wear and most need to be soaked in water before use. Diamond laps are quick cutting and very durable but may not produce such a fine edge. Abrasive paper is expensive and can tear in use, but does produce a very good edge. I grew up with oilstones and have accumulated a reasonable collection over the years; however, I have been using Japanese waterstones for a couple of decades now, and find that they suit me. There is no messy oil to clean off hands and chisels, which leaves nasty marks if it gets into the grain of the wood I'm working, and they cut quickly. As you may have noticed, I favour methods that make tool preparation fast; more time to do actual woodworking.

Whatever system you use you will generally need more than one grade of abrasive. Good old combination oilstones have two sides: one coarse, and the other of a finer grit. I use waterstones with three grades of grit: 300, 1,200 and 5,000. In practice I usually go straight to the 1,200 grit for chisels I just need to touch up, perhaps followed by the 5,000 grit to get that extra sharp edge. For many purposes, a 1,200 grit stone can give a good enough edge on its own.

The first thing to do is to flatten the back of the chisel. The stone you begin with depends on the amount of work the chisel needs. You are looking to get as shiny and smooth a finish as you can on the back and on the honing bevel so that the chisel is sharp and easy to use. Begin with a coarser stone and follow up with the same process on a finer one. You don't need to bring

the entire back of the chisel to a mirror finish; the important thing is to flatten the lower section of the back near the bevel.

One thing to remember here is that the stone needs to be flat in order to produce a flat surface on your chisel. This is an issue with all stones but can be a more frequent one with waterstones. Check that your stone is flat with a straightedge; if not you need to flatten it.

With a medium grade of wet and dry paper this really doesn't take too long. Oilstones take longer to 'dish' but also take longer to re-flatten. Wet and dry works here as well, but use oil as a lubricant.

When you have the back flat it's time to deal with the bevel. The honing angle is about 5° up from the grinding angle, which means 30° for most chisels. Some people like to use a honing guide for this. These devices hold the chisel at the correct angle and you simply run it back and forth along the stone on its little wheel. There are a few reasons why I never use these. Firstly the need to keep both the chisel and the honing guide on the stone at all times means that there is an increased tendency for greater wear in the centre of the stone. This is a pain, particularly if you're using a waterstone. It is also cumbersome and irritating when you need to flip the chisel over and touch up the back. Finally, it's a faff! It's much quicker to sharpen by hand, and you know how I feel about quicker methods.

I've seen craftsmen who can hold a chisel at the correct angle simply by grasping the handle and part of the blade. They push back and forth on the stone and you can see that the handle angle never varies. Very impressive, but for normal people a good grip on the blade helps to keep the chisel from rocking as you work along the stone.

Try to use your whole body as part of the process. If you just stand still and reach out your arms to move along the stone, it's much harder to keep a constant angle.

When honing try to use as much of the face of the stone as possible; this will slow down that inevitable dishing of the stone. Some people like to use a figure-of-eight pattern to minimise wear in the centre section. One thing to note is that narrow chisels are harder to keep square on the stone than wider ones, so take extra care to keep them upright.

If you intend to get a really sharp edge, move on to your finer grit stone and repeat the process. If you want a mirror finish, you can finally move on to a strop of leather on which a polishing compound has been applied. Glue a strip of strong leather to a length of wood and work the chisel along it, drawing it towards you at all times to prevent it digging into the leather.

So that is how I keep my chisels sharp and ready for action. Next time that woodworking book tells you to take a sharp chisel, you will have it honed and ready to go. ✂

NEXT MONTH

Carrying on with his new woodworking fundamentals series, Richard goes back to basics and looks at marking out and cutting a range of simple/basic joints

CHISEL RESCUE



1 This car boot sale find is badly in need of rescue



2 Grinding back the edge to remove chips and dinks, sometimes caused by hidden nails, or someone using it to open a paint tin



3 Grinding the main bevel. The toolrest is set to produce an angle of approximately 25° . The curvature of the wheel means the bevel will be hollow ground



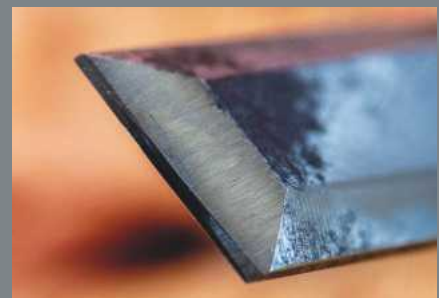
4 Quenching the chisel during grinding. If the tool gets hot enough to discolour to a bluish shade, it means it has lost its temper and has become weaker. Quench often to avoid this



5 Flattening the back on a 1,200 grit waterstone. Make sure the chisel is pressed flat on the stone's face, and rub it along the length of the stone. If your pressing fingers become exhausted, you can hold a piece of wood along the back of the chisel to help maintain an even pressure



6 Place the chisel on the stone so that it rests on the grinding bevel, then lift the handle 5° ; this is the honing angle. Hone the edge by rubbing the chisel back and forth along the stone



7 Hone until a small bevel appears, and there is a burr on the flat back of the tool. Now flip the chisel over and draw the back gently along the stone to flip the burr. Return to the bevel side and hone briefly, using a reduced amount of pressure. Repeat, creating a finer and finer edge behind that burr until, finally, the burr is gone and a sharp edge remains

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SETTING UP A WORKSHOP WHAT YOU NEED TO KNOW PART 2

Carrying on from the last issue, Peter Bishop further discusses workshop setup and this time looks at the types of tools required



1 A canvas tool bag is ideal for odd jobs around the house

In the last issue, I discussed some of the key considerations to make when it comes to setting up a workshop, such as layout, workbench and storage. Here, I'll look more specifically at the types of tools you'll need, including tool starter kits, as well as screwdrivers, drills and planes.

Other storage units

There are lots of different storage units available for the smaller items, such as nails and screws. Buy or make alternatives if you have a limited budget and plenty of time. A very useful and visible way to store small items is in old screw top jars. Fix the lids to the underside of a shelf, fill the jar and screw up into place. Whatever is in the jar can easily be seen and selected as required.



3 An adjustable height sawhorse



2 Dedicated plastic blade covers for your chisels will prove to be a handy safety device

Canvas bag

For the odd job around the house, or a quick fix on site, a traditional canvas bag is ideal (photo 1). They will probably have some inner compartments for screws and nails. Remember that a canvas bag will not protect your sharp tools; they'll slop around and knock against each other. To alleviate damage to your chisels a tool roll may be required. Most of these are made of canvas or leather. Check that the area where the sharp bit goes is strengthened to ensure the blades don't cut through. Another alternative is a set of dedicated plastic covers to suit the size of each chisel (photo 2). These should be available from most hardware stores. Saw blades are a different matter and a 'keep' should protect the teeth. This can be a small plastic tube or box with a cut down it that grips the blade from both sides. Keeps like this are normally supplied with a new saw; ask for one if it's not in the package. Alternatively, to make your own, cut a groove into a strip of wood to take the teeth and tie it on with some string. Planes – always wind the cutter iron up – and other sharp bits of kit should be stored individually in bags; canvas is ideal again. As long as the material is strong anything will do.

SAWHORSES

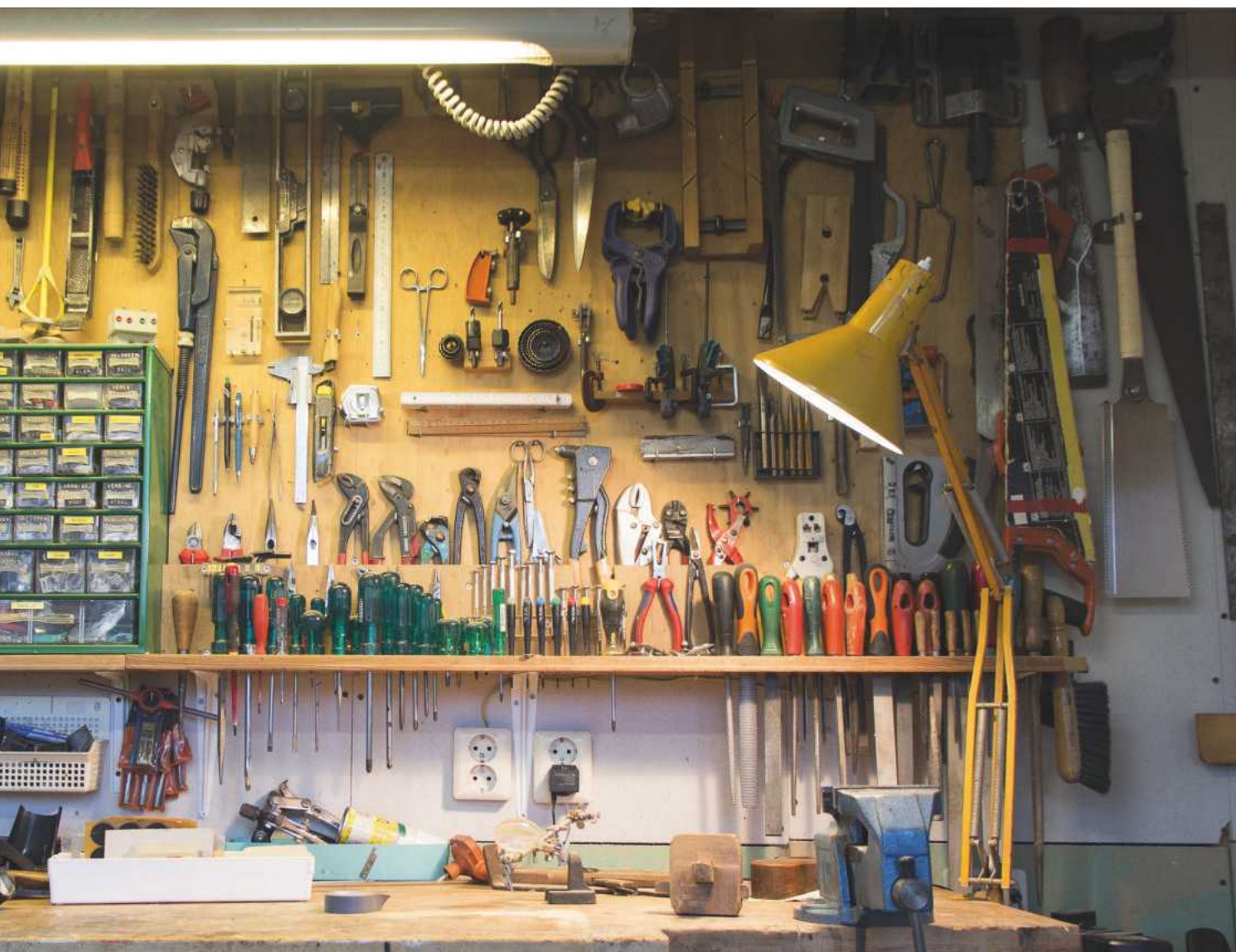
A very useful addition to any workshop is a pair of sawhorses (photo 3). These can take the longer and larger pieces of timber, sheet materials or other big workpieces that a workbench may not be able to handle. They are easy, simple to construct and, in their basic form, take up little space. You can make a whole host of different types of sawhorse – an online search is a good start. Useful additions include a fixed tray underneath to take tools and adjustable heights.



If you get involved in upholstery, sawhorses are a must. A couple of strips tacked down both sides of the top beam to create a groove will help to secure the castors of an item being worked on.



4 Various examples of hard-point saws



TOOL STARTER KITS

I can still remember my first powered drill – a white-bodied Black & Decker with gold painted metal parts. It had three speeds and a hammer action and was quite expensive at the time. I dithered about it for a while before eventually making the purchase. In the end it was money well spent; it must have lasted about 15 or 20 years before finally giving up the ghost.

I still have a number of tools that formed part of my original tool kit. The bevel-edged chisels are, admittedly, quite a bit shorter and the tenon saw is in need of attention. I made my first carpenter's mallet from a slab of beech. The head eventually went but the handle survives today with at least the third or fourth home-made head. Although I now have more than one, my first claw hammer is still in daily use. I have changed the handle several times but it is a nicely balanced tool that I expect to have in my kit for a long time yet. I guess the point I'm trying to make here is that it pays to be selective and take your time over the choice of tools you buy. Naturally there will be some that wear out, break or get lost, but there is no reason why, if properly looked after, they should not last for a good many years.

If I were starting out all over again today, I would spend time going round local second-

hand shops, sales and auctions. There is so much second-hand kit available that this is a cost effective way to start a collection. The only ones to avoid, unless you know where they came from, are the powered tools. These don't have to be extortionate, either. Keep your eyes open for special offers, closing down sales and old stock clearance sales. Look in the woodworking press, magazines and the local classified ads section to see what's available. Unless you can afford it, you don't have to pay top dollar for anything.

Following are some ideas for a basic starter kit that won't break the bank.

Saws

You'll probably need two or three saws (**photo 4**). Firstly, a universal hard-point saw with six to eight or possibly 10 teeth per inch (tpi), or points per inch (ppi). This will be useful for ripping down material and, if you're careful, cutting across the grain. A tenon saw with a brass or metal back is a must; these will have 10-41tpi. For the curved shapes, a coping saw is also useful.

Hammers

I would suggest you initially go for a claw hammer (**photo 5**); they have the advantage of being able



5 A selection of claw hammers



6 Good quality, wooden-handled chisels



7 Plastic-handled chisels in a wooden storage case

to draw as well as drive nails. A mid-weight one will cover most of your requirements around, say, 280–340g. To complement this consider a smaller cross pein hammer for driving panel pins, tacks and small nails. A good size is just over 100g.

Chisels

It's always nice to have a range of different types and sizes but not critical (**photo 6**). Three or four bevel-edged chisels will do to start. I'd go for some with impact-resistant plastic handles (**photo 7**). A range of sizes to include, say, 6, 10 or 12mm. If you can stretch to it, include both 3 and 18mm. Remember, you can make a bigger hole with a smaller chisel, but you can't make a small hole with a big chisel. Try to pick a range from one supplier that can be added to; it's always nice to have a matching set. You'll need an oil or wetstone to sharpen your chisels. These are relatively inexpensive. Go for a combination one that has two grades of abrasive: fine and coarse.

Screwdrivers

Two or three of these will cover most needs. A small to medium and a large straight tip for slotted screws. A medium-sized 'Phillips' or 'Pozidrive' will cover most of the other types



10 A smoothing plane from the Axminster Rider range



8 A set of wooden-handled screwdrivers

of screws. Check out the handles. Avoid any with ridges that claim to provide a better grip; they give you blisters if used for long periods. The best handle is a smooth, slightly elliptical wooden one (**photo 8**).

Drills

Go for a small hand drill and a brace or an electric drill; unless you can afford them all (**photo 9**). Therefore, at the outset, it might be best to go for the electric version and add the others later. It does depend on the type of work you are doing as well, so give that some thought. If you do go for the electric drill option, try to buy one with a range of speeds; this will be helpful when cutting into different materials. It's not critical that it has a hammer action because most masonry bits will still operate without. You'll need some drill bits to suit whatever drill you have purchased. Universal High Speed Steel (HSS) bits are a must and usually come in sets of various sizes. Countersunk and plug cutting bits are also very useful.

Planes

A simple smoothing plane would be my initial choice (**photo 10**). A good width blade size is 50 or 65mm, but take the width of your oil or



11 A classic try square



9 Various drill options: powered and unpowered

wetstone into account when deciding. Rebating and grooving planes can follow later or even a router when you can afford it.

Squares & rules

A combination square that can be used for both try and mitre squaring is a good choice (**photos 11 & 12**). Some also have spirit levels and a scribe included. If not, you must at least have a traditional try square for marking out. A 125 or 150mm one is best. The cheapest steel retractable tape measure will only be 2m long but should be sufficient for most jobs (**photo 13**). A 150 or 300mm six steel rule is also very useful for those finer measurements.

Odds & ends

If you want a bradawl, then make one yourself from an old screwdriver; just grind or file a sharp point onto it (**photo 14**). A nail punch can be made from a 100 or 150mm nail – just file the tip off it. Old hacksaw blades make excellent marking and cutting knives; wrap tape round a couple of strips of wood each side of the blade to make the handle. Pliers or pinchers are also good additions.

Conclusion

It's always nice to buy new tools, but if your budget is limited, there are many ways of building up your tool kit over time. Half the fun is in deciding what to buy and then finding it! ✂



12 A more versatile combination square



13 A sturdy tape measure is a workshop staple



14 A homemade bradawl

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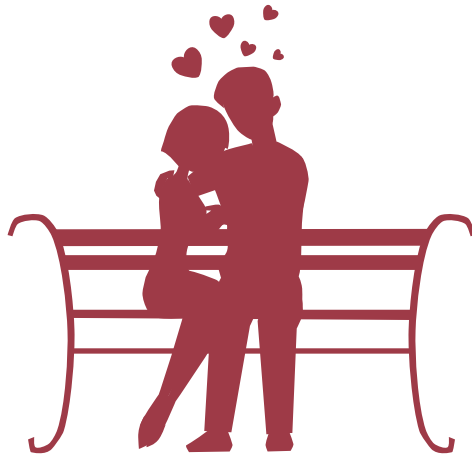


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A SEAT FOR TWO

Made as a wedding gift for his daughter and her husband, **Glenn Perry** reflects back on the steps he took to create this charming two-seater chair in the Windsor style

My latest project is a Windsor-style two-seater chair, which I made for my daughter and her husband as a wedding present. The term 'Windsor' refers to a type of construction where a solid seat is drilled to receive legs, spindles and arm supports. Using my chair for reference, I wanted to detail recommendations and

observations for anyone contemplating making their own chair in a similar style.

Dimensions

I would recommend a seat width of around 110–120cm and a depth of 42–45cm for a two-seater chair, which will typically be used by two adults. A seat height of 45–46cm from the ground is comfortable. The top of the arms around 25–27cm from the seat seems about right. A high back chair has a linear measurement of 70–82cm to the top of the crest rail from the seat. I chose two contrasting coloured hardwoods for my chair: sapele and American ash. These are readily available and reasonably priced, even in greater widths and thicknesses. At the time of writing this, they are priced at around £43 per cubic foot (most hardwoods are sold by the cubic foot). Other hardwoods such as oak, beech and walnut



1 Turning the sapele spindles



2 Only two tools are required for spindle turning

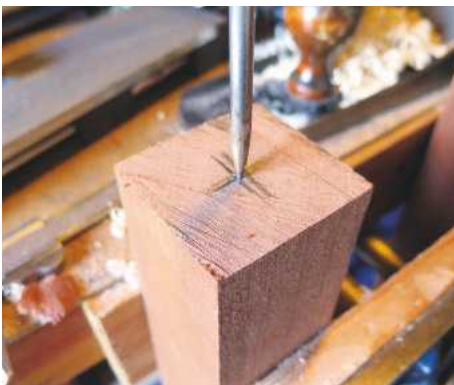
could be chosen along with cherry and fruitwoods (mainly for turnings). If choosing uncommon hardwoods, the main problem is availability. Yew, which is a softwood, would provide impressive turned parts (if available).

Individual components

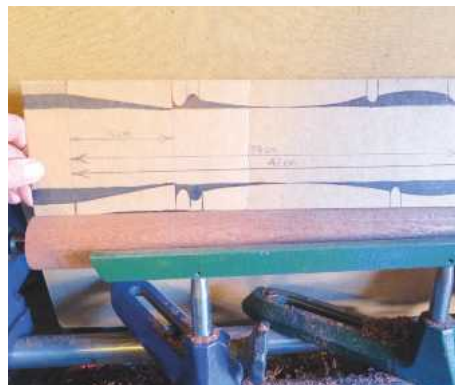
With the timber procured and a rough idea of dimensions, my thoughts turned to the design of the individual parts. By simplifying the turnings and the crest rail, I could still make a pleasing chair. My first job was the seat. I would have preferred to make this from one piece of wood, but at 45cm wide, not many timbers are available in this size. I have successfully used sapele for a couple of chairs, obtainable in stable

widths over 60cm, but as I wanted to use a light coloured wood, I chose a plank of American ash, measuring 23cm wide × 54mm thick. After leaving the timber indoors for a couple of months, I reduced the ash to 50mm using my planer/thicknesser. I used a bench plane to produce two square edges, which would be glued to make the seat. To align the two pieces of timber, I routed a 6mm groove in each to receive a loose tongue of plywood. This was positioned below centre towards the bottom of the seat and kept back around 10cm from each end, which would avoid it being exposed when hollowing out. After being clamped and glued, I produced a large, flat rectangular plank, which is perfect for laying out sight lines, measuring and drilling angled

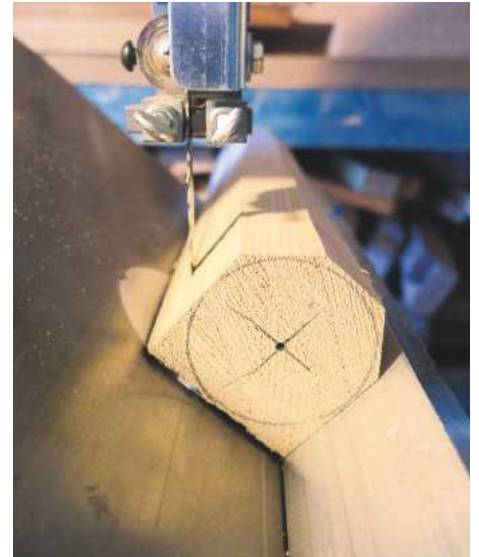
holes. The seat contours can be produced later. Because the chair will accommodate two adults, the four legs will therefore need to be substantial. These were turned from 60mm square blanks of sapele leaving 25mm round tenons at the top. I made the rear legs 30mm shorter than the front ones, so the seat could lean back at an angle, making it more comfortable than if it were level. The turnings were the same profile – I just reduced the top tapered section by 30mm. Two



3 Finding the centre of the blank before turning



4 Transferring the leg profile to the blank



5 Reducing the blank to an octagon prior to turning



6 Checking spindle diameter



7 The completed arm

other sections extending up to the crest rail were turned from 60mm square stock as with the legs, remembering to leave a thick section extending approximately 20/30cm from the bottom to receive the arms.

Back spindles

Next came what I consider to be the most time-consuming part – producing back spindles. There are rounding planes and other tools designed for making these, but I decided to turn mine. If making these thin, you may need to support them with a lathe steady, but at 24mm diameter, it was not necessary. These were tapered at each end to a 16mm section. I made 11 but you can decide the gap you prefer between spindles (an odd number means you can have one in the centre, making spacing easier). Leaving the crest rail until last, I then made the turned arms with a visible length of around 42cm, leaving a 25mm round tenon on the end. After deciding on the arm height from the seat, under arm supports were then produced. I chose to leave a 25mm tenon on the bottom and an 18mm one where it locates under the arm.

Marking out component positions

With all these components produced, my attention shifted to marking out their positions on the rectangular seat blank, who's flat surface makes marking out and drilling straightforward. To simplify things, I settled on 12° for all the angled parts. The rear spindles and side supports were spaced out using dividers after drawing sight lines at right angles to the back. Sight lines for the arm supports were angled slightly outwards from the back. When leg locations were decided, I drew sight lines from $\frac{1}{4}$ the length of the seat at the back and front. There are two main points to



10 Spacing the spindle centres using dividers



8 Transferring the 12° angle to a sliding bevel

remember when marking out drilling positions: the first is to make sure they are not too close to the finished edge of the chair and ensure the positions of the leg spindles and arm supports do not coincide. At this stage, I thought it wise to mark out a pleasing shape on each end of the chair seat. With the positions of the spindles, arm supports and legs marked, I then needed to find an accurate method for drilling the angled holes. I thought it would be impractical to use a drill press due to the size of the seats, so I settled on an angled drill guide with the centreline supported on a block of wood the same thickness as the



11 Keeping the crest rail vertical while drilling



9 Drilling spindle holes using an angled drill guide

seat. Forstner and sharp flat bits were also employed. Drill as deep as you can without coming through the other side, unless you are going to use wedges in the ends of the round tenons. Done correctly, this is probably the strongest method for securing the legs and arm supports.

Hollowing out the seat

With holes drilled, I could then move on to hollowing out the seat. My aim was to create a pleasing shape with rounded, smoothly dished corners to a consistent depth. With 50mm timber, 15-20mm can be removed without reaching the loose tenon holding the two sections together. Many different tools can be used to achieve this. I used hand tools exclusively, starting with my old Gilpin No.2 adze, but the blade had too shallow a curve, so I swapped to the Ray Iles inshave. In my opinion, this is the most effective tool and



12 Measuring the crest rail at correct height from seat



13 Drilling outer uprights in the cradle



14 Aligning under arm support



15 Drilling arms using an 18mm sawtooth bit

will remove most of the timber. A convex Clifton spokeshave and a round-edged scraper finished the job. The crest rail was made from 25mm thick ash (left straight, not steam-bent) and a simple shape created on each end. The top was rounded over using a block plane and abrasives. The spindle holes in the crest rail were drilled using the same spacings as the seat – this was done before the rail was shaped. I ensured that the round bottom section of the legs were flattened out to sit level on the floor. Trimming the back spindles to create a consistent height for the crest rail during dry assembly, shaping the seat ends and removing pencil lines were the last jobs before gluing up the whole assembly. Cleaning up the glue that will inevitably ooze from the structure is my least favourite part of the project. Waiting at least 24 hours for the adhesives to set, the chair can be finished to your own preference. Mine was finished using Black Bison wax in a medium oak colour; two or three coats will create a smooth result that is easily restored.

Conclusion

Reflecting back on the project, which consumed many hours, I was satisfied with the result. The only variation I may have made was to insert a midway under arm support for extra stability, but this would have meant reshaping the seat ends to accommodate. ✕



16 Seat marked out prior to shaping



17 Initial shaping using an adze



18 Hollowing out using an inshave



19 Aligning sight lines for leg holes



20 Detail of seat end after shaping



21 Marking legs on a level surface



22 The completed seat



23 Detail of seat and arm

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FLOWER OF THE FLOCK

Taking inspiration from his neighbour's colourful pansy patch, Colin Simpson goes about replicating the flower in turned form

The inspiration for this project came shortly after my neighbour had planted out her bedding plants. She keeps a lovely garden and it is always nice to visit and see it in its full glory. Among many others, Jane had also planted a number of pansies. These come in a variety of different colours and it occurred to me that, in keeping with my like of texturing and colouring the pieces I turn, I could create a 'pansy bowl'. Here's how to make your own version.

Mount & true the blank

I started with a blank of ash measuring 270mm in diameter and 75mm deep. If you are going to scorch your wood like I have done, then an open-grained timber such as ash, oak or elm will give better results. If you are going to omit the scorching process, then any hardwood will work.

Mount the blank on the lathe using a faceplate or screw chuck and true up the bottom surface using a pull cut with a fingernail profile bowl gouge (**photo 1**). True up the edge of the blank using a bevel supported push cut (**photo 2**). Now start to shape the outside of the bowl using a combination of the pull cut (**photo 3**) and push cut (**photo 4**). Cut a chucking point on the base – I am using a spigot – with a skew chisel held on its side (**photo 5**). Remember to make a small pop mark in the very centre of your spigot as this will help centre the bowl later. Do this with the corner of a skew chisel (**photo 6**).

Cleaning up

You can now finish shaping the outside. I am making two distinct curves on the outside: one that will become the 'petals' and the other the bowl shape in the centre (**photo 7**). If necessary,

clean up the surface with a square-end scraper.

Photo 8 shows me using a skew chisel instead of a scraper because it allows me to get right into the 'corner' where the two convex curves meet. If your skill with a gouge is good, then you can make the finishing cuts with a small gouge instead of a scraper (**photo 9**). For decoration I cut a small bead where the two curves meet (**photo 10**). I used a small beading tool, which I made from a small spindle gouge (**photo 11**). I use the tool 'upside-down', with the flute on the toolrest. You can then sand the outside of the bowl to 120 grit (**photo 12**). I am going to scorch the outside so there is no need to sand any finer than this.

Hollowing

Reverse the bowl onto your chuck and start to hollow it (**photo 13**). Don't hollow out the centre too much just yet. The rim, or petal area, is going



1 Use a pull cut to flatten the bottom...



2 ... and a push cut to true up the edge



3 Start shaping the outside with a combination of a pull cut...



4 ... and a push cut



5 Cut a chucking point on the bottom



6 Use the point of a skew chisel to cut a pop mark in the centre of the spigot



7 Continue to shape the outside of the bowl...



8 ... and use a scraper or skew chisel to finalise the shape



9 With practice you will get a better finish using a gouge

to be cut quite thin and you will need some bulk in the centre of your bowl for stability. Work on the first 50mm of the rim (**photo 14**), taking the wall thickness down to about 5mm. This needs to be as even as possible – any difference in wall thickness here will show up when you cut the petals. Use your finger and thumb to judge the thickness (**photo 15**). When you are happy with the first 50mm or so, sand this area to 120 grit and then cut the next 50mm (**photo 16**). Continue to cut the rim in steps like this, sanding each step as you go until you reach the bowl part. As you do this you may well find that the outer part of the rim develops a slight wobble. It is vital that you do not go back to this area with the gouge. There will not be enough strength in the rim to support any additional cuts; this is why you must cut thin-walled pieces such as this one in small steps.

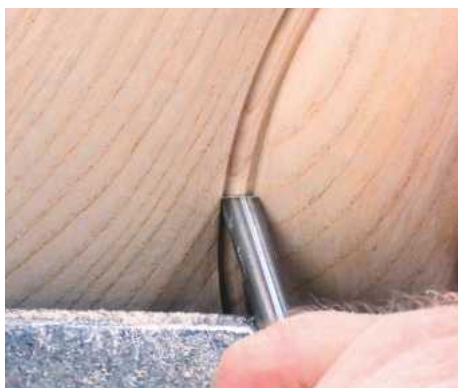
Drawing & cutting out the petals

Next, take the bowl off the lathe and draw on some petals. If you have a geometric bent to your character, you may wish each petal to be exactly the same. If this is the case, cut out a template for a petal and use this to draw the petal shape onto the underside of the bowl. I prefer a less geometric pattern so I drew three petals freehand and not all the same size (**photo 17**). There are a number of ways you can cut the petals out – a coping saw, bandsaw or a Dremel-type tool with a wood cutting bit, for example. I chose to use my fret saw (**photo 18**). Sand the cut-out area so it is smooth – I used various hand and power sanders to do this (**photo 19**). Next, scorch both the inside and outside of the bowl. I used a standard butane/propane mix blowtorch (**photo 20**). It is probably safer to do this outside the

workshop, but if you do it inside, make sure the area is clean and tidy and that there are no shavings in the vicinity. It is also a good idea to have a spray bottle of water handy. After scorching the wood, brush it off with a stiff bristle brush to remove any carbon. I then gave my piece a coat of Liberon Palette ebony wood dye mixed with a little acrylic purple paint (**photo 21**). When this is dry, give the piece a couple of coats of acrylic sanding sealer (**photo 22**).

Colouring the bowl

Now hollow the bowl area using a bowl gouge (**photo 23**). Sand this part to 400 grit and then carefully apply a small amount of yellow and orange spirit stains. Blend these colours together, making the centre more orange and the edge of the bowl more yellow. I found it easier to do



10 My home-made beading tool in use...



11 ... and a close-up of the business end



12 Sand to 120 grit



13 Start to hollow the bowl, leaving some mass in the centre



14 Concentrate on the first 50mm of the rim...



15 ... and finish this part before moving on



16 Now work on the next 50mm of the rim



17 Draw the outline of the petals...



18 ... and cut them out

this staining off the lathe, using an old lazy Susan to rotate the bowl while applying the stains (**photo 24**).

Finally, reverse the bowl onto a wooden dolly to remove the chucking point (**photo 25**). Dye this area to match the rest of the outside and then give the whole piece a couple of coats of acrylic lacquer.

Inspirational is all around

There are plenty of other plants and flowers that can provide inspiration for your turnings. Take a look round your garden and, if you do make a piece based on a flower, email an image into the editor – tegan.foley@mytimemedia.com – together with your name and the flower that inspired you. If enough of you send in photos, she may well feature them in a coming future issue. ✂



19 Sand the petals, blending in the curves



20 Use a blowtorch to burn the bowl



21 Brush off any carbon and paint the scorched area with acrylic dye



22 Seal the bowl with acrylic sanding sealer



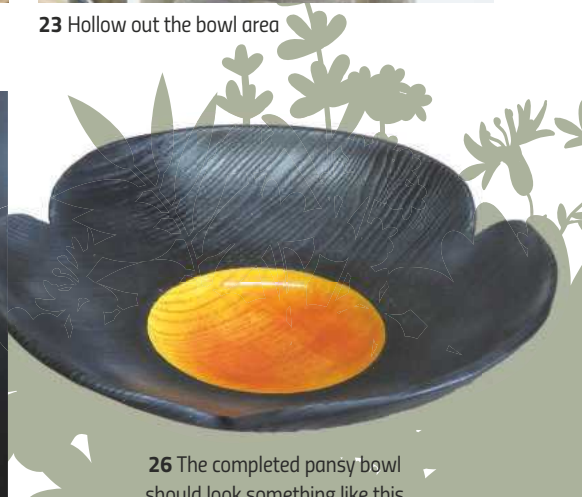
23 Hollow out the bowl area



24 Apply spirit stains and blend the colours together



25 Reverse chuck the bowl to remove the chucking spigot



26 The completed pansy bowl should look something like this



LETTERS

★ LETTER OF THE MONTH



A Kity 1637 planer/thicknesser, similar to Nigel's machine

KITY WOODWORKING MACHINES

Dear Tegan,

I wonder if yourself, Phil or anyone can help me with a query regarding my Kity planer/thicknesser? I purchased it together with a table saw in the early '90s. The saw has behaved extremely well over the years, but the planer/thicknesser has not! Apparently there was a known problem with the motor on there? I believe they were red in colour and bought in from Bulgaria.

Do you know if any spares are still available? Am I right in thinking that Kity no longer exist in their own right? At the time, Kity were prepared to supply another motor, but as I did not use the machine on a regular basis, by the time the problem was found it was out of warranty through no fault of my own. It definitely needs a new motor! The model is a 10 x 8in planer/thicknesser, model 1637.

Any help you could offer would be greatly received.

Regards, **Nigel Bartram**

Hello Nigel, Kity sales in the UK were taken over by NMA Agencies several years ago. They may be able to help. You can call them on 01484 400 488 or see their website: www.nmatools.co.uk.

Limited Kity spares (drive belts, tooling and machine manuals) are available from Biven Machinery – 01253 425 793 or www.bivenmachinerysales.co.uk.

Kity were a major brand in France, so spares may still be available there if you can't find them in Britain, though I don't have contact details for any specific company. It's worth trying one of the internet woodwork forums, though. Incidentally, I had a Kity 1637 planer/thicknesser (from the early '90s) until selling it a couple of years ago. It was a great machine and I never had any problems with it! Hope this may be of some help.

Regards, **Phil Davy**

WOLF 1IN HEAVY-DUTY DRILL

Hi Tegan,

I am writing on behalf of Mr George Cross – a 77-year-old retired coal miner – regarding a Wolf pillar drill he acquired in around 1985. It was old then, but he still uses it now when necessary. When he retired in 1993, he started woodturning in his shed, which he continues to do to this day. Regards,

Georgina Upton

Hi Georgina, and thank you for writing in on George's behalf – what a great story and an exciting one as we've only previously seen photos of Wolf power drills. The one shown here is a fine example of a pillar drill/bench press but unfortunately I can't seem to find any further information about it online – it seems to be a very rare model? I'm so pleased to hear it's still operational after all these years, which most of the original Wolf Tools seem to be. A fantastic example of an old tool well made. We hope it serves George well for many more years to come. Best wishes, Tegan



George's Wolf drill, which still works after all these years



The machine in question is an NW8D 1in heavy-duty drill, although the exact date of manufacture is unknown

IMPORTANT SAFETY ERRATUM

Dear Readers,

It has been brought to our attention that the readers' tips published in the September issue from Gordon Watson regarding 'chainsaw safety' are in fact potentially hazardous and some of the methods described are unsafe and therefore **should not** be followed. As Editor, I take full responsibility for not investigating these further prior to publication, and I apologise for recommending these points and accepting them without first seeking professional advice. Chainsaws are incredibly dangerous pieces of equipment and before use, it is always advisable to attend an appropriate safety course. I'm sure Gordon was not deliberately trying to condone dangerous practices, but we do take matters such as this very seriously.

I apologise again for allowing these tips to be published and can assure readers that in future, professional advice will be sought in the first instance. **Tegan Foley – Group Editor**

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Seat in blackthorn and oak, by rustic furniture maker Lynne Cavalot, who was featured in our recent August issue

AN EXCELLENT AUGUST EDITION

Dear Tegan,

I just wanted to congratulate you and the team on an excellent second edition of the joint magazine. As you know, I subscribed to both titles but this latest issue has something for everybody. It only arrived a couple of days or so ago so I haven't read through properly, just a scan at the outset, but am now going back through to read more thoroughly.

I was particularly impressed with the tool rack built by Ben Hackney as it has given me some ideas for my new workshop recently built at our 'new' home. Other items of particular interest are the rustic furniture maker Lynne Cavalot followed by the article on jigs for furniture making, and if that wasn't enough, we then have Mark Griffin talking about the making of a Gentleman's chair, before being treated with a piece on 41 years of rocking horse making – a must read for my train journey later today.

I am always interested in the 'Me and My Workshop' feature but this time we also had an almost piece from ex-President Jimmy Carter. I once saw a video of him being interviewed by 'The Highland Woodworker' and it was great then, so am delighted he has gone on to write a book. Two articles on woodturning to read and on guitar building, and while this is not something I am likely to try, I do enjoy reading about other people's work.

All in all a splendid edition and I hope you continue to go from strength to strength. It has certainly been an excellent start.

Best wishes, **Len Aspell**

Hi Len, thank you so much for taking the time to get in touch and for sharing your views regarding the new magazine – your positivity is really great to hear and very encouraging for the team and I. I'm so glad you picked up on the fact that the joint title is trying to appeal to everyone, regardless of chosen or preferred woodworking discipline. In every issue, I try to select the articles that will best fit, hopefully providing equal amounts of inspiration and interest for everyone. It's so nice to know that we're managing to hit the mark!

Thank you again for your email and do keep in touch!

Best wishes, **Tegan**

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 $\frac{1}{2}$ in 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



For the next six 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(s) illustrating your tip in action. Good luck! To find out more about Veritas tools, see www.brimarc.com

FINISH SCRAPING & CABLE TIDYING Microscope slides

These microscope slides, made by Leica, can be bought from eBay for £5 per 72 slides. They have incredibly precise ground edges, which provides a final finish scrape ability beyond (in my opinion) any metal scraper on flat or convex surfaces. You have four available long faces and four short faces – and no resharpening issues – just throw away and use a new one.



Holder alongside the glass slides

Inline power connectors

I got fed up with all my power tools having their own cables ending in the 3-pin plug. Some were too long, others too short, and all took up space and had the ability to get entangled when I wasn't looking. So my solution was to cut all the cables off about 20-30cm from the power tool and replace with 3-pin inline plug connectors. I now only need two long mains cables to the normal 3-pin wall plug with inline socket connectors. Two cables? Yes, they are colour-coded: yellow and red. The yellow one is fused at 5A for all power tools requiring 800W and below, and the red one for tools above 800W where the cable is fused at 10A. Why 3-pin? Because although most modern power tools are live/neutral 2-pin configuration, some tools, especially older ones, still have a separate earth line. So both cables to the mains supply are wired live/earth/neutral, even if the power tool cable plug only needs live and neutral connections.

There are many different 3-pin inline connectors for sale – mainly for use with garden machinery such as lawnmowers – and they are not necessarily compatible. So I started with ones labelled LYVIA 9415 and have had to continue to source these to ensure compatibility. But if considering modifying your power tools, just buy sufficient plus a few extras of the same pattern, whichever version you use. The only downside to this is that you finish up with a lot of inline sockets because you cannot buy plug sockets separately – only as a pair. Best regards, **Colin Lloyd**

Hi Colin and thanks for sharing these two handy tips. Unless blessed by cordless tools, workshop cables are often an issue for many, and your tip about the microscope slides is certainly an interesting one.

Best wishes, **Tegan**



3-pin inline plug attached to a sander

SAFETY FIRST

With a toddler on the move, **Mitch Wilmoth** decides to make a custom DIY baby gate to perfectly fit the space at the top of his stairs

My son has just started to crawl. We have a split level entry home and his interest in the stairs has increased, so it was time to put up a baby gate. I wanted to make rather than buy one for a few reasons: 1) It's cheaper; 2) It looks a lot better 3); I love having an excuse to make something. The gate we chose to make was extremely simple. We only needed a few pieces of timber, screws, a couple of hinges and a latch, then we were in business. If you'd prefer to see a video of the project being made, details can be found at the end of this article.

Measure the space & cut the boards

This is a simple gate that you can easily change and customise to suit your space. The first thing you need to do is to measure the area in which the gate will be installed (**photo 1**). I wanted mine to fit a certain way. Determine how tall you want it, how wide the space is, and which way the gate will swing. I will say that if you have a gate at the top of a set of stairs, you may not want it to swing towards the steps, especially with children on the loose! Once you've settled on your specifications, work out a plan and think through how you're going to make your cuts.

After you have the overall size of the gate established, you can begin to cut all your timber (**photos 2 & 3**). This is very easy as you just need two horizontal and six vertical boards. My gate was 813mm wide and 737mm tall. For the repeat

cuts, I used one of the boards as a template to ensure they would all be cut the same size. This worked out well, as I didn't have to keep measuring each one. For hanging the gate, I also cut and finished two extra boards.

Gate assembly

You can now lay out the gate for assembly (**photo 4**). The width of your project will determine how far apart your boards need to be spaced – mine were roughly 64mm. To work out the spacing, I found the centreline of the horizontal board and measured out from the centre in each direction, so I knew it was even (**photo 5**). After everything is laid out, pre-drill and add screws at the locations

TOOLS & MATERIALS REQUIRED

Materials

- 1 x 4 x 8 board – 3 off
- 32mm wood screws
- Outdoor gate latch with two black door hinges
- Minwax Dark Walnut stain
- Spray shellac

Tools

- Circular saw
- Drill & impact driver
- Level
- Speed square
- Titebond II wood glue



1 Measuring the space in which the baby gate will be installed



2 Marking out one of the boards...



3 ... prior to cutting it



4 Laying out the gate components before assembly



5 Finding the centreline of the horizontal board and measuring out from the centre in each direction



6 Pre-drilling and adding screws at the locations where the boards overlap



7 Sanding the gate using a random orbital sander



8 Applying a dark walnut stain



9 Applying two coats of spray shellac once dry



10 Attaching one of the extra boards to the wall once cut to fit the space....



11 ... followed by the second board



12 Hanging one of the hinges

where the boards overlap (**photo 6**). I screwed in from each side of the gate with 32mm screws. When you do this, make sure you are using a square so your boards don't start to move out of alignment.

Sand, stain & finish

Once the gate is assembled, take it to the top of your stairs, where it will be hung, just to make sure all your measurements are correct. Once confirmed, you can then sand the gate with a random orbital sander fitted with a 220 grit disc (**photo 7**). On my gate, I chose to apply one coat

of Minwax Dark Walnut stain (**photo 8**), and once dry, two coats of spray shellac (**photo 9**).

Installing the gate

I am sure each situation will be a little different when it comes to installing the gate. It depends on where, what you have fastened to, and the size of your particular gate. For mine, I attached the two extra boards to the wall and on these I attached the hinges to hang the gate. When it came to the first board, I found I had to cut off some excess to account for the trim (**photo 10**). To do this, I just set the board in location and marked what needed to be cut off.

After these boards were up, I used a straightedge to hang the hinges, making sure they were level and spaced as I wanted them (**photo 12**). First, I attached the hinges to the

wall, then I added a board under the gate to lift it 20mm off the ground before attaching the hinges to the gate (**photo 13**).

Once the gate is hanging, you can install a latch (**photo 14**). I added a small piece of board where part of the latch was attached. I did this so the gate would be in the correct position and close properly. Again, this is something you have to consider depending on your situation. I attached the other part of the latch to the corner post of the stair rail, and after doing this the project was complete (**photo 15**). ✂

FURTHER INFORMATION

To see this project build and others in action, visit www.youtube.com/madebymitch or www.madebymitch.net



13 Adding a board under the gate to lift it 20mm off the ground



14 The latch once installed



15 The completed baby gate in situ

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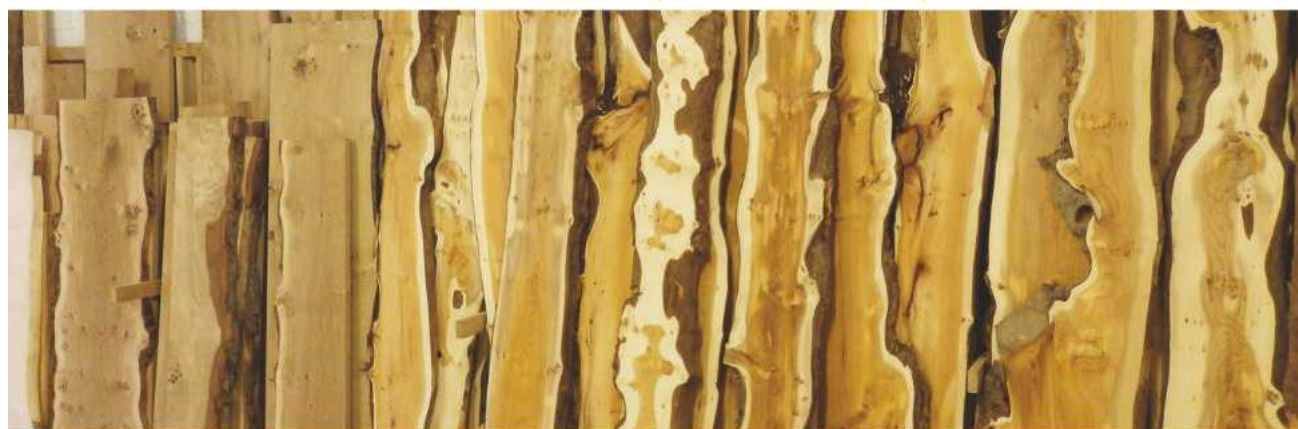
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A BRIGHT FURNITURE-MAKING FUTURE

Inspired by his two woodwork-loving grandfathers, Peter Sefton Furniture School graduate **Noah Morris** explains how this influence paved a way for him to discover a love of furniture making for himself

2017 was a great year for the Peter Sefton Furniture School, as eight more talented furniture makers graduated after completing the 35-week Professional Long Course. One of the stand-out pieces that appeared at the end of year show was Noah Morris' 'Ellipse' table pair: one in ripple sycamore with American black walnut inlays; the other in American cherry with American black walnut inlays. Going on to win the 'Outstanding Furniture Design prize' and being given the opportunity to display these pieces at the Gordon Russell Design Museum, as well as the Young Furniture Makers' Exhibition in London, really was the icing on the cake for this young maker, but what spurred his interest in woodworking initially?

Grandpa's workshop

Noah explains that when he was growing up, as with any child, he had lots of ideas about what he wanted to be, and as a young teenager, he remembers visiting his grandparents and seeing his grandfather's workshop for the first time: "I recall one

visit in particular: my young brother broke a wooden sword that he had bought and was very upset! My grandpa took us into his workshop and made another one in minutes. While watching him use various machines to make a new sword, I remember being very envious of his extensive woodworking knowledge, so much so that I knew I had to learn for myself."

Noah goes on to say that in fact both his grandfathers were avid woodworkers, which gave him even more of an opportunity to learn and develop his skills. He says that growing up immersed in this natural material made him very curious about the process of taking rough-sawn boards and turning them into a beautiful piece of furniture: "I can remember walking around my grandpa's workshop when I was younger, seeing all of the projects in progress, and wondering how they would look once finished," he says.

A childhood filled with an appreciation and love of all things woodworking led to Noah fostering a particular interest in design technology, and he fondly remembers his teacher, Mr Stagg, who always showed a real passion for the subject and



Bedside table drawer in cherry, lacewood and oak

began to open the world of woodwork up to Noah. As a result, when it came to choosing his A Levels, Noah decided on design technology primarily, in addition to a range of other subjects, just to keep his options open. "When I started the course I knew woodworking would be something I could fall in love with very easily, but I didn't think there was a career to be found in it, just hobbyist-type work. However, I decided to do some research and talk to my teachers about it and discovered, to my joy, that there was. From that point, I was hooked on the idea of making furniture for a living."

Enrolling on the course

Upon completing his A Levels and considering what to do next, Noah was delighted to discover the Peter Sefton Furniture School and went on to make the decision to enrol on the 35-week Professional Long Course. Perfectly suited to students aspiring to design and make bespoke furniture to professional standards, this choice jumped out at Noah and would give him the opportunity to learn everything he needed to about this discipline, giving him the tools needed to take this knowledge and turn it into a career. Offering the perfect alternative to university, over the next nine months Noah would learn how to design and make fine, hand-crafted pieces, as well as



Bedside table in lacewood and cherry



Cheese board in cherry

Noah with one of
his 'Ellipse' tables





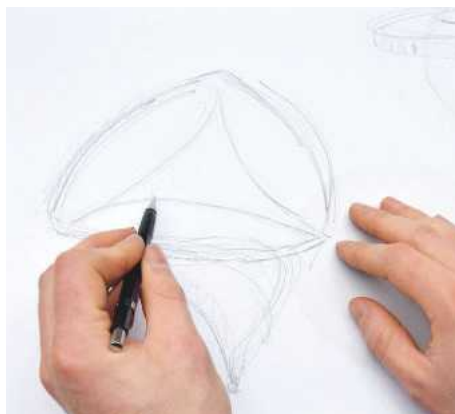
Creating chopping board detail

being taught about the business skills needed to establish his own workshop.

Making all sorts of pieces during the course, including a butcher's block in sycamore and a stool in ash and American black walnut, Noah was also taught a great deal of hand skills, such as how to create lapped dovetails in oak and lacewood, for example. When it came to the end of term showcase, however, he settled on the idea of creating the two tables mentioned previously.

Choosing his final piece

When asked as to why he chose to make a pair of matching tables as opposed to any other piece of furniture, Noah explains that the initial brief given to them by Peter Sefton and Sean Feeney was very wide: "We were told we could make anything, so long as it fitted in the workshop and could be taken away after the course was completed. I struggled to decide on something so turned to my parents for advice, imagining they were my clients." Finding it difficult to settle on a particular design, in the end he drew up a few



Initial sketches for the 'Ellipse' tables

ideas and presented them to his parents so they could select their favourite(s). They particularly liked the table top design so all Noah had to do was work on some suitable table legs, which as he discovered, would take a great deal of planning and development.

Noah tells me that he encountered a few issues when making the tables, the first being the construction of the legs: "I was set on having a compound curve within them, as I loved the idea of multiple curves throughout. If you've ever tried to bend a piece of paper in two directions at the same time you will see no material; not even thin paper wants to do this. So trying to get veneers to behave in the same way was not going to be an easy feat. At this stage, I didn't know if the idea would even work." To increase the likelihood of the legs being a success, he chose to incorporate a small flat section between the curves, which separated them and allowed the material to bend more easily.

Noah also experienced difficulties when it came to cutting the veneers for the table top and shelf, as he explains: "I hand-cut all the veneers with a scalpel and jig; this was the easiest way to ensure they were perfect. However, because I was using sycamore, a light coloured timber, any hair's width glue line was extremely obvious and would ruin the table." It didn't help that when making the pieces the weather was extremely humid, which caused the veneers to move a fair amount during the day: "So what was perfect in the morning showed massive gaps and the angles were all thrown out by the afternoon." Noah overcame this by using lots of veneer tape and covering the veneers as soon as he had made each cut.



Chiselling detail onto a sycamore chopping board

They were also pressed straight away, as once glued to a substrate, they wouldn't move.

Noah's final challenge was tackling the inlays on the table top: "These were very difficult as I wanted the corners to meet and taper down from 3mm thick to the same thickness once joined together." Trying to find the correct taper angle and construct the jig presented a huge obstacle for Noah. This involved a great deal of trial and error, trying not to damage the sycamore veneers as he checked the fit. Despite the whole process being a huge learning curve for this young furniture maker, he says that he found it very rewarding, as each joint and every successful pressing presented a small victory for him.

Double prizes

Despite undergoing a great deal of hard work and stress, all of Noah's efforts paid off, as when it came to his pieces being judged at the end of the course, he was awarded two prestigious prizes: the 'Outstanding Furniture Design prize', as mentioned before, and 'Best Use of Veneers'. So how did it feel to not only overcome these challenges but to also excel and have his talent recognised? Noah says that when he joined the School, his skills were still fairly basic, similar to other students on his course: "Just to see how far I had come in the past nine months was a reward in itself," he says. Even though the other students' pieces were of such a high quality, and therefore presented competition for Noah, he says that being chosen as the recipient of the awards was a huge shock to him, but he was obviously delighted and overwhelmed at the same time. He was also thrilled to gain a distinction in his diploma, which made him feel that all of his hard work really was worthwhile.

What's next?

Since graduating from the Peter Sefton Furniture School, Noah is excited to report that he has now started working for Alan Eldridge and his team of talented makers. "The company predominantly makes Linley designs," he says, "which is very exciting for any furniture maker as the quality of design and manufacture is very high. This is perfect for me right now as it gives me the chance to learn and develop." Noah explains that he is still drawing up designs that occasionally pop into his head and saving them for a later date, and he is also hoping to slowly build up his collection of



Stool in ash and American black walnut



Lapped dovetails in oak and lacewood

tools, which will allow him to make his own pieces at home in his spare time.

In Alan's workshop, Noah has developed a particular love for cherry with its deep, warm colour and interesting grain patterns. He also comments that his favourite tools to work with will always be hand planes and chisels: "Although you can get components accurately to size, there is nothing more satisfying than a finely-tuned plane removing machine marks and getting components perfect. Similarly with a chisel paring down a joint, so that it fits perfectly and pulls up tight the whole way round."

Noah comments that he loves working with both solid wood and veneers and thinks that each have their own unique advantages when it comes to furniture making: "When working with solid materials, you have strength and beauty the whole way through and you can work it in ways that aren't possible with veneers. For example, when it comes to cutting joints such as dovetails and mortise & tenons, where the strength of the join simply can't be matched in veneer." He recognises, however, that veneers have their own distinct pros and cons, especially when overcoming shrinkage and expansion issues are concerned.

Currently, while working for Alan, Noah is helping out on various projects with different makers in the workshop: "This is good for me," he says, "as I'm able to see for myself how the pieces are made and also get involved in as many different projects as possible; however, outside of this I am currently designing a mirror for some friends made from sycamore with brown oak inlays." When working on his own designs, Noah explains that timber sustainability is a very important consideration for him, and as a result, he thinks carefully about the timbers he chooses and always ensures to consult the CITES endangered list before deciding which to use.



'Ellipse' tables – 760 x 700mm – one in ripple sycamore with American black walnut inlays; the other in American cherry with American black walnut inlays. Legs feature compound curves and tapered inlays within the top

The future

When asked what he thinks the furniture making industry holds for a young maker such as himself, Noah says that the future is very bright and the industry as a whole appears to be growing. Therefore, the opportunities to learn and work within it are increasing and improving, which is great news for him and others in a similar position.

Once he has developed the necessary skills and is ready to branch out on his own, Noah's plan will be to set up his own workshop, making his own unique designs for clients. But in the meantime, he will be working hard to improve his hand, machine and design skills further while

slowly starting to build up his collection of tools, which will truly allow him to take things to the next level. We wish Noah, and other young makers who are treading a similar path, all the best for the future and we look forward to seeing how their contributions will go on to shape the furniture making landscape of tomorrow and beyond. ✂

FURTHER INFORMATION

To find out more about the Peter Sefton Furniture School and various courses on offer, see www.peterseftonfurnitureschool.com



Butcher's block in sycamore



Detail of sycamore table veneering



Sycamore table top

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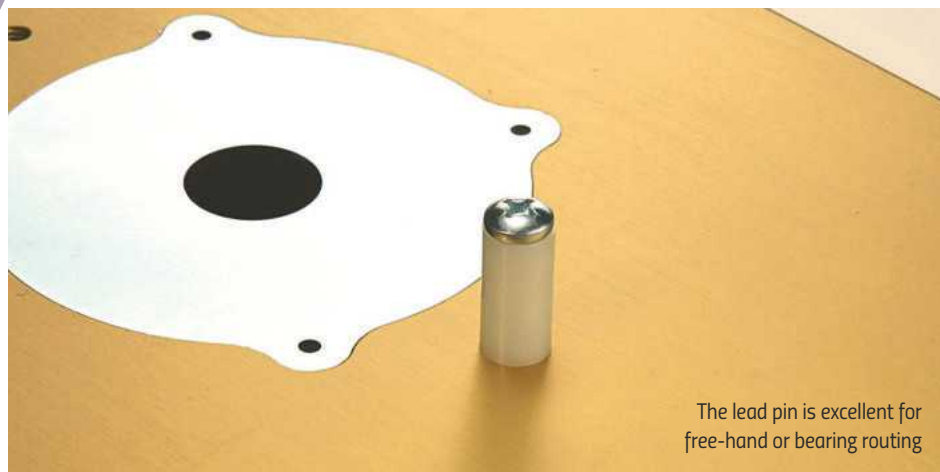
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INCRA's solid aluminium mounting plate is the ultimate for achieving perfect cutting results at your router table



All INCRA aluminium mounting plates feature the exclusive MagnaLOCK™ magnetic insert plate system



The lead pin is excellent for free-hand or bearing routing

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- Elu MOF177
- Trend T11EK & T10EK

1619-AL

- Bosch 1619

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- Hitachi M12-V (old 3hp plunge)
- Hitachi M12-VE (new 3hp plunge)

7518-T

- Triton TRC-001, TRA-001 & MOF-001KC

3612C-AL

- Makita 3612-C

690890-AL

- Bosch 1617, 1618 & MRC23
- DeWalt DW618
- Makita RF-1101 & RF-1100

1613-AL

- Bosch 1613

Undrilled

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- Hitachi M12-V2 & M12-VC
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All INCRA aluminium mounting plates feature the exclusive MagnaLOCK™ magnetic throat plate system, and as a result, changing any of the included insert plates is incredibly easy.

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HOW TO ENTER

To be in with a chance of winning an INCRA MagnaLOCK™ router plate 621625-T, just visit www.getwoodworking.com/competitions and answer this simple question:

QUESTION: NAME TWO OF THE ROUTERS INCRA MAGNALOCK™ ROUTER PLATES ARE COMPATIBLE WITH

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AROUND THE HOUSE WITH PHIL DAVY

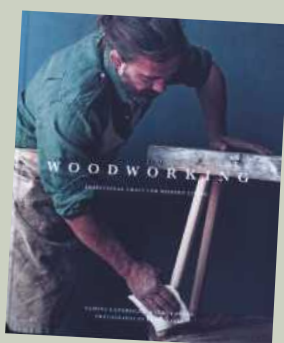


Do you sometimes kick yourself for failing to take an opportunity quickly? I mentioned last month that my local branch of Homebase was closing down. I'd spotted some plywood flush doors there which I knew would make excellent workshop shelving. At a fiver a time, you couldn't really go wrong. With no tape measure I was unsure whether I'd be able to get them in the car, so left it for a while to check dimensions. No problem, I thought, as there were plenty of doors on offer. Except when I returned to the store a few days later they'd all gone. In fact, there was hardly any stock throughout the entire store. Of course, there's a temptation to buy potential bargains which you don't really need, only for them to clutter up the workshop or garage for years. Oh well, there's always eBay...

BOOK REVIEW: WOODWORKING: TRADITIONAL CRAFT FOR MODERN LIVING

There's seemingly no shortage of artistic woodworking books focusing on rustic projects for the home. Rather than spending a fortune on new timber, we're encouraged to make the most of found and reclaimed wood, which can only be a good thing. The Italian/Danish authors of *Woodworking* live in what sounds to be an idyllic mountain village in Tuscany, so there's plenty of inspiration around them. Their trademark timber is olive from the surrounding groves, famous for its stunning figure and colour. Brugi's experience restoring many old houses in the village means he has a plentiful supply of oak and chestnut rafters, while poplar is also a favourite for a cleaner look.

Unlike pieces built from standard woodwork plans, you won't end up with exact replicas should you want to dip in and have a go. This is more a guide to achieving similar results with just a few hand tools and the odd power tool. Nothing is too complicated, with items such as a chopping board, cheeseboard, broom, weathervane, and even a ladder. Some projects are very basic and only require a branch or two. Others are a tad more demanding and require regular timber, though are still within the scope of novice woodworkers.



From the atmospheric photos you'd assume that Bruni rarely buys a new tool. He admits that his hand tools are full of stored memories, but look closer and you'll spot the odd Festool sander or drill in use. He's just as happy using heavy, cast-iron machinery in his workshop when appropriate, though these are not necessary here. While not everyone's cup of tea, this is a delightful, folksy read.

THE VERDICT

Written by Samina Langholz & Andrea Brugi, published by Quarto

Price: £20

Web: www.quartoknows.com

Rating: 4.5 out of 5

USEFUL KIT/PRODUCT: WORKSHOP DUSTER BRUSH

Remember having to sweep the workbench at the end of your school woodwork lesson? That probably seems quite a quaint idea these days, but it can be just as important in your own workshop. Not only does it encourage you to keep the bench top clean at the end of the day, but more importantly, you're less likely to get debris denting or scratching your freshly planed timber.

This brush from Workshop Heaven is traditional, attractive and all you need, really. At first glance the unfinished wood resembles beech, but it's actually rubberwood. About 100mm wide overall, it consists of four rows of natural bristles some 70mm in length, secured through holes in the brush head, which has then been filled with resin. The shaped handle is



nicely turned and fitted with a mortise into the head. You could easily add a small screw eye to the end, so hanging the brush at the end of the bench or on a wall means it's always close at hand. Great value and made in England, which is something of a rarity these days.

THE VERDICT

Typical price: £11.50

Web: www.workshopheaven.com

PROS

- Traditional tool encourages tidiness!

CONS

- End-grain can chip on narrow rim of head

Rating: 4.5 out of 5



OUT & ABOUT: CORDLESS CULTURE

We live in a culture that implores us to follow health and safety procedures at all times. You could argue that for most of the time that's a good thing, though in our so-called nanny state many people would disagree. Woodworking is inherently dangerous, even if we only use hand tools. Once we operate power tools or machinery the risks become far greater and appropriate training is recommended, though only mandatory in industry. But are some portable power tools actually becoming more dangerous?

Let me explain. When simple battery-powered tools first became available they used big, Ni-Cad batteries and were often bulky and heavy. A cordless drill was undoubtedly a handy addition to the toolkit, even though it may have taken several hours to recharge. With no mains lead or extension cable to worry about, working up a ladder or down the garden suddenly became that much easier, even though the drill's performance didn't exactly match that of a 240V tool.

Petrol power

With battery technology advancing in leaps and bounds over the past decade, we've now reached the stage where many cordless tools



are as powerful as their mains-powered cousins. Which is good news. Or is it? Somehow there was a certain amount of respect for any tool with a mains lead attached. You tried to get into the habit of unplugging before changing the blade on a jigsaw, certainly with a circular saw or router. I inadvertently had a jigsaw spring to life once when I'd stupidly forgotten to remove the plug, though luckily no harm was done.

It's a similar situation with traditional petrol chainsaws. Most people with any sense would shy away from buying one without appropriate training. Or would they? We've all heard horror

stories about injuries inflicted from such tools, though that doesn't stop them being sold through DIY sheds or even discount supermarkets. And specialist garden machinery retailers may not ask if you're suitably competent. But hopefully the noise levels associated with petrol power would probably be enough to deter many potential customers.

Battery benefits

But back to battery power. With increasingly sophisticated battery packs you can now buy cordless chainsaws that are equal in performance to 240V machines. This is great news for the environment, as this means there's no messy fuel or smelly fumes to worry about. And there's far less noise, though admittedly I'm something of a petrolhead and enjoy this whole experience!

But now there's no ritual attached – filling with fuel, priming the engine and pulling a cable to get the tool started. You simply slot in a battery, operate the safety lever and pull the trigger. Which is fine, though perhaps it's now a bit too easy. Even with an electric 240V chainsaw there's a cable attached as a reminder to be on your guard, however.

I've tried cordless chainsaws and some are fantastic, certainly equal in terms of cutting performance to petrol. But subconsciously perhaps it's too easy to regard these machines as safer to use. They're quieter and there's no cable attached, but if you're not careful you can do just as much harm. And although less dangerous, cordless circular saws seem almost innocuous these days.

So what can you do? At the very least you should wear appropriate safety gear, especially when using a chainsaw. And consider a short chainsaw safety course before you start slicing up those logs. Except that basic courses are thin on the ground, unless you're willing to shell out several hundred pounds and take a few days to do it...

Of course, you could argue that hand tools can be dangerous in the wrong hands, though don't forget these are cordless, too!



WEEKEND PROJECT STUD PARTITION

Tools you'll need: Mitre saw, cordless drill, jigsaw, compact plunge saw, hand tools

STRAIGHTFORWARD STUD PARTITION

A stud partition is an easy way to divide an internal room, as Phil Davy explains here

Why is that often relatively straightforward jobs turn out to be more demanding than you anticipated? Building a stud partition to divide a larger room can be quite a sizeable project, but there's nothing complicated about it. Except when the floor and ceiling joists don't run perpendicular to the proposed wall...

Nine times out of 10 you can screw or nail the floor plate directly to the joists supporting the floorboards (when these are perpendicular). Likewise with the head (ceiling) plate above. But when joists run parallel to a new wall you can only hope there's an existing timber close enough to fix into, though this is often down to chance. When there's no timber within striking distance it usually means fixing noggins between relevant joists. These will provide a solid fixing for the adjacent floor or head plate, but add considerably to the workload.

Studs & noggins

A stud wall is a simple construction: vertical studs from sawn timber, nailed or screwed to horizontal floor and head plates. Noggins nailed between the studs provide rigidity and support the outer boards. The completed framework is usually covered with 12.5mm plasterboard on one or both sides, which is then skimmed with plaster or painted. Suitable insulation material can be added to the cavity, which also conceals electrical cables and pipework neatly.

So what size timber is best to use? Either 100 x 50mm or 75 x 50mm rough sawn (or a similar size in CLS wood), though the latter will be less sturdy. Wider timber will enable you to use thicker insulation (for soundproofing) without it being compressed too much. The heavier the timber the stiffer the wall's construction, but this can lead to problems if your studs are not dead straight.

It's important to sight down each length when selecting and buying, as sawn timber can be notoriously bowed or twisted. Not too bad if bowed in one direction, although this can result in the final plasterboard surface being uneven. The advantage of lighter, CLS timber is that you may be able to correct bowed studs by forcing them back with cramps as you fix them in position.

I installed the floor and head plates in place



with 6.0mm screws, which meant I could adjust them before finally fitting the studs. Hammering nails into a ceiling can cause cracks in existing plasterwork.

Noggins are simply butt jointed between the vertical studs, with 100mm round wire or oval nails used for fixing. As these need to be skewed it's a good idea to pre-drill timber to avoid ends splitting.

Timber quality

Don't expect to source good quality timber unless you're willing to pay for it, though. When described as rough sawn, that's exactly what it is. If you're used to working with clean, knot-free timber that's also straight, you'll probably be disappointed when it comes to studwork. Remember that wood will be covered eventually, so won't be visible.

Sawn timber sold in DIY sheds is likely to be whitewood, rather than redwood. Often larch, whitewood is low grade material, and is notorious for knots and defects. When planning cuts, try to avoid having knots at the ends of studs or noggins where joints will occur. My timber was full of knots, but allowing for some waste I

managed to avoid the worst of them cropping up at sawn ends.

Building a wall

After taking up the carpet it was necessary to check joist positions. This meant lifting a couple of floorboards, sawing through their tongues and levering them up. New sections of flooring were cut to replace these eventually.

Fixing the head plate was not quite as involved as the floor plate, as there was a joist running almost dead centre (unlike the floor). I still needed to lift a couple of upstairs floorboards to check joist positions, but thankfully there was no need to add noggins as I'd done downstairs.

Door openings

For a door opening you'll need to allow for a lining when fixing the floor plate. You'll have to install two extra studs, one behind each jamb of the door lining. These are connected with a horizontal head, which should be housed into the studs for strength, rather than just butt jointed. The bottom of both studs should also be housed into the floor plate. A slight gap between door lining and studs enables you to add wedges to adjust the jambs.

SHEET SIZES

It's important to check spacings when building the framework, as centres of appropriate studs should coincide with a full-width sheet of plasterboard. I assumed that an 8 x 4ft sheet of plasterboard finished at 2,440 x 1,220mm (96 x 48in), the actual size of boards such as MDF, plywood and chipboard (which are imperial). After spacing out and nailing the studs I ordered the plasterboard, only to find these sheets are in fact smaller, finishing at 2,395 x 1,197mm. This may not sound much, but when stud centres are more than 20mm adrift there's insufficient timber to screw the plasterboard into. The simple solution was to nail battens down one side of the offending studs to increase their thickness



1 Remove skirting from existing walls if it needs replacing. Otherwise, wall studs can be notched to fit around this when installing



2 Mark the position of the stud partition on each wall with a spirit level or laser device. Don't forget to include plasterboard thickness



3 Where noggins are needed under the floorboards, mark out where solid fixings are likely to be needed for the new floor plate



4 Cut away sections of flooring with a jigsaw or hand saw. Either plunge cut or drill clearance holes first for the blade



5 Ends of new floorboards should meet existing flooring midway over joists. Remove nails before cutting the timber back



6 Cut through floorboards with a compact plunge saw. Alternatively, nail battens to the joists to support the new boards



7 Chop away waste timber with a wide chisel. Avoid using your best edge tools for this rough work, though...



8 Cut noggins to length to fit between the relevant joists. To stop movement these should be tight, so tap them into place



9 Either nail or screw noggins to the joists. Make sure that screw heads are driven flush with the surface



10 Saw the floor plate to length and mark fixing positions. Drive a couple of screws through the plate into the noggins temporarily



11 Measure the height of the wall for the first stud. Allow for the thickness of the head plate, then saw timber to length



12 Drill screw clearance holes in the timber and mark the wall. Drill masonry and insert plastic plugs, then screw the stud into place



13 Mark out equal positions for the remaining studs, checking that full plasterboard sheets will join midway on the relevant timbers



14 If overboarding the ceiling is required (to cover artex), screw 9.5mm plasterboard sheets to the joists above the studwork



15 Cut the head plate to length and tap it into place. You may need to force this upwards with a stud if the ceiling is bowed



16 Measure each stud position separately as the ceiling may not be flat. Cut studs to length with a mitre saw for speed and accuracy



17 Drill and screw the head plate to joists or noggins above. Fix a stud at the far end, then cut and wedge remaining studs in place



18 Check the stud centres coincide with the width of a plasterboard sheet. If not, tap them until they're spaced evenly



19 To prevent studs shifting sideways when nailing them to the floor plate, screw blocks temporarily to stop any movement



20 Skew-nail each stud to the floor plate, taking care to avoid nailing into the stop block. Pre-drilling will prevent the timber from splitting



21 Repeat the process at the ceiling end of each stud, then remove the blocks. Check for plumb with a level before nailing



22 Measure each noggin and saw these to length. A cramp across each pair of studs prevents them slipping during nailing



23 Noggins are easier to nail if they are staggered, rather than in-line. The finished partition should look something like this



24 If you fix a stud incorrectly it can be easier to add a batten to adjust the spacing for plasterboard, rather than remove the timber



25 With the framework complete, start adding plasterboard. Mark noggins and stud centrelines as a guide for the screws



26 You can either nail the plasterboard or fix with drywall screws. Heads should be just below the surface for plaster skimming



27 Cut plasterboard with a sharp utility knife running against a straightedge. Score the surface three or four times with the blade



28 Cutting all the way through leaves a ragged edge on the back. Instead, fold the waste section backwards and slice along the inside



29 Continue covering the studwork with plasterboard. You'll probably need to cut several narrower pieces to finish off the partition



30 To improve sound and thermal insulation you can add suitable wadding between the noggins and studs



32 Finally, cut replacement floorboards where necessary. These can either be nailed or screwed down to the floor joists



31 If electric cables are being installed, drill the necessary holes before sheeting the other side of the framework with plasterboard

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BURR OAK BEAUTY

Les Thorne's lidded pot makes use of beautiful burr oak and an additional threaded ebony finial and base help to encourage the development of turning skill

I'm often asked what my favourite timber is, and my normal reply is 'cheap, easy to turn and pretty', but if pushed it would have to be oak burr, or burl, as our friends in America call those growths on the sides of trees. Burrs are formed by many things: damage, insects and bacteria, which can all cause these sought after pieces of timber. Oak, horse chestnut, robinia, maple and the now not so common elm are the timbers in the UK most likely to have burrs. One of the main reasons I like burr oak, however is due to its saleability. Even with splits and voids, potential customers seem to see the faults as natural phenomena whereas a split in an ash bowl would be viewed as a problem.

When turning anything with splits, you should always make sure you wear a face shield as chunks can fly off during the turning process or, worse still, the whole piece can split in two.

Whether to add ebony 'collars and cuffs' to a piece like this was more of an experiment. I've been contemplating using a parallel foot/stand for a while now, although I'm still not sure it adds anything to the form, so I haven't glued it on just in case I change my mind.

I used all the aids available to make the turning and the threading easier, but you could of course use the minimum of tools to get the same result and the finial could be attached with a plug-type fit instead of a threaded one. ✂





1 This piece of burr oak came from the New Forest in Hampshire and was an offcut from a larger bowl blank. The ebony comes from my collection of small exotic pieces, which I have collected throughout my turning career



2 Mount the piece between centres being careful not to put the centre into a split in either end. Using a bowl gouge to rough the piece down, rather than switching to a spindle roughing gouge, allows me to stand to one side rather than in line with any bits that may fly off



3 I am planning to use the smallest chucking spigot I can get away with, and these jaws on the Nova chuck are perfect. To get the maximum grip, make sure the jaws make a perfect circle



4 The spigot for these jaws needs to be parallel, so cut down with the 10mm multi-purpose tool. Using a small spigot at the initial turning stage will allow me to put as much shape on as possible



5 Now's the time to think about design. I measured a third down from the top and then put a couple of lines 10mm either side – I call these my fail safe lines and they will help me to get the best possible shape



6 From the first cut, I am thinking about my finished shape. The 13mm signature gouge is my tool of choice and the initial stock removal is done with a push cut, and the bevel is in contact with the surface



7 The refining of the shape can be completed using a scraping cut with the wing of the tool. I leave three pencil lines on the piece until I am happy with the top and bottom shape; this means I never decrease the diameter, thus potentially ruining the shape



8 Once I am happy with the exterior, I need to drill a depth hole. To give the drill a good start, make a 'V' shaped indent into the top. If the drill starts offline, it will only get worse the deeper it goes



9 I use a twist drill instead of a sawtooth bit as I find the shavings will exit more easily. I have marked the depth with masking tape and I only turn the tailstock wheel five times before exiting and clearing the shavings; this prevents the drill getting stuck



10 There are many tools on the market for deep hollowing; even the spindle gouge will work for a while until the tool overhang causes too much vibration. My tool of choice at present is the Simon Hope carbide tool with a 6mm cutter



11 Is this cheating? I don't think so as the hollowing rig makes life that much easier. There is no need to struggle with your hobby if you don't need to; it will certainly take the strain off your back and arms



12 The cutter needs to be set up on the centreline – hitting the centre in the bottom of a pot is notoriously difficult to do by hand. This legend board is for my Oneway lathes and ensures I get it perfect every time



13 The toys just keep appearing! Stopping frequently to measure your progress is tedious to say the least, so here the laser pointer is set about 4mm off the end of the cutter



14 Now when I am inside I can see exactly where the cutter is. Also as soon as the laser point 'falls off' the side of the pot, I know I have reached my wall thickness. Clever, eh?



15 The downside of the small cutter is that it can be difficult to get a really smooth finish inside the piece, so making a really light cut with a scraper like this round disc will leave a good, even surface



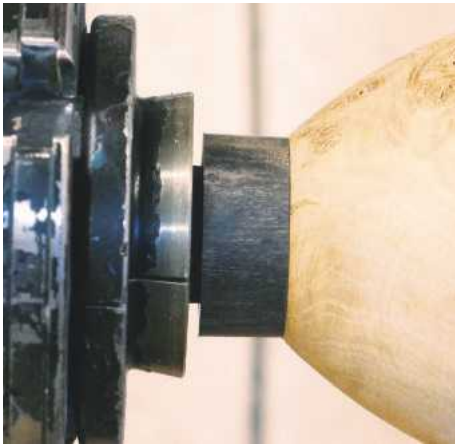
16 Learning to remount work is an important aspect of woodturning. To refine the shape and sand the pot, I've turned a pine jam chuck that fits tightly into the top of the form



17 Light pressure from the tailstock is all that's needed to get the piece spinning. Sand the oak through the normal grades of abrasive, but don't be afraid to start with a coarse 80 grit if you didn't get a good finish off the tool



18 Now it's time for the ebony add-ons. The base is a small piece of timber about 35mm diameter x 20mm thick. Make it round between centres and on one end, put a small spigot to suit your chuck



19 Once in the chuck, drill or turn a hole to suit the spigot on the base of the oak. The diameter of the base's top should flow seamlessly into the contrasting oak, as shown here



20 Mount the timber that's going to be the top collar between centres. It's worth drilling a small hole all the way through a piece like this, which means it will run much truer



21 In the top of the pot, cut a narrow shoulder that fits the hole in the top; this will also act as the spigot to fit in the chuck. Any detail underneath the cap should be turned and finished at this point



22 Once the cap is mounted in your chuck you can drill a hole all the way through. I've decided to use a 19mm diameter hole. I like to sand at this stage to make sure there are no faults in the timber before I move on to the threading process



23 Thread chasing by hand is a fantastic skill to master but it will take some practice. Surprisingly the finer the threading, the easier it is to do but I would still recommend seeking out an instructor to give you the best chance of learning how to do it properly



24 I use the Simon Hope threading jig as it does take away the guess work. I have also found that I can thread timbers that are normally difficult to do by hand chasing. This particular jig is the 16tpi version



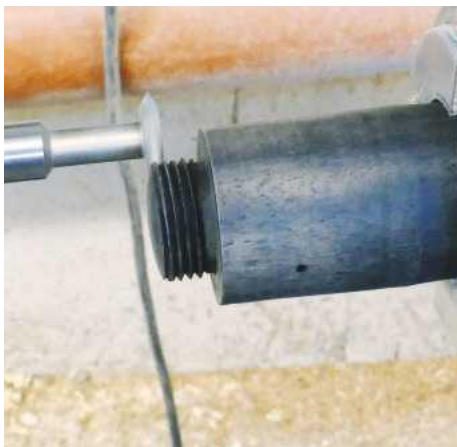
25 The cutter is held in the headstock and is set to spin at 3,000rpm – it's very sharp, so be careful. The work in the chuck is wound onto the cutter at a controlled rate, which creates the female thread



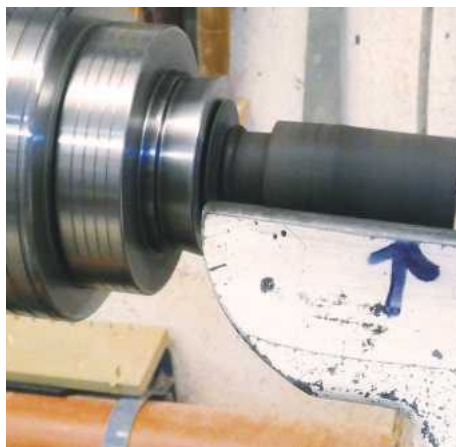
26 To get the diameter of the male part correct, I measure the thread and add 1mm; this will give me the correct diameter to turn the spigot down to. This measurement will change depending on the tpi you are working with



27 Mount up the piece of ebony that you intend to make your finial from and turn a short spigot down to the required diameter for your female thread. It's now important to turn a relief at the end of the spigot, which will stop the cutter bottoming out



28 I create about 80% of the depth of the thread in the first pass and then check the fit – at this stage it shouldn't fit. I then advance the cutter by one click and make one final pass – the lid should now screw on perfectly



29 The finial blank can now be screwed onto the cap so I can turn my detail. It will be a strong enough fixing as long as I keep the tailstock in place for as long as possible



30 I absolutely love turning these types of finials and I use a combination of my small signature spindle gouge and the 10mm round skew chisel. The end is still supported by the live centre but only with light pressure



31 As long as the thread is good you can finish the flame detail on the top of the finial. Using a bit of finger support will help as you do not want to break it at this stage



32 I like to spray the ebony with gloss lacquer; this gives a wet look shine that I think shows the timber off to its best. I have used masking tape to protect the threads as any overspray would change the fit



33 At this stage, I am still undecided about the base but I chose to go with it and planned to make a decision later. To finish the bottom, I use the same jam chuck as before and friction fit the base on



34 After putting a slight concave on the base, cut some decorative grooves on the bottom with the corner of the skew; this proves to all the other woodturners that you have gone to the trouble of turning rather than just sanding the base flat



35 I wasn't sure whether I wanted the oak part gloss, satin or matt, so after a little deliberation I decided on the satin lacquer finish. The base and lid will not be glued on until I am completely happy with the design



36 The completed burr oak lidded pot with ebony finial and base should look something like this



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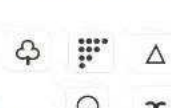


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It's electrifying!

Robin Gates finds an echo of the space age in these floor and table lamps from 1961, but suggests our enthusiasm for building with electricity has been dimmed by regulations

While leafing through old copies of *The Woodworker*, I was brought up short by these 'Diffused lamps in modern style' published in November 1961, and I declared aloud (as you do unconsciously, when of a certain age) 'We had those!' Then I realised I was wrong, and the reason they look so familiar is that their clean-lined space age shape is as popular today as it was eye-catching then. Back in '61, lamps like these were the domestic embodiment of the space race, mimicking NASA rockets aiming to fulfil JFK's promise of landing a man on the moon, announced in May of that year. Today, they light yoga studios and galleries, infusing us with peace and love.

Having built a few lamps from scratch, naturally I'm curious as to the details of construction. It's suggested the uprights are cut out on the bandsaw or, for the likes of me, using a coping saw, then to be attached to the base by wedged through-tenons. Although written instructions are brief, the scheme of things is presented with beautiful clarity in the drawings – notice how the wedges should be at right angles to grain direction in the base, so as not to split the wood.

Those four uprights supporting the shade eliminate a drawback common to many floor lamps viz. a tendency to wobble if you so much as look in their direction. Spacing the supports around the base creates a rigid and pleasantly open structure.

Success or failure

Such symmetry isn't achieved without risk, however, and I suspect the author's pertinent advice to 'take the greatest care to see that all four pieces are upright and parallel with each other' is a warning that herein lies the success or failure of the project. The slightest inclination from the vertical would prove an enduring source of annoyance. I imagine myself endlessly fretting over this stage of the assembly, only to worry further when faced with the difficulty of rolling and gluing parchment into a fair cylinder for the

DIFFUSED LAMPS in modern style

The type of lamp in which the bulb is completely concealed and throws a diffused light is popular nowadays. The two lamps in Figs. 1 and 2 are simple in the extreme. The shades are made from parchment paper with the edges stiffened with strips of cardboard or thin ply glued at the inside. To form the cylinder the joining edges are lapped $\frac{1}{2}$ in. and fixed with a heat-proof glue.

SO FAR AS the woodwork is concerned, the construction is much the same in both cases. There is an octagonal base into which the four uprights are through-tenoned and wedged. In the case of the table lamp a centre hole is bored to receive the flex, and another hole to meet it through the edge.

Stand

Prepare the wood as a square, and mark out both the octagonal shape and the mortises. In the case of the floor lamp the uprights occur in the middle of the four sides, but in the table model they are at the corners. The mortise marks will have to be squared on to the underside, and extra lines must be drawn in here to allow for the expansion of the tenons when the wedges are driven in. The wedges should be at right angles with the grain so that they do not split the wood.

The uprights are cut to the shape shown in Fig. 4. Mark both tenons and shape, and cut out. Those who have access to a bandsaw will find this the easiest means of cutting. Otherwise a panel saw can be used for the straight parts, and the coping saw for the hollow shapes.

When assembling take the greatest care to see that all four pieces are upright and parallel with each other. It helps if a little slip of wood is cut to the distance between the opposite uprights, and this used to test. Tap the wedges part way in, test finally for squareness, and then knock right in. A good way of assembling is to use a pair of cramps to each upright in turn, these being spaced at the bottom to clear the joint so that the wedges can be knocked in. At the top a short cross block is used. Tighten the cramps moderately only as otherwise the wood of the uprights may be bent. It is a help if the parts are polished separately before being glued.

Shade

The shade itself is made up separately as a cylinder. If preferred strips of thin ply can be used at the edges rather than cardboard, these being cut across the grain and overlapped. The whole is fixed to the uprights with 6 B.A. brass bolts with nuts and washers.

The support for the lamp is cut in tinplate, a single one for the desk lamp, and two separate ones for the floor lamp. They are held by bolts which fix the shade.

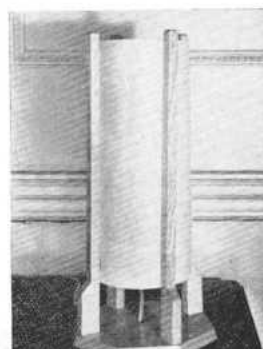
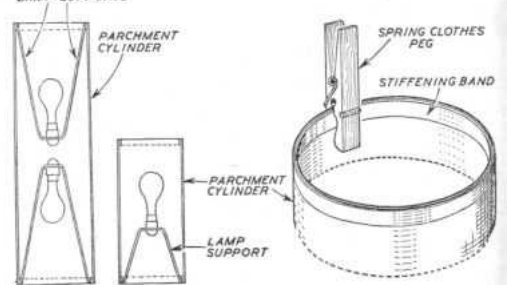


FIG. 2. (left)
TABLE LAMP IN
MATCHING
STYLE

FIG. 3. (right)
DETAIL OF
SHADE AND ITS
FIXING

		Long	Wide	Thick
		ft. in.	in.	in.
Floor Lamp				
1 Base		10 $\frac{1}{2}$	10 $\frac{1}{2}$	4
4 Uprights		3 8 $\frac{1}{2}$	1 $\frac{1}{2}$	4
Table Lamp				
1 Base		8 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{1}{2}$
4 Uprights		1 5 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
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LAMP SUPPORTS



230

WOODWORKER NOVEMBER 1961

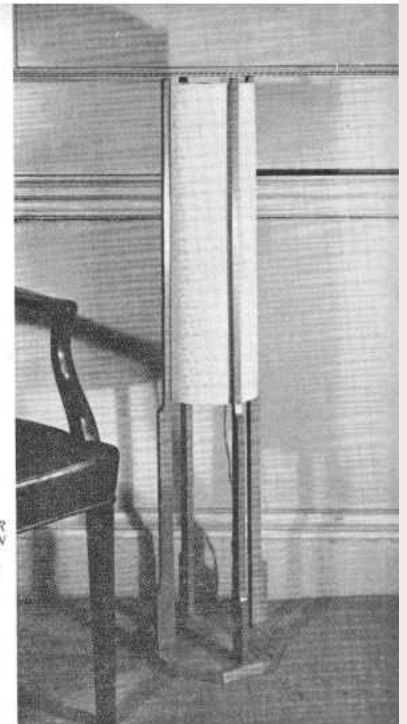


FIG. 1. FLOOR
STANDARD IN
OAK WITH
PARCHMENT
SHADE

shade. Pertaining to which, the alarm bells start to ring when I see mention of 'heat-proof glue.'

Because my chief concern surrounds the electrification, and not just because I'd like to see that flex clipped to an upright instead of dangling down the centre. While the 1961 electrical guidance is a model of brevity, merely suggesting lamp supports be 'cut in tinplate... held by bolts which fix the shade,' I'm wondering how much heat those old incandescent bulbs gave off,

and seeing a fire hazard in the making.

Compared to 1961, we have such a range of components at our disposal there's a solution at hand to almost everything – such as energy-efficient cool-running LEDs, for example – but we're also more anxious than we were. I suspect the 'what if' factor underlined by reams of legislation has dimmed we amateurs' enthusiasm for electrical projects. And rightly so, perhaps – better to be safe than electrocuted! ❌

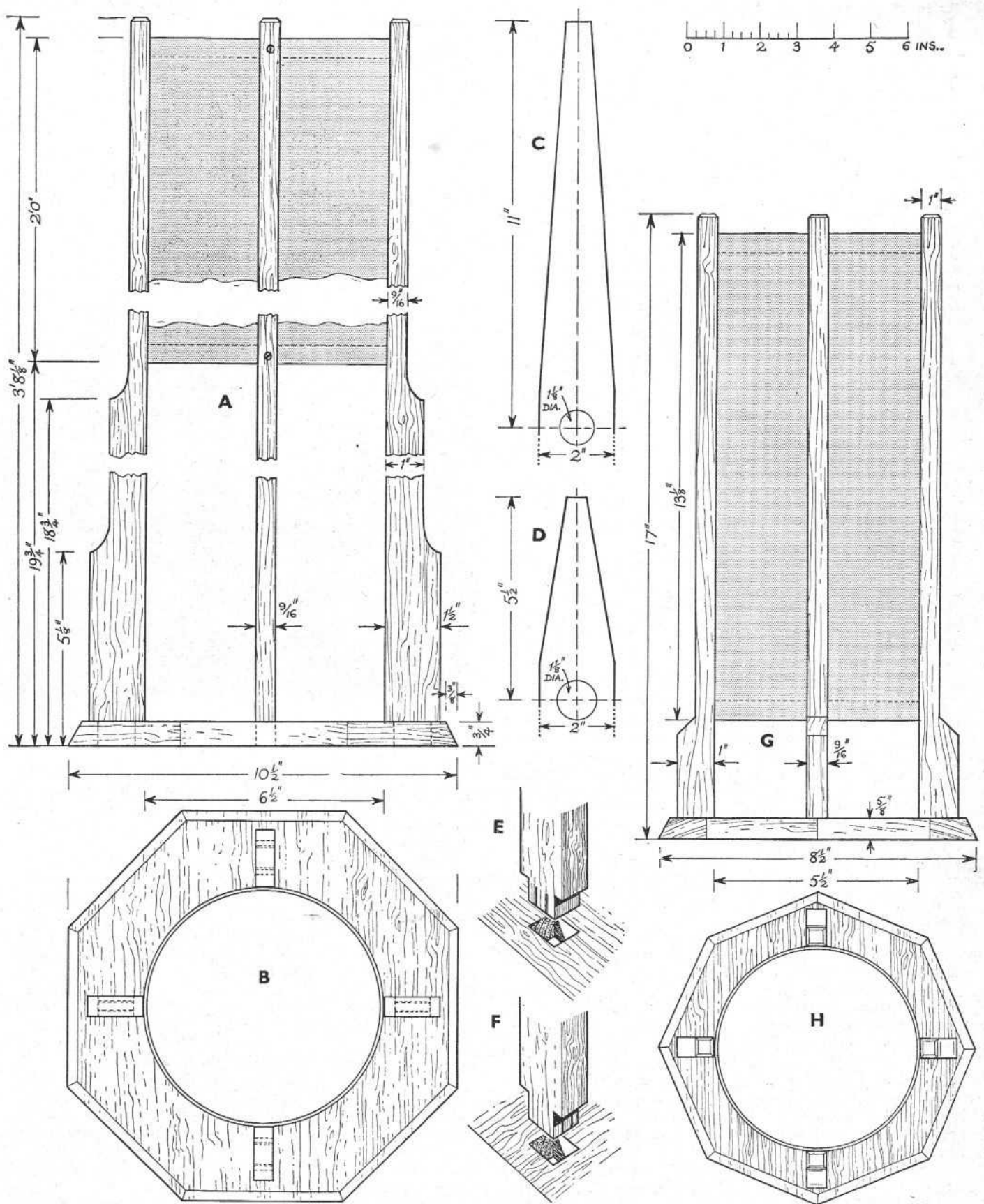


FIG. 4. ELEVATIONS, PLANS, ETC., WITH MAIN SIZES AND DETAILS

ME AND MY WORKSHOP

James Otter

Join us in Porthtowan, Cornwall as we meet professional surfboard maker James Otter

Photograph by Matt Arney



James sitting outside his workshop, with trusty sidekick Buddy and handmade surfboard

1. What is it – and where is it?

It's a 9 x 7m rammed earth building in Mount Pleasant Eco Park in beautiful Cornwall.

2. What's the best thing about it?

It feels like home.

3. And what's the worst?

There's not enough windows!

4. How important is it to you?

My heart is here.

5. What do you make in it?

Wooden surfboards.

6. What is your favourite workshop tip?

Share what you love.

7. What's your best piece of kit?

It's quite hard to choose just one, but it would have to be my drum sander.

8. If your workshop caught fire, what one thing would you rescue?

After my wife and labrador, I would go back for the first surfboard I ever made.

9. What's your biggest workshop mistake?

I sometimes get caught up in the moment.

10. What's the nicest thing you've ever made?

Lifelong memories.

11. And what's the worst?

I've made lots of mistakes, but luckily, all of them have been repairable.

12. What's the best lesson you've learned?

I really love running courses, and I never tire of the fun and joy of teaching others – to find out more, see www.ottersurfboards.co.uk.

13. If you won the lottery, what would you buy for your workshop?

More space! ✂

NEXT MONTH

In the next issue, we visit the workshop of head miller of the historic Otterton Mill, Devon, as he tells us about age-old machinery that is still going strong. 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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TIPS FOR USING THE UJK PARF GUIDE SYSTEM



Custom-made MFT-style bench tops and track saw cutting stations are increasingly popular, but creating the accurate array of 20mm dog holes is not easy. This unique system from Axminster Tools & Machinery provides CNC accuracy and can be used time and again, as **Peter Parfitt** shows

The UJK Parf Guide System provides woodworkers with the ability to create MFT3-style bench tops and custom track saw cutting stations with just a few simple tools. The results are exceptionally accurate and once the top is produced, the addition of a few bench dogs will provide any track or circular saw owner with the ability to make perfect 90° or 45° cuts. Router work can also be undertaken on tops like this. As well as being extremely accurate, the system will allow custom bench tops to be replaced quickly and easily for just the cost of a new piece of MDF.

Background

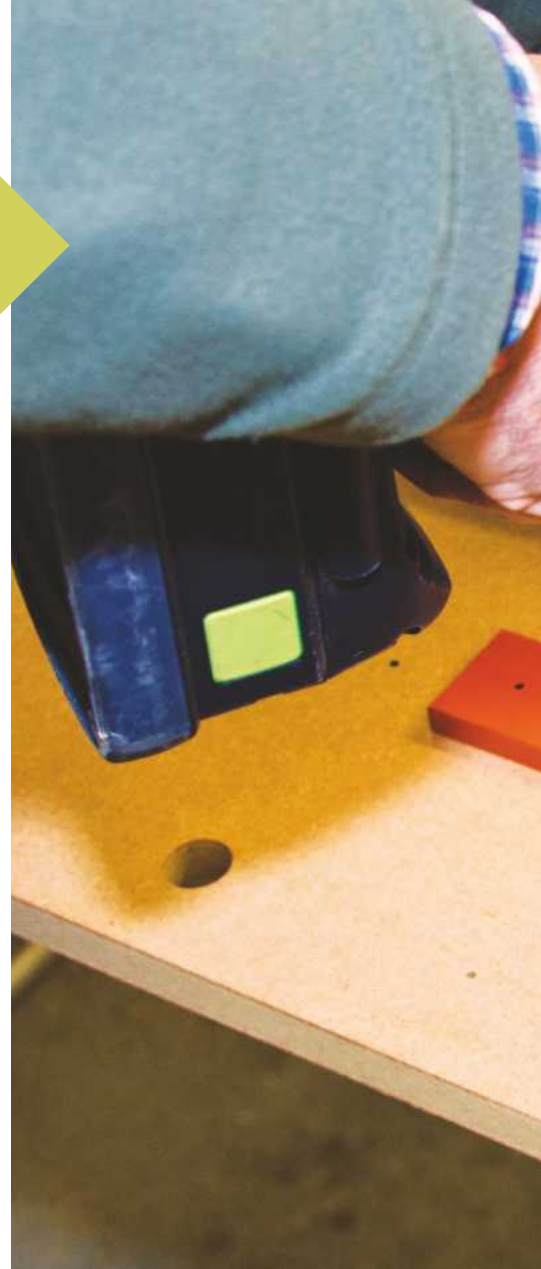
One of the fundamental requirements to tackle even the simplest woodworking project is the ability to make accurate right-angle saw cuts. Some of us will have a compound mitre saw which will be reasonably good for making cuts up to 34cm, but beyond that we have to fiddle around with squares too small for the job or find ourselves needing to constantly measure across opposing diagonals.

A number of very clever but equally expensive portable benches are on the market, the most well known being the Festool MFT3 (**photo 1**). These all

rely on a pattern of 20mm holes at 96mm centres to provide the user with workholding and jig setting options (**photo 2**). Some of the benches have accessories to aid saw cutting but these are often costly and may not necessarily be particularly accurate.

The increasing popularity of these bench tops with 20mm dog holes has prompted a range of specialised bench dogs to be designed and manufactured by Lee Valley (Veritas), Axminster (UJK) and others (**photo 3**).

A number of woodworkers have taken advantage of the 96mm pattern of holes as



1 The Festool MFT3



2 Jig work on the MFT3



3 Various bench dogs from Lee Valley and Axminster



a means to position stock and use a track or circular saw without the need for any of the additional (and often expensive) accessories provided by the bench manufacturers. Several low profile bench dogs would be positioned along a row of the 96mm holes opposite the user and a pair of taller bench dogs would be positioned at either end of a column (**photo 4**). With the stock pushed against the low profile dogs and the guide rail on top of the stock and against the tall dogs, reasonably accurate 90° cuts are possible using a track saw or circular saw.

Axminster have recently begun manufacturing a unique design of bench dog – the UJK Parf Super Dog – which locks in place and provides more flexibility, including the ability to cut many pieces of thin material at the same time (**photo 5**).

The accuracy of the cuts made this way depends on the accuracy of the diameter of the 20mm holes and the precision of the 96mm grid layout. I am unaware of any manufacturers making claims for the accuracy of these elements and there is often variation between products from the same manufacturer.

Creating custom tops

If you have ambitions to create your own bench top or a custom track saw cutting station, the fundamental problem is finding a way to

accurately lay out the pattern of 20mm holes at 96mm centres.

One simple route might be to have the work completed on a CNC. There are several drawbacks to this, however. Not all CNCs are as accurate as one might wish due to machine quality, cutter wear and general machine usage. Also, the work is not cheap and these types of bench tops are expected to take some rough usage and will need to be replaced at regular intervals, thus adding to the long-term cost.

I had been searching for a way to create my own tops, without a CNC, since 2011, which is when I bought my track saw. None of the methods suggested or offered as commercial solutions were accurate enough. The common flaw with many methods was that a jig or pattern would be used to create the first few holes and then subsequent holes would rely entirely on the accuracy of the first set. By the time the job was finished, an accumulated compound error brought great disappointment and rather poor test cuts.

Also, many of the methods required the complete bench top to be populated with 20mm holes in order to get the ones at the edges done. That would mean 209 holes on my custom track saw cutting station instead of the 25 or so that I actually needed.



4 Simple track saw cutting station in use

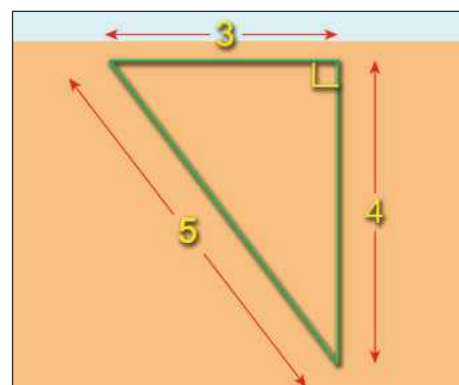


Fig.1 The Pythagorean 3-4-5 triangle



5 The UJK Parf Super Dogs increase capability

Back to school – Pythagoras

In late 2013 I decided to come up with a solution of my own and I spent 18 months trying out all sorts of methods. I had my 'Eureka' moment when I began experimenting with Pythagorean triangles. In particular I decided to exploit the right angle property of the 3-4-5 sided triangle (**Fig.1**). All I needed was a method of creating the 3-4-5 triangle, keeping it in place and then getting the holes transferred to the bench top below.

A strategic partner

After a few iterations of my 3-4-5 idea I approached Axminster Tools and Machinery to see if they could help me with further development



6 The UJK Parf Guide System components

that would require machinery and skill-sets way beyond what was available in my workshop.

I am delighted to say that Axminster embraced this project with considerable enthusiasm and after another 18 months we had the first Parf Guide System on the production line. In fact, the system is so good that they have included it in their prestigious UJK line-up.

The Parf Guide System

The fundamental elements of the Parf Guide System, or PGS, are a pair of special rulers, known as 'Parf Sticks'. The Parf Sticks have 11 x 3mm holes drilled at 96mm centres. The Parf Sticks are used to create the more accurate 6-8-10 triangle,

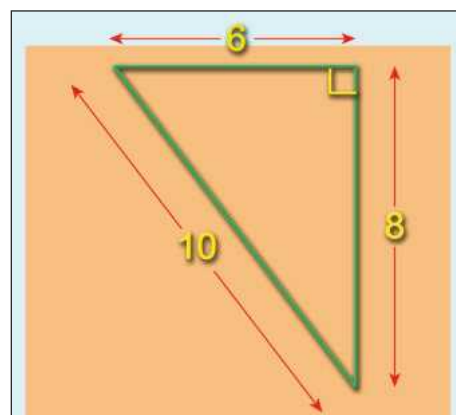


Fig.2 A 6-8-10 triangle is also Pythagorean

which would include a perfect right angle (**Fig.2**). Other components include a set of three 3mm guide pins (**photo 6**), which are used to fix the corners of the 6-8-10 triangle. There is a 3mm drill guide and a 3mm drill, as well as a bespoke 20mm Forstner style drill, a beautifully engineered 20mm guide block, and a pair of small bench dogs to help position the 20mm guide block for certain types of cut.

With the exception of the 3mm drill, all of the components of the PGS have been specially developed and perfected to work together to maximise the accuracy of the finished pattern of 20mm holes. For example, the special 20mm Forstner-style cutter has a unique 3mm spike at its tip, which encourages it to follow a 3mm pilot hole. In this way the 20mm cutter is guided not only by the 20mm drill guide but also by the 3mm pilot hole, thus improving overall accuracy.

The only tools required by the user are a drill, a pair of clamps and a workshop vacuum. I have found that the most economic material for building custom bench tops is 18mm Medite Moisture Resistant MDF. It has a very dense outer layer and a moderately dense inner core, which machines well.

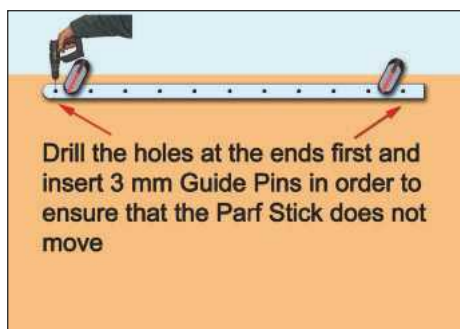


Fig.3 The first line of 3mm holes

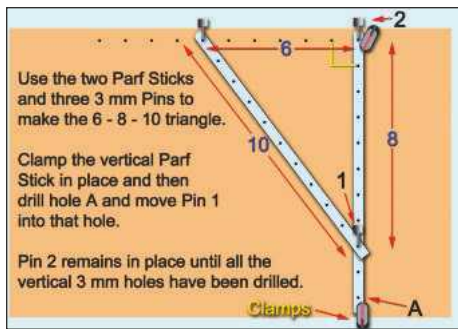


Fig.4 Setting up for the first column of 3mm holes

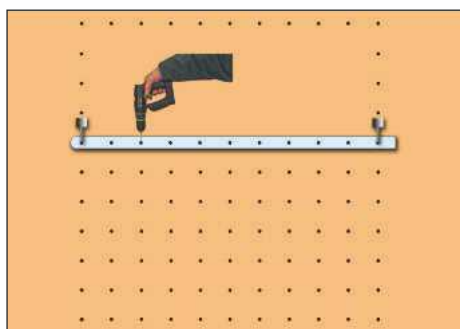


Fig.5 Completing the intermediate holes

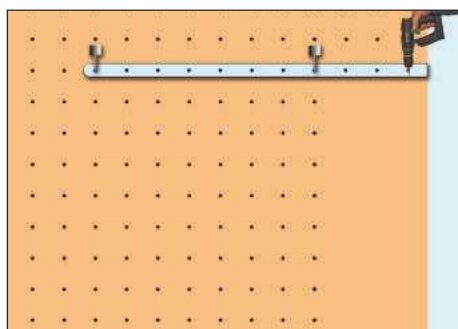
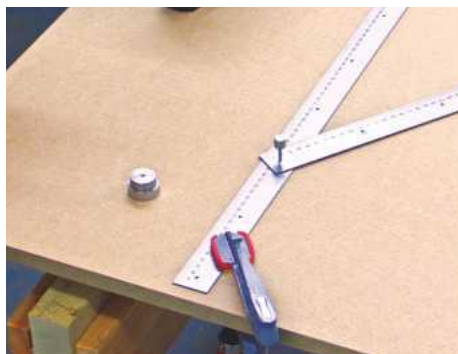


Fig.6 Extending left or right



7 Producing the first line of 3mm holes



8 Setting up for the left-hand column of 3mm holes

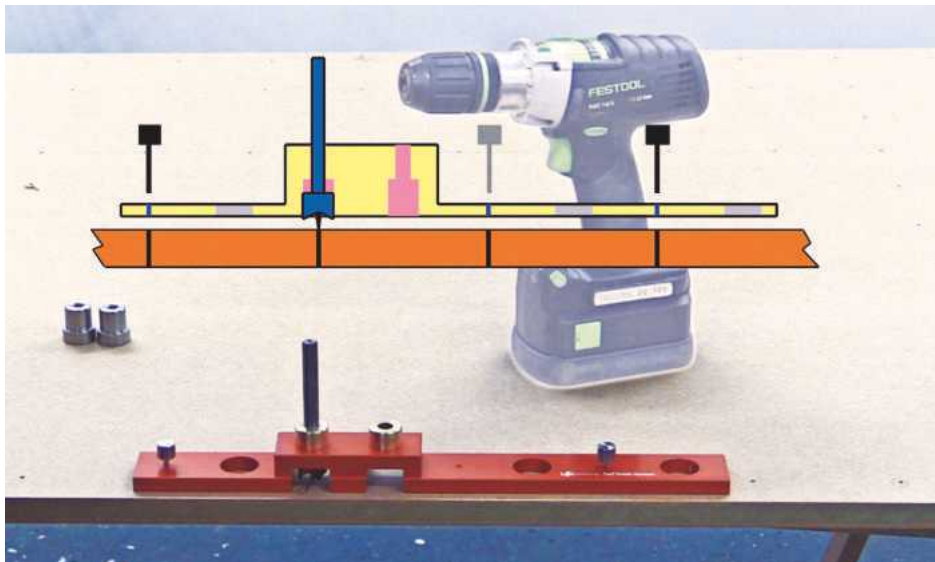
Using the PGS

In order to create a custom bench top the PGS provides the user with a method of creating a very accurate pattern of 3mm holes at 96mm centres. It is then simply a matter of enlarging these holes to create the precise layout of 20mm holes for the particular bench design.

You start by clamping a Parf Stick along the long side of the top and then, using a 3mm drill and the 3mm drill guide, drill through the bench top at each of the 3mm holes in the Parf Stick (**Fig.3**). This produces the first row of 3mm holes (**photo 7**).

It is now possible, using the pair of Parf Sticks and this line of 3mm holes, to complete the first 6-8-10 right-angled triangle. The Parf Sticks are accurately located using the 3mm guide pins and then clamped in place prior to drilling out the first column of 3mm holes. The first row and column of 3mm holes are exactly 90° to each other (**Fig.4**).

The same procedure is used at the left-hand side, producing a second column of holes (**photo 8**). It is now a simple job to fill in the remaining 3mm holes between the right- and left-hand columns (**Fig.5**). The layout of 3mm holes can be

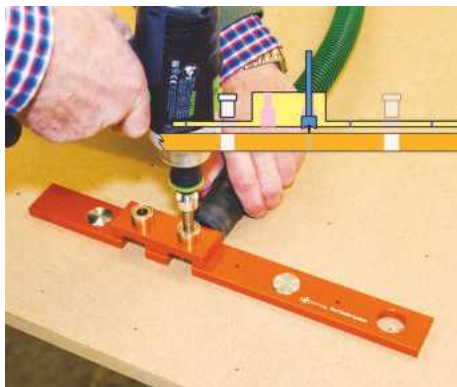


9 The 20mm guide block fixed with 3mm pins

extended to the left and right as required (Fig.6). The 3mm holes can now be enlarged using the 20mm cutter, which is accurately positioned using the 20mm guide block and a pair of the 3mm pins (photo 9).

There will come a point when so many 20mm holes have been created that the 3mm pins can no longer be used to position the 20mm guide block. At this point the 20mm cutter is moved to the second location in the guide block and the small bench dogs are used for positioning (photo 10).

Only those holes required by the custom bench top design need to be drilled with the 20mm cutter. For the simplest track saw cutting station about 15 x 20mm holes would suffice (photo 11)



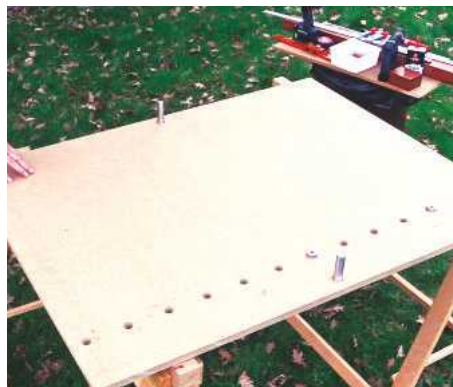
10 The 20mm guide block fixed with the small bench dogs

– a pair forming a column into which a pair of tall bench dogs would be inserted and the remainder forming a single row into which small bench dogs would be inserted. One of these can be made, with the PGS, in about 15 minutes. When it gets damaged, left on site or given to a friend, you can make another for just the cost of a piece of MDF.

Full instructions, including videos, can be found on the Axminster website: www.axminster.co.uk.

Accuracy

I took the very first PGS to come off the Axminster production line and conducted a 4 cut (sometimes called a '5 cut') test. The resulting error ratio was 0.000211, or the equivalent of an angular error of 0.012°, which exceeds the standards set for



11 A simple track saw cutting station can be made in just 15 minutes

engineering squares. Other users of the PGS have reported similar results (photo 12).

Reorganise the workshop

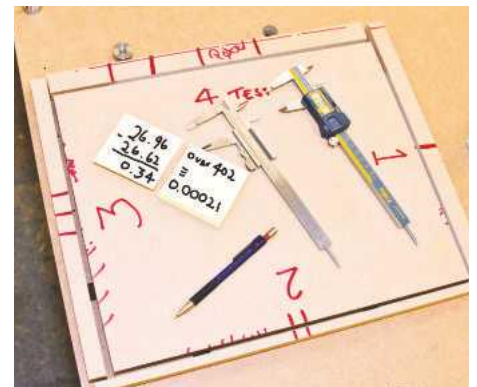
A track saw cutting station in its simplest form might be just a slab of MDF on a pair of trestles. Cutting sheet goods can be done as accurately as any panel saw. Cross-cutting will equal or surpass the accuracy of a compound mitre saw or radial arm saw. Thanks to the accuracy and ease of use of my track saw cutting station, I have sold my large table saw and now only have a very small one for ripping long, thin stock. The space saving in the workshop has made life a lot easier and I have not compromised the accuracy of my work in any way. The folding extensions on my mobile bench, with tops created using the PGS, are perfect for workholding (photos 13 & 14).

For the professional working on site the prospect of being able to create a CNC accurate track saw cutting station in just 15 minutes for the cost of a piece of MDF is very compelling. It can be replaced easily and cheaply as required.

It is easy to make a large and very accurate square from 80mm wide strips of 18mm MDF (photo 15). The square is made with simple joints and, when the glue is dry, it is cut perfectly square on the track saw cutting station. When the square gets bashed, covered in concrete, or ruined by tiling adhesive, it can be replaced for less than £1.

Boost for UK PLC

Thanks to Axminster's support and foresight the PGS is now on sale worldwide and many thousands are in use. New production machinery has been installed and additional skilled machinists have since joined the company. ✂



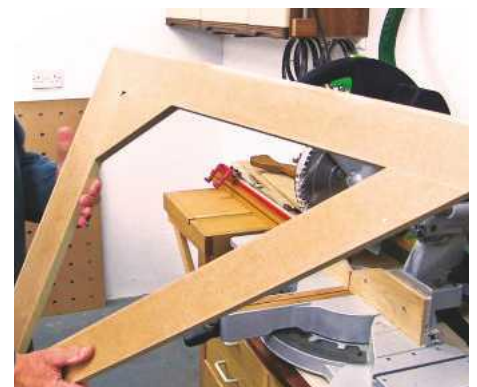
12 Typical results of the 4 cut test



13 Mobile bench folding extensions



14 Layout work on the mobile bench



15 It is quick and easy to make a large square

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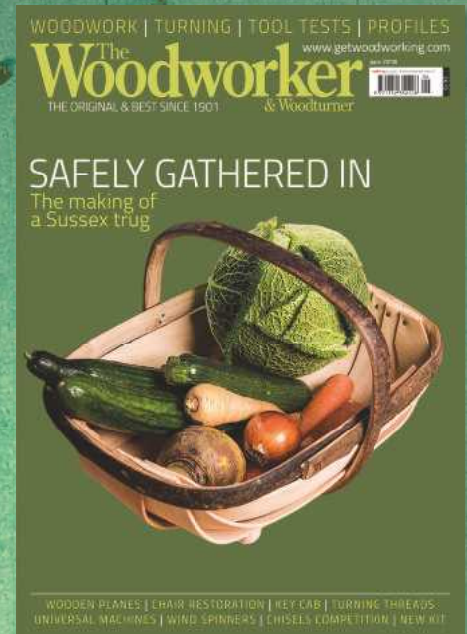
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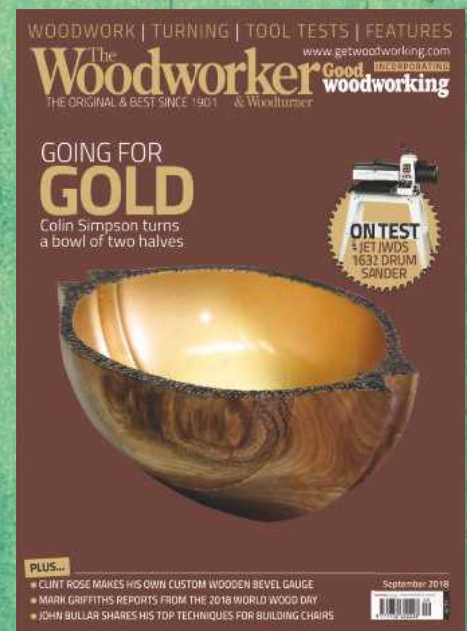
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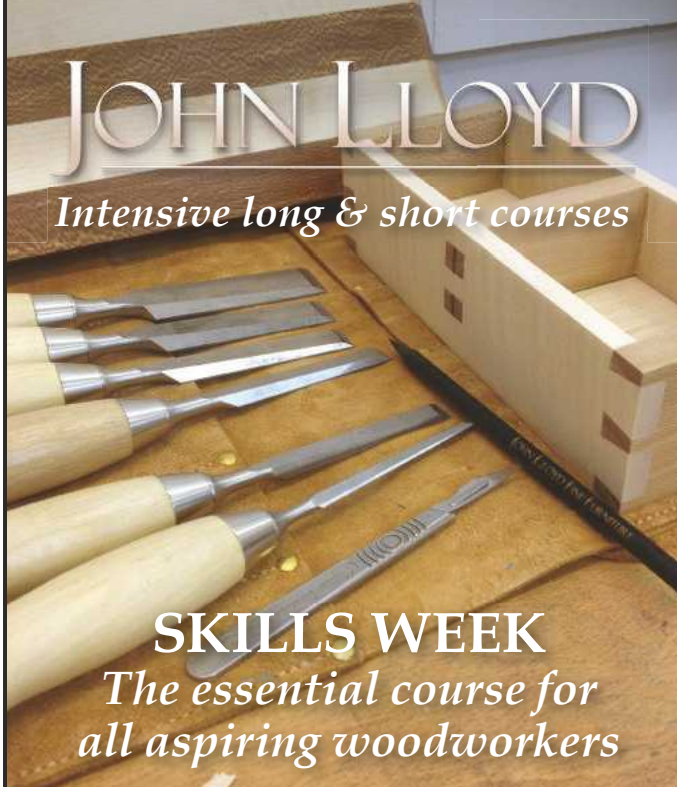
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Why we do like to be beside the seaside

Moses had it right. Take one day off a week. He would have said take Bank Holidays too, and a couple of weeks in the summer, but there's only so much you can get on a tablet. That sort of tablet. The point being that you need a rest. Don't work so blitheringly hard. Not because there's anything wrong with work, but because too much of it is counter-productive. You lose perspective. You lose humour. You might lose friends.

You certainly lose freshness. If you're a cog in a machine, you might get away with it, but if you have any autonomy, you need to keep your wits about you. Discernment. Discrimination. You need to know the difference between good and better. You need to care. These are not things that can be written down or codified. They are instinctual, and you cannot access your instinct unless you are relaxed. You have to let go of what you think is appropriate, and discover what really is appropriate even though it hadn't occurred to you before. You need to surprise yourself. Be prepared for the unknown. Welcome it, and find that it isn't scary. Or if at first it does seem scary, suck it up and find that actually it isn't. Usually.

This is why a holiday is good. It's not the sun; we've had plenty of that this year. It's not cheap booze; that's everywhere. It's not, unless you're burned out (or, perversely, wanting to be burned

out) lying by the pool until you're barbequed. It's being somewhere different. Completely different. The more different the better. It shakes you up. Opens your eyes. You see different things. You see everything in a different light. It expands the mind.

You'll come back knackered and buzzing. You'll see your kitchen as you haven't seen it since first you moved in, or first you remade it. You'll look at the garden and wonder why you'd never thought of turning the greenhouse around, or digging up the lawn for Roman remains. Those annoying impenetrable impossible jobs that you've postponed beyond memory will reveal themselves to be a morning's work, and enjoyable work at that. You'll be several stone lighter in your mind if not your body, but your body will benefit too as you have shakshouka for breakfast instead of popsicles.

Sometimes I just sits

The drawbacks are obvious. Time and money. The other sad thing is that the effects of a holiday don't last long. On Sunday, your new world is twinkling with excitement. By Wednesday, it is your old world once again; your holiday was months ago, and the photographs don't do it justice. The trick then has to be to take yourself away without going anywhere at all; and to be able to do it frequently because you can't wait

until next August. This calls for concentration. If you're going to do it properly, you'll learn to meditate. Meditation takes discipline and many of us are short of that. 'Sometimes I sits and thinks; and sometimes I just sits' is the Somerset compromise.

It can be done on the hoof and, in the workshop it has to be. The easiest way is to down tools and make a cup of tea. Walk around the garden or the yard and marvel at the weeds growing out of nowhere. Forget all about the piece you're working on; it's not important. Count your blessings. Then find yourself a couple of chocolate digestive biscuits and get back in there refreshed. Look again. The chances are it will be simpler now.

Discipline or not, it takes practise. Do it everywhere. Drop your preconceptions. I sat at a café in the middle of Cambridge and watched the people walking by. Some looked like farmers' wives uncomfortably dolled up for an offspring's graduation. Some were brilliant students; others probably weren't. One old man shuffled by. He was a rough-sleeper on his way for a free bowl of soup. I looked again. Perhaps he was a philosopher or a quantum physicist, this was Cambridge after all? He might have had the world spinning on his little finger. I couldn't tell, and I liked the way my ignorance forced my mind open. ✕

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