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- LES THORNE TURNS A SET OF DECORATIVE BELLS FOR CHARITY
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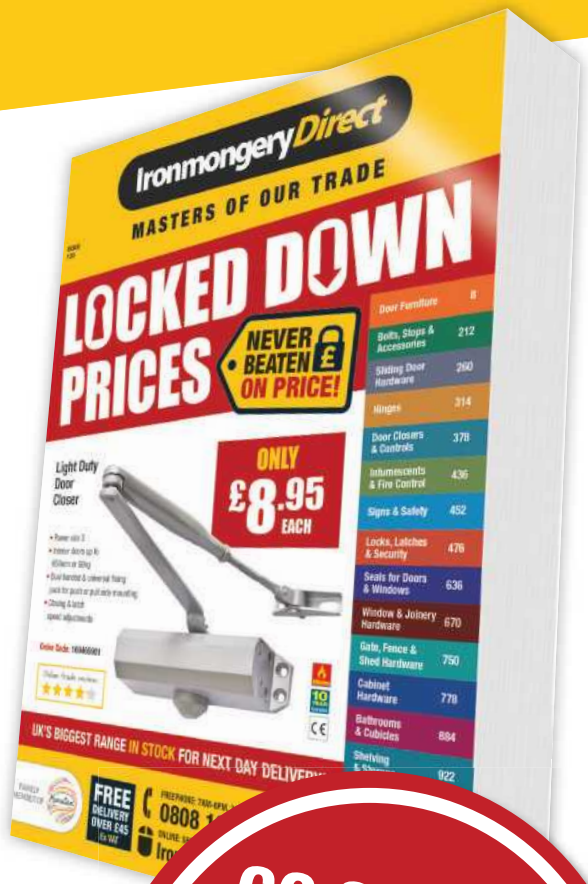

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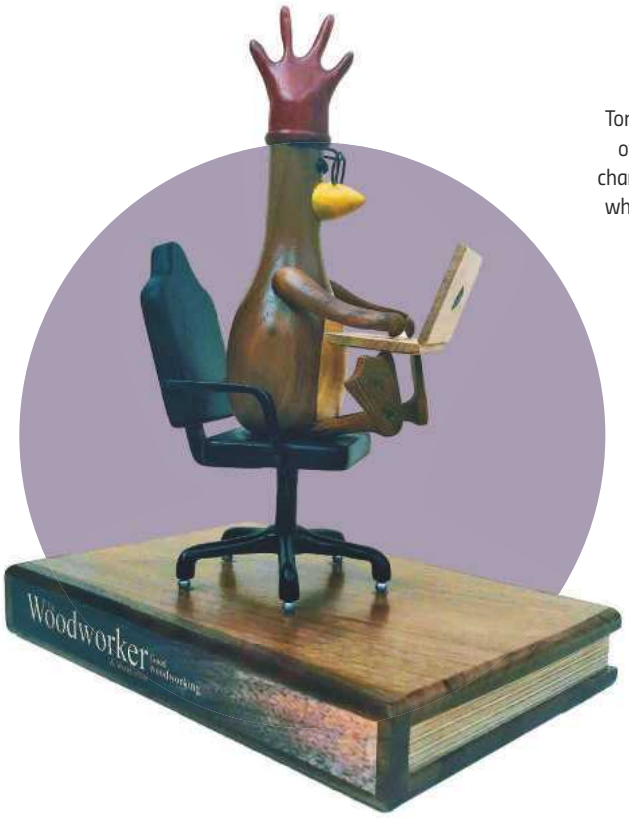

Tom Greaves' interpretation of the *Wallace and Gromit* character, Feathers McGraw, which he made specially for the magazine

Welcome

The longer I work in this industry, the more I am overwhelmed by people's generosity, kindness and willingness to help. Having attended a fair amount of shows over the years, I think I can safely say that I've never met a woodworker I didn't like, or who wasn't incredibly friendly and willing to share their story and talk about their love of what they do. I suppose woodworkers must just be a downright lovely bunch, and that's what makes me feel very lucky to do what I do.

Magazine mascot

A few issues ago (*WW* Sept), you may recall seeing Tom Greaves' wonderful wooden interpretations of the *Wallace and Gromit* character, Feathers McGraw – the silent, yet sinister, penguin that first appeared in the film *The Wrong Trousers* as the main antagonist – in a variety of humorous situations, playing a trumpet or painting a picture, and unsurprisingly he was chosen as our star letter winner. Each of Tom's pieces features meticulously detailed turned elements and the skill that must have gone into producing each one is quite amazing. He commented how he had been asked by various family members and friends to produce models to commemorate birthdays or special occasions, and it's obvious he must love making them.

Anyway, fast forward two months and lo and behold, what should be delivered to me but my very own personalised Feathers McGraw sitting on a stylised version of the magazine – how wonderful! Tom tells me that the body of Feathers was made using pieces of walnut and maple, which were turned on the lathe. The beak is made using a piece of pau amarello, the legs are from teak and the glove on top of his head is padauk. After being turned, the individual pieces were either refined using a scrollsaw or finished using various sanding arbors mounted in a Proxxon drill. The chair was also turned on the lathe before being refined with sanding arbors and the laptop was just made using a few offcuts. The eyes are 5mm map pins recessed slightly into the head and the book he is mounted on was made from sapele and for the leaves, birch ply. All parts were glued together using epoxy and the whole model was sanded to 400 grit before being given one coat of acrylic sanding sealer and two coats of acrylic lacquer.

Now, I have received a few gifts over the years, but nothing as touching as this one. So, a big thank you goes out to Tom for sending in this fantastic, personalised model, and I can assure you that it has already become the magazine mascot!

'Harrogate' show

Going back to my comments regarding shows and woodworking events, with November just around the corner, that means it's almost time for the 'Harrogate' show, and I'm not sure about you, but we're very excited. As usual, I will be on hand to answer any questions you may have, listen to your comments regarding the magazine (both good and bad), and if you don't already subscribe, you can take advantage of our exclusive show offer. Building on the success of last year's event, you can expect to see a fantastic range of demonstrators, your favourite woodworking/woodturning suppliers and brands, as well as a few new ones, all in one location. Book your advance tickets now (call **01749 813 899**) and we look forward to seeing you there!

Woodworking community

We hope you enjoy our November issue and please do continue to keep writing in and being part of this fantastic community. Among others, this month, it was a joy to hear from Gordon Griffin regarding his rocking dragon and alpaca (look out for those soon), and since joining his local workshop (Multi Skills Workshop in Polegate, East Sussex), Robert Murray's turning and woodworking skills have really improved, and more importantly, he's grown in confidence. Thank you again to all our readers and we look forward to hearing from and meeting you soon!

Email tegan.foley@mytimemedia.com

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Dave Roberts
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46 SITTING PRETTY

Peter Vivian's recent commission for a functional hall seat/ storage unit in oak turned out beautifully, as he describes here

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NOVEMBER 2018

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REVOLUTIONARY HIKOKI MULTI VOLT BATTERY PACK

With 36V the BSL36A18 Multi Volt battery packs have a capacity of 2.5Ah, and 5.0Ah with 18V. HiKOKI also offer a BSL36B18 with a capacity of 4.0Ah and 8.0Ah with 18V. This means that the 36V battery packs have a capacity of more than 1,000W. Impressively, the 36V battery packs have more power than the similar sized 18V versions, but as the packs' dimensions and weight remain almost the same, the Multi Volt packs can be used with a wide range of 18V class devices.

Ground-breaking technology

In terms of their compatibility, the new Multi Volt battery packs from HiKOKI are unique in the industry. At comparable Watt strengths, they are also lighter and smaller than the competition. The revolutionary battery pack technology is setting new standards in cordless freedom. "With the new Multi Volt battery pack generation, HiKOKI Power Tools are breaking through the barriers that the Volt classes have imposed up until now," says Simon Miller, Marketing Director of HiKOKI Power Tools UK.

Intelligent connecting technology makes it possible for the battery pack to detect whether it is being used in an 18V or a 36V device, and automatically adjusts the voltage.

"With our Multi Volt battery packs, we have developed a technology that offers the user not just high performance but also full flexibility," continues Simon. These will be available in stores from September 2018.

Long battery life thanks to integrated cooling system

This flexibility is particularly beneficial at high power levels. Take, for example, the new C3606DA cordless circular saw. The 36V tool requires half the amperage of an 18V tool to achieve the same power. Due to the lower amperage and an integrated cooling system, the battery pack heats up much more slowly. This has a positive effect on the battery's capacity and working life: the battery pack can deliver its full power over a longer period of time. Professionals can work with even the hardest materials when using the C3606DA cordless circular saw combined with the new Multi Volt battery packs. The new DS36DAX cordless drill/screwdriver also benefits from the 36V power delivered by the Multi Volt battery packs. In comparison to current 18V machines, the Multi Volt version is up to 30% faster. Apart from the Multi Volt battery packs, the new devices are also equipped with particularly powerful and durable brushless motors.

Charged in just 32 minutes

Using the UC18YSL3 rapid charger, the new 36V battery packs can be fully charged in just 32 minutes. All Hitachi/HiKOKI Power Tools' 18V chargers for slide Li-ion batteries are compatible with the new Multi Volt battery packs. In addition, the battery packs have a particularly long service life: they can be charged up to 1,500 times without any appreciable impact on performance. The energy available in the battery pack is displayed on the battery itself through a four-stage charge indicator. For further details, visit **www.hikoki-powertools.co.uk**.

MACHINE MART XTRA

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Machine Mart XTRA includes more power tools, hand tools, garage equipment, water pumps, wood and metal working, plus lots more. Tools and machinery are available from all your favourite big brands, so whatever you're looking for, visit the XTRA section of the Machine Mart website.

DIARY – NOVEMBER

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6* Sharpening turning tools with Tormek
7–8 Woodturning – a German nutcracker
12 Fine-tuning hand planes
13 Sharpening
15 Intro to the turned box
19–22 & **20–23*** Beginners' woodworking – make a side table
21–22 Woodturning
29–30* Routing
* Course held in Sittingbourne, Kent
Axminster Tools & Machinery
Unit 10 Weycroft Avenue
Axminster, Devon EX13 5PH
Tel: 08009 751 905
Web: www.axminster.co.uk

23–26 Make simple furniture
29–2 An introduction to picture framing
West Dean College
Nr Chichester, West Sussex PO18 0QZ
Tel: 01243 811 301
Web: www.westdean.org.uk

14–15 Tool sharpening
16 Introduction to woodworking: hand tools
17–18 Sussex Trug making workshop
17–18 Wood finishes
Weald & Downland Living Museum
Singleton, Chichester PO18 0EU
Tel: 01243 811 363
Web: www.wealddown.co.uk

10 Chair making – part IV
12–16 Router skills
23–26 Beginners' four-day course
Chris Tribe, The Cornmill, Railway Road
Ilkley, West Yorkshire LS29 8HT
Tel: 01943 602 836
Web: www.christribefurniturecourses.com

10–11 Wood machining
John Lloyd Fine Furniture
Bankside Farm, Ditchling Common, Burgess Hill, East Sussex RH15 0SJ
Tel: 01444 480 388
Web: www.johnlloydfinefurniture.co.uk

3 Pyrography
6 Pen turning
7–8 Woodturning
Turners Retreat, Faraday Close
Harworth, Nottinghamshire DN11 8RU
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Web: www.turners-retreat.co.uk

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Web: www.adhectic.co.uk

A Harrison (Northants)
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Web: www.aharrisonwoodturning.co.uk

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

Black Isle Woodturning (Scotland)
Tel: 07842 189 743
Web: www.blackislewoodturning.com

Brodies Timber (Perthshire)
Tel: 01350 727 723
Web: www.brodiestimber.co.uk

Brooks Brothers Timber (Essex)
Tel: 01621 877 400
Web: www.brookstimber.co.uk

C&G Barrett Ltd, Cilfiegan Sawmill (South Wales)
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Web: www.cilfiegansawmill.com

Clive Walker Timber Ltd (West Yorkshire)
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Web: www.clivewalkertimber.co.uk

D Emmerson Timber (Lincolnshire)
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Web: www.emmersontimber.co.uk

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English Woodlands Timber (West Sussex)
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Exotic Hardwoods (Kent)
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Web: www.exotichardwoods.co.uk

EO Burton, Thorndon Sawmills (Essex)
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Web: www.eoburton.com

Eynsham Park Sawmill (Oxfordshire)
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FH Ives (Essex)
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Web: www.fhives.com

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Web: www.thetimbermill.com

The Wood Recycling Store (East Sussex)
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Web: www.woodrecycling.org.uk

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

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

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

UK Timber Ltd (Northamptonshire)
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Web: www.uk-timber.co.uk

Waterloo Timber Ltd (Lancashire)
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Web: No website

Wenban Smith (West Sussex)
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Wentwood Timber Centre (South Wales)
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Web: www.wentwoodtimbercentre.co.uk

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

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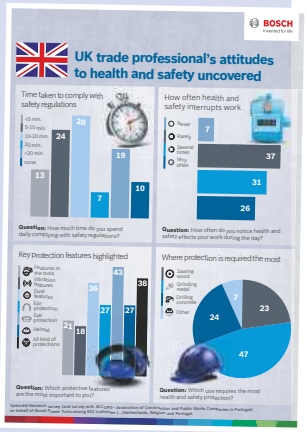
Web: www.yandles.co.uk

BOSCH SURVEY REVEALS UK TRADESPEOPLE TO BE THE MOST SAFETY CONSCIOUS



According to the findings of a recent health and safety survey conducted for Bosch, UK tradespeople are the most safety conscious in Europe. The poll canvassed the views of carpenters, electricians, plumbers and other building trade professionals in the UK and eight other European countries including Germany, France, Spain and Italy.

Over 56% of the UK tradespeople said that they stopped work several times a day or even more frequently in order to meet health and safety requirements. Across the channel in France, around 35% of workers were stopping a similar amount of times, while in Spain it was 37.5% and in Germany around 39%.

While being tuned in to health and safety issues is undoubtedly important in the workplace, interruptions to the work flow are likely to have a knock-on effect in terms of efficiency and productivity. The safety features built into many power tools in the Bosch Professional range can make a significant difference. With in-tool systems that help protect users against both day-to-day injuries and long-term health risks, tradespeople can work seamlessly with greater confidence and efficiency.

The survey also shed light on which tasks trade professionals place most importance on, in terms of using protection. In the UK grinding metal was rated highest, with 46% of respondents flagging it up. After this came drilling concrete and sawing wood.

Immediate day-to-day protection

When it comes to working with metal, the Bosch GWS 18V-125 SC Professional includes impressive day-to-day safety features. Like over 20 other Bosch Professional power tools, this angle grinder includes a sensor-based KickBack Control function. If the integrated sensor detects a sudden blockage during use, the motor will switch off within a fraction of a second, minimising the risk of user injury. It is also the first power tool in the world to feature Drop Control. If the angle grinder falls, the power cuts out as soon as it hits the ground.

Long-term protection from vibration & dust

Effective measures to protect workers from the long-term effects of vibration and dust are also vital to workplace health and safety. Bosch Professional has developed a number of solutions. For example, the Bosch GBH 18V-26 (F) Professional rotary hammer has a damping element that uncouples the main handle from the hammer drive and reduces active vibrations. While the Bosch GSA 18V-32 Professional sabre saw has a counterweight, which constantly counteracts inertial forces, giving this tool the lowest vibrations in its class.

Bosch Professional also offers an extensive range of dust extraction tools. The Bosch GAS 18V-10 L Professional is a cordless dust extractor and can cope with both wet and dry environments. It is also equipped with automatic filter cleaning, which helps to maximise suction power at all times.

The Bosch GBH 18V-26 (F) Professional rotary hammer handles the dust issue in an innovative way. It's one of the first 18V Bosch Professional hammers to incorporate active integrated dust extraction. This means that the tool can collect the dust created while it is being used. This is made possible with the optional Bosch GDE 18V-16 Professional dust extraction attachment.

So, for safety-conscious UK tradespeople looking for health and safety solutions, Bosch Professional power tools could be the answer they need. For further information, visit **www.bosch-professional.co.uk**.

THE MAN WHO BUILT A BUSINESS OUT OF BOTTLE CAPS

A young designer from Derby, who was inspired to create maps from beer bottle caps, has turned his hobby into a successful global business. Peter Crummey founded Lasaris.com in 2015 while in his final year at university after a friend introduced him to laser cutting.

Initially based in the garage of his home, Peter started using sheets of birch and oak to make maps of Britain and European countries – an idea inspired by an old collection of bottle caps that he didn't know what to do with: "My wife and I used to like collecting strange and unusual bottle caps and then we came up with the idea of creating these maps. It's a nice way for people to immortalise their own drinking adventures."

Since launching on Amazon Handmade, over 5,000 Bottle Cap Maps have been sold around the world from Africa and India to Saudi Arabia and Japan.

The boom in trade has allowed the business to move to bigger premises and has enabled wife Rachel to quit her job and join the company as lead designer.

Lasaris products are made using three laser machines – two Laserscript 6090s (100W and 60W) and a Redsail X700 50W. Using the fine detail, these machines enable them to take their products to new heights, such as the street maps and cake toppers they now produce.

Each item takes over an hour to laser engrave and cut followed by multiple hours of finishing to make the item look perfect. Peter and Rachel create their own designs using high quality, locally sourced wood and every piece is bespoke and hand finished.

The quality and accuracy of engraving using lasers means that it is perfect every time with no imperfections, and the product is guaranteed to look exactly as described. Each item is made to order to ensure that quality is kept paramount and each customer receives the perfect product.

Peter says: "I never had any desire to make my own products until the opportunity presented itself, but I'm so glad I took the plunge. Creating beautiful handcrafted products for people to enjoy is really satisfying."

To find out more, visit **https://lasaris.com**.

TRITON REVEALS TSPSP650 PORTABLE OSCILLATING SPINDLE SANDER

Triton Tools is continuing its evolution of woodworking with the release of a portable, hand-held oscillating spindle sander for controlled, burn-free edge sanding.

The Triton TSPSP650 provides the flexibility of a portable hand-held edge sander with the stability and precision of a bench-mounted version. With a powerful 650W motor and variable speeds of 1,800-3,200rpm, oscillating at 50-90opm, it is the ideal workshop or worksite sander and is particularly suited to cabinetmaking, sign making, finishing sink openings and general woodworking.

The product has a tool-free quick-change system, which makes it swift and easy to swap the sanding sleeves. Weighing just 2.2kg, the new sander can easily be moved into position for an accurate finish.

The tool comes with four drums and four sanding sleeves in the following diameters: 13, 19, 26 and 38mm.

The complete kit also includes the inverted bench-mounting set, with non-slip bench mat and adjustable clamps, dust port adaptor and adjustable edge guide.

To find your nearest stockist, see **www.tritontools.com**.

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TREND HIGH POWER LED TORCHES

Trend has launched a new range of high powered, premium LED torches. These have been designed utilising the latest in LED technology to provide excellent light output while maintaining strong battery performance.

Within the range there are torch styles to fit the varied applications and requirements of the woodworker or tradesperson, boasting a variety of helpful and functional features from head-mounted, waterproof or magnetic designs to USB rechargeable and SOS functions.

There are two head torches alongside the pocket, pencil and angle twist head varieties, and all are supplied complete with either AAA batteries or rechargeable Li-ion cells, depending on the model's requirements.

The head torches give you two options: a fixed unit with a pivoting head that has six different light modes, including four light intensities of 30, 60, 160 and 320 lumens.

The second head torch has four lighting options with maximum beam power of 115 lumens and an angled head function. It can also be removed from the head straps for standard handheld use if required and has a magnetic base and pocket clip for additional positioning options.

The slim-bodied pencil torch has an easy focus single beam intensity of 120 lumens with a beam distance of 56 metres. Powered by two AAA batteries, it has a run time of two hours.

The pocket and angle twist head torches are rechargeable and have variable light intensities and functions to suit the user's needs with a single button for ease of use. Both are charged through a micro USB port and come with a charging cable. The Pocket torch has 200 lumens maximum power and also benefits from a strobe function.

Maximum power on the angle head is 300 lumens and there is also a UV light function ideal for security tagging your power tools. A magnetic base and pocket clip allows different positioning options if required.

The competitively priced range of torches are drop resistant to 1 or 2 metres depending on the model, and water resistant up to IPX4 rating.

The full range of torches and their inc VAT list prices

TCH/HA/H10	angled head torch – 115 lumens	£23.94
TCH/HP/H20	pivot head torch – 350 lumens	£23.94
TCH/AT/B75R	angle twist torch – 300 lumens	£41.94
TCH/PE/B22	easy focus pen torch – 120 lumens	£17.94
TCH/PO/G12R	easy focus pocket torch – 200 lumens	£23.94

These torches are available from all Trend Routing Centres and stockists across the UK. For a copy of the Trend Catalogue, or to request further information and details of your nearest Trend Dealer, call **01923 249 911** or visit **www.trend-uk.com**.

NEW MULTI-HOLE PATTERNS FOR MIRKA'S POPULAR PAPER ABRASIVES

Mirka is extending its range of paper-backed abrasives by introducing multi-hole discs in its Gold and Q Silver Ace ranges. This will improve the discs' performance by increasing dust extraction capabilities compared to traditional paper equivalents.

The new multi-hole pattern reduces clogging of the abrasive surface, increases the speed of cut and produces an improved surface finish.

Mirka Gold is an all-round product known for its versatility and quality finish. Q Silver Ace is a premium ceramic abrasive with excellent performance on more demanding applications. The new multi-hole Gold and Q Silver Ace 150mm discs have 37 holes for coarser grits and 121 holes for finer grits.

Craig Daycock, Managing Director of Mirka UK, says: "No matter what surface you are working on and what tools you prefer to use, our ambition is to always enable the best possible finish while ensuring a dust-free environment that is good for the operator and the production process."

For more information on the whole range of abrasives and products available from Mirka UK, see **www.mirka.com/uk/uk.**

SPOT REPAIR WITH OSMO

Osmo UK, the eco-friendly wood and finishes specialist, provides the perfect solution for spot repairs with the easy-to-use Polyx®-Oil Care and Repair Paste. This hard-wearing paste – that is available in a toothpaste style tube – has been specifically designed to help maintain, repair and restore internal wood.

Developed from natural oils and waxes, the eco-friendly gel-like-paste is made of the Osmo UK Polyx®-Oil. Creating an extremely durable and hard-wearing layer, this spot repair paste is suitable for use on wood in indoor areas, including furniture surfaces, worktops made of solid or laminated wood, and all wooden floors, OSB and cork flooring.

The paste is ready to use straight from the tube and should be applied with a lint-free cloth once the surface is clean. Any mistakes made during application can be corrected up to 15 minutes after the first application. After 8-10 hours' drying time, the surface will be resistant to saliva and perspiration and liquids such as coffee, wine and cola.

Osmo UK is renowned for its wood finishes that combine product performance and natural, environmentally friendly ingredients. The company operates a policy of supplying products that are eco-friendly during production as well as in application. The Care and Repair Paste from Osmo UK is no exception, as it meets the requirements of DIN 53160, by being safe for humans, animals and even on children's toys.

For stockist details and more information on Osmo UK and its range of environmentally friendly wooden products and specialist finishes, visit **www.osmouk.com**.

Vanessa Johnston with her Maloof-inspired chair

Archana Pai and her completed mirror

GETTING WOMEN INTO THE WORKSHOP

The Chippendale International School of Furniture is proud of their track record in helping to launch the careers of woodworkers from around the world, but they were surprised to hear that on returning home, one of their students, Archana Pai, would be one of very few female furniture makers in India.

That might be the case there, but what the school has seen is a gradual increase in the number of female students enrolling to study on their furniture courses.

For example, their last two intermediate course students, Sarah Quick from Scotland, and Mara Dreger from Brazil, were both women.

This year, apart from Archana Pai, they had Candace Roberts from Trinidad & Tobago, Vanessa Johnston from the USA, and Mary Anne Kyle and Honor Dalrymple from Scotland.

Indeed, Honor won the Student of the Year accolade for her portfolio, and Vanessa won the prestigious Chippendale Society award 2018.

Honor came to the school as a trained civil engineer and had worked as a structural engineer, and that background enabled her to visualise in 3D, as well as understanding structure and the strength and limitations of materials.

Honor's award was matched two years ago by Iana Molotok, a hugely-gifted student from Russia who has now returned to her native St Petersburg.

And last year, among other female students, there was Joanna Majewska from Poland, who stayed on at the Chippendale school to open her own furniture design business from incubation space.

The school would very much like more women to consider a career in woodworking and, they believe, women often have a more natural affinity for combining the design aesthetics and practical sides of the trade.

For example, it was an American Shaker woman, Tabitha Babbitt, who invented the first water-powered circular saw. Indeed, from Charlotte Perriand to Margaret MacDonald Mackintosh and Eileen Gray, female furniture designers have helped to inspire some of the biggest artistic movements, including Art Deco and modernism.

The great Ray Eames, for example, made ground-breaking contributions in the fields of architecture, as well as furniture and industrial design. She embraced the visionary idea of modern design as an agent of social change. Her husband and design partner, Charles, famously said: "Anything I can do, Ray can do better."

The school has been involved in campaigns to raise the profile of woodworking generally with careers advisors in schools, because few realise that furniture design is a career option for young students, but they'd also like to encourage more women into woodworking because it is, primarily, about artistic design rather than brute hard work. For both sexes, modern machinery takes much of the hard work out of woodworking.

So if you're a woman thinking about furniture design and making as a career, it really is no longer a man's world. The number of female woodworkers grows every year, and that's something the Chippendale International School of Furniture like to applaud and encourage. To find out more, see **www.chippendaleschool.com.**

JOINERY made simple

POCKET-HOLE JIGS

Triton's new Pocket-Hole Jig range provides a fast and effective way of creating strong, concealed joints. Even with limited woodworking knowledge, the operator can easily create accurate, professional pocket-holes on multiple projects.

Engineered Precision

SINGLE MINI POCKET-HOLE JIG

Triton's TWSMPJ Single Mini Pocket-Hole Jig is a compact and highly compatible solution for creating strong joints in materials of any thickness.

NEW

DOUBLE MINI POCKET-HOLE JIG

Triton's TWDMPJ Double Mini Pocket-Hole Jig is a highly versatile Jig designed and optimised for creating strong joints in projects at the home workshop or on the building site.

NEW

POCKET-HOLE JIG 7PCE

The TW7PHJ Pocket-Hole Jig is a fast and simple solution for creating strong joints in wood at both the home workshop and on the building site.

NEW

ADJUSTABLE JIG

Triton's TWAJ Adjustable Jig is a highly versatile jig designed and optimised for creating strong joints in projects at the home workshop or on the building site.

NEW

JIG ACCESSORIES NEW

POCKET-HOLE JIG CLAMP 	**SQUARE DRIVER SET 76MM & 152MM / 3" & 6" 2PCE** 	**POCKET-HOLE PLUGS 50PK PINE** 	Screws available in various sizes 
QUICK CHANGE HEX SHANK DRILL BIT 9.5MM / 3/8" 	**SQUARE DRIVER SET 152MM / 6" 2PK** 	**POCKET-HOLE PLUGS 50PK OAK** 	

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tritontools.com

triton Precision Power Tools

What's new from D&M TOOLS

'THE' TOOL SPECIALISTS ● WWW.DM-TOOLS.CO.UK ● 0208 892 3813

METABO SSD 18 LTX 200 BL 18V BRUSHLESS IMPACT DRIVER

MANUFACTURER: Metabo
D&M GUIDE PRICE: £314.95 (inc VAT)

ALL-IN SERVICE

metabo LiHD Partner

New from Metabo is the SSD 18 LTX 200 BL compact cordless impact driver with ¼in hexagon socket and 200Nm maximum torque. It features the unique Metabo brushless motor for quick work progress and highest efficiency for any application together with Automatic Power Shift (APS) supports working with self-tapping screws: automatic torque reduction after drilling to prevent over-tightening.

There are 12 speed/torque levels available, suitable for a wide range of applications, plus integrated worklight for illumination of the work area. It has a robust die cast aluminium gear housing for optimum heat dissipation and durability, and the handy belt hook can be fixed either on the right or left side.

It comes complete with two of the latest 4.0Ah LiHD battery packs with capacity display for checking the charge status incorporating Ultra-M technology: highest performance, gentle charging and three years of warranty on the battery pack. The combination of new high-performance battery cells and completely re-developed components within the LiHD battery pack ensures maximum power availability over an extremely long run time.

D&M Tools are a **Metabo LiHD Partner**, meaning that when you purchase from us you are eligible for Metabo's unique **ALL-IN Service**, giving you 36 months of free warranty and wear and tear repairs.

KREG R3 POCKET HOLE JIG WITH A FREE KREG CLASSIC 2IN FACE CLAMP

MANUFACTURER: Kreg
D&M GUIDE PRICE: £35.95 (inc VAT) (KRGKRR3AV)

Kreg are the leaders in pocket hole technology and if you're ready to start your next woodworking or home improvement project, then the R3 Kreg Jig® is the tool for you.

This jig facilitates the joining of 12-32mm material from thin draw boxes, bookcases, kitchen cabinets and various craft projects. Allowing you to build like a professional, the durable jig body is made from heavy-duty, glass-reinforced nylon and the depth-collar gauge is moulded into the case for handy reference.

Featuring nine position settings, it is supplied with clamp pad, stepped drill bit, depth collar, Allen key and case, **plus a FREE 2in face clamp**.

NEW RANGE – KNEE PADS FROM NAILERS

MANUFACTURER: Nailers
D&M GUIDE PRICE: From £15.99 (see website)

nailers

A new addition to our safety-wear is a range of high performance gel and foam kneepads from Nailers, which are engineered for greater on-site durability. These kneepads are designed for safety and performance and the ergonomic designs provide maximum comfort. Nailers kneepads are ideal for building work, laying floor tiles, carpet, vinyl and laminate floors.

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

MAKITA DJV182 LXT JIGSAW

With cutting performance equal to that of a mains model, this cordless jigsaw from Makita is supplied with six assorted blades and features a handy safety standby on/off button, says **Phil Davy**

Portable saws are among the most useful power tools in cordless format, with no mains cable to get in the way of the blade. If you're used to a trusty corded jigsaw for heavy-duty cutting, though, there may be some doubt as to whether a battery version could compare favourably by way of performance. With a growing army of 18V power tools claiming to be equivalent to 240V tools now, I was keen to find out whether this pro jigsaw was among them.

Makita's DJV182 is a top handle design, though for those who prefer a body grip jigsaw, the DJV181 model comes at a similar price. Although reasonably compact, this is no lightweight tool, weighing 2.6kg with a 4Ah battery fitted. Weight is an advantage when sawing timber horizontally on sheet materials, though any jigsaw is less controllable when making vertical cuts. The upper half of the plastic casing is sheathed in rubber and continues around the front end, creating a comfortable grip for both hands. Before using the saw you need to depress a standby button up top. A useful safety feature, this means you can't activate the blade accidentally – a potential problem with cordless tools. Twin LED work lights illuminate simultaneously, switching off after 10 seconds if the trigger has not been used.

Although reasonably compact, this is no lightweight tool, weighing 2.6kg with a 4Ah battery fitted

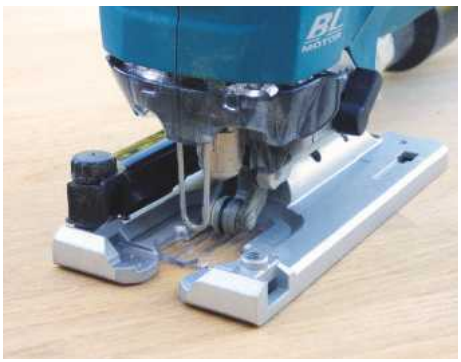
Before using the saw you need to depress a standby button up top

Trigger happy

Located centrally, the on/off trigger enables you to use it with two fingers nestled underneath. Like many power tools, the lock-on button is designed for right handers rather than left. Towards the rear the ridged speed adjuster dial is easy to use while sawing, though it's only visible from one side.

Initially, you may think the speed dial is faulty if firing up the saw without a blade in contact with the timber. When the dial is set at '3' or above, the speed is automatically lowered to reduce vibration. When there's a load detected the tool increases to your preset speed. It's a bit like having soft start – the blade speeds up once you begin cutting – a bit disconcerting until you get used to it.

Equipped with a brushless motor, variable speed range is from 800 to 3,500spm, with a stroke length of 26mm. As you'd expect, there's



Twin LED work lights illuminate simultaneously, switching off after 10 seconds if the trigger has not been used

Located centrally, the large on/off trigger enables you to use it with two fingers nestled underneath

Towards the rear the ridged speed adjuster dial is easy to use while sawing, though it's only visible from one side

There's a four-stage pendulum selector button on the side of the cast alloy gear housing

Attached to the housing is a substantial steel roller mechanism, which supports the blade well

Pushing a spring-loaded, clear plastic lever at the front with your thumb opens the blade mechanism

Graduations at the rear help with alignment, though there are no preset stops at intermediate angles

There's no tool-free adjustment here, just a good old hex key, which slots into the back of the baseplate for storage

A plastic clip-on cover is provided to protect delicate surfaces (such as veneers) during sawing

a four-stage pendulum selector button on the side of the cast alloy gear housing. Attached to the housing is a substantial steel roller mechanism, which supports the blade well.

Inserting a blade couldn't be easier. Pushing a spring-loaded, clear plastic lever at the front of the tool with your thumb opens the blade mechanism. Release the lever and the blade is locked securely. There's a rigid steel guard in front of the teeth, and neither impedes blade view.

Baseplate basics

Makita tend to fit sturdy baseplates to their jigsaws and this one is no exception. Made from cast aluminium with a steel insert, it can be adjusted up to 45° either side for bevel cutting. Graduations at the rear help with alignment, though there are no preset stops at intermediate angles. There's no tool-free adjustment here, just a good old hex key, which slots into the back of the baseplate for storage. You do need to check blade accuracy with a small square when resetting to 90°, however.

A plastic clip-on cover is provided to protect delicate surfaces (such as veneers) during sawing. A cut-out in the baseplate (and in the cover) enables you to slot in a clear plastic anti-splinter shoe, though only one is provided. These can get mangled easily, so a couple of spares would have been a bonus.

For years, Makita have included a detachable dust extractor port for their jigsaws. Consisting of a plastic tube that can be fitted to either side of the baseplate, it's fixed with a thumbscrew. Outside diameter is 28mm, and as I didn't have the correct size stepped adaptor, I lashed up my extractor hose with gaffa tape. Not elegant, but this worked a treat!

Conclusion

I made a variety of straight and curved cuts across a range of sheet material and solid timber (including a 40mm oak worktop), using several different blades. The electronic speed control is a clever feature, once you've got the hang of it. Disappointingly, there's no adjustable blower function, though with no extractor hooked up sawdust cleared adequately on most cuts. On 25mm MDF it was a different story, as the fine dust obscured the cutting line. For bevel cutting this is a great tool, though do remember to check the blade when resetting.

As I'd expected, the DJV182's cutting performance was just as impressive as a mains jigsaw. I really like the standby button, though an adjustable blower is almost essential for those times when an extractor is too inconvenient.

Six assorted blades are provided as standard, though disappointingly there's no plastic storage container, simply a cardboard box. If you don't already own Makita cordless tools, then, in addition, a suitable 5Ah battery and charger will set you back about £100.

Consisting of a plastic tube that can be fitted to either side of the baseplate, the dust extractor port is fixed with a thumbscrew

Outside diameter is 28mm, and as I didn't have the correct size stepped adaptor, I lashed up my extractor hose with gaffa tape, which worked a treat!

SPECIFICATION

Max cutting depth in steel: 10mm
Max cutting depth in wood: 135mm
Strokes per minute: 0-2,600spm
Stroke length: 26mm
Noise sound pressure: 78dB(A)
Noise K factor: 3dB(A)
Vibration K factor: 1.5m/sec²
Vibration cutting – chipboard: 8m/sec²
Vibration cutting – sheet metal: 3.5m/sec²
Weight: 2.8kg
Voltage: 18V

Typical price: £175 (bare)
Web: www.makitauk.com

I made a variety of straight...

... and curved cuts across a range of sheet material and solid timber

THE VERDICT

PROS

- Safety standby on/off button; two LED work lights; automatic low speed to reduce vibration

CONS

- No adjustable blower; baseplate adjustment not tool-free

RATING: 4.5 out of **5**

TREND ANGLE TWIST TORCH

Phil Davy says that if you like gadgets, you'll love this new LED torch from Trend, which is both sturdy and rechargeable

The Angle Twist uses a high capacity 3.6V Li-ion 18650 battery, which is physically larger than more common AA cells

The Micro USB plug is a tight fit into the port on the torch, revealed by lifting a rubberised flexible flap

If you like gadgets, you'll love this new LED torch from Trend. With a body made from aircraft grade aluminium (which means it's extremely durable), this is a serious, top quality flashlight. With a slinky, black anodised finish, the Angle Twist is certainly tactile. The lower half of its cylindrical body is knurled, as is the area around the upper lens, while the end cap is faceted for easy grip. Measuring 160mm overall, the torch fits in the hand nicely and is relatively slim while still feeling substantial. Weight is 208gm with battery fitted and a strong steel pocket clip is fitted midway down.

Power levels

The Angle Twist uses a high capacity (2,600mAh), 3.6V Li-ion 18650 battery, physically larger than more common AA cells. A replacement, should you ever need one, will set you back about a fiver. Charging is via a supplied USB cable, so you can either use a mains adaptor or plug into a suitable device, such as a laptop. The Micro USB plug is a tight fit into the port on the torch, revealed by lifting a rubberised flexible flap. I'm not sure how long this flap will last – it seals out dust and moisture but seems a bit flimsy. A full charge takes anything from six to eight hours. Around the other side is the on/off button, again a soft-grip rubber affair. This glows nicely when activated and switches to red when battery capacity drops below about 3.3V, when it starts to flash. You'll find there's still plenty of power left, though. Red is also displayed during charging.

A short push of the on/off button creates a low light level (90 lumens), which is actually pretty bright. Depress a second time for the higher level (300 lumens). I tried checking duration of the white light at either setting but lost track. Trend claim run times of 12 hours at the low setting and three hours at maximum brightness. Beam distance is an impressive 80 metres.

Unlike most torches the Angle Twist has a trick up its sleeve. Pressing the button for a couple of seconds bypasses the main beam and activates an ultra violet light. Designed in particular for detecting security markings from a UV pen or similar, this would be great at a party! All clever stuff and the UV wavelength is 395nm, in case you were wondering.

Magnetic twist

So why the Angle Twist moniker? Simply, you can swivel the head of the torch to any position between 0 and 90°. This may seem an unnecessary feature until you start using it. In a gloomy workshop, stand the torch on the bench top or shelf and angle the beam to where it's needed for close-up work. Or point it up towards the ceiling for that essential lighting maintenance or emergency work. The end cap is magnetised, so you can plonk the torch on a suitable metal surface and it won't budge easily. Great for working on machinery with cast-iron beds when sharpening or adjusting cutters or whatever, when decent light is crucial.

A tough fabric storage pouch is provided, with hook-and-loop closure and a ring for securing on a belt. With the Angle Twist swivelled to 90° and stashed in this pouch, you could even use the torch hands-free for tasks at waist level.

Conclusion

On the downside, you may find the Micro USB plug tricky to insert when recharging. Apart from that, this is a fantastic, sturdy torch. Not cheap, but if you appreciate quality engineering with innovative features thrown in, you should take a closer look for those dark nights ahead...

Around the other side is the on/off button, again a soft-grip rubber affair

You can swivel the head of the torch to any position between 0 and 90°

Point the torch up towards the ceiling for that essential lighting maintenance or emergency work

The end cap is magnetised, so you can plonk the torch on a suitable metal surface...

... great for working on machinery with cast-iron beds when sharpening or adjusting cutters

The torch is supplied in a tough fabric storage pouch, featuring a ring for securing on a belt

SPECIFICATION

Brightness: 90/300 lumens white light
Modes: low/high/UV
Run time: 12 hours (low); 3 hours (high)
Beam distance: 80m
Water resistance: IPX4
Drop resistant: 1m
Intensity: 1,600cd
UV wavelength: 395nm
Twist head design: 90°
Normal working temp: -20°C to 50° C

Typical price: £41.94
Web: www.trend-uk.com

THE VERDICT

PROS

- Ultra violet function; two white light levels; magnetic base; USB charging

CONS

- Micro USB plug rather fiddly

RATING: 4.5 out of **5**

BRIDGE CITY TS-1V2 TRY SQUARE

Perfect for small cabinetmaking jobs, the Bridge City try square's blade features a 1:8 cutout for dovetail layout and comes supplied in its own neat presentation box, says **Phil Davy**

You may not have come across Bridge City Tool Works before, though they've been creating beautiful hand tools in Portland, Oregon since the early 1980s. In fact, they were responsible for some pretty radical planes some years back, with price tags to match. With a recent change of ownership and now produced in China by woodwork machinery specialists Harvey Industries, they're available in Britain from Axminster Tools. If you're a lover of traditional tools you may want to skip the page as this try square is certainly futuristic, though with one or two interesting details it's worth checking out. Weighing just 83gm, it's lighter than an engineer's square of similar size, but arguably no less durable.

The TS-1v2 is Bridge City's smallest try square, its hardened stainless steel blade measuring 128mm in length, a tad over 5in for imperial fans. Its 25mm wide stock is anodised aluminium, made from two sections spliced together: one side black, the other aluminium. Perhaps the most unusual feature of this tool is the triangular cut-out, designed to provide an alternative grip. A loose orange insert around its perimeter is sandwiched inside the stock, which appears odd and you can't help thinking the square is faulty. It's actually designed this way, however. Another more useful cut-out, this time in the blade, means you can use the tool as a dovetail marking gauge. With edges machined at a slope of 1:8, it enables you to set out pins or tails on timber up to 34mm thick. Quite a handy feature if you regularly cut dovetails by hand, though you may need to revise the angle of your pins and tails accordingly. You can store the square on a hook using a further hole at the end of the blade.

Absolute accuracy

Very few try squares can be re-calibrated if inaccuracy should creep in over time, though Bridge City have a clever solution. Four tiny hex screws can be slackened off so you can move the blade a smidgeon relative to the stock. Although I avoided dropping the tool on the floor, I tried this adjustment to check its effectiveness. Each screw was pretty tight and head recesses for the hex key (not supplied) could have been deeper, but that said, it's a straightforward task.

Conclusion

For cabinetmaking rather than carpentry work, the Bridge City is a nice little tool. There are some neat features here, though I'm not sure about that grip. I couldn't help comparing it with the Vesper square tested back in *GW*330, although they're quite different. Both obviously have blade and stock set at precisely 90°, but that's about all they have in common. The Bridge City is more a glorified engineer's square and though a lovely tool, is not quite in the same league as a Vesper or Blue Spruce. This is far cheaper, though, with no import duty to pay.

If the TS-1v2 is on the small side there are a couple of larger squares available. It comes in a neat presentation box, which I'm sure most of us woodies would be reluctant to throw away.

The TS-1v2 is Bridge City's smallest try square, its hardened stainless steel blade measuring 128mm in length, a tad over 5in for imperial fans

Perhaps the most unusual feature of this tool is the triangular cut-out, designed to provide an alternative grip

Another more useful cut-out, this time in the blade, means you can use the tool as a dovetail marking gauge

You can store the square on a hook using a further hole at the end of the blade

Each screw was pretty tight and head recesses for the hex key (not supplied) could have been deeper, but that said, it's a straightforward task

For cabinetmaking rather than carpentry work, the Bridge City is a nice little tool

SPECIFICATION

- Quality that encourages frequent use
- Bead-blasted, hardened, stainless steel blade
- Aluminium 'Sure Grip' stock
- 1:8 cutout for marking dovetails
- Factory calibrated to 0.05mm or less
- Accurate on both inside and outside edges
- Handy 'apron pocket' size try square
- Size: 125 mm

Typical price: £55.96
Web: www.axminster.co.uk

THE VERDICT

PROS

- Blade can be tweaked for accuracy; includes dovetail marker

CONS

- Loose insert in stock seems unnecessary

RATING: 4.5 out of **5**

Machine Mart

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CTS10D	1500W	254mm	£169.98	£203.98

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- Dust extraction facility
- 4" x 36" belt tilts & locks 0-90°
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- Cutting depth: 72mm at 90° / 65mm at 45°

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- 1500W motor
- 0-60° mitre gauge
- Cutting depth: Steel 3mm, Wood 85mm at 90° or 58mm at 45°

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STANLEY Record

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WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
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Stanley Multi Angle	Clamped	72/60/40	£18.99	£22.79
Record TV75B	Clamped	75/50/32	£21.99	£26.39
Clarke WV7	Bolted	180/205/78	£29.98	£35.98

BLACK & DECKER / Einhell POWER PLANERS

TE-PL850

- 82mm cutting width

FROM ONLY £54.99 EX.VAT £65.99 INC.VAT

MODEL	MOTOR	DEPTH OF CUT	EXC.VAT	INC.VAT
Einhell TE-PL850	850W	3mm	£54.99	£65.99
B&D KW750K - GB	750W#	2mm	£57.99	£69.59

Clarke 1" BELT/ 5" DISC SANDER

- Includes 2 tables that tilt & lock

£69.98 EX.VAT £83.98 INC.VAT

CBS1-5B

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- 325mm distance between centres
- 200mm max. turning capacity (dia)
- 0.2HP motor

TURBO AIR COMPRESSORS

airmaster

- Superb range ideal for DIY, hobby & semi -professional use

FROM ONLY £89.98 EX.VAT £107.98 INC.VAT

* 'V' Twin Pump 8/250

MODEL	MOTOR	CFM	TANK	EXC.VAT	INC.VAT
8/250	2HP	7.5	24ltr	£89.98	£107.98
7/250	2 HP	7	24ltr	£94.99	£113.99
11/250	2.5HP	9.5	24ltr	£109.98	£131.98
8/510	2HP	7.5	50ltr	£119.98	£143.98
11/510	2.5HP	9.5	50ltr	£139.98	£167.98
16/510*	3 HP	14.5	50ltr	£209.00	£250.80
16/1010*	3 HP	14.5	100ltr	£259.98	£311.98

Clarke 4" BELT/ 8" DISC SANDER

- Includes two tables
- 550W 230V motor

£159.98 EX.VAT £191.98 INC.VAT

CS4-8

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

CDE7B

CWVE1

FROM ONLY £109.98 EX.VAT £131.98 INC.VAT

- Powerful 1100W motor
- 50 litre bag capacity
- Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EXC.VAT	INC.VAT
CWVE1	1100W	183 M3/h	50Ltrs	£109.98	£131.98
CDE35B	750W	450 M3/h	56Ltrs	£144.99	£173.99
CDE7B	750W	850 M3/h	114Ltrs	£159.98	£191.98

Clarke MORTISING MACHINE

£174.99 EX.VAT £209.99 INC.VAT

CBM1B

- Accurately creates deep square recesses
- Table size 150 x 340mm
- Max. chisel stroke 76mm
- Robust cast iron base & column ensures stability & accuracy
- 95mm depth of cut

CHISELS AVAILABLE FROM £8.39 INC VAT

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Clarke AIR TOOLS

CAT165

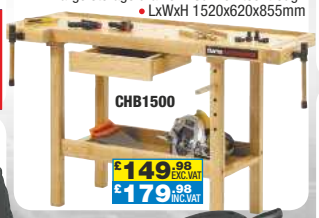
HUGE CHOICE IN-STORE/ONLINE

FROM ONLY £34.99 EX.VAT £41.99 INC.VAT

MODEL	DESCRIPTION	EXC. VAT	INC. VAT
CAT160	6" Dual Action Random Orbital Palm Sander	£39.98	£47.98
CAT16510	5mm Air Belt Sander	£39.98	£47.98
CAT168	50mm Right Angle Orbital Sander	£34.99	£41.99

Clarke HARDWOOD WORKBENCH

- Includes bench dogs and guide holes for variable work positioning
- 2 Heavy Duty Vices
- Large storage drawer
- Sunken tool trough
- LxWxH 1520x620x855mm



CHB1500

£149.98 EX.VAT £179.98 INC.VAT

Clarke DISC SANDER (305MM)

- Powerful, bench mounted
- 900W
- Dust extraction port

PRICE CUT £124.99 EX.VAT £149.99 INC.VAT WAS £155.98 inc.VAT

CBS1-5B

Clarke BELT SANDERS

- Ideal for surface removal, sanding and finishing

Makita

ABRASIVE SANDING BELTS IN STOCK

BS1

FROM ONLY £36.99 EX.VAT £44.39 INC.VAT

MODEL	MOTOR	M/MIN	EXC.VAT	INC.VAT
Clarke BS1	900W	380	£36.99	£44.39
Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£89.98	£107.98

Clarke DETAIL SANDERS

- Perfect for smooth and fine finishing along with hard to reach areas or curved surfaces

CDS-1V

FROM ONLY £19.98 EX.VAT £23.98 INC.VAT

MODEL	WATTS	EXC.VAT	INC.VAT
PS105	105W	£19.98	£23.98
CDS-1V	280W	£29.98	£35.98

ALL MODELS INC. SANDING SHEETS

Clarke SHEET SANDERS

- Ergonomic design for optimum comfort

*was £39.59 inc.VAT

CON300

FROM ONLY £16.99 EX.VAT £20.39 INC.VAT

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS200	190X90mm	150W	£16.99	£20.39
CON300*	230X115mm	330W	£29.98	£35.98

Clarke RANDOM ORBITAL SANDER

- Adjustable front handle improves control
- 7000-14000rpm

£32.99 EX.VAT £39.59 INC.VAT

CROS3

INC DUST BAG AND SELECTION OF 125MM DIAMETER SANDING DISCS

Clarke ELECTRIC POWER FILE

CPF13

- Variable belt speed
- Tilting head

*Black & Decker

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

MODEL	MOTOR	BELT SIZE (mm)	EXC.VAT	INC.VAT
CPF13	400W/230V	13x457	£49.98	£59.98
KA900E*	350W/230V	13x455	£59.98	£71.98

Clarke CIRCULAR SAWS

- Great range of DIY and professional saws
- Ideal for bevel cutting (0-45°)

CON185

*Includes laser guide

FROM ONLY £41.99 EX.VAT £50.39 INC.VAT

MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC.VAT	INC.VAT
CCS185B	1200W	65/44	£41.99	£50.39
CCS2	1300W	60/45	£59.98	£71.98
CON185*	1600W	60/40	£62.99	£75.59

VAC KING WET & DRY VACUUM CLEANERS

- Compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

* SS = Stainless Steel

MODEL	MOTOR	CAPACITY DRY/WET	EXC. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£49.98	£59.98
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC20PR2	1400W	16/12ltr	£64.99	£77.99
CVAC25SS*	1400W	19/17ltr	£67.99	£81.59
CVAC30SSR*	1400W	24/21ltr	£89.98	£107.98

Clarke 18V CORDLESS DRILL/DRIVERS

Clarke CONTRACTOR

powered by Li-Ion

CON18Li

FROM ONLY £69.98 EX.VAT £83.98 INC.VAT

MODEL	VOLTS	BATTS	EXC. VAT	INC.VAT
CON18Ni	18V	2 x Ni-Cd	£69.98	£83.98
CON18Li	18V	2 x Li-Ion	£89.98	£107.98

Clarke 18V BRUSHLESS COMBI DRILLS

Clarke CONTRACTOR

- 2 forward and reverse gears

powered by Li-Ion

CON180LI

FROM ONLY £109.98 EX.VAT £131.98 INC.VAT

*was £203.98 inc. VAT

MODEL	VOLTS	BATTS	EXC. VAT	INC. VAT
CON18LIC	18V	2x 2.0Ah Li-Ion	£109.98	£131.98
CON180LI*	18V	2x 4.0Ah Li-Ion	£159.98	£191.98

Clarke BOLTLESS SHELVING/BENCHES

- Simple fast assembly in minutes using only a hammer

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350 KG (evenly distributed) Strong 12 mm fibreboard shelves PER SHELF

MODEL	DIMS WxDxH(mm)	EXC.VAT	INC.VAT
150kg	800x300x1500	£29.98	£35.98
350kg	900x400x1800	£49.98	£59.98

Clarke WHETSTONE SHARPENER (200MM)

- Produces razor sharp cutting edges on chisels, planes, etc.
- Inc. 3 tool holding jigs, workpiece clamp & support frame, polishing paste & water trough

CWS200B

ONLY £119.98 EX.VAT £143.98 INC.VAT

Clarke PLANERS & THICKNESSERS

CPT800

- Ideal for DIY & Hobby use
- Dual purpose, for both finishing & sizing of timber

PRICE CUT NOW FROM £179.98 EX.VAT £215.98 INC.VAT *WAS £221.99 inc.VAT

MODEL	PLANING WIDTH	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CPT600*	6"	120mm	£179.98	£215.98
CPT800	8"	120mm	£219.98	£263.98
CPT1000	10"	120mm	£299.00	£358.80

Clarke OSCILLATING BOBBIN SANDER

COBS1

- Dust collection port
- Inc. 6 sanding sleeves/bobbins

PRICE CUT £129.98 EX.VAT £155.98 INC.VAT WAS £167.98 inc.VAT

Clarke OSCILLATING BELT & BOBBIN SANDER

- Sand concave, convex, straight or multi-curved pieces
- Dust collection port
- Inc. sleeves, drum & belt

£179.98 EX.VAT £215.98 INC.VAT

COEBS1

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Clarke SLIDING COMPOUND MITRE SAWS

BEST SELLER

- For fast, accurate cross, bevel & mitre cutting in most hard & soft woods
- 1800W motor
- Laser guide

FROM ONLY £89.98 EXC.VAT £107.98 INC.VAT

CMS10S2

MODEL	BLADE DIA/BORE (mm)	MAX CUT DEPTH/ CROSS	EXC.VAT	INC.VAT
CMS210S	210/30	60/120	£89.98	£107.98
CMS10S2	254/30	78/340	£139.98	£167.98

Clarke CONTRACTOR BOSCH JIGSAWS

BEST SELLER

FROM ONLY £15.99 EXC.VAT £19.19 INC.VAT

CON750 *DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EXC. VAT	INC VAT
CJS380*	420W	55/6mm	£15.99	£19.19
CON750#	750W	80/10mm	£27.99	£33.59
Bosch PST700E*	500W	70/4mm	£49.98	£59.98

Clarke BENCH BANDSAWS

- Produces fast, precise mitre & longitudinal cuts
- 350W motor
- 7.5" throat size
- Cuts in all types of wood

£129.98 EXC.VAT £155.98 INC.VAT

CBS190B

- Great for both home & professional use
- Induction 300W motor • Table tilts up to 45° • 9" throat size

PRICE CUT £189.98 EXC.VAT £227.98 INC.VAT WAS £238.80 inc.VAT

REMOVABLE DUST TRAY

CBS225

Clarke PROFESSIONAL BANDSAWS

Top Quality Bandsaws - ideal for professional workshop use. Strong steel body with solid cast iron table

- Table tilts 45° • Adjustable blade guide
- Supplied with stand, 4TPI wood cutting blade, rip fence, mitre guide, mitre gauge and push stick • Induction motors
- Includes stand

MAGNIFIED MITRE GUIDE

QUICK RELEASE FENCE

DRIVE-BELT TENSIONING

SOLID GROUND CAST IRON TABLE

CBS300

FROM ONLY £219.98 EXC.VAT £263.98 INC.VAT

MODELS ALSO FEATURE:

MULTI-STEP DUST EXTRACTION OUTLET

FLEXIBLE LED WORKLIGHT

REMOVABLE DUST TRAY

BLADE TENSIONING CONTROL

MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC. VAT	INC. VAT
CBS250 NEW	250mm/10"	100mm	75mm	£219.98	£263.98
CBS300*	305mm/12"	165mm	115mm	£379.00	£454.80
CBS350#	340mm/14"	225mm	160mm	£479.00	£574.80

* was £478.80 inc.VAT # was £597.60 inc.VAT

Clarke MITRE SAWS

CMS210

PRICE CUT NOW FROM £54.99 EXC.VAT £65.99 INC.VAT WAS £71.98 inc.VAT

Laser Guide ‡ Sliding Compound

- Quality Range of Mitre saws and blades in stock

* was £71.98 inc.VAT

MODEL	BLADE DIA/ BORE (mm)	MAX CUT DEPTH/CROSS	EXC. VAT	INC. VAT
CMS210*	210/30	60/120mm	£54.99	£65.99
Einhell TC-MS 2112	210/30	55/120mm	£59.98	£71.98
Einhell TC-SM 2131#	210/30	62/310mm	£129.98	£155.98
Einhell TC-SM 2534‡	250/30	75/340mm	£159.98	£191.98

BISCUIT JOINTER

- 11000rpm Operating Speed • 860W motor • 14mm Cutting Depth • Inc. dust bag, storage case and face spanner for cutter change

2 YEAR GUARANTEE

£54.99 EXC.VAT £65.99 INC.VAT

TC-BJ900

Clarke SCROLL SAWS

CSS400C

BEST SELLER

FROM ONLY £79.98 EXC.VAT £95.98 INC.VAT

- 50mm max cut thickness
- Air-blower removes dust from cutting area
- Table tilts 0-45°

MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400D NEW	120W	400-1600	£79.98	£95.98
CSS16VB	90W	550-1600	£94.99	£113.99
CSS400C	90W	550-1600	£114.99	£137.99

Clarke STATIC PHASE CONVERTERS

- **Run big 3 phase woodworking machines from 1 phase supply**
- Variable output power to match HP of motor to be run

ROTARY PHASE CONVERTERS ALSO IN STOCK

PC60

FROM ONLY £229.00 EXC.VAT £274.80 INC.VAT

CONVERT 230V 1PH TO 400V 3PH

MODEL	MAX. MOTOR HP	FUSE	EXC.VAT	INC.VAT
PC20	2HP	10Amps	£229.00	£274.80
PC40	3.5HP	20Amps	£269.00	£322.80
PC60	5.5HP	32Amps	£319.00	£382.80

Clarke ROUTERS

CONTRACTOR BOSCH

- Powerful heavy duty machines ideal for trade and DIY use

CR2 INCLUDES 15 PIECE KIT WORTH OVER £20

FROM ONLY £44.99 EXC.VAT £53.99 INC.VAT

CR1200 NEW

*DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EXC.VAT	INC.VAT
CR1200 NEW	1200	0-55	£44.99	£53.99
CR1C*	1200	0-50	£46.99	£56.39
Bosch POF1400ACE	1400	0-55	£89.98	£107.98
CR2	2100	0-60	£119.98	£143.98

Clarke GRINDERS & STANDS

- Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

FROM ONLY £32.99 EXC.VAT £39.59 INC.VAT

STANDS FROM ONLY £47.98 INC.VAT

POLISHING KITS 4" TO 8" FROM ONLY £27.59 INC VAT

With sanding belt *8" whetstone & 6" drystone

MODEL	DUTY	WHEEL DIA.	EXC.VAT	INC.VAT
CBG6RP	DIY	150mm	£32.99	£39.59
CBG6RZ	PRO	150mm	£42.99	£51.59
CBG6RSC	HD	150mm	£54.99	£65.99
CBG6SB#	PRO	150mm	£54.99	£65.99
CBG6RWC	HD	150mm	£59.98	£71.98
CBG8W* (wet)	HD	150/200mm	£56.99	£68.39

Clarke WORK TABLE SUPPORTS (PAIR) CWTS1

- Ideal if you have your own work top or want to build a steel or wood workbench • Inc. mounting holes for worktop, shelf and floor

ONLY £29.98 EXC.VAT £35.98 INC.VAT

BEST SELLER

SIMPLY ADD YOUR OWN TOP

Clarke CORDLESS STAPLE/ NAIL GUN

- All models include nail/staple pack and tough moulded case • 18V 2Ah Li-ion power pack • 18 Staple/Nail Gauge

ONLY £109.98 EXC.VAT £131.98 INC.VAT

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SPARE NAILS / STAPLES IN STOCK

ELECTRIC AND CORDLESS MODELS IN STOCK

Clarke DRILL PRESSES

- Range of precision bench & floor presses for enthusiast, engineering & industrial applications

FROM ONLY £66.99 EXC.VAT £80.39 INC.VAT

B = Bench mounted F = Floor standing

CDP152B

MODEL	MOTOR (W) SPEEDS	EXC. VAT	INC. VAT
CDP5EB	350 / 5	£66.99	£80.39
CDP102B	350 / 5	£79.98	£95.98
CDP152B	450 / 12	£149.98	£179.98
CDP202B	450 / 16	£189.00	£226.80
CDP10B	370 / 12	£198.99	£238.79
CDP452B	550 / 16	£229.00	£274.80
CDP352F	550 / 16	£229.00	£274.80
CDP502F	1100 / 12	£499.00	£598.80

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

- Great for sawing, cutting, sanding, polishing, chiselling & much more • 250W motor
- Variable speed

£39.98 EXC.VAT £47.98 INC.VAT

CMFT250

Clarke 12" DOVETAIL JIG

- Simple, easy to set up & use for producing a variety of joints • Cuts work pieces with a thickness of 8-32mm • Includes a 1/2" comb template guide & holes for bench mounting

£57.99 EXC.VAT £69.59 INC.VAT

CDTJ12

Clarke ROUTER TABLE

CRT-1

Router not included

BEST SELLER

- Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

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BOSCH GWS 18V-125 SC PROFESSIONAL ANGLE GRINDER

Reaching the next level of power and tool control in the 18V class, this new angle grinder from Bosch delivers power equal to a 1,000W corded version, says **Jamie Smith** of **Atelier Cabinet Makers**

The GWS 18V-125 SC Professional angle grinder is the latest, most powerful and innovative cordless angle grinder that Bosch has ever made. Due to the brushless EC motor and ProCore 18V battery technology, the power level delivered is equal to that of a 1,000W corded grinder, which is certainly impressive. Bosch have also introduced Drop Control – a world first and an exceptional safety feature – which shuts the tool off immediately if it is accidentally dropped on the floor during use. This feature also enables kickback control, which shuts the tool down if binding occurs. Thanks to Bluetooth connectivity, the GWS 18V-125 SC can be partnered with the Bluetooth GCY 30-4 module, which gives detailed machine feedback and tool settings via the Bosch Toolbox mobile app.

At a glance

Moving on to looking at the tool, situated on top of the angle grinder is a user interface, which provides active tool feedback and features speed selection for greater convenience. The speed settings run from 4,500/6,000/9,000rpm with the SC denoting selectable speed control and connectivity. There is also a green light surrounding the interface, which will stay lit up during use, changing to yellow if the battery is depleting or at critical temperature, and red if it is overheating or the battery is completely drained. A flashing red means the kickback, Drop Control or restart protection has triggered and the tool will not run as a result. When this happens, you just need to switch the grinder off and on again in order to continue use.

Drop Control

The Bosch GWS 18V-125 SC doesn't feature a brake as many other competitor models do, and this is something I would like to have seen; however, this is the only grinder on the market with Drop Control functionality. To test this function, I didn't deliberately drop the grinder while using it, but by simply knocking the grinder against the floor on different sides, I found the drop/kickback control to be very responsive and can see this being a massive safety benefit over other leading competitor models available. If you were to drop this grinder during use from above knee height, it will cut out. While running a cutting disc on the highest speed setting, turning the grinder off will stop the disc in 4.5 seconds. If you were to drop a competitor's grinder that has a brake, however, on release of the trigger the grinder may stop faster than the Bosch, but what if yours has a trigger lock and this is on while the grinder is dropped? Not something I would want to experience! This added safety feature from Bosch is a massive step up and definitely gets the seal of approval from me.

Features

When connecting to the Bosch toolbox app via Bluetooth the light will flash blue. The interface also has a battery gauge, which is very convenient and allows you to check this while the tool is running, rather than having to stop to check the indicator on the battery itself. The interface also has a temperature-warning indicator. Sited on top of the tool are two wide spread LED lights, which help to light the workpiece during use. The brightness of these can handily be controlled in the toolbox app along with light run time.

The on/off switch is located on the side of the angle grinder behind the side switchable anti-vibration handle. Other competitor models have a trigger switch located underneath, which may be preferred by some but I found the side switch convenient, allowing me to set the grinder running rather than having to hold it on. Bosch

Changing the cutting/grinding accessories using the supplied tool

Cutting a metal pipe from the workshop floor

The supplied L-Boxx features room for batteries and accessories

Sanding large areas with Bosch flap discs

The Bosch angle grinder works brilliantly for woodcarving when fitted with a TurboPlane accessory

The GWS 18V-125 SC Professional benefits from a compact and ergonomic design

have done away with the old hex key position change guard and instead introduced a tool-free guard for easy positioning via a self-locking lever. The barrel grip feels to be very ergonomic and comfortable to hold.

New ProCore 7Ah batteries

An angle grinder may not be a tool that you'd expect to find in a woodworking workshop, but increasingly the Bosch GWS 18V-125 SC Professional is becoming a fundamental piece of equipment for our business. Companies such as Arbortech are continuously developing angle grinder accessories for tasks such as power carving, which is great to see. We often get asked about creating unique textures and finishes on our furniture and having this tool in our kit allows us to experiment and create unique effects that we couldn't have done before. Some of the attachments I have used with the GWS 18V-125 SC include the Arbortech TurboPlane, Bosch 125mm flap discs, wire brushes, Bosch multi-construction cutting discs and Bosch grinding discs. The cordless tool handles power carving in wood very well, producing results you would expect from a corded grinder. Paired with the new Bosch ProCore 18V 7.0Ah high performance batteries, the grinder has excellent power and I have not noticed any power loss as the batteries deplete: they provide maximum power to the tool right until the end. It is said that the new ProCore 7.0Ah offers approximately 90% more power than the previous 18V 6Ah versions, allowing for significantly improved efficiency. The ProCore batteries are very compact and have little size and weight difference compared to the older GBA 18V 4.0Ah equivalents. I highly recommend using these batteries on this model as they offer the greatest power and longest run time. When using the grinder for tasks such as power carving, these batteries enabled me to keep working without finding both of them requiring charging at the same time.

Conclusion

This is definitely a competitor to other 18V cordless angle grinders currently available on the market. With its high capacity batteries, the Bosch is worth considering over a corded tool due to its extra safety and the fact you don't have to worry about cables. If you've already bought into the Bosch 18V platform, the new ProCore batteries are compatible with the whole 18V range. The GWS 18V-125 SC Professional is capable of tackling all of your angle grinding needs with the power of a 1,000W corded tool, so this one is definitely worth considering if you're looking for an upgrade.

The light indicator showing low battery power

SPECIFICATION

No-load speed: 4,500-9,000rpm
Grinding spindle thread: M14
Bore size – diameter: 22.2mm
Battery voltage: 18V
Grinding/cutting disc diameter: 125mm
Rubber backing pad diameter: 125mm

Typical prices: Body only – £244.44; angle grinder plus L-BOXX and batteries – £354.95; battery starter set – 2 × GBA 8.0Ah ProCore 18V (18V) + GAL 18 V-160 C Charger – £307.97

THE VERDICT

PROS

- Unique Drop Control safety feature; power of a 1,000W corded tool; accepts new ProCore 7Ah batteries

CONS

- No brake – 4-5 seconds stop time

RATING: 4.5 out of **5**

FURTHER INFORMATION

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

The new Bosch ProCore 18V 7.0Ah compact battery pack

Weathered end-grain texture created using a wire brush fitted in the angle grinder

COMPETITION

WIN!

1 OF 3 SETS OF PETER SEFTON'S ULTIMATE JOINTER DVD SERIES – WORTH £49.97!

Ideal for the furniture maker looking to hone their skills, ***Peter Sefton's Ultimate Jointer*** **DVD series** will ensure you have all bases covered

The first DVD in this series covers commissioning and tuning up a machine as well as maintenance, sharpening and setting blades, while the second DVD covers a range of practical, safe techniques.

A-Z OF JOINTER SET UP & MAINTENANCE

In this DVD, Peter demonstrates and demystifies setting up traditional HSS knives, quick-change Cobalt knifes, and the TCT spiral block. He explains different cutting actions and the interaction between the cutterblock and beds, for perfect cuts avoiding dangerous snipe and taper cuts.

Learn how to maintain your jointer in tip-top condition, set up beds for accurate work, recognise when blades are becoming blunt, how to sharpen blades without removal, and how to achieve flat, square and clean timber with a great finish. Make your jointer a pleasure to use and save yourself a whole lot of hard handwork.

DVD contents:

- Choosing a jointer
- Initial set up & adjustment
- Flatness & twist on beds
- Bed height & cutterblock
- Different cutters & blocks
- Changing & setting cutter blades
- Sharpening cutter blades
- Feed speed & quality
- General maintenance
- Avoiding heel & snipe

PRACTICAL & SAFE JOINTER TECHNIQUES

In the second DVD, Peter shares his 35 years of jointer experience ranging from safely planing large twisted timbers through to edging fine delicate veneers. He demonstrates hand pressure techniques, using push blocks, how to keep a constant feed speed and pressure for excellent results, all while using guards and safe planing techniques.

Learn how to reduce cutter wear, select grain direction and deal with interlocking timbers to produce the perfect finish. Remove both twist and cup from boards and achieve accurate face side and square face edges, producing boards to finished width and edging manufactured boards.

DVD contents:

- Safety
- Feed speed
- Preparing timber

Planing the following:

- Large timber
- Thin timber
- Veneers
- Short timber
- Dealing with twist
- Using push blocks
- Planing to width

HOW TO ENTER

To be in with a chance of winning 1 of 3 sets of Peter Sefton's *Ultimate Jointer* DVD series (comprising two individual DVDs), just visit **www.getwoodworking.com/competitions** and answer this simple question:

QUESTION: NAME ONE OF THE DVD CONTENTS ON THE SECOND VOLUME

The winners will be randomly drawn from all correct entries. The closing date for the competition is **9 November 2018**

Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd, Wood Workers Workshop and Artisan Media Ltd are not eligible to enter this competition

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NATURAL BUILDING

Michael Huntley recalls his visit to the Centre for Alternative Technology in Wales and gives an introduction to projects that can be carried out in the home workshop

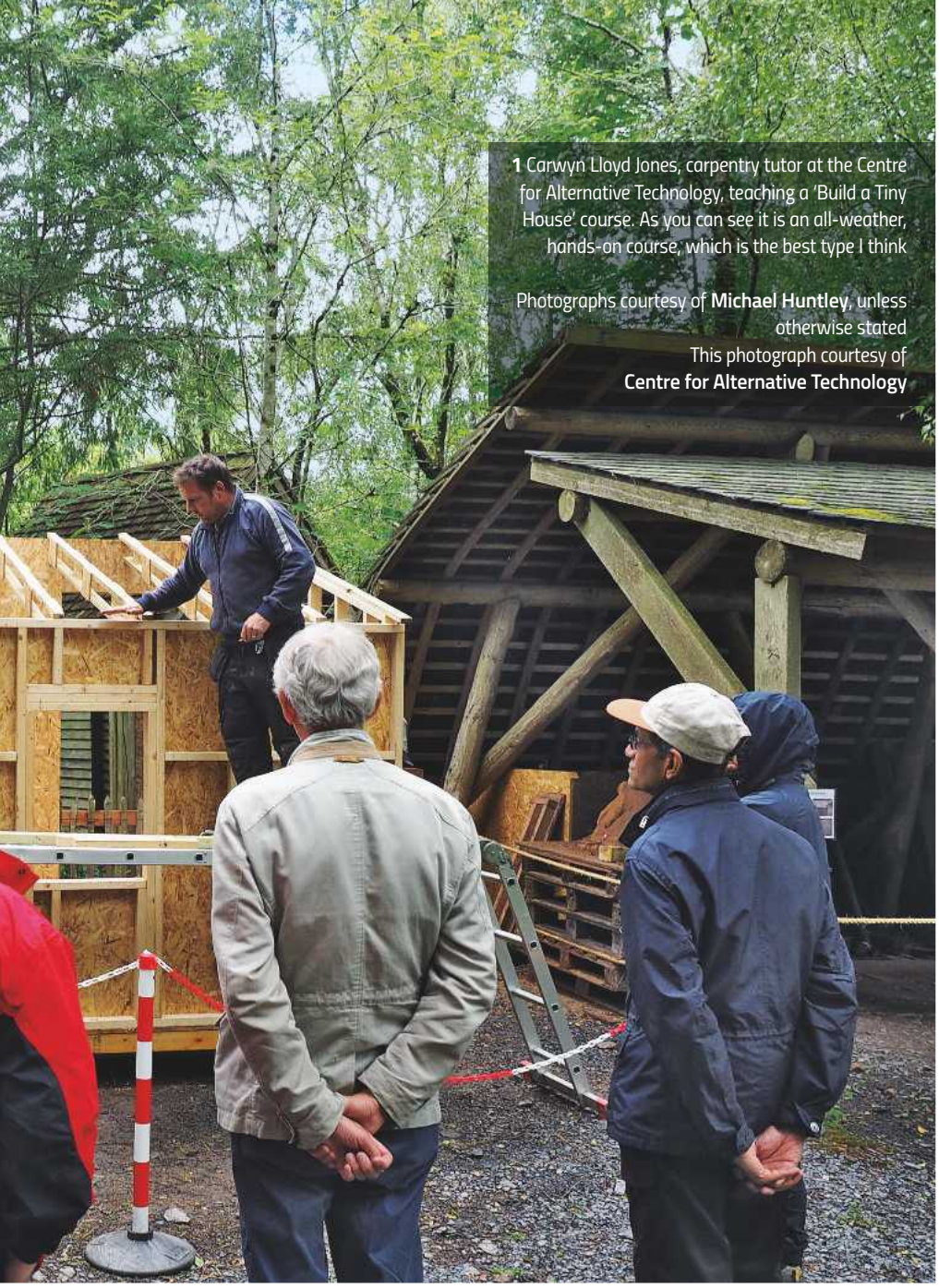
In the middle of the heat wave last summer I visited the Centre for Alternative Technology (CAT for short) near Machynlleth, in Mid-Wales. This is a quick report on some of the projects there. A new umbrella term – 'Natural Building' – has been coined to encompass the building genre that CAT promotes.

As woodworkers, we have a huge advantage in already having the tool skills needed to make things that benefit our environment. A large amount of what I saw could, with a little research, be made by the average reader. If you have the time, then the way to develop your alternative technology skills would be to go on one of their courses. They run these on building your own workshop or you could try their new and very popular 'Tiny House' course. There are also many others on offer, all of which are listed on their comprehensive website – **www.cat.org.uk**. Remember, though, that they are an educational organisation, so unlike most websites they are not desperate to sell you something; they are there to teach and explain. One tiny word of warning: their email traffic is extensive, so if you appear to get no reply then be persistent or revert to the old fashioned telephone to initiate communication. Their website is complicated and took me a little while to get used to, but was well worth it in the long-run.

In this article, I hope to give you an introduction to projects that can be carried out in the home workshop but which, with adequate research, could be scaled up to full-size by those that want to. I also discussed solar power in the workshop, and can recommend the books published by **www.lowimpact.org** if you'd like to find out more about this.

2 Carwyn spent a couple of hours patiently answering my endless questions about a whole range of topics relating to building with wood and sustainable materials. If you are unable to visit the Centre in person, they have an extensive range of fact-sheets on the website where Joel Rawson operates an Information Service
Photograph courtesy of **Centre for Alternative Technology**

3 CAT courses are not the exclusive province of male woodworkers as some might fear. But being in Wales you do need to have plenty of rainproof gear, although the day that I visited was in the middle of a heat wave and the water turbines were unable to work!
Photograph courtesy of **Centre for Alternative Technology**



1 Carwyn Lloyd Jones, carpentry tutor at the Centre for Alternative Technology, teaching a 'Build a Tiny House' course. As you can see it is an all-weather, hands-on course, which is the best type I think

Photographs courtesy of **Michael Huntley**, unless otherwise stated
This photograph courtesy of **Centre for Alternative Technology**

5 If you want to build your own workshop in a sustainable way, then the demonstration areas at CAT will give you both ideas and answers
Photograph courtesy of **Centre for Alternative Technology**

6 It is too big to get in shot, but this is a polygonal building showing different construction methods in each of the walls. Final finishes have been left off so that the internal details can be seen and discussed. Top right in the photo is a hammer-beam roof – probably not first choice for a beginner's building but a nice touch in a demonstration building where the original carpenter is available for comment

4 Handwork is important but one-to-one instruction in the use of small power tools is also covered
Photograph courtesy of **Centre for Alternative Technology**

7 Another demonstration area showing use of roundwood laths and shingles. This area is used for the 'wet trades' courses on hempcrete and suchlike

8 An example of a rammed earth arch. This is a truly sustainable method of building, but hard work. The lecture hall at CAT is the largest rammed earth building in the UK

9 This is one of the woodland buildings around the site. It is a timber store, but there are several others I found when wandering around...

10 ... including a composting toilet building...

11 ... a sample cross-section of a slate roofing system...

12 ... where to put the insulation and why...

13 ... general view of the woodworking yard...

14 ... and finally, the green woodworking area

FURTHER INFORMATION

'Build a Tiny House' course – **www.courses.cat.org.uk/sustainable-building/build-a-tiny-house-detail**

Courses taught by Carwyn Lloyd Jones – **www.courses.cat.org.uk/sustainable-building**

CAT fact-sheets – **info.cat.org.uk**

Hempcrete courses – **www.courses.cat.org.uk/day-courses/hempcrete-retrofitting-for-self-builders-detail**

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WORKADAY WOODIES

Robin Gates' eulogy to the wooden plane continues with six of the simplest woodies restored for everyday tasks of converting, preparing and shaping timber

I've been under the spell of wooden planes since a plough and a full set of irons lying provocatively among the bric-a-brac of a Gosport junk shop caught my eye, some 35 years ago. The shop is long gone but the plough, I'm happy to say, planes on. Oh, but what a slippery slope I stepped upon that day. Now there are wooden planes stowed in nooks and crannies all over the house. For the most part they're mere curiosities, the obsolete tools of forgotten workers, and in bald monetary terms small beer, yet each with an ingrained character as unique as the old hands which guided it – and that's priceless.

But there's another side to this affair, and it cuts through the rosy nostalgia with a steely edge.

2 The scrub plane works a split ash bough...

3 ... with a narrow heavily cambered iron

5 The jack follows the scrub plane on an oak board

4 Golden alder shavings from the scrub plane

6 The jack plane works edges too

It's all about doing the job efficiently, at reasonable cost and – not least – with maximum pleasure. A half dozen workaday woodies of the simplest and most inexpensive sort, once fettled, will handle everything from a splintery axe-split log to a crisp rebate, and be a source of endless satisfaction.

7 Razee jack with sunken handle

1 Six simple woodies handle most tasks

Rough diamond

For approximate levelling of rough surfaces, the scrub plane, formerly known as a roughing plane, is an absolute diamond. Its essential features are a narrow, heavily cambered iron (**photo 3**), and wide mouth, all of which are geared to the heavy work of taking thick shavings at a rapid rate (**photo 4**).

The iron's narrowness (1¼in or 3cm here) offsets the higher resistance met when digging deep, while a steep bevel leaving plenty of metal behind the edge prevents premature blunting. This older style of plane, in the Northern European mould, has a substantial 'cowhorn' front handle so you can follow through with surety in the face of difficult grain. All that's required of the mouth is a permanent yawn to swallow an endless stream of chunky shavings without clogging. The sole may be gouged and worn, the iron as symmetrical as a boxer's nose, yet this plane works like no other.

With regard to technique, I obtain best results working at around 45° across the grain in one

8 Fingers under the sole keep the plane on track

9 The plain and simple coffin smoother

10 The simple yet sophisticated rebate plane

11 Elegantly rolled shavings emerge like bus tickets

12 The rebate plane fine-tunes shoulders too

13 A spokeshave is excellent for delicate shaping...

direction, then swinging through 90° to work back to where I started, and keeping going at a steady lick – something like the pace of using a rip saw.

Where the scrub plane comes into its own is twofold. First, as the intermediate tool between the axe and the jack plane when converting logs to usable timber, and second, as a hand-powered thicknesser, getting down to the line with immediate effect. Its claw-like blade leaves the surface rippled like a potato field, so you need to watch out for planing down too far, making sure to leave sufficient material for the follow-on jack plane to do its work. Alternatively, the textured surface might be left as a feature in its own right, or simply disregarded if hidden from view – as was often the case in times past.

Jack of all trades

If I were buying my first woody today it'd be a jack plane (**photo 5**). At around 17 inches or 43cm it's mid-way between the smoother and the jointer, and at a pinch will do the jobs of both in addition to its own of the preliminary cleaning up and squaring of timber. Exactly what it does depends on the camber and setting of the blade.

14 ... while tapping on the iron's tangs to open the mouth...

If moderately cambered and with minimal projection, the jack will certainly flatten a surface to reasonable smoothness, while also being sufficiently long and precise to straighten an edge (**photo 6**). And with irons being fairly easy to come by, it'd be a practical proposition to have, say, three blades each ground to a different camber befitting the task – much as the bevel-up metal jack plane is supplied today as a one-plane-does-it-all package. The only difference being that changing the blade is easier with a simple old woody than with a metal plane bristling with screws and levers.

That said, it's obviously more convenient to have a plane dedicated to each task, and in its primary role of zipping through the preparation of rough boards for the planes which follow, I've had more fun and a better workout with a jack plane than with all the others put together.

In my school days we used the Bailey type of cast-iron jack, which was a handful for an 11-year-old, but earlier generations using wooden planes were given the shortened 'technical' or 'razee' jack with a sunken rear handle (**photo 7**). The benefits lie in delivering thrust closer to the timber and more directly behind the blade, while the cut-away stock also makes the plane lighter. It's said the name 'razee' is of French origin, derived from the practice of slicing off a warship's elevated quarter-deck and forecastle to make a vaisseau rasé with less top weight and better sailing qualities.

Trying plane or jointer?

The long planes used to true edges and flatten faces are mostly called jointers today, but at the time the flagship of my fleet of woodies was launched, the 1920s, all such planes were advertised as 'trying planes' and 'panel planes'.

Adding this plane to the tool chest back then would have dented the pay packet to the tune of 14 shillings, or about a quarter of the average weekly wage. That seems a lot until you consider an equivalent high-end metal plane today costs around the same as the average weekly wage. All told, the £15 I paid for this darkly patinated John Moseley & Son woody at a local antiques shop is looking like a bargain, albeit having required some elbow grease to get it working.

Lifting this leviathan of quartersawn beech to the bench, I'm reminded of the kind of battering ram police use to break down the doors of villains in TV soaps, and if I ever find myself locked in the shed it could be the tool I reach for to effect a breakout, but until then I'll be using it with a little more delicacy and decorum.

Because it does, in fact, require more careful handling than its length (22in or 56cm) and bulk (7¾lb or 3.6kg) may suggest, especially on a narrow edge where a slight lean will create a disastrous bevel. One hand provides the motive force while the fingers of the second curl below the sole to bear on the timber, acting as a fence (**photo 8**). Once balanced and underway the sound of this plane intermittently slicing the peaks and clearing the valleys of an edge recalls the rhythmic gasping of a stationary steam engine, eventually yielding shavings as long as the board. Considering the weight of the plane relative to the lightness of its cut, I find feedback is more a matter of sound than feel.

Coffin smoother

Like the mortise chisel nicknamed a 'pigsticker' and the router known as an 'old woman's tooth', the 'coffin smoother' is an old tool that sends a shiver down my spine (**photo 9**). Those of a sensitive disposition might call it a 'boat plane',

15 ... prepares the tool for coarser shavings

16 Pushing out the iron for honing

17 Using fine abrasive around a wooden former

18 Supporting the iron and wedge while they are released

19 Historic hammer marks on the heel of the trying plane

20 A light knock on the toe retracts the iron a tad, sometimes

on account of those teardrop-tapering ends, but there's no doubt the village carpenter, who frequently served as undertaker too, used this coffin-shaped plane in smoothing the boards of that most useful of boxes, which, paradoxically, never features in books about making boxes.

Coffins and boats to one side, open your hands to receive this plane, one cupping around the toe, the other pushing from the heel, and you can feel how perfectly it fits its purpose. A more sophisticated version added a tote to the heel, giving similar advantage to the razee jack plane, but to my mind that only complicates a tool, which excels through simplicity, reducing what's there to what's required, and becoming a paradigm of ergonomics in the process. This particular smoother from the 1900s was made by Edward Preston & Sons of Birmingham, and what you got for your three shillings and sixpence back then was a solid beech stock, a 'cast steel brass nutted double iron', a well-fitted wedge clamping all together, and a tool for life.

This is another modestly-priced treasure from a bric-a-brac shop, which, once flattened and honed, has turned out shavings indistinguishable from those obtained with a Stanley No.4 and a Spiers infill smoother.

In my small projects this plane gets a fair amount of use, yielding a surface that's only improved with a scraper, while on larger stuff its short sole (7¾in or 20cm) is handy for reaching those areas the trying plane has failed to before. It's a plane which steers easily, so you can approach a tricky patch of grain from different directions with little fuss.

You say rabbet, I say rebate

It's one of those tom-ay-to and tom-ar-to situations: some say 'rabbet' and others 'rebate'. We're both right in my opinion, since the manufacturers themselves have switched from one to another down the years. Like the coffin smoother, this simplest of rebate planes, made by Steadman & Sons of Birmingham circa 1930, has what's needed and nothing more: stock, wedge and iron. But looking more closely, what appears little more than a blade stuck in a lump of wood is revealed as a highly developed tool.

The plane's principal job is cutting a step in one component to accommodate the edge of another, for which the mouth must be open-ended and the iron have a sharp right-angle reaching into the corner of the rebate. Indeed the iron even protrudes from the mouth by a whisker, a fact I'm occasionally reminded of when grasping the plane carelessly and nicking my finger in the process. The iron is also bevelled on the side, so as to minimise drag, and skewed, 15° off the perpendicular, which effects a shearing cut while also generating sideways pressure to keep the plane tucked into its task.

The stock is similarly adapted to present the iron purposefully to the wood and keep it running smoothly, with the sole and sides precisely perpendicular, and the mouth, as already noted, open-ended. The bed for the iron slants to accommodate the skewed iron, while the escapement is tapered to direct shavings to the outside elegantly rolled. These shavings remind me of bus tickets spiralling from the conductor's machine (**photo 11**), something which fascinated me as a nipper – and still does. In the absence of a fence, the plane is guided by a batten clamped to the work, and in the absence of a spur, when working across the grain, it's only necessary to saw or chisel up to the line to prevent splintering. Applying both techniques, you can use this plane to cut a dado.

Close shave

By today's reckoning, the plane conspicuously absent from these woodies is the low-angle block plane, a tool so widely used and praised it's a wonder our forebears built anything without it. But it strikes me they had something as good, and perhaps better in terms of versatility, in the wooden spokeshave.

Essentially a blade hammered into a stick, this spokeshave is a very different beast from the more recent metal 'shave, which integrates the sole with the stock and has a steeply bedded bevel-down iron. In the wooden tool the narrow bevel-up iron is wrought in one piece with square tangs bent up at each end to fit corresponding mortises in the stock, secured by friction alone. It's also very light: mine, an old Marples tool with 2½in (37mm) iron weighs just 81g, compared to the 345g of a metal Stanley 151.

The iron itself functions as the sole, and the bevel is at a very low angle – around 23° in mine. Compare that with a low-angle block plane, for which the combined angle (12.5° bed + 30° bevel) is 42.5°, and it's clear why the spokeshave works so well on end-grain.

21 Fingertips monitor projection while the iron is tapped

22 A larger plane may be adjusted on the bench

23 A sideways tap of the hammer levels the iron

24 Flattening the sole with sandpaper on plate glass

True, with that short sole (½in or 13mm) it's less than ideal for working a flat surface, but end-grain often presents in small and shaped areas for which the compact and manoeuvrable spokeshave is a handier tool than any block plane.

Set fine, the 'shave takes thread-like shavings, or with the mouth opened it'll handle heavier work. The blade is extended by tapping on the tops of the tangs, while resting the handle on a block, and retracted by tapping from underneath. To remove the blade for honing purposes (**photo 16**), I invert the tool and push downwards on both tangs. This spokeshave has a gently convex iron, so I hone it using fine grades of aluminium oxide abrasive wrapped around a piece of walking stick (**photo 17**).

Adjustment on tap

Compared to a plane adjusted by screw threads and levers, adjusting a woody by tapping with a light hammer may appear primitive, but the final arbiters of adjustment – the eye and fingertip – are the same. Taking the smoother as an example, with the plane resting on the bench I set the wedge finger-tight, then lift the plane and place a finger or two across the mouth to feel for the projection while tapping the iron. With the plane inverted, I'll also sight down the sole to see if the edge is parallel with the mouth; if not, a tap on the side of the iron will level it.

With the larger jack or trying plane I rest the plane on the bench while tapping the iron (**photo 22**), still using fingertips to judge the projection (**photo 21**), and subsequently sighting down the sole. A test shaving will show if further adjustment is required before moving on. If the iron projects too far, I may wallop the heel with a mallet, which loosens both wedge and iron so I can re-adjust from scratch. Alternatively, and if the gods are smiling, knocking more gently above the toe may cause the iron to retract slightly (**photo 20**); whether this works seems to depend on which plane I'm using and how I'm holding it, perhaps with the force of gravity and the orientation of the iron to it being significant.

It's the done thing now to mollycoddle the plane using a dainty brass hammer on the iron and a plastic-headed mallet on the wood, but the dented irons and profusion of 'half-crowns' on the heels and toes of my old planes point to the workers of old having used a plain steel Warrington hammer on everything.

Wear & tear

Beneath the patina of graceful ageing there always lurks some wear and tear, which, to a greater or lesser degree, affects a woody's performance. Chips off the stock and handle, and ravaged tops to irons and wedges may be of little consequence, but splits are a different matter. These typically show in the sides a little aft of the wedge, a sign of over-tightening, and running fore-and-aft along weak lines of medullary ray. In some cases, a well-driven screw has closed the gap effectively, standing testament to the philosophy of 'make do and mend'. One jack plane came to me with a length of broom handle in lieu of the missing tote, and was utterly reliable.

But there can be no such homespun compromise with flatness, except perhaps in the scrub plane where a sole worn like an old shoe seems to do as well as a sole that's flat as float glass. For the others, spokeshave included, wear is often concentrated in front of the mouth, an area which should press firmly on the fibres to prevent the iron tearing them out. If there's little wear I flatten the plane on sandpaper on a glass plate (**photo 24**), otherwise I clamp the patient upside down and plane it flat. Over the years this procedure enlarges the mouth, and many an old campaigner has had its mouth restored by a piece of rosewood or lignum vitae let in.

The second area for 'no compromise' is the iron and cap iron assembly. The corroded assembly for this trying plane so resisted dismantling that the

25 Historic mouth repair to an old coffin smoother

26 PlusGas and waterpump pliers release a seized iron...

27 ... but there's still some work to do

28 Working the cap iron on a piece of emery cloth on plate glass

31 ... and we're in business!

tip of the screwdriver shattered, but a squirt of PlusGas penetrating oil and waterpump pliers eventually did the trick (**photo 26**).

Then it's a case of scraping and rubbing away the rust, and perhaps re-grinding the bevel before honing the cutting edge. For planes with 'double irons', a gap-free fit where the cap iron lands behind the cutting edge will prevent shavings getting stuck and bringing planing to a halt. I straighten the cap iron's edge on emery cloth, holding it just below the horizontal position (**photo 28**).

One spin-off from restoring an old woody to work is better understanding of how a plane works. I thoroughly recommend it.

29 Honing the iron on a diamond plate...

30 ... before attaching the cap iron...

RETURN OF THE *GO KART*

John McMahon shares his adventures in woodwork and kart racing with the Byron Wood Woodwork Club

I've been putting off writing this article. The experience of working with my oldest son, building go karts with his brilliant year six students has got to me more than I can put into words and I am really conscious that, no matter how hard I try, I won't be able to convey the massive impact this had on me. I just don't want to trivialise the whole thing – if you're a mum or a dad, you will know what I mean.

Not that this should matter to you; you're here to read a woodworking magazine. I am paid to write stories that inform and entertain woodworkers, so I have decided to get a grip and just write the article, however it comes out... If you bear with me I'll show you how to build a go kart and, if you're interested, why you should do so, with your children, soon – before it's too late.

Genesis

This all started when I was sitting in the garden with my son and his family. We were talking about his job as a teaching assistant at a primary school in an industrial suburb of Sheffield. He painted such a great picture that I couldn't help wanting to get involved. There are all sorts of reasons to start a woodwork club, but this is the one that I thought woodworkers around the country should think about.

It's not their fault

Have you ever noticed that a lot of young people today can't fix stuff? You know 'they can work a mobile phone but they can't change a light bulb' – that sort of thing. Go on, admit it: we've all said something like it. Here's a thought, though: when I think back to my education (I'm 52) I remember doing proper woodwork, metalwork, tech drawing as well as cookery and needlework. I wasn't exceptional; we all did these subjects along with physics and English and that's why our generation is (arguably) good at fixing stuff, putting up shelves, etc. as well as spelling and adding up.

Here's the killer point: it hit me as I was driving home from work a couple of days after the conversation with my son, the teacher. **THE YOUTH OF TODAY DID NOT MAKE THE DECISION TO CUT CRAFT SUBJECTS FROM THE CURRICULUM**; it was old people like me who made that call, so when we complain about an impractical generation, we need to remember that it was our responsibility to pass on our skills and we dropped that ball well and truly.

So, this is the story of my personal attempt to restore the balance and make up for past mistakes. If you are inspired to do something similar with your kids, grandchildren or local school, I hope you can glean some helpful tips or, at the very least, a decent set of plans and a useful link.

HOW TO BUILD GO KARTS WITH SEVERAL CHILDREN WITHOUT LOSING YOUR SANITY OR FINGERS

Step 1 – Wheels

Finding wheels was easy when I was a kid as everyone's little brother/sister got from A to B in a pram and when said pram was past its best, it ended up on the tip. Getting go kart-ready wheels and axles just wasn't a problem back then. Fast forward to this day and age, however, and now prams are but a distant memory, so we need an alternative. It's not really the wheels that are the problem; sack trolley wheels do an admirable job and can be found easily on the internet.
No, it's the lack of ready-made axles that'll stop your project in its tracks, so I was relieved to find a supplier of wheel kits in the shape of Go Kart Daddy (**www.gokartdaddy.com**). John (just a coincidence) is a passionate advocate and was delighted to help us with our project. So, that's the first problem solved, what's next?

Step 2 – Red tape

If you intend to do this with a school or community group, be prepared to jump through a couple of regulatory hoops. Any organisation working with children will need to assess potential risks and make sure that the children are safe. You may need current DBS (Disclosure Baring Service) clearance, which takes time and money to sort out. I was fortunate to have a DBS certificate due to my work in other areas so this wasn't too big a problem, but still took a bit of running around.

My advice would be: first, don't complain about health and safety gone mad; this is how we keep our children safe in a scary world. You would be really angry if your local youth group was blasé about your family's safety; and second, don't give up – trust me, it's worth the effort.

Step 3 – Preparation

Like a good scout, be prepared (again, this is just for those brave souls who decide to work with a larger group of children). I have included a rough outline of how I planned these sessions as part of this article. It worked pretty well, most of the time.

Step 4 – Get help

I thought I had all bases pretty much covered and I have taught much larger groups without help, but I was not really ready for the challenges of keeping a group of energetic and enthusiastic year sixes on track. There was not the slightest problem with discipline; they were all incredibly polite and eager to do the right thing, they were just a bit too fast for me to keep up with, so help from my wife, son and my son's friend, as well as several other staff members, was a life saver.

GETTING DOWN TO THE SERIOUS BUSINESS OF GO KART BUILDING

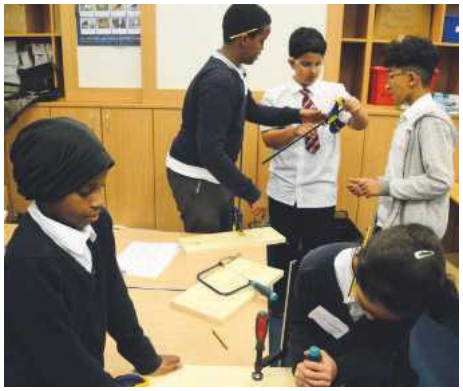
WEEK 1: Preparing the components

1 We started with the basics. To be honest, if you can't keep a pencil behind your ear you might as well give up carpentry and become an accountant, or something. I am happy to say that all of the Woodwork Club passed this test with flying colours

2 Next came some pretty nifty geometry. Because time was short I had prepared the main sections beforehand so the first job for the Woodwork Club was to mark out and cut the rounded corners. As this involved maths, I let my son, the teacher, demonstrate – he's good at that sort of thing (he gets it from his mum)

3 Then came a lot of clamping and cutting out. If you do decide to have a go at something like this, you will probably find yourself working in pretty basic conditions. It pays to think ahead about how you will hold stuff while you work on it, especially if you are used to a well-equipped workshop. It can throw a good woodworker into a tailspin when they find themselves having to work at a 2ft high table that doesn't have a 9in Record vice attached. Try to picture each stage of the build and what you will require in order to work safely and effectively

4 Introducing power tools was a judgement call. I have taught young adults to use power tools and machinery for years and I was totally confident that I could use some low-risk power tools with this group. If you don't have the training, experience and insurance to do this, I would suggest sticking with hand tools. It's also worth remembering that hand tools are not always the safe option; although I was happy to use a jigsaw here, I wouldn't use chisels or knives



5 I was a bit worried that we wouldn't have enough to do; I always over-estimate what can be done in a given time. To be honest, I needn't have worried as there was more than enough to be getting on with just marking out, cutting and smoothing the curves on our ready-made components.

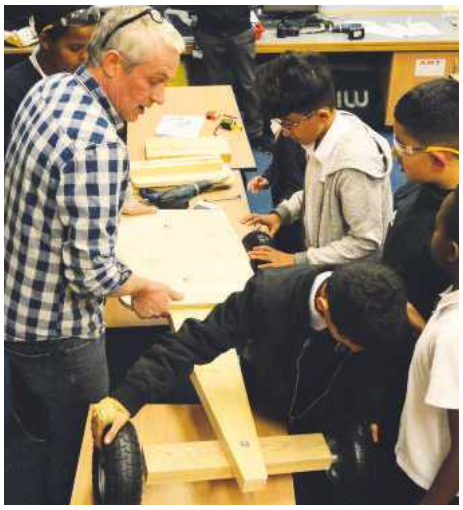
We finished week 1 with a kit of parts, and a headache. I think the Woodwork Club enjoyed themselves – I know I did

WEEK 2: **The assembly line**

6 Competition focuses the mind, and with only an hour to get these karts assembled we definitely needed some focus. So, we set up two production lines for the two karts with two highly motivated and competitive teams; coming second was not an option

7 There were lots of opportunities for measuring and working out, applied mathematics in action!

8 Teacher Mr McMahon looking like a natural with a battery drill



9 The other Mr McMahon, looking relieved that the go karts are coming together

10 Test driving the first one off the assembly line

WEEK 3: **Into the paint shop**

11 This is where it all gets a bit messy – frankly, I gave up trying to keep control or make suggestions. We primed the bare timber prior to the session and I had a few Northern European ideas of what colours to use. It was like herding cats until I gave up and let the club, with their glorious mix of cultural backgrounds, take over... Fantastic!

12 So, what number is your go kart?

WEEK 4: **Race day!**

13 Sheffield obliged with perfect conditions for race day, and the snow just added to the fun

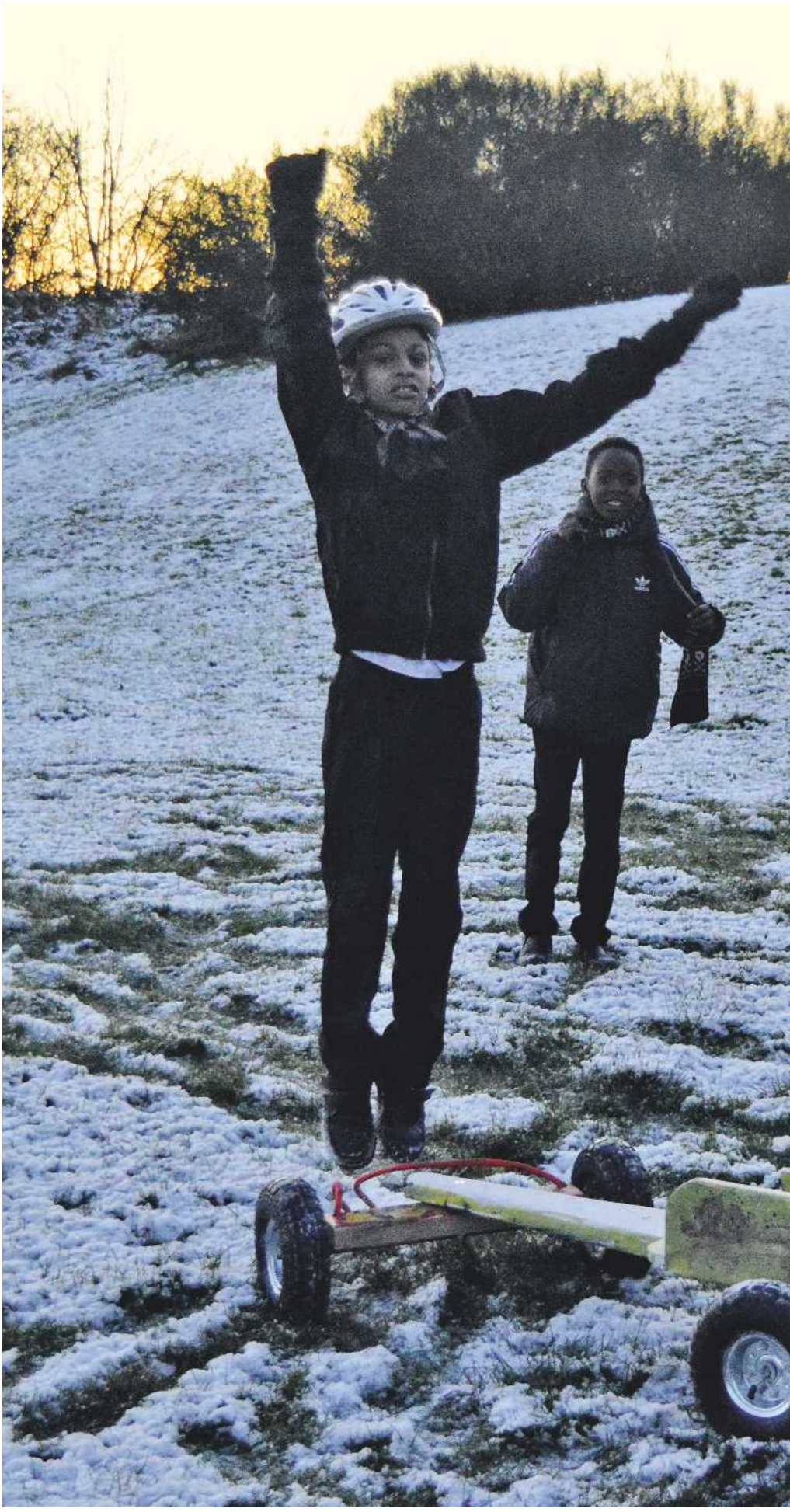
14 Byron Wood Academy Woodwork Club's motto should be: 'feel the fear and do it anyway'. That slope behind our intrepid pilot is bordering on the vertical…

15 … which makes getting back to the top a bit of a chore

A worthwhile endeavour

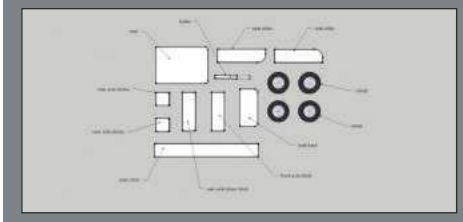
I started this thinking I could do some very small good, passing on various skills and a little fun. Honestly, I know I got much more out of this than anyone else involved. Byron Wood welcomed me when they were probably up to their ears with the serious business of running a school. The students who made up the Woodwork Club have a busy life and yet they enthusiastically gave their time. I couldn't be prouder of my son and his colleagues who do such a great job with an incredible amount of enthusiasm and resilience. So, thanks to Josse, Satadru, Carl, Nic, Alex, Nicola and Razia.

Even more, though, I am really proud of the Byron Wood Woodwork Club. It was a privilege to teach you to build go karts. All the best and keep woodworking!

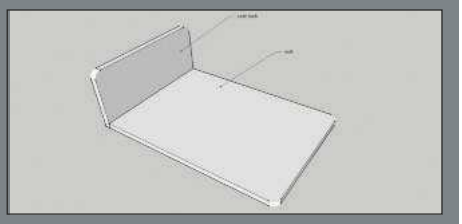


16 Race day was fantastic, if a little nerve-wracking at first. No bones were broken, and everyone got a medal. We might have even inspired the next Lewis Hamilton…

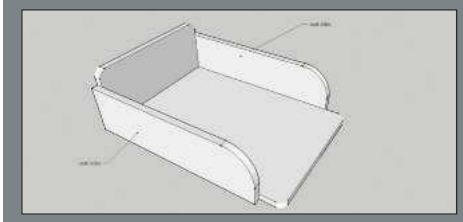
GO KART PLANS



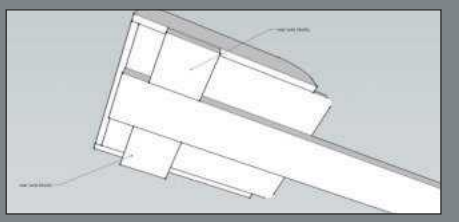
1 The basic kit of parts can be adapted to suit the materials you have to hand. I used 18mm ply for the seat and softwood scraps for everything else. Just bear in mind that everything has to fit around the axles, so buy these first and take it from there



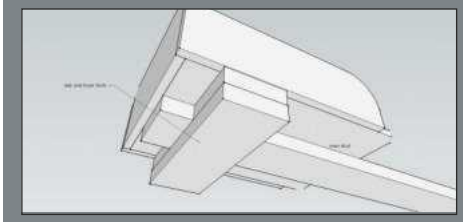
2 Screw and glue the seat back…



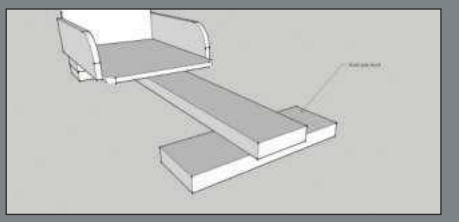
3 … followed by the sides



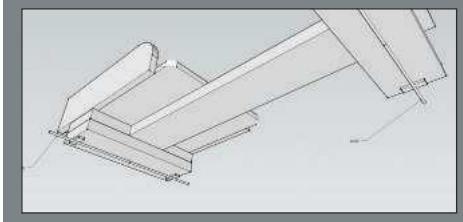
4 I glued and screwed the axle blocks but through-bolted the main strut with a couple of coach bolts. This meant that it could be moved to suit different sizes of driver



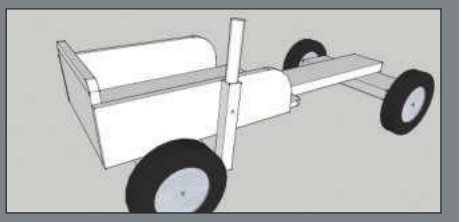
5 The lower block holds it all together



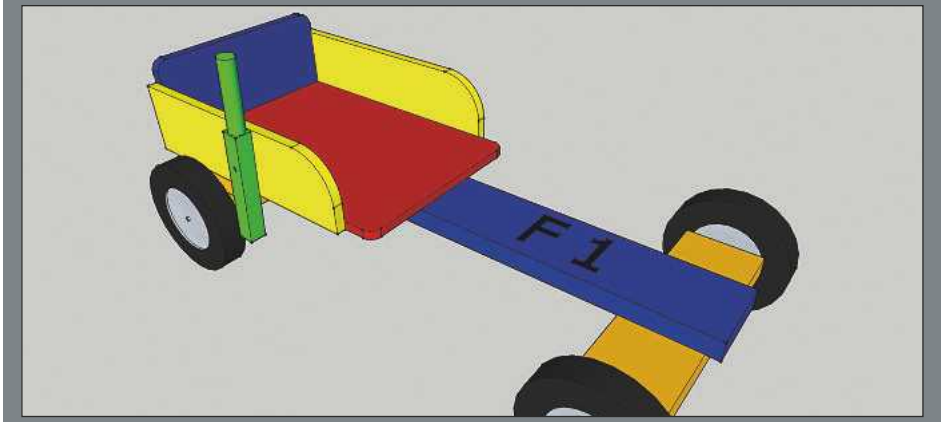
6 Bolt the front axle with a big washer between the two parts. You will need to use a lock nut to stop the bolt coming loose. Use a coach bolt and keep the smooth head uppermost so that the driver doesn't need stitches every time they fall off forwards



7 Fit the axles with short fat screws – 25mm No.12s ought to do it



8 The wheels are held on with R-clips and the brake is as basic as it looks. Again, use a coach bolt with the nut facing away from the driver



9 The completed go kart

LETTERS

LETTER OF THE MONTH

STRINGED MUSICAL INSTRUMENT MAKING

Hi Tegan,

It's great to see Shaun Newman's series of articles on making an early Viennese guitar. Making musical instruments is a fascinating and rewarding activity and well within the reach of the readers of this magazine. It provides the pleasure of working with exotic timbers and producing an instrument that not only looks beautiful but also produces pleasant sounds. I organise a group of like-minded people who are fascinated by this rewarding pastime (**www.bucksluthiers.co.uk**).

A hurdy-gurdy lute and guitar made by members of Bucks Luthiers

We meet in the spacious workshops at Bucks New University in High Wycombe, gathering for five or six weekends plus an eight-day summer school each year. Members of Bucks Luthiers have made, and are currently making, a wide variety of string instruments, generally of the guitar family but not exclusively so. Examples include Baroque and Renaissance guitars and lutes; other projects include violins, symphonies, hurdy-gurdies and a range of other historically interesting instruments. In fact, members of the group are attracted by the challenge of a new or unusual instrument, the technology and science behind it and its historical context in the spectrum of musical styles and instruments. A small selection of recent instruments is shown in the attached photo. Not all makers are players: a few of the group are also blessed with that skill and thus have the additional reward of being able to play an instrument that they have made. An exceptional few also compose their own music for the added bonus. What they all possess is a willingness to share knowledge and experiences and actively support newcomers to the craft. Like all projects, making a musical instrument is a sequence of processes, which can be followed from books or indeed a series of articles; however, what most of us often need is advice when things don't go exactly to plan. Working within a group provides this support as it's inevitable that someone has had a similar experience. We are more than happy to support anyone who is interested in, or who has started making, a stringed instrument and can be contacted through the website or by email: **barry@bucksluthiers.co.uk**.

Regards, **Barry Barrett-Mold**

Hi Barry, many thanks for getting in touch and telling us about your group – it all sounds very interesting and also a lot of fun! I'm sure readers will love to see what you get up to. P.S. Look out for Shaun Newman's upcoming three-part Renaissance style lute project in a coming issue.

Best wishes, **Tegan**

DRILL BIT CLOCK

Hi Tegan,

My granddad's been creating weird and wonderful things again! He's used an old brace and drill bit to make this wacky clock. The brace was mounted onto a wooden base and the circular saw blade was cut into the wooden handle using a multi-tool. The clock mechanism was then fitted into the chuck followed by a bit. He says he may also take out the bit and fit a bulb holder to make a lamp and clock. Hours of fun! Thanks again,

Kerry Dodds

Kerry's granddad's homemade drill bit clock is certainly unique and a great bit of fun!

Hi Kerry, thanks for sharing your granddad's latest creation with us – what a novel idea and a great way to make use of old bits and bobs around the workshop. It's probably best to keep items such as this, with potentially sharp blades, up on a high surface away from harm, but what a great idea and definitely a bit of fun! Thanks again for sending this in!

Best wishes, **Tegan**

TURNING BOWLS WITH A SCRAPER

Hi Tegan,

I'm writing in to purely just mention that I got into woodturning (and woodworking in general) just over a year ago. I cannot justify, unfortunately, booking a woodturning course, so am self-taught, which involved watching a few online videos. Now, don't shoot me, but I struggled so much with bowl and spindle gouges that I ended up turning using a spindle roughing gouge, then a parting tool, round-nose scraper and a skew chisel. Don't tell anyone; they'll scream heresy!

I do end up with some nice bowls (see photo), but really need to try and get my head around gouges. I've had more catches than you can shake a stick at! It's a great magazine and I love receiving it each month.

Best wishes, **John**

Hi John, thanks so much for your email. I love the bowls and the vase shown in the photo and it looks like you've managed to achieve a nice shape using the scraper. Sometimes it pays to experiment with tools and techniques – what works for one person may not work for someone else, and as long as you're enjoying what you're doing, in a safe manner, then does it really matter? I don't think so!

Here's to lots more happy turning and experimenting!

Best wishes, **Tegan**

A selection of John's wonderful turnings

MAKING IDENTICAL REPEAT CUTS ON A TABLE SAW

Dear Editor,

After many years of cutting joggles on small doors and window sashes by hand, an old joiner showed me how to cut them on the table saw. I'm now 82 years young and would like to pass this information on to younger ones. It takes a little time to set up but the results are worth every bit of effort. I hope the drawings will help others as they did me many years ago.

All the best and thank you for a great magazine,

A.B. Allwood

Hello Mr Allwood and thanks for your letter. For any readers who don't know, a joggle is another name for a horn, found on either side of the upper sash on a sliding sash window. Found at the lower end of each stile, they avoid having to use haunched mortise & tenon joints with the rails and therefore add strength. They also increase the length of the top window, which makes it slide more smoothly. Traditionally joggles were moulded for decoration, though these days are often simply bevelled.

As your drawings show, if you're using a table saw – assuming it has a sliding table or even just a sliding fence for cross-cutting – as long as there's a simple length stop (this can be a cramped offcut) when sawing, then it's easy enough to make identical repeat cuts.

Regards, **Phil Davy**

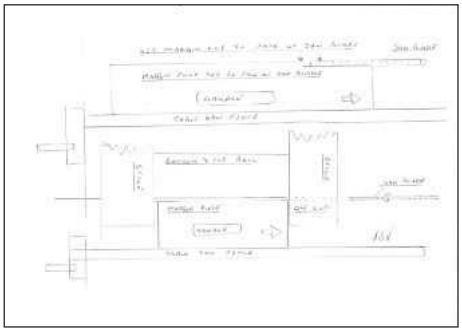


Fig.1

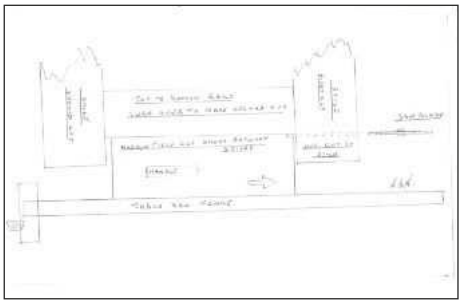


Fig.2

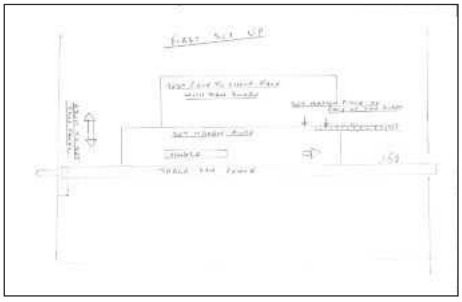


Fig.3

READERS' HINTS & TIPS

BriMarc TOOLS & MACHINERY | veritas Innovation in tools

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

TIPS FOR GLUE-UPS

I needed strength at the corners for a heavy storage chest I was making – and it had to support castors. No problem – I could use 'cheetahs' again – my name for a wooden corner block with long-grain on two sides at right angles, thus glueable for strengthening the corners, as well as supporting the castors. Usually, especially in chairs, they are screwed, since glue does not hold well when used across the grain.

Most frequently I use 20mm thick oak for the blocks, but this time I used 35mm since it would give extra support needed. I cut an 80mm square, and then, with bandsaw, cut across one diagonal. Turn one half around, and end-grain both sides – but not much strength in the diagonal gluing surfaces. However, if one uses biscuits (size 20) in which the grain is cut across the diagonal, it is all long-grain against long-grain, and the two triangular pieces now have tremendous strength as one block. The photos show that I used six per block, and you will also notice I have made myself a metal plate to reduce the aperture of the biscuit jointer to make alignment easier. Sometimes I use pocket-hole screws to hold the block in position while the glue is setting, if it is not easy to get clamps into that corner.

Michael Watson

Biscuit slots cut

Biscuits in slots – dry run

Gluing up

WRITE & WIN!

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

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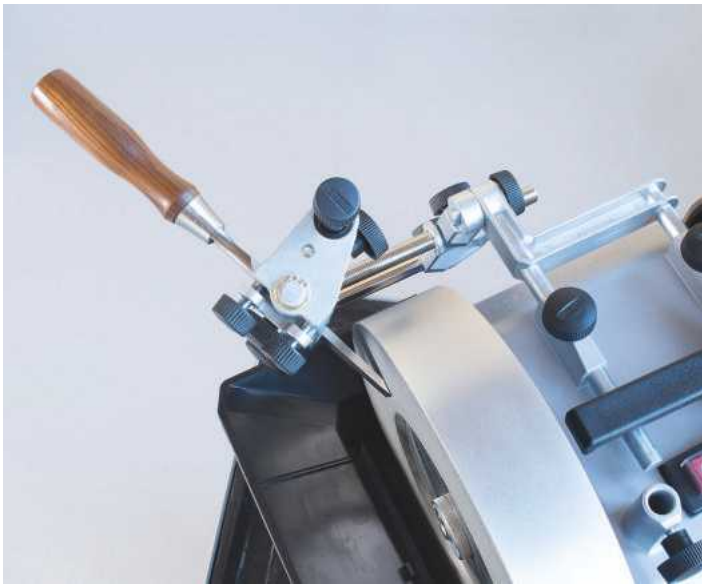
Please come and see why Tormek is No1 for all sharpening.

NEW TORMEK MB-100 MULTI BASE



The new Tormek MB-100 multi base is designed for sharpening specifically with Tormek diamond grinding wheels and allows the user to sharpen on the side of the wheel, creating a completely flat bevel on chisels, plane irons, etc.

The MB-100 has an adjustment line that allows you to fix the sharpening position based on the optimal setting for each tool and jig. You can mount the MB-100 on the machine either vertically or horizontally, whichever is most convenient for the item you intend to sharpen.

Compatibility

The Tormek MB-100 is compatible with the following Tormek Jigs: Knife Jigs SVM-45, SVM-140 and SVM-00; Axe Jig SVA-170; Scissor Jig SVX-150; Short Tool Jig SVS-38; Gouge Jig SVD-186; Multi Jig SVS-50; Square Edge Jig SE-77 and Tool Rest SVD-110.

Please note that the MB-100 is designed solely for sharpening with Tormek diamond grinding wheels. It is not suitable for other Tormek grindstones, as they have to be dressed, which is not possible on the side.

To find out more, visit the Tormek website: **www.tormek.com**.

SITTING PRETTY

Peter Vivian's recent commission for a functional hall seat/storage unit in oak turned out beautifully, as he describes here

Checking my email one lunchtime I found an enquiry asking if I would be able to make something like the attached photo, which showed a simple seat with a lift up lid to access storage within. From the photo, it looked as if it was made from painted MDF. Pondering how I could modify this, the next step was to arrange a time to visit the customer to discuss the commission.

The design

When I arrived at the customer's house a couple of days later, my attention was caught by the unusual entrance, which was semi-circular. After a brief discussion, the original concept was soon replaced with a design that reflected the entrance to the property and would fit in with the décor surrounding its eventual location. I took some measurements and did a quick thumbnail sketch, which he later approved.

Making a start

When I returned to the workshop, I produced a more accurate dimensioned drawing (**photo 1**) and emailed it to the customer. A couple of days passed before I got the go ahead, so I used the time to prepare the timber, which I admit was a little premature, but I had received a deposit and had set aside the time. He also said that he didn't want any MDF used as he didn't consider it to be 'real wood' as the final finish was to be natural oak and paint. I elected to use whichever hardwoods I had to hand for the painted parts, a decision I would later come to regret!

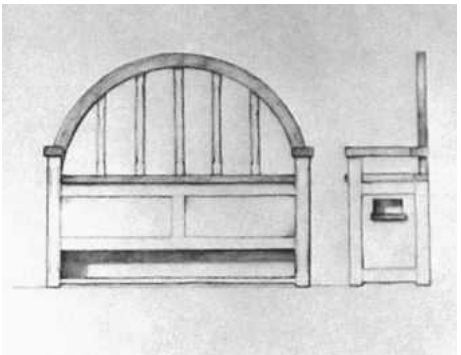
Ahead of the curve

I enjoy the challenge of curved work so made a start on the back. I drew a full-size pattern on a piece of scrap MDF and from this decided how many sections to use – the fewer the better – but this would also mean wider timber and more waste. I also didn't want a join in the centre as it would coincide with the middle spindle and create a weak point, so I decided to use five pieces for the assembly.

I marked the intersecting points on the full-size pattern (**photo 2**) and cut the timber to match. It took a couple of attempts to get the angles right, but I left them over-length and nibbled away until they matched the pattern. My brain couldn't cope with the angles and leaving sufficient extra material to cut joints, so I chose to join them together with loose tongues. I routed rebates in the ends of the five pieces and cut the tongues so they would be a nice, snug fit. To maximise the strength of the joints, I made sure they were cut 'short'-grained (**photo 3**).

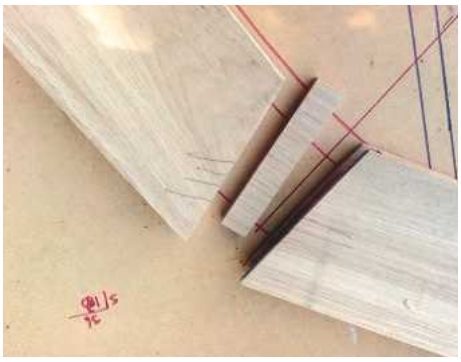
Cramp pains

Gluing up presented an interesting challenge, which I partly solved by hot gluing square strips of oak to both sides of the five sections at each end and pulling them together with G cramps (**photo 4**). This only allowed a very light pressure to be applied before the hot glue failed, but it was just



1 The final design of the hall seat/storage unit

2 Full-size pattern



3 Short-grained loose 'tongues'

4 Gluing up the curved back

about enough to pull the joints together. I used 'Cascamite', which I tinted with artist's acrylic paint to match the oak.

Short cut

One of the reasons for drawing it onto the MDF was to ensure I could mount it on my homemade circle cutter then cut the inner and outer curves on the bandsaw (**photos 5** & **6**), although something similar could be achieved with a router or jigsaw and 'trammel' bar. I wanted to get the cut as smooth and accurate as possible as cleaning it up would be tricky and could lead to inaccuracies, which would stick out like a sore thumb – I've already got plenty of those!

Boxing clever

The carcass is a fairly simple box, of frame and panel construction. If I had been using solid timber for the panels, I would have left them 'floating', but as they were to be painted, I used 9mm plywood. The finished seat was to be located next to the staircase immediately adjacent to the wall leading from the hall into the kitchen, but unfortunately there was a double plug socket which was in use. The customer suggested a recessed box in the panel to accommodate the plugs and sensibly asked for a matching one the other end in case the location was ever changed (**photo 7**). I added an oak shelf for displaying an ornament in the visible recess. The plywood panels were then glued into the rebates routed into the inside of the rails and stiles. The nearest router bit I had was 10mm, which meant there would be a 1mm gap. I wanted to make sure this would be inside the box so I cut lots of small wedges and placed them between the panels and rails, forcing the panels to the front of the rebates. The wedges were removed after the glue was dry. The rails and legs, or stiles, were joined with mortise & tenons, the front legs being longer as they provide the support for the arm rests. I created a stop chamfer around the legs and added a chamfer around the bottom to stop any splits that might occur when dragging across the floor. I also added a chamfer around the curved back. The customer had given me an offcut of oak handrail from his staircase and asked me to incorporate it into the seat; fortunately there was just enough for both arm rests. I cut a square tenon at the top of the leg and a through mortise on the arm rests and added a wedge, which was more for decoration than strength (**photo 8**). The rear end was fixed to the curved back with another through mortise & tenon; these were reduced in width to match the curve (**photo 9**).

Are you sitting comfortably?

The lift up part of the seat had to be made up from three pieces of oak biscuit jointed together. I accurately marked the position of the spindles on the full-size MDF pattern and transferred these to the curved back. Cutting the mortises on the underside proved to be an interesting challenge: the middle one could be completed on my ancient mortiser but the other four had to be done by hand. A piece of oak the same thickness as the seat was temporarily placed in position on the top of the rear rail of the carcass; the curved back was placed in position and the mortise & tenons were marked. These were cut by hand (**photo 10**) and dry fitted; I could then transfer the position of the mortises on the underside of the curved back to the oak at the back of where the seat would be fitted later; this ensured the spindles would be perfectly vertical (**photo 11**). These mortises were cut on the mortiser and the oak was fixed to the carcass with counterbored

5 & 6 Cutting the curves

7 Oak shelf

8 & 9 Armrest mortise & tenons

10 & 11 Backrest spindles

12 Back and armrest assembly

13 The carved initials

screws and the holes filled with cross-grained pellets (**photo 12**). Matching pieces were added at the sides, which had to be carefully cut around the front legs; these were biscuit jointed to the back piece. The seat was fitted with three stainless steel ball-bearing hinges.

Painting

I primed all the parts that were to be painted white using a water-based acrylic primer. As I mentioned previously, I used a couple of different hardwoods for the legs and rails of the carcass – the legs were iroko, which turned the white primer yellow! I tried another coat but the result was the same. I ended up having to use a shellac-based 'stain block' paint before finishing with a satin top coat.

Carving initials

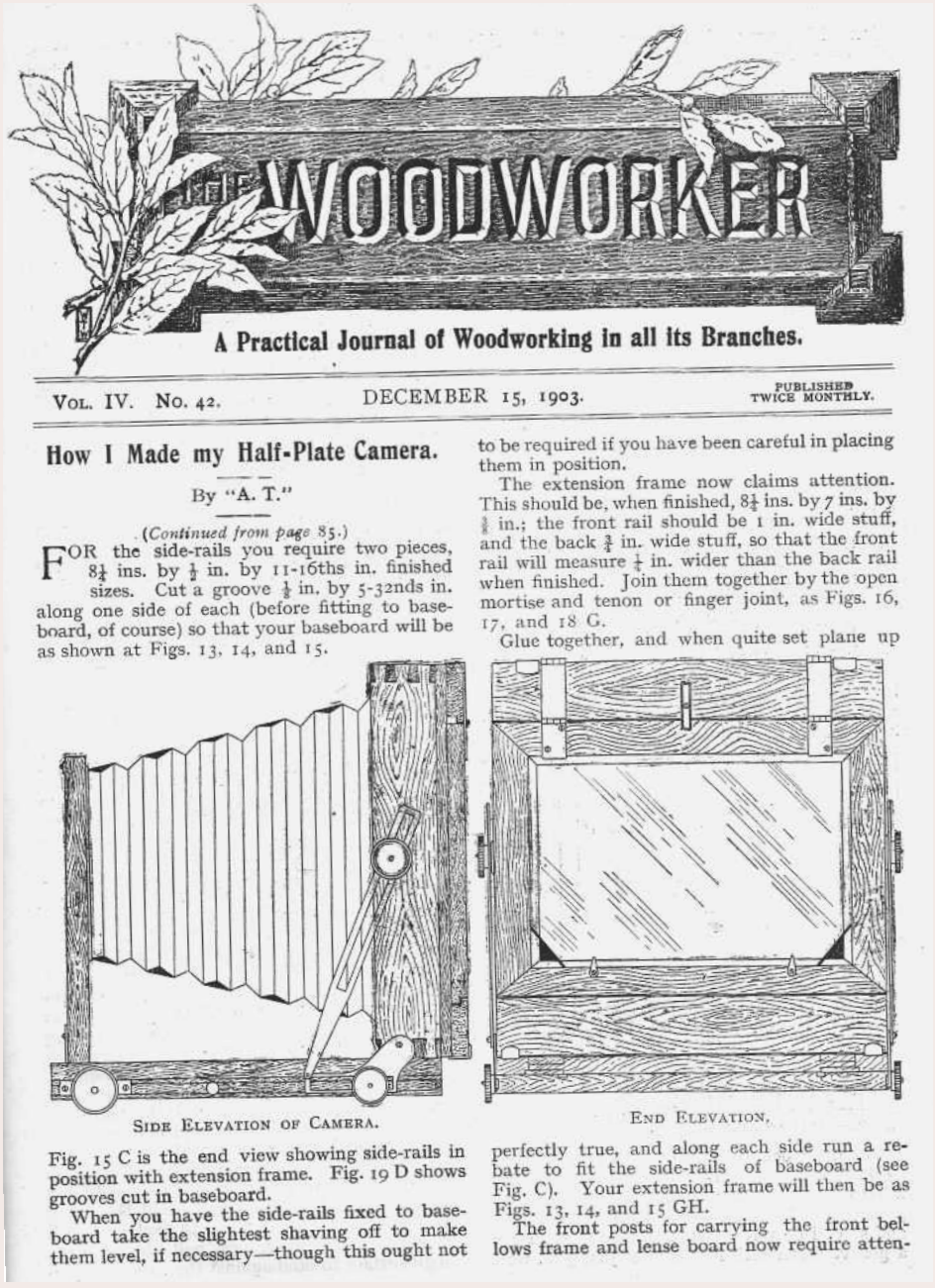
The customer came to my workshop to view the finished item and mentioned it was a surprise gift to his wife from himself and their daughter, so he asked if I could carve their initials somewhere not too prominent; we settled on the underside of the seat. I enjoy letter carving so I was happy to oblige. I chose a suitable font and printed them full-size. I traced them onto the seat and carefully carved them using a couple of 'V' tools and chisels, always aware that a mistake might mean having to make a new seat (**photo 13**).

I delivered the completed project a couple of days later and we positioned it in its intended location where it looked just right (**photo 14**). Overall, a successful commission, I think.

14 The completed seat in position

How 'A.T.' made their half-plate camera

Deep in the archives of *The Woodworker*, **Robin Gates** delights in a complex camera-building project for the Edwardian amateur photographer



THE WOODWORKER

A Practical Journal of Woodworking in all its Branches.

VOL. IV. No. 42. DECEMBER 15, 1903. PUBLISHED TWICE MONTHLY.

How I Made my Half-Plate Camera.

By "A. T."

(*Continued from page 85.*)

FOR the side-rails you require two pieces, 8¼ ins. by ½ in. by 11-16ths in. finished sizes. Cut a groove ½ in. by 5-32nds in. along one side of each (before fitting to baseboard, of course) so that your baseboard will be as shown at Figs. 13, 14, and 15.

to be required if you have been careful in placing them in position.

The extension frame now claims attention. This should be, when finished, 8¼ ins. by 7 ins. by ⅜ in.; the front rail should be 1 in. wide stuff, and the back ¾ in. wide stuff, so that the front rail will measure ¼ in. wider than the back rail when finished. Join them together by the open mortise and tenon or finger joint, as Figs. 16, 17, and 18 G.

Glue together, and when quite set plane up

SIDE ELEVATION OF CAMERA.

END ELEVATION.

Fig. 15 C is the end view showing side-rails in position with extension frame. Fig. 19 D shows grooves cut in baseboard.

When you have the side-rails fixed to baseboard take the slightest shaving off to make them level, if necessary—though this ought not

perfectly true, and along each side run a rebate to fit the side-rails of baseboard (see Fig. C). Your extension frame will then be as Figs. 13, 14, and 15 GH.

The front posts for carrying the front bellows frame and lense board now require atten-

My childhood home was a veritable photographic laboratory, from the red glow of the darkroom lamp in the attic to the trickling of water washing films in the kitchen sink. The air would be charged with anticipation as we gazed at ghostly images appearing through ripples in the developing dish. Measured against that experience, the simplicity of grabbing a photograph these days leaves me feeling almost bored. See it, click, and there it is: done.

So I was delighted to have those precious memories of light and chemistry stirred by a camera-building project spread across four issues of *WW*, from December 1903 to February 1904, where the modestly-bylined 'A.T.' describes precisely 'How I Made my Half-Plate Camera'.

A model of Edwardian politesse

In the first article, preceding this one from December 15 1903, A.T.'s opening remark is a model of Edwardian politesse: "In offering my experiences to the reader," he begins, "I do so with all apologies to the proficient workman, and ask him to excuse me if my description may appear to be too fully detailed." But his tone soon changes, with a warning for the reader against being too easily satisfied with his efforts. "Remember – and note well – in making a camera, your measurements must be exact, and every part must be squared up… the piece that is not quite true, square and exact in measurement… may throw all the rest out, and make the apparatus useless." Clearly, every kerf, rebate and dovetail which follows has to meet not only the high standards of a conscientious joiner but the laws of optical physics.

In listing the tools required, A.T. recommends that the reader make their own cutting gauges, with an early indication of what he means by "fully detailed" being a step-by-step on tempering the steel blades. Next he specifies the timber, which is to be "well-seasoned, thoroughly dry, and straight-grained mahogany" of either the Honduras or – one I've not encountered before – the 'Tabasco' variety.

Ever the perfectionist

Construction begins with the body of the camera, essentially a shallow box joined by dovetails at the corners. Next comes the bellows frame, which has mitred corners strengthened by strips of veneer, followed by the reversing frame with its rebated rails for fitting the dark slide, and the hinged frame for the ground glass focusing screen. Then the baseboard, with clamped sides, the extension frame assembled with mortise & tenon joints, and the front posts which carry the bellows frame and lens board. Joints are assembled with a mixture of "half Scotch and half best French glue," being careful to warm the components first.

A.T. explains how to turn, thread, drill, and fabricate all the metal parts from scratch in the third article, complete with instructions for hot-lacquering the brass "without frizzling." Ever the perfectionist, he says to be sure of "getting the slots in screw-heads all in one direction." The last of the woodwork is making half a dozen dark slides, each to hold two glass plates, which is reckoned to be the most difficult operation so far – a maze of tiny light-tight grooves, rebates and mitres for which the home-made cutting gauges are brought into play. The exterior is then French polished, using alkanet root to redden the oil, and the interior coated with black varnish.

In the last of the series, and with a succinct explanation of what drives the amateur forward, A.T. introduces the making of the leather bellows by saying: "It is very questionable whether it is worthwhile to make this, as you can buy it so cheaply… however, it is not always a case of cheapness, but rather the meritorious spirit of ambition, which induces the amateur to test his constructive powers."

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GILLY THE GIRAFFE PART 2

Carrying on with her rocking giraffe build, **Grace Silverwood** makes the remaining elements before painting and assembling the completed toy

FURTHER INFORMATION
To see more of Grace's pieces, see **www.facebook.com/gracesilverwoodcreations**

Carrying on from the last issue, in which we cut out the components and made the head, neck and shoulders, in part 2 we'll install the handle bar, make the rockers, before painting the whole assembly and gluing it all together.

The ears

The ears – shown in **photo 15** – are the finished result. These are cut out of a piece of 12mm solid oak offcut, which was left over from the belly. Using a profile gauge, the contour of the head also needs to be added to the joining edge of the ear.

Each ear hollow can then be shaped using a Foredom fitted with a 25mm coarse (green) Saburr burr bit, before being sanded off. You could also carve these by hand and shape with a Dremel if needed, but this would be more time-consuming. Again, the ears are installed using two dowel joints and lots of glue. Once glued in place, leave to dry overnight, making sure the head is kept in an upright position.

15 The completed carved ears

The 'horns'

The 'horns' or 'ossicones' as they are known, can then be turned on a lathe using a piece of 25mm square wood (**photo 16**). I used an offcut of tulipwood I had available, but you could use beech or even an old rolling pin.

I could have repurposed some of the worktop offcut from part 1, but, as it was made from laminated pieces of oak, I felt that this was too risky to turn on the lathe. Instead, I turned the piece of tulipwood in one length to maintain symmetry, with a long tenon in the middle, before parting it off (**photo 17**).

Alternatively, if you don't have access to a lathe, you could also use a pair of drawer knobs or light pulls, which would give the same effect, but ensure to use a piece of dowel for a tenon between the knob and head.

Next, using a matching drill bit for your tenon in your hand drill, drill into the head. I aimed for the space between the two ears, roughly 25mm apart. Glue in place and then leave to dry overnight – again, making sure the head is kept upright.

16 The tulipwood offcuts mounted on the lathe

17 The 'horns' once turned

Installing the handle bar

It's now time to make Gilly ridable! I decided to keep it simple rather than making a bridle (which giraffes don't have anyway). For measuring the handle bar, I used a broom handle and cut it to length, but you could also use a matching 25mm thick dowel.

To figure out how long you need to make the handle bar, take the thickness of the neck and add the width of both your hands. As the oldest person likely to ride it, it makes sense to add a bit extra.

Once you have cut the handle bar to length, it's now time to install it. To do this you need to bore a hole into the neck using a corresponding Forstner drill bit (**photo 18**). Thankfully for me the head managed to clear the drill table and could rest perfectly horizontal, giving me a 90° hole. But if you're not so lucky, a hand brace or powerful battery powered drill should do the trick.

The handle can then be coated with lots of glue before being inserted into the hole, making sure it is the same distance out from the neck on either side. Leave to dry overnight, with the head kept upright (**photo 19**).

18 Drilling a hole into the neck using a Forstner bit, ready to accept the handle bar

19 The handle bar once installed

MATERIALS & TOOLS REQUIRED

Materials

- 100g ball of black wool
- Offcuts of (40mm) thick oak worktop (this must be solid wood throughout, not the chipboard kind)
- 1m of 3 × 2 pine for the rocker struts
- 1.2m length of 254 × 50mm thick ash for the rockers (any hardwood would do although softwood will probably not take the strain as well)
- 254mm length of 25mm square tulipwood or beech for turning the horns (a rolling pin would also work well)
- 12mm thick solid oak for the ears
- Offcut of broom handle or 25mm thick dowel to use as the handle bar
- PVA glue
- Two-part epoxy resin glue
- White primer and eggshell paint for the rockers
- Mahogany stain and 6mm artist's brush

Tools

- Heavy-duty bandsaw with a cutting depth of at least 20mm for shaping the head (but you could also use a jigsaw and shape the head by hand using a mallet and chisel)
- Angle grinder – fitted with a 80 and 120 grit sanding disc
- Lathe (for turning the horns, but you could use some ready-turned pieces such as a pair of drawer knobs or light pulls instead, for example)
- Mallet and carving chisel
- Bench drill with Forstner drill bits to match your broom handle handle bar
- Dremel or Foredom with suitable wood burr (I use 25mm Saburr wood burrs on my Foredom)
- Pencil
- F clamps (heavy-duty ones with fairly wide openings)
- Spring clamps
- Spokeshave
- Belt sander
- Countersink
- Bevel gauge
- Workmate or outside workbench
- Dust mask and face protection

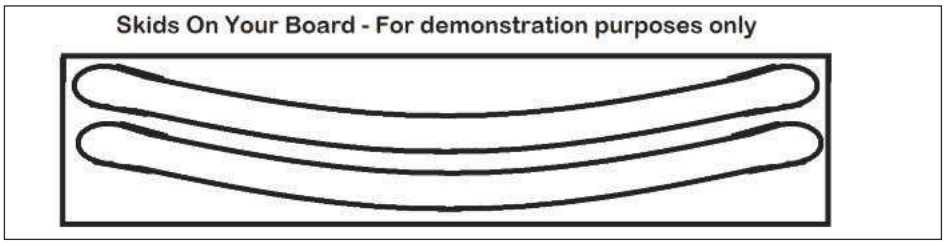


Fig.2 Templates for the rockers

20 The rockers after roughly cutting out on a bandsaw…

21 … and being shaped with a spokeshave (after being screwed together)

22 Gilly once dry assembled

23 Now the body is completed...

24 … the head can be mounted on it

25 The mane once glued in place…

Making the rockers

To make the rockers I used some 50mm thick ash, which I had lying around the workshop. To create the template for the rockers, I researched how long the giraffe would be then added an extra 180mm at either end. I took an old piece of wallpaper of the length required, folded this in half, then drew the shape for my rocker.

For transferring your template onto your wood, the most economical way I found is to place the two rockers as close together as possible, edge to edge. I used a 1.2m length of 254mm wide board and this just covered the curve (see **Fig.2**). Please note that this drawing is not to scale; it is just a demonstration diagram.

For cutting out the rockers, you need to transfer the drawing onto the wood and then cut out using a bandsaw (**photo 20**). Next, drill two holes at either end, roughly 180mm away from the edge into both rockers at the same time. These are then screwed together so they are identical in shape.

The next step is to smooth out the curves (particularly the outside one). For this my partner, Dave, used a spokeshave (**photo 21**), which is time-consuming but well worth it! You can then finish the whole surface off with a belt sander to make the wood nice and smooth.

For installing the struts, two further pieces of 3 × 2 need to be cut to the spread of the legs plus 25mm either side. These will be the struts of the rocker on which Gilly will be mounted.

The two holes used on the rockers while shaping are used again for running a screw through, which helps to hold each strut in place. Countersink these first as you don't want to see these later on.

Adding lots of glue onto the ends of each strut is highly recommended. Once you have a fully assembled rocker, you now need to place the giraffe onto each strut. This will hold them at the correct angle while the glue dries. Leave this to dry overnight and don't touch the assembly, or you might adjust the angle of the struts.

The next day, once the glue has dried, you now need to drill the holes into the struts, which will then be used by the screws to hold the giraffe to the rocker. To do this, place Gilly back onto the struts and then position her so she is square and equal on either sides of the rocker. You can then draw around each foot.

Next, turn over the rocker and drill a hole into the centre of each footprint; this then needs to be countersunk. 60mm screws can then be inserted into the holes, protruding very slightly from the surface at first.

Gilly can now be placed on top and lined back up with the footprints marked out earlier. The indentations left on each foot will mark the pilot holes you need to create for the screws, which can be drilled into each foot by about 12mm.

Gilly can now be dry-fitted, but not permanently (**photo 22**) as the painting needs to be done first. However, this would be a good opportunity to test out how she rides and if any adjustments need to be made to the rockers. At this point, you may want to start thinking about filling in some of the screw holes you've made; I used a basic white wood filler.

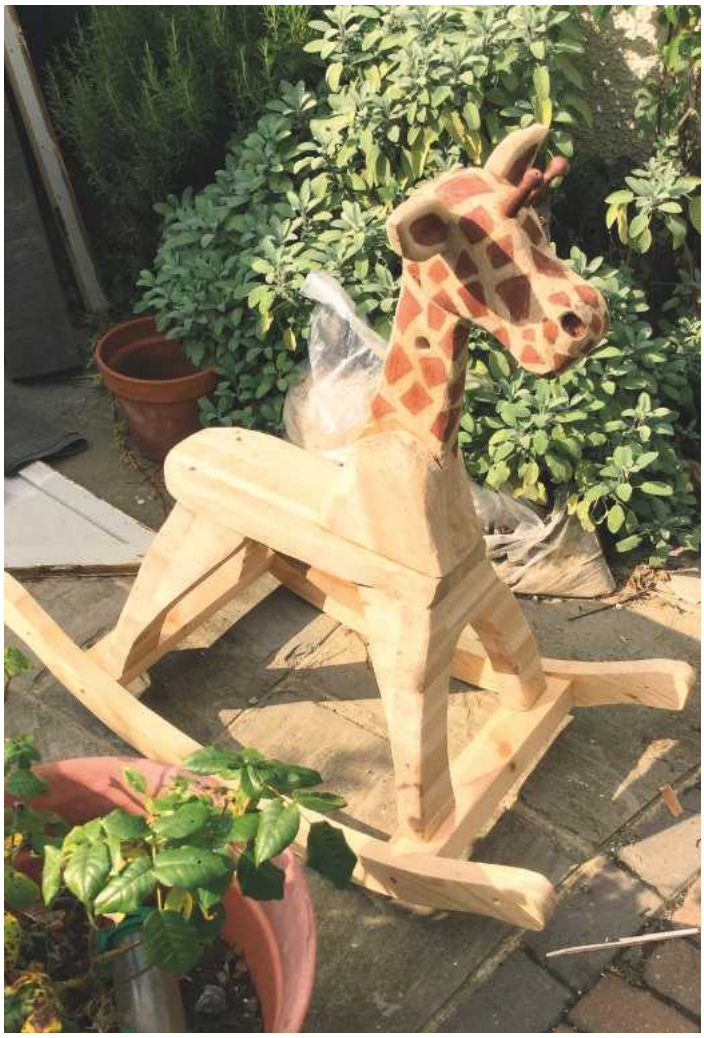
Mounting the head to the body

Now the body and head are more or less finished, it's time to mount the neck and head to the body (**photo 23**). For this you need four dowel joints in the base of the neck and shoulders together with lots of glue. You could also add a couple of screws underneath, but I found I didn't have enough room to do so. Leave this to dry overnight.

Now that all the parts are together, you can do the final carving using an angle grinder and sanding discs. Most of this is just shaping where the shoulders meet the neck, but you may find other spots that require shaping, such as the inside of the legs. I used an 80 grit disc followed by an 120 grit version.

Making & fitting the mane & tail

For the mane and tail I bought a 100g ball of black wool, but you could just buy a length of 25mm thick black rope and skip this stage if you prefer. Measure the length from the tip of the nose to the base of the neck, then run off about seven lengths of wool at this measurement. You need to repeat this step twice more so you have 21 strands in total. Now tie your seven strands together and do this twice more so you have three lots of



27 Painting on the authentic giraffe print

28 Gilly's first test ride

26 ... and after plaiting and trimming to length

seven strands. Now knot all three groups together tightly. Next, plait the strands up to the position of the horns and then tie another knot. If you're not sure how to plait, then simple instructions can be found online. Trim off the excess (**photo 25**) and then fan this out. The whole mane can then be glued into place using a two-part epoxy resin glue before being left to dry.

For the tail, repeat these steps again but on a smaller scale. The tail can then be installed by drilling a hole, using a Forstner bit, into the back pair of legs before gluing into place with epoxy resin as before.

Painting & oiling

Now for the fun part! To create an authentic giraffe print you need a mahogany stain or brown paint (not water-based) and a 6mm wide artist's brush to paint the print on (**photo 27**). To create added depth, the nostrils and inner ear also need to be painted in this colour.

The rockers should also be painted using a white primer followed by an eggshell, as these will probably be subject to quite a lot of wear and tear during their lifetime. Once the stain is dry, the whole giraffe can be given two coats of linseed oil with the excess being wiped off after each coat.

Fixing the rockers in place & testing

Now everything is painted, you need to finally fix the rockers in place. Repeat the dry fit as before but this time add a liberal amount of glue onto each foot and screw each down in place before leaving to dry. After a good 24 hours, Gilly is now ready for her first test drive; my nieces were only too happy to oblige!

29 The completed rocking giraffe with painted rockers

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WINGED WONDER

Colin Simpson bucks the trend and chooses to turn a square lidded 'box' in beech, which makes a change from the usual round object

Most items we turn on a lathe are round, but sometimes it's nice to break with tradition and turn something that doesn't conform. This month I am going to turn a square 'box', which is really a square bowl with a lid. Many of the techniques used to make this item are the same as those used to make a round bowl, but there are some differences.

Safety note

Firstly, as the bowl rotates, the tools will sometimes be cutting wood and then air. It is therefore essential not to rub the bevel hard against the wood. A gentle 'caressing' of the bevel is all that is needed. Secondly, I often see turners loop their fingers over or around the toolrest to help control the tool (**photo 1**). I consider this bad practice and on a project such as this one, downright dangerous. Sooner or later the corners of the square stock will give your fingers a nasty rap, so ensure to keep them behind the toolrest at all times.

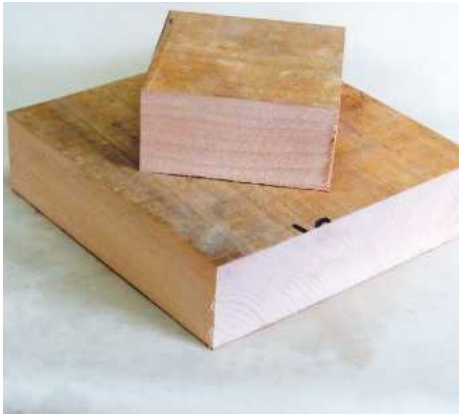
Marking up the squares

You will need two pieces of wood for this project – I chose to use beech. The base of mine is 200mm square × 50mm and the lid blank is 100mm square (**photo 2**). Cut the squares as accurately as possible and find the centres of both pieces using the corner to corner method. I am going to turn the base on a screw chuck. Drill a 8mm hole in the very centre of what will become the top of the base (**photo 3**), then mount it on the screw chuck (**photo 4**). Note I am using an MDF spacer to limit the depth of the screw. Make sure the blank is screwed up tightly against the spacer. Measure and cut the chucking spigot on the base, using a parting tool (**photo 5**) and remember to cut a small pop mark in the very centre of the spigot (**photo 6**); this will help to centre the piece when it is reverse-chucked at the end.

Cutting square stock

Cut an ogee or 'S' shape curve starting at the spigot and ending at the four corners. I removed some of the waste using a swept-back bowl gouge turned on its side, using the bottom wing as a scraper – a pull cut (**photo 7**). This ensures you are cutting with the grain, but it is a scrape and I find it difficult to see the emerging curve. A bevel supported push cut, starting at the corners and cutting down towards the spigot (**photo 8**), allows me to see the curve better, but it is cutting against the grain. I find this works well if the tool is sharp and the cuts are not too aggressive. Even so, there is likely to be a little tear-out on the end-grain. The final finishing cuts should be with the grain (**photo 9**). Look closely at **photo 9**; you could be excused for thinking this

1 This type of grip is not recommended, particularly when turning pieces that are not round



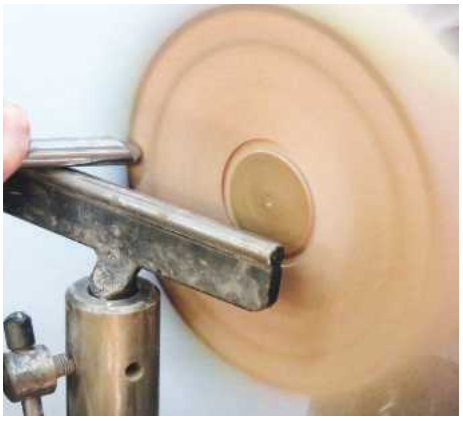
2 The base of the 'box' is a 200mm square and the lid is 100mm square

3 An 8mm hole is required in order to mount it on a screw chuck

4 Here I am using a spacer on the screw to limit the depth

5 Start to cut a spigot using a parting tool…

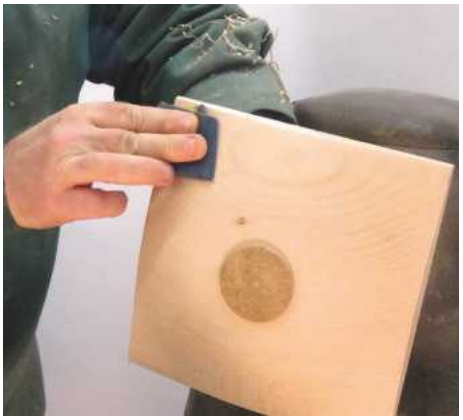
6 … and pop mark the very centre



7 Shape the outside ogee using a combination of the pull cut…

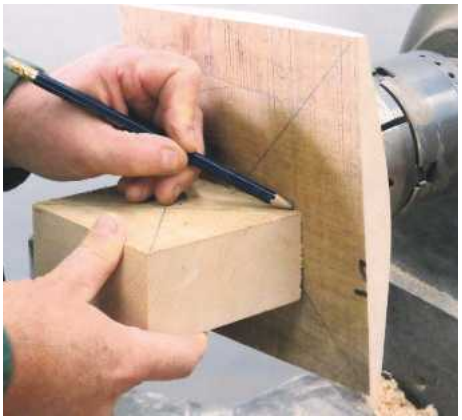
8 … and the push cut…

9 … completing the shape with a shear cut going with the grain



10 It is safer to sand and polish the corners with the lathe stationary

11 If you choose to power sand, ensure to keep the sanding disc as upright as possible



12 Mark the diameter of the box section…

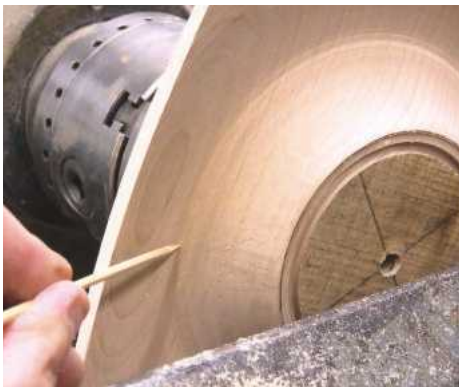
13 … and use a parting tool to cut a step

14 Use a bowl gouge to cut a cove next to the step…

15 … alternating left and right sides

16 Remove the waste from the wings in steps until…

17 … the correct rim thickness is achieved



18 Blend the steps into the right-hand side of the cove

is the same as the pull cut shown in **photo 7**. The tool is on its side and I am using the bottom wing but am holding the handle down lower, which has the effect of changing the angle of the cutting edge. The bottom wing is now cutting at 45° to the surface of the wood and shearing the wood off, resulting in a much better surface finish. You can hand sand the solid parts of the base with the lathe rotating, but do not attempt to hand sand the corners unless you want to get your fingers rapped. Sand the corners with the lathe stationary (**photo 10**). You can power sand the whole piece but do take care. Try to keep the sanding arbor as upright as possible (**photo 11**); this will avoid rounding over the leading edges of the four corners.

Turning the box components

Reverse the base onto the chuck and mark a 90mm – if your lid is 100mm – diameter circle on the top. I used the lid blank to mark this (**photo 12**), which will allow the lid to overhang the 'box' part by 5mm all the way round. Use a parting tool to cut a groove to the right of this diameter, about 4mm deep (**photo 13**); this will become a step in the

19 A smaller bowl gouge with a steeper bevel made this blending a little easier

20 Hollow the box using a bowl gouge

21 A random orbital sander makes easy work of the edges

22 Mount the lid between centres to cut a spigot

23 Measure the diameter of the step…

24 … and transfer this measurement to the lid

25 Cut a groove to the left of this mark…

26 … and shape the underside of the lid with a bowl gouge

27 Hollow the lid using the same tool

28 Remove some waste from the top of the lid and then…

29 … reverse the lid to finish shaping the top…

30 … and cut a handle

box that the lid will sit on. Next, it's time to start shaping the top side of the base. I cut a cove to the left of the 90mm diameter mark, alternately cutting the right-hand side (**photo 14**), followed by the left side (**photo 15**).

Now use push cuts to remove the waste wood on the four corners (**photo 16**). Remove the waste in steps, until you reach the final wall thickness for the corners (**photo 17**), then blend in the corners with the right-hand side of the cove you cut earlier (**photo 18**). The blending of this curve was difficult with my fingernail profile bowl gouge, so I took a final cut using a smaller gouge with a steeper bevel (**photo 19**). Hollow the box part in the same way as you would hollow a bowl (**photo 20**), but remember to leave the step you cut in **photo 13**. You can then sand and polish the top of the base, again taking care with your fingers. I used my random orbital sander to sand the four edges (**photo 21**).

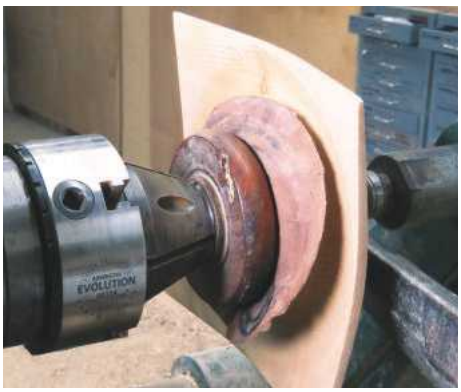
Making the lid

Mount the lid blank between centres with what will become the top of the lid nearest the tailstock. This mounting is simply to cut a chucking spigot (**photo 22**). Reverse the lid onto this spigot and use dividers to measure the diameter of the step in the box (**photo 23**), then transfer this measurement onto the lid (**photo 24**). Use a parting tool to cut a groove to the left of this mark (**photo 25**). You can now shape the underside of the lid with a bowl gouge. These cuts are the same as the ones used to shape the base (**photo 26**) and should leave the groove cut in **photo 25** proud of the rest of the lid, in effect making it a spigot. Offer the base up to this spigot to check the fitting. The base should fit over the spigot, making a good but not a tight fit. Hollow the spigot or underside of the lid (**photo 27**), then remove some of the waste from the top of the lid (**photo 28**). You can then sand and polish the lid's underside.

Reverse the lid and hold it on the spigot to allow you to finish shaping the top (**photo 29**) and turn a small handle in the middle (**photo 30**). You can then sand and polish the top of the lid (**photo 31**).

Finally, remount the base onto a dolly (**photo 32**), bringing the tailstock up to the pop mark made at step 6 to remove the chucking spigot (**photo 33**). You can then sand and polish the underside of the base.

31 Sand and polish the lid



32 Remount the base onto a dolly…

33 … to remove the chucking spigot

34 The completed square 'box' in beech

ME AND MY WORKSHOP

Ron Lawson

Ron Lawson is an avid pen turner who also likes to make all manner of wooden clocks from his bedroom workshop – we find out more about him here

Ron working on one of his wooden clocks

1. What is it – and where is it?
My bedroom at home.

2. What's the best thing about it?
It's where I keep all my projects. I get my inspiration when I wake up and can dream up new builds before I go to sleep.

3. And what's the worst?
I would like it to be bigger; my bed takes up too much room and I have to sleep among the sawdust.

4. How important is it to you?
Extremely important. It's my sanctuary from my six grandchildren.

5. What do you make in it?
I like to make pens, working wooden clocks, metal clocks, paper clocks and I've even made a matchstick clock.

6. What is your favourite workshop tip?
Never make one of anything; always make two and pick the best, then I have one spare in case I drop it under the bed!

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

8. If your workshop caught fire, what one thing would you rescue?
My paper clocks, which took years to make.

9. What's your biggest workshop mistake?
When my matchstick clock fell off the wall, because the driving weight was too heavy and I had to start again!

10. What's the nicest thing you've ever made?
I have made a pen using a piece of wood from the Battle of the Somme, which won a competition to commemorate the 100 year anniversary of the battle. The Duke of Edinburgh was presented with my pen.

11. And what's the worst?
A big wooden rabbit, which my grandchildren said looked like a kangaroo.

12. What's the best lesson you've learned?
Perseverance: try and try again but when the family say enough is enough, and that it's a load of rubbish, you should chuck it in the bin!

13. If you won the lottery, what would you buy for your workshop?
An extension and a CNC machine to cut my clock wheels.

NEXT MONTH

In the next issue, we go across the pond as we're shown around the workshop of retired American woodworker, Richard Knazek. 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**

BOLD & SCUPLTURAL

We speak to **Jason Mosseri** of Hopesprings Chairs about his fascinating journey from tattoo artist to Windsor chairmaker

Having attended the recent Westonbirt Woodworks show hosted by chairmaker and mastermind Paul Hayden, Phil Davy emailed me as soon as he returned to let me know how he'd met a great chairmaking talent, Jason Mosseri, who's journey to craftsman had a very interesting story behind it. Hearing how he previously worked as a tattoo artist immediately piqued my interest, and learning of his creativity really made me want to write a profile on him. Jason's workshop also happens to be situated in nearby Lewes, which made the whole process a lot easier. So I set about contacting Jason, asking if he'd like to be featured, and luckily he said yes. Working from his chairmaking workshop tucked away at the bottom of the garden, this small, timber-framed structure is certainly bright and inviting, and is where Jason makes all of his own unique designs using traditional green woodworking methods and materials.

Background

But where did the story start and how does one go from a career as a tattoo artist, working in one of the top studios in the south, to giving it all up to become a professional chairmaker? I was intrigued on many different levels. Jason starts by explaining that he's always been a maker of some sort or another, and he's always done some kind of woodwork. "If I think back to my boyhood, I used to make a lot of bows and arrows, model canoes and cut-out wooden rifles." This ingrained love of wood obviously stuck with Jason, subconsciously or otherwise, but it never faded away, rather being nourished in other ways, and the creativity never left. He says that his love of making things was very much encouraged by his parents and, as a result, this allowed him to flourish and making things in various forms continued throughout his childhood and into his adult life.

Continuing to chart the journey, Jason explains

Jason applying a finish to one of his chairs

A selection of chairs in Jason's workshop

that he only really felt like he discovered his own sense of inventiveness having left college and travelling to the chaos of India: "It was there that I started painting on a grand scale," he says, "and where I had my formative experiences with a sub-culture, namely the acid party scene."

Meeting a small group of like-minded individuals, Jason then found himself being part of a successful artists co-op called ZAG, which provided decor at clubs and parties throughout Europe in the early '90s. It wasn't until 1997, however, that Jason started tattooing in Brighton, East Sussex, immersing himself in a folk art that has its ancient roots in worldwide culture. "Folk art is a huge subject," he says, "and most subjects have a 'folk' history. As a tattooist, a decorative artist, I was always working with folk motifs; almost all tattooing is the repetitive use of simple symbol and motif, often with ancient origin." In 2003, Jason was invited to open a studio with tattoo legend, Alex Binnie. They had a great 13 years at 'Into You Brighton', also known as '1770 Tattoo', enjoying great notoriety and success, plus a lot of fun along the way.

It was during this time that Jason attended a chairmaking course with Paul Hayden at Westonbirt Arboretum. "I became hooked," says Jason, "and built a workshop in 2014, which is when I started making chairs by private commission." Last year, Jason made the decision to pack his tattoo machines away, get into the workshop, and try to forge a new direction with his woodwork. "My chairs are built wholly within a tradition, yet I hope embody both my creative history and artistic vision."

Looking at things now, Jason is trying to forge a successful business for himself, which is quite extraordinary given that he had no prior knowledge of the craft, purely a passion, but it just goes to show what's possible when you put your mind to it. Today, Jason not only makes a wide range of chairs, in a style that is very unique to him but also true to the Windsor tradition, but he also runs courses from woodland just outside Lewes, but more on that later…

'Pennsylvania' settee

Folk art & Windsor chairs

Going back to the notion of folk art, I was intrigued to learn how Jason's interest in worldwide culture influences what he does today. Jason replies that Windsor chairmaking has a totally 'folk' root, made by village craftsmen for use as everyday utile objects. Sometimes crude, but often very elegant. "In my opinion, the craft was taken to its height in the US, and I love all Windsor chairs but I'm particularly fond of American chairs." This influence is very much recognisable in his designs, even though Jason definitely manages to impart his own personal flair and edge.

I asked Jason about how and if green woodworking skills appealed to his artistic self in some way, and he replies that, for him, it's a natural transition from one form to another. "I've had my fill of tattooing for the time being, and I'm really interested in chairmaking and the skills involved. Chairmaking is something I've had going on the side for some years now. After the course with Paul, I was really taken by both the process and the finished item. I love chairs, and I love using a pole-lathe." I suppose, in some way, going back to using your hands to make things and relying on tools of old does appeal to all of us in one way or another, but unlike many, Jason has taken his love and really run with it, producing tangible objects which people love, and inspiring others to give it a go through shared knowledge.

While trying to delve further into a possible link between tattooing, which obviously involves a great deal of artistic expertise and concentration, and green woodworking, Jason brings up the point that if you're a maker, it all comes down to your hand and eye: "Specifically, where the tool touches the material. Whatever tool, whatever material. That's where you reside in the process, and that's the space which is so fascinating."

When I asked him about the training he took in order to learn the necessary skills to do what he now does professionally, Jason explains that he went on three of Paul's courses in total, over a period of seven years. Recently, he also travelled to Tennessee to make a chair under the guidance of master chairmaker, Curtis Buchanan. Obviously practice counts for a great deal, and that is how skills are built up over time. Taking all of this knowledge into account, Jason has managed to hone his skills to a high level, and passing these on through teaching must also help to reiterate and build on what he already knows. In a way, then, Jason is growing as he teaches.

Jason's workshop is light and airy and contains all of his chairmaking tools and equipment

Chair designs

Looking at Jason's chair designs, he seems to enjoy the play between light and dark and uses milk paints to darken specific areas, which certainly makes them stand out. Jason says that this technique owes a certain amount to silhouette and contrast: "It's quite sculptural, and there's a lot to play with." He further comments that the ideas of his designs sometimes spring out of his imagination or are inspired by strong shapes in architecture and design, or perhaps an idea comes from seeing another chairmaker's work, or finding an old catalogue or book. "The great thing about working within a tradition is that it's totally acceptable to copy, or try and be innovative, with something that a maker has done in the past. Many of today's chairmaking greats are really generous with their ideas and designs, but I'm always keen to try and be distinctive with my chairs: bold and sculptural is the path I choose."

Jason also says that he prefers to work to his designs rather than to commission, but remains open to the ideas of clients. For his chairs, he also prefers to use British hardwoods – "we've got a decent choice and I'm familiar with the species" – but sometimes it's a struggle to find what he's looking for in the size that he needs. So with this

'Scallop' armchair

'Welsh' armchair

'Facet' armchair


'Birdcage' armchair


'Continuous' rocker


'Flared' stool

in mind, "if there's a great American or French walnut board on the rack, I'll take it home!"

In terms of the inspiration behind his designs, Jason obviously looks to the work of chairmaking greats, such as Curtis Buchanan, previously mentioned, and John Brown, all of whom are in Jason's words, "true craftsmen." There are also many books that have inspired him, including *Cold Mountain*, which describes the old days when people were able to make most objects by hand.

Asking about the process of making a chair, Jason tells me that each one he creates is a journey, one that often starts with him spending a day in the woods, selecting freshly felled, quality logs of ash, oak, beech, or cherry. "These are then split to size using wedges before being fashioned into the components of the chair," he says. Legs, stretchers and posts are then turned on a pole-lathe before arms, spindles and crests are shaved to size. Bent parts are created by steaming, then clamping pieces to forms, and leaving them to set. "The most fun part of the process is carving the seat," says Jason. "The shape is cut from a single seasoned board: elm, oak, ash or chestnut. I like my seats to be strongly sculptural, generous, and deeply carved."

Finally, the chair is carefully assembled, with an emphasis on comfort and strength. "I like to finish my chairs with a dark milk paint that contrasts well with the wood's natural grain; this lends the chair a modern flavour and a strong silhouette. My chairs are an attractive addition to both contemporary and traditional spaces."

TRADE SECRETS
1. Don't rush
2. Don't hit anything too hard with a hammer
3. Tidy your workplace
4. Stop for a cuppa
5. If it's going well, work late
6. Sharpen, sharpen, sharpen!


'Flared' stool and 'Facet' armchair

Chairmaking workshop

Wanting to learn a bit more about Jason's chair-making workshop, he tells me that his favourite tool is the pole-lathe and at present, he is working on pieces for the Made London Craft and Design Show, specifically a 'continuous arm' rocking chair and a 'wedge' armchair, both of which are his own designs.

In terms of other equipment he uses, there's a bandsaw to rip material, to resaw, and to cut seat blanks. "I struggle with it," says Jason, "it cuts great in a straight line, but not on curves! Has anyone got any tips?! I often use a combination of hand brace and cordless drill, depending on the drill bits." As well as machinery, on display are all the usual hand tools associated with chairmaking, including adze, travisher, shavehorse, and drawknife, all of which are neatly organised.

Woodland courses

Moving on to talking about the courses Jason runs, he says that this is a new aspect of his business and a new vocation. "I'm sure they'll generate a significant income," he says, "but, more importantly, the courses are giving me an opportunity to share my skills and a unique environment. It's as close to a bodger's workplace as I can create: no electricity, no running water, kettle on the fire. I'm loving being outdoors all summer and it's a good opportunity for me to meet people."

At present, Jason runs a six-day chairmaking course, all set in ancient Sussex woodland, where students are taught the green woodworking skills needed to make a handsome and strong English Windsor chair. Jason teaches all the necessary skills, such as cleaving the log, using the pole-lathe to 'turn' these parts into legs and stretchers; making spindles using shavehorse and drawknife; steaming bows and crests; drying wood in the wood-fired kiln; carving a seat using adze and travisher, plus drilling mortises and turning tenons, before finally framing the chair.

"The three basic chairs that I teach," says Jason, "use all the above techniques, and are achievable with no previous experience." However, he also caters for students who are experienced and looking to hone and improve their skills, and in which case a more complicated design can be agreed upon before the course commences.

Future plans

Looking to the future, Jason says that in the short term, establishing a name for himself is very important, and he's going to concentrate on promoting his chairs to a wider audience. "I plan to do some collaborative builds with other makers next year and be a bit playful, as well as honing my own designs." Jason will also be attending more shows and developing his courses. In the long term, however, he says he'd like to take on an apprentice, but he knows he has a way to go just yet. Until then, he recognises that trying to keep an open mind and be open to whatever may develop is probably the best plan, so stay tuned!

FURTHER INFORMATION
Web: **www.hopespringschairs.com**
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The Buckingham has a maximum heat output of 6kW, featuring an air wash system, which helps keep the glass clean, and air control to alter burn rate and heat output.

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- Heat output up to 6kW
- Outlet size: 125mm – this stove requires a separate flue connector (090321145) to connect to 5in flue pipe
- Outlet at the top and rear
- Built to comply with the latest En13240 standards
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IN THE FIELD

Admiring a Victorian pigeon decoy in his possession, **Peter Bishop** decides to create a modern trio in chestnut and uses appropriate painting techniques to create an 'aged' effect

MATERIALS & TOOLS REQUIRED

Materials

- Chestnut but any medium weight wood will do

Tools

- Spokeshaves, rasps, carving chisels, sanders & a bandsaw
- The decoys shown in this article took me around 12 hours plus cumulative to make, so allow half a day for each

This is a bit of fun. The history of making hunting bird decoys goes back many years and the Victorians made them for anything feathered that moved! I suspect that the peak of wooden pigeon decoy manufacture was around the middle of the last century. Any from this period are highly prized for a couple of reasons. The first is the obvious one – woodworm and rot will have taken their toll – and the second, created by this, is their scarcity. The one I used as a template is in near perfect, original condition and is believed to be from 1950. Its value is around the £200 mark.

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

Templates & choosing your wood

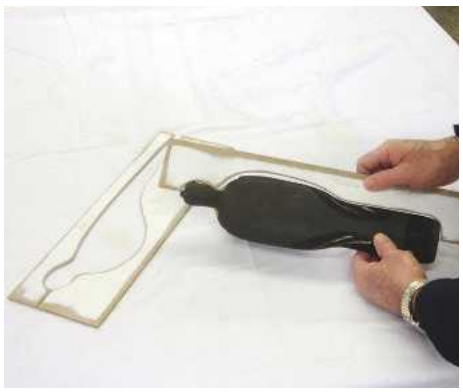
Now I'm not setting out to deceive by making replicas of my original but, frankly, I've always fancied having a go at making one, or some, myself. So here we go. The very first thing to do is to produce some templates using the original, from which the new decoys can be made (**photo 1**). I used some gash bits of 4mm MDF to create a top and bottom profile (**photo 3**), and one side profile that could be used either way.

The wood of choice is chestnut but any other medium to medium light wood will do. The main criteria is that it needs to be easily worked and finished. The basic blank for my pigeon was a 100mm square. I only had some 75mm stuff so made a length up from this that would easily

yield two blanks. Once the glue had set, I cut the two blanks out and then realised I had enough for a third if I stuck some of the offcuts together. With the basics ready, profiles were marked top and bottom and then cut out on the bandsaw (**photo 4**). The two sides followed and I then had three blanks ready for the final shaping (**photo 5**). This is the tricky bit and I was not looking forward to it!

Shaping the decoys

The shape of the tail section was handy; I could clamp this tightly in the vice so that I could work on the main body contours. I used straight and curved spokeshaves along with my mini, brass, convex spokeshave to get the worst of the stuff off (**photo 8**). This warms you up, which was good considering it was middle winter in my very cold workshop! The fiddly bit around the neck had to

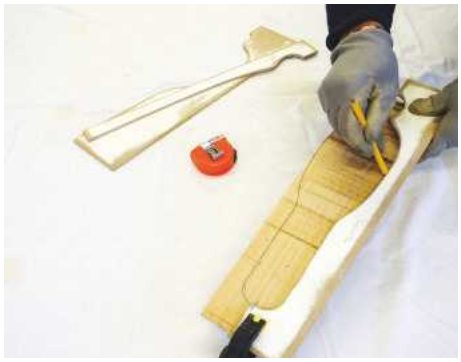


1 The first task is to make some simple templates from the original decoy

2 These are the odd bits left over from the first blanks being glued up for the third pigeon

3 Top and bottom profiles are marked first...

4 … then they are cut out on the bandsaw



5 The side profiles are both marked…

6 … and the waste cut away again

7 Now we have the rough blanks ready for final shaping

8 Most of the shaping is done with a spokeshave

be completed with a round spokeshave, trying not to make too many deep grooves. The beauty of these period decoys is that they are not made with a super fine finish because, after all, they will be painted and used 'in the field'.

Once I was happy with the overall shape of each bird, I then needed to add some wings (**photo 10**). To do this I simply marked a curved shape on each side, cut a line along this with a chisel and then pared the waste away (**photo 11**). Extra waste was cut away under the wing to create the bulge and overhang. Next, into each head I drilled a 6mm hole with a little relief countersinking. This was positioned somewhere near the middle of the front of the head, wherever I thought the beak should appear. I cut some oversize squares from the gash stuff. With a matching hole in a small piece of waste, I then trimmed down the shafts to fit. Once happy with that I then cut off the excess, all the while shaping the beak as I went. They all came out slightly different, which was ideal, as they were all unique (**photo 13**). Each beak was glued in with expanding PU adhesive (**photo 14**), taped firmly in place, then left to set.

Making the stands

I'd drilled a central hole underneath each bird. This is where a stick would be inserted so that the decoy could be placed ready for use. I intended to use this hole to loosely fix each pigeon to a stand. I had some sapele-faced 18mm MDF, which I shaped and moulded for the three stands. To make the stands look 'old', I first sprayed each with some black acrylic undercoat paint. A couple of coats of this did the job and then I over-sprayed with a dark green. Once all the paint had dried and hardened, I lightly cut it back in places, exposing some of the black. With the shafts in place, I then polished each stand using a mahogany wax. Apart from a bit of baize on the bottom they were now ready, so back to the birds themselves.

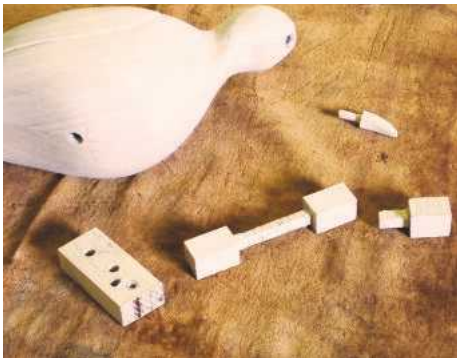
Painting the decoys

Now for the paint job! Decoys don't have to look exactly like a real bird – after all, they're meant to fool a real one into coming closer and, possibly, landing. For hunting, a pigeon decoy will display flashes of white at the collar, some on the wings along with black, and a black-tipped tail. As long as these colours are in the right place, the job's a good 'un.

9 The three stages of shaping

10 Marking on the line of the wing detail carved in each side

11 A simple job with a sharp chisel



12 The beaks are added on and made from some simple blanks

13 Each bird and beak is unique

14 A bit like animal hospital! The beaks are fixed with polyurethane glue

However, being the fussy begger I am, I decided to adopt the age-old technique that I've used on rocking horses. You start with a can of white and a can of black paint. Anything will do as long as it's compatible. You need another lidded container to mix your paint in. I started out with a base coat made from more white than black, very light grey, and painted the birds all over (**photo 15**). Adding black a bit at a time, I then darkened each following coat picking out the detail. Once these darkening layers of grey had been applied, some black was used on the tips and edges. The breasts of the pigeons needed to be a light shade of pinkish grey. I mixed some pink and a bit of my special blend until the right colour appeared. This was painted on and 'stippled', with an old rag, to soften the edges. Now I needed some white for the wings and collars and a little iridescent bluey green for the back of the neck. Fine detail on the beaks was required to finish off. The whole process took a number of days, allowing each coat to dry. Nearly there.

Once the paint job was finished the pigeons looked OK but were very 'fresh' and glossy. A simple solution to this, and to create an 'aged' effect, was to roughly cut back the surface and edges with steel wool (**photo 16**). As long as you don't cut back to the wood too much you'll not do any harm. You can put some knocks and dents in the surface to simulate the birds being chucked in a bag at the end of the day, and even make some false worm holes if you wish. I did consider shooting them, with a shotgun, at distance, but decided that was a step too far!

In the meantime I'd ordered some dark centred, light amber glass eyes online. I bought a bag of 5mm ones for no money at all; they came from China. The eye is mounted on a wire shaft (**photo 17**) – in this case that shaft was 1mm in diameter and I'd only got a 1.5mm drill bit. To overcome this, once I'd decided where they would go, I bent the shaft in several places to make sure it touched the sides of the holes. A bit of CA adhesive then the job was done. Back home I mounted the 'old' birds on the stands I'd made and was pretty happy with my efforts. I guess the ultimate test is to stick them out in a field and see if they work, but I think I'll leave that for another day.

15 The first base coat of light grey is applied

16 After building up and finishing the paint job, it's cut back to 'age' the pigeons

17 The glass eyes have small, wire shafts and these need bending to fit

18 The eyes can be a little fragile until they're in place, so best make sure you have some spares!

19 The completed pigeon trio on their stands

AROUND THE HOUSE WITH PHIL DAVY

Choosing architectural hardware and cabinet fittings can be tricky if you rely just on browsing through catalogues or the internet. Unless you know exactly what you want in terms of colour or finish, not to mention style, you really need to examine such items at close quarters. Fortunately, there's still an excellent specialist supplier in Bath, not too far for me to travel. They may not be the cheapest, but when you need a specific fitting (in this case cabinet knobs) you can't beat seeing them on display. What surprised me on a recent visit, though, was a selection of beautiful brass butt hinges for doors. Each leaf was intricately engraved in a choice of patterns. Probably not appropriate for your average door, though, at well over £150 per pair! It would be a challenge to dream up a suitable joinery project (if budget was not a consideration) that included such hardware

Q & A:
CHISEL CHOICE

Q: I'm hoping to set up a workshop for making toys and would like some advice on buying chisels, please. What brands would you recommend? And is it better to use a wetstone grinder or a diamond stone when it comes to sharpening?
P Larkin, via email

A: You don't say whether you intend using machinery, though I'd guess you'll be using a few power tools. To get started, I suggest a basic set of bevel edge chisels to include blade widths of 6mm, 10mm, 13mm, 19mm and maybe 25mm. These are often available in sets, which saves money. Firmer chisels (square section blades) are stronger, though few manufacturers make them these days, an exception being Henry Taylor. Bevel edge chisels contain less steel (both upper edges are bevelled) and are less substantial as a result. These are more than adequate for most work and perfect for dovetails, though don't try chopping mortises with them as their finer blades are liable to snap. You'll probably need a mallet for striking, though this is easy enough to make.

If buying new chisels you have a choice between plastic (polypropylene or polycarbonate) and hardwood handles. Plastic handles will take more abuse, though avoid using a hammer on any chisel, unless it has a steel striking cap at the end. Hardwood handles come in variety of styles, so choose one that's comfortable.

Recommended mid-price brands are Narex and Kirschen, while slightly more expensive are Henry Taylor, Ashley Iles and Robert Sorby, which all have hardwood handles. For plastic-handled chisels, Bahco, Irwin/Marples

If you want to save a few pounds, it's worth tracking down a specialist that sells secondhand woodworking kit

or Stanley are generally a safe bet, while Axminster's own brand chisels are good value.

If you want the very best chisels, American/Canadian brands such as Lie-Nielsen and Veritas are worth considering, but these are pricey. Avoid buying chisels from cheap high street outlets as the steel is likely to be of poor quality, meaning they won't retain their edge for long. You're best buying from a reputable hardware store or tool specialist such as Axminster Tools & Machinery, Classic Hand Tools, Workshop Heaven, Tool Nut or Johnson Tools.

If you want to save a few pounds, it's worth tracking down a specialist that sells secondhand woodworking kit. Visit a local crafts or outdoor forestry show and you'll probably find a dealer with an assortment of tools for sale. These will tend to have hardwood handles and you'll be able to pick up chisels for a few pounds. Steel quality tends to be better in old tools than in modern, mass-produced items, so you'll retain sharp cutting edges for longer.

Sharpening system

A vertical wetstone grinder is fantastic for reshaping damaged edges of chisels or plane blades, but is not essential for sharpening. Water washes away steel particles from the aluminium oxide wheel and ensures the blade edge doesn't overheat. Tormek and Scheppach machines are also fitted with leather honing wheels that can be used with an abrasive paste for getting a fine edge.

A diamond stone system is an efficient method of keeping tools sharp. I'd choose a Trend (or similar) 200mm double-sided stone, consisting of medium and fine surfaces (300 and 1,000 grit). It's best to use lapping fluid rather than water to prevent tools rusting and the stone itself clogging up. To maintain the correct angle when sharpening your chisels I'd recommend a honing gauge, no matter what stone you use.

USEFUL KIT/PRODUCT: ALFIE SHINE POLISHING KIT

The lustre of a wax finish over appropriately oiled or bare hardwood is hard to beat for many projects. Depending on the amount of elbow grease and constituents of the wax itself, it's possible to build up quite a deep shine. And although not particularly hardwearing, a wax finish is easy to maintain. However, there are numerous products to choose from, many of which look similar but can be quite different by way of ingredients. Alfie Shine is a relative newcomer to the market, made by Workshop Heaven to a traditional recipe entirely with natural ingredients, some of which are sourced from the Middle East. For those interested in detail, Alfie Shine consists of beeswax, carnauba wax, copal, olive oil, frankincense, myrrh, clove and cinnamon oils. Unlike many paste waxes, it contains no solvents, toluene, turpentine or silicone. Paste waxes tend to be easier to apply but often contain solvents to help bulk out the tin. Alfie Shine is a clear, hard wax with a similar consistency to shoe polish.

Kit box

Packed in a cardboard tube, this kit includes two 60ml tins of wax, a pure bristle brush, plus a natural fibre polishing cloth. It's unclear whether the cloth should be used for applying the wax or buffing the finish, though it doesn't matter much. Likewise the brush which could be used at either stage, though it's suggested for getting the wax into intricate areas. If you prefer to use brushes for both waxing and buffing, it's probably worth buying a cheap shoe brush as an extra. Admittedly, I tend to use fine steel wool when applying wax, though this is not a good idea with oak.

The wax itself smells wonderful, which is always a good sign, and I tried adding it initially with the cloth provided. This is lint-free unbleached cotton and can be washed when necessary. For mouldings and similar intricate areas the brush is handy, though you may want to keep this for buffing. If you're after a rapid finish, it's probably best to give Alfie Shine a miss, though. Workshop Heaven recommend you leave the wax for a couple of days to harden before applying the next coat.

Conclusion

It's simple enough to achieve a lovely sheen with Alfie Shine, even on bare wood. You'll need two or three applications at least, depending on the level of lustre you want, so be prepared for a few days drying in between. You can buy each item separately, although I reckon the two tins of wax included here will last most woodies a long time.

With the festive season looming the outer tube could be mistaken for a bottle of something warming, especially if wrapped! But that's appropriate, given that Alfie Shine contains frankincense and myrrh. And the name? Apparently it was inspired by creator Jim Hendrix' workshop dog…

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For mouldings and similar intricate areas the brush is handy, though you may want to keep this for buffing

SPECIFICATION

Polishing kit contents:

- 2 × 60ml tins of Alfie Shine Hard Wax Polish
- Alfie Shine Pure Bristle Brush
- Alfie Shine Polishing Cloth

Typical price: £24.90
Web: www.workshopheaven.com

THE VERDICT

PROS

- All natural ingredients

CONS

- Not cheap, but worth the expense

RATING: 5 out of **5**

WINTER PROJECT
LOG TOTE

Takes: One weekend
Tools you'll need: Mitre saw or handsaw, biscuit jointer, jigsaw, sander, drillstand, drill/driver, bench planes

LOGGING ON

Phil Davy shows you how to build a tote to carry logs from the pile to the fireplace

Spending a few days at a beautiful Cornish farmhouse B&B a few months ago, the roaring woodburner was a particularly welcoming feature when arriving on a cold, damp autumn afternoon. I was amused the next morning to find the owner had parked a wheelbarrow full of logs in front of the huge fireplace, having wheeled it across the pristine beige carpet. This got me thinking of an alternative way to carry logs without bringing in mud from outdoors. Although my log tote may not be able to compete with a wheelbarrow in terms of capacity, it's easy to make and use.

Of course, you can build it any size and virtually any softwood will do the job, so it's a good time to use up those offcuts. Hardwood would be more durable, though this would add to the weight. When loaded up with logs the tote is heavy enough, though it's pretty sturdy at the same time. Overall dimensions of this tote are 450mm long × 380mm deep × 400mm high.

I had several odds and ends left from previous projects, so used 100 × 25mm PAR softwood for the lower sides, 50 × 25mm for the upper rails and 75 × 25mm for the ends. The tapered sides were cut from 200 × 25mm stock, tapering at 82°. These should not be glued to the lower box, but simply screwed to allow for wood movement. I used plated, countersunk 4 × 30mm screws for this stage.

Broom handle

A length of 24mm broom handle was perfect for the hand grip, protruding 5mm at each end from the sides. It's best to drill the 24mm holes in the tapered sides with a stand-mounted drill, as you'll have trouble sliding the handle across if these are slightly out of alignment. You will probably need to sand down the handle slightly to enable it to slide through cleanly.

Although the base is made from 15mm-thick slats, it would be quicker to fit a ply or MDF base. I just think slats look better, even though they'll be hidden by logs most of the time. You could always drop in a loose 6mm MDF base to prevent debris falling off the logs onto the floor.

You may find it easier to use pocket-hole screws for the joints. I'd run out of the smaller size 0 biscuits, while size 10 are slightly too long for 45mm-wide timber. To get around the problem I was forced to use size 10 biscuits, cutting off the excess with a fine-tooth saw once the glue had dried. This meant filling the exposed ends of the slots before painting, but a project such as this is not exactly a piece of fine furniture, so it's quite acceptable.

To finish the tote I brushed on two coats of General Finishes Milk Paints in Autumn Haze, which does not require a primer. If storing the box outdoors, add a coat of suitable exterior satin varnish if using these paints.

1 To get some idea of the overall size for the tote, measure across a couple of suitably sized logs

2 Cut timber to length for the sides and ends. Allow an extra 2mm on each side piece

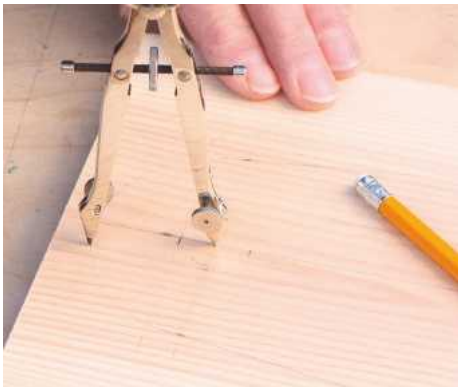
3 Mark out positions for biscuits on the side and end components. Cut the slots for No.20 biscuits

4 Sand inner faces of the sides and ends. Spread the biscuits with PVA glue and insert them into the slots

5 Assemble the box and add cramps across the ends. Check for square and adjust if necessary

6 When the glue has dried, trim the excess end-grain carefully with a bench plane

7 Draw around a suitable object to find a pleasing radius to shape the top edges of each side

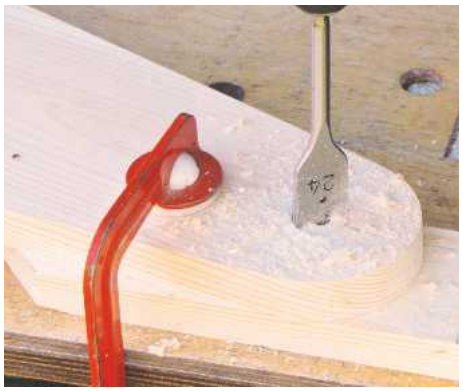


8 Mark out both tapered side pieces, using a compass at the top. The radius for this arc is 40mm

9 Cut out the tapered sides carefully using a jigsaw. Alternatively, do this with a bandsaw

10 Cramp both sides together and grip them in the bench jaws. Plane down to the pencil lines

11 With the sides still held together, shape the top curve using a sanding drum mounted in a drill



12 Drill holes for the handle using a 24mm flatbit. Check the fit by drilling an offcut first

13 Hold the tapered sides against the box and mark centrally to determine the inside screw positions

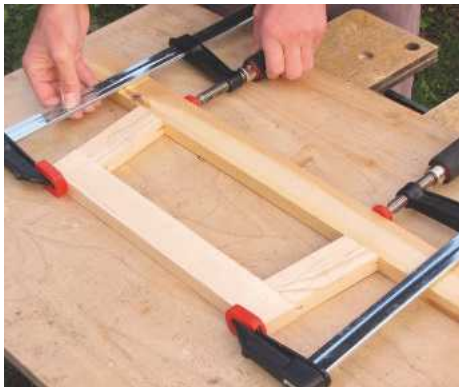
14 Saw the base slats so they are a snug fit in the box. Lightly sand the arrises before fixing

15 Each slat is glued and nailed in place. Drill pilot holes to prevent the wood from splitting

16 The two outer slats are butted up against the ends. Glue and cramp in place before nailing

17 Set a sliding bevel to the angle formed by the taper. Upper side components are cut to match

18 Cut the rails that make up the upper sides. These are butt jointed together with biscuits



19 Cut biscuit slots and glue together the top rails and supports. Shape the ends when dry

20 Cut matching slots in the top edges of the lower sides, then glue the upper rails to the lower box

21 Cramp the tapered sides to the lower box to keep everything aligned while the glue dries

22 Screw the tapered side pieces to the inner rails and box from the inside. Don't glue these, though

23 Slide the handle through the holes. Drill pilot holes at each end and fix with lost-head nails

24 Fill any holes and sand the box. Brush on a couple of coats of varnish or a suitable paint

BORING...

... and how to avoid it

I don't like parties. I don't think many people do. I say that because, standing there with a glass in one hand and a plate in the other, no free hand with which to eat the food, I ask them. Maybe I contaminate them with my pessimism. Perhaps it's the parties I go to. I've solved this puzzle: I now don't go to any.

I dislike small talk. I dislike icebreakers more. You do your best to pluck something mildly witty out of the air and deliver it with a respectful nonchalance. One-in-three people responds well, accepting the rules of the game, and kindly bats back with a quip of their own. One-in-three responds like an old car on a cold wet morning: combustion is possible, but it takes some finding. One-in-three talks freely and easily, usually about themselves non-stop for 45 minutes. One-in-three is not good odds. Saying 'Hello' is a high risk strategy.

Blunt & clumsy

I dislike the question 'What do you do?' People sometimes ask me and I'm not sure what to say. I do lots of things: which ones would you like to know about? I know what they mean. 'What do you do for a living?' is a universal, benign beginning to a conversation, so fair enough: it's better than nothing. But it's a bit blunt and clumsy. A lot more interesting would be 'What do you do when you're not working?' Take care not to blur the lines of propriety. The far more interesting question, 'What do you want to do?' or 'What do you do for fun?' could backfire.

A woman came up to me with a nicely upbeat demeanour and said 'Hello', and 'What do you do?' At that time I was digging out drains, and raking interminable yards of pointing: I was building. Many people think that builders are as subtle as the way they wear their trousers; that they're one-up from navvies and gorillas. There's always a place for brute force, but most of the energy I expended was in thinking. Building is a taxing occupation. 'I'm a builder' I said. She turned round, walked away and didn't come back. It wasn't my breath: there wasn't time for that.

People who half-know me might say 'You're a carpenter aren't you?' only half-knowing what the term denotes. Do I swing around on roofs with a hammer on my belt and a saw between my teeth, making structures as clever as skeletons? No. I'm not that good. I can't say that, though. They might as easily be meaning a joiner; but no I don't make windows or doors. I'm not that organised. I cut through any confusion and say that I'm a furniture-maker.

'What sort of furniture do you make?' normally comes next. 'All sorts' I say. Bad move. Cul-de-sac. 'Whatever the customer wants' I quickly add, but that doesn't help either. 'What's your favourite wood to work with?' isn't far away. I say 'oak', but already I'm getting bored. I don't want to talk about oak. 'English hardwoods', and often that's the end of it. I don't want to get all technical and watch my companion glaze over, then start looking over my shoulder and around the room. Less still do I want to glaze over myself and there is a real danger of that as I've heard all this many times before.

Deglazing

Any 'specialist' will be fascinating for the first five minutes, but that's probably enough. That includes you. The more assiduously you read this magazine; chase up YouTube; visit exhibitions and talk for hours with your mates about rebates, troughs and haunches without referring to tax, restaurants and persons of the opposite attraction, the worse you will become.

Get up! Get out! Do something else that has nothing to do with squares and bevels and grits. Diversify! Move sideways to where you weren't expecting. Take an interest in things that aren't yours and never will be. One of these will be the person before you. 'Woodwork' is all you have to say. 'And you?'

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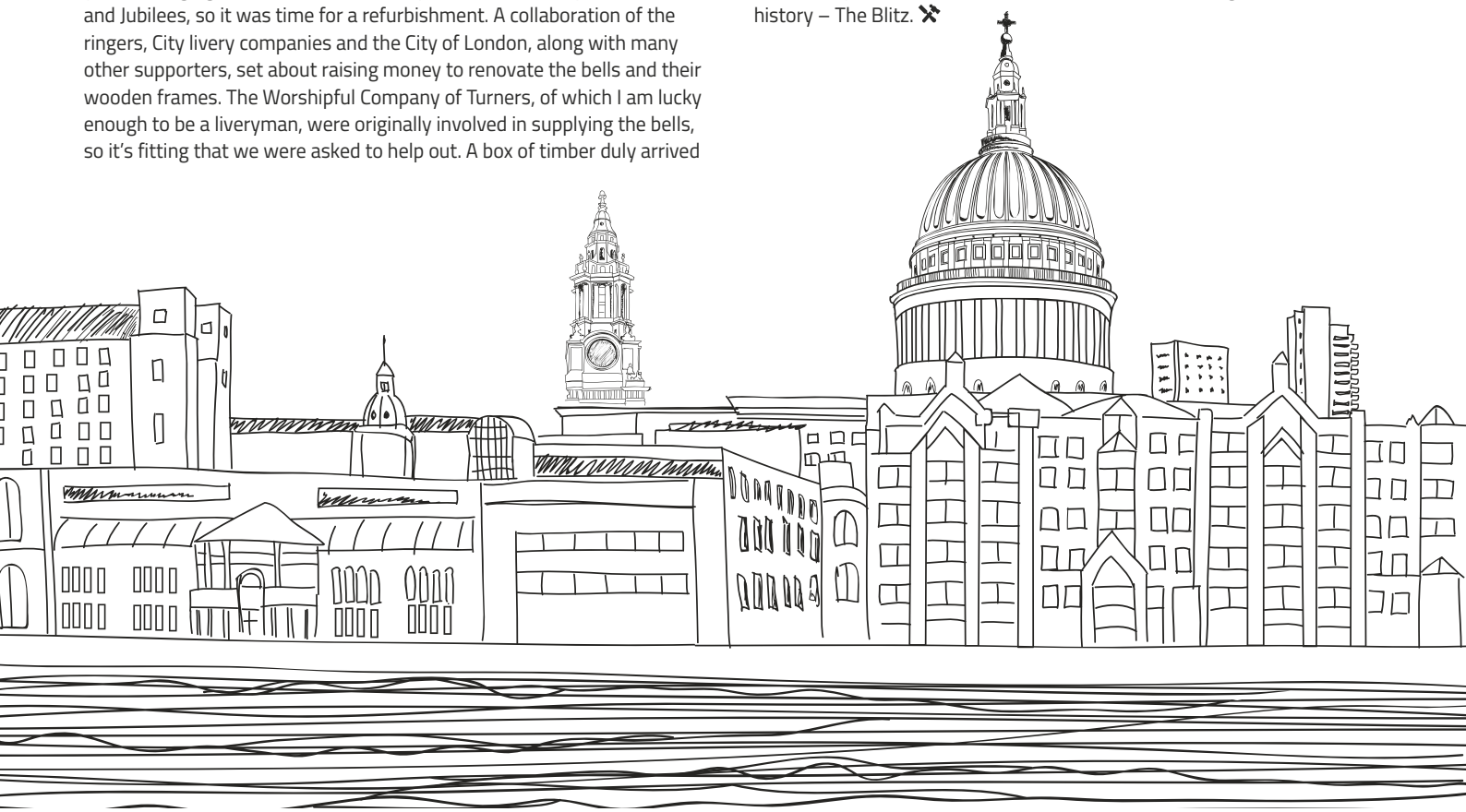
THE BELLS OF ST PAUL'S

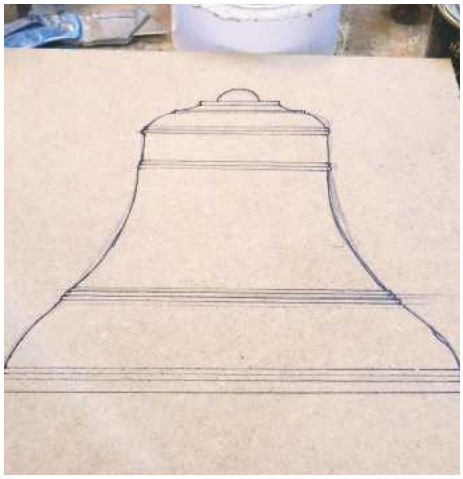
Presented with pieces of timber salvaged from headstocks and supports found in St Paul's Cathedral's bell tower, **Les Thorne** sets about turning his own decorated versions for sale and charity

As a woodturner I'm involved in a variety of different projects, one of the latest examples being the bells shown here. Around 20 registered professional turners have volunteered to make some of these decorative wooden versions and the 12 bronze bells have hung in St Paul's Cathedral's north west tower since 1878: 140 years of ringing out for Coronations, Royal births, Lord Mayor's Shows and Jubilees, so it was time for a refurbishment. A collaboration of the ringers, City livery companies and the City of London, along with many other supporters, set about raising money to renovate the bells and their wooden frames. The Worshipful Company of Turners, of which I am lucky enough to be a liveryman, were originally involved in supplying the bells, so it's fitting that we were asked to help out. A box of timber duly arrived ready for me to turn, and the decorative bells made using it are to be offered for sale: firstly at an event in the City in November and then in the St Paul's Cathedral gift shop. The timber has come from the headstocks and supports that have witnessed many events taking place below them over the years; it's a sobering thought to realise that the black stains on the timber may have been a result of the darkest time during London's recent history – The Blitz.



1 The blackened timbers found in St Paul's Cathedral bell tower were made from English elm and iroko. The numbers on them denote the number of the bell they came from

2 I had to carefully cut the blocks in order to get the most from the timber; all the small offcuts will be used for craft items such as pens. Luckily all the metal had been removed as there were some big holes in the timber



3 I started by drawing out the shape of the bell on a piece of MDF; this was very much a rough idea of the design that I was after, but I wanted to keep the pieces as close to the original as possible

4 I mounted the first iroko blank in the chuck so it was ready for hollowing. You do need to wear a dust mask when working this timber as it can be quite an irritant

5 Drilling is something that some turners can often have problems with. I always make a small indentation with the gouge to ensure the point of the drill will start in the right place

6 I drilled a hole down the centre to the required depth; this will also remove the slow turning wood. I prefer to use a large twist drill for this purpose as a Forstner bit will leave a flat hole

7 This photo shows the perfect angle of presentation when cleaning across the end-grain. The bevel of the tool is at right angles to the face and is in contact with the wood at all times

8 Hollowing is started using the signature spindle gouge. The flute of the tool is pointing to around 11 o'clock; the secret of this cut is to feel the blade of the tool pivoting on the toolrest

9 Experience helps at this point as I didn't want to take too much from the inside and thus make the outside difficult to turn, so I alternated between the two: trying to gauge the right amount to remove at a time

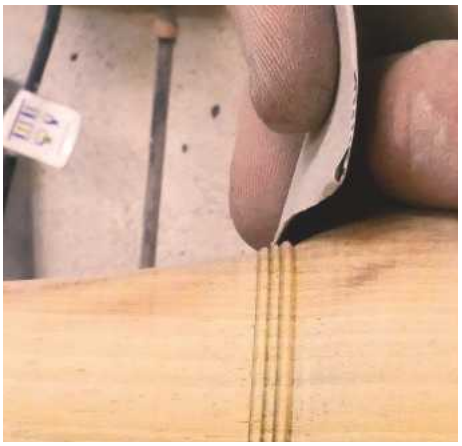
10 These small beads are a great detail on the original bell and they are something that I am going to use in future turnings. I could have successfully used a bead-forming tool on the iroko but went with cutting the beads using the point of a skew

11 When working end-grain, the options are to either scrape the wood out with the grain, which requires a pull cut, or to work against the grain with a push cut. This cut has the bevel of the tool in contact with the surface and gives a good finish

12 As I went deeper into the work I recognised that vibration may become an issue, so it was time to switch to a specialist hollowing tool, such as the Simon Hope carbide one used here. The small cutter and large diameter bar allows me to rip the timber out easily

13 The beads are raised from the surface so I will need to cut away the timber between the details. The gouge is used with the bevel rubbing; this cut needs to be worked downhill, slowing down when nearing the beads to ensure not too much is cut away

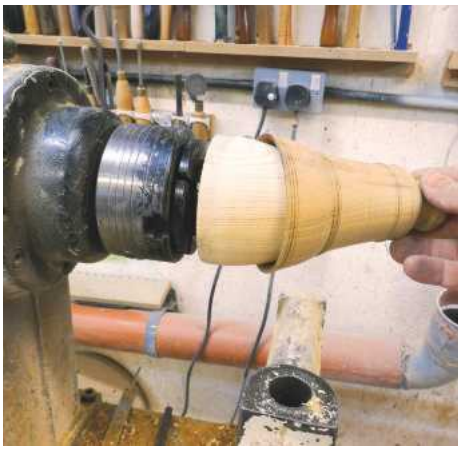
14 Once happy with the inside and outside shape, I could start cutting away the waste at the chuck end. The top will be finished when I remount the piece the other way round



15 The inside and outside needs to be sanded to a finish at this stage. As it is a little thinner, fine detail such as the beads are sanded with a good quality paper-backed abrasive rather than the normal woodturner's cloths

16 I didn't want a hole all the way through the piece so I had to come up with a way of holding the clanger in place. The first stage was to drill a 10mm hole in the inside; it didn't have to be too deep – around 15mm would be perfect

17 A new product recently introduced are these abrasive waxes from Chestnut Products. You sand down to around 240 grit and then use the wax; it does give the wood a silky finish



18 The best method of remounting the bell to turn the top did take a little thought. My options were to hold the outside or mounted over a male jam chuck. I decided on the latter, so I turned a piece of pine to roughly match the profile of the inside shape

19 The tailstock had to be left in place for support the whole time. I took longer to decide on what shape I wanted here because I was now working away from the original bell. A sealer and a wax were used to finish the piece

20 The second iroko bell was turned in the same way, but I decided to add a little texture to the piece. The ball cutter from Henry Taylor's Decorating Elf works perfectly in the Proxxon mini drill

21 To get close to the small beads I changed to a small grinding burr. I textured the whole surface trying not to leave any flats; these would be created by sanding later in the process

22 Whenever you do any texturing you are likely to end up with fluffy bits that need removing. A drill-mounted brass or plastic brush is often required, but on this timber, I could get away with just using a brass liming brush

23 After giving the timber a coating of acrylic sanding sealer, I sprayed the whole of the outside with ebonising lacquer. I was careful not to get any of the black inside the bell

24 Sanding the outside of the piece allowed me to remove the paint on the high points. I made sure the paint was very dry – it's best to leave the piece overnight if possible

25 I applied water-based brown stain to the outside of the piece. Because the stain is translucent it will not show up on the black, which means it will only stain the exposed natural wood

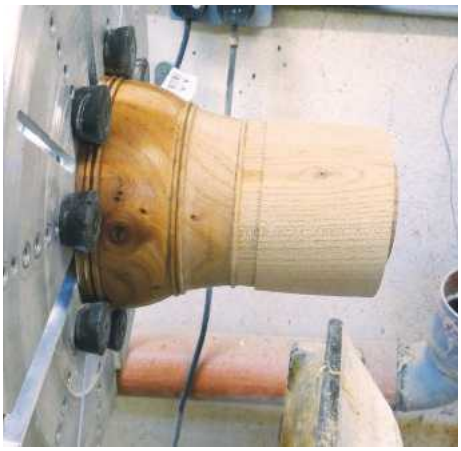
26 This bell was slightly smaller in diameter than the first one, so I remounted it by holding it in large Axminster Gripper Jaws. The sharp edge on the rim of the bell fitted perfectly in the groove of the jaws

27 Last but not least was the elm bell. To achieve the size, I needed to make it in two pieces. I cut the timber off to ensure it was the right size, so the join would be hidden by a bead detail on the outside of the bell

28 Next, I mounted the top section in the chuck and hollowed it out, sanded and finished it. I then turned a small 3mm long spigot that would be just sufficient to achieve a strong glue joint

29 The bottom section could now be turned. I finished each section as I went along as I was unsure how strong the bell would be as the shaping progressed. The faults in the timber made cutting the small beads a little problematic, but I just about got away with it

30 Luckily for me I had these bowl reversing jaws, which enabled me to remount the bottom section. The piece was hollow so I had to work away the timber with small cuts from the signature gouge



31 I had to get a tight fit because even though the joint is hidden on the outside, it will still be seen on the inside. Once I was happy with the fit and the grain alignment, I stuck the sections together using wood glue

32 Here you can see the joint on the inside, so I carefully cut a groove with the point of a skew chisel; this accentuates the join rather than hiding it. The bell was strong enough to allow me to give it the cut and polish treatment

33 To keep the pieces as authentic as possible, I didn't go for the obvious round ball clanger. The original bells have a thistle-shaped hammer. I held a piece of iroko in the chuck and turned it to shape

34 Next, I drilled a stepped hole, firstly with a 3mm drill all the way through and then with a 5mm drill halfway through. This allowed me to hide the knot inside the wood

35 The clanger was now finished and ready to be glued into the inside of the bell. I turned a 10mm dowel in which I glued the cord; this was then fixed into the 10mm hole drilled in each of the bells

36 The completed bells in English elm and iroko

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SHARPENING: SETTING SAFELY & EFFECTIVELY

As **Peter Bishop** says, if you're planing, sawing, drilling or using a router, then, at some point, you'll need to sharpen or touch up a cutting edge. Follow his tips here to ensure you get the best out of your tools

If you are planing, sawing, drilling or using a router, then, at some point, you will need to sharpen or touch up a cutting edge. Depending on the type of edge to be sharpened, you'll probably need a range of files, stones and a grinding wheel. The files will be specific to the job but a set of additional small ones will come in handy. 'Stones' are used to hone the final edge and grinders to create the basic angles. Various options and sizes are available and the smaller ones tend to be called 'slip' stones.

Oilstones

Originally from a natural 'Arkansas' stone, these can be man-made from silicone carbide or aluminium oxide. These are probably the most common of the stones found in workshops. The range of grit size is quite good and they are available as individual stones. A favourite trick is to have two bonded together in, say, fine and medium or medium and coarse combinations. Some smaller slipstones are available in flat form or specifically shaped cutter sharpening.

1 My double-sided oilstone in a wooden case with a plastic container to retain any oil seepage

Waterstones

A waterstone should be soaked before use and never have oil applied to it. These can be made from both natural and synthetic materials and have an extremely large range of grit sizes. They work and cut quickly. The smaller grit sizes can produce the finest finish.

Diamond stones

These are quite expensive but will last for a long time. Extremely hard, they are easily capable of sharpening TCT – tungsten carbide tipped – router cutters and are therefore very useful. The cutting surface is made up in a grid or chequered pattern and is bonded to a plastic base. They can be purchased with a wide range of grit sizes and used in the same way as other stones. In addition to this, small individually shaped diamond stones are available for profiled cutters.

Dry stone grinders

Probably the most common dry stone grinders can be single- or doubled-ended and take wheels made from various abrasive materials. Ideally, with a double-ended machine, you may wish to have a coarse, quick cutting wheel on the one end and a finer wheel on the other. Care needs to be taken when using these wheels because they can easily overheat the cutting edge. If this happens, its ability to keep an edge or resist chipping may be affected. If you are not careful, the face of the wheel can become rounded and that's no good for straight grinding. The wheels can be straightened using a 'star' dressing tool. The tool dresses the surface of the wheel, moving it from side to side, and restores the flat surface. It will cut some of the wheel away reducing its size, but also get rid of anything that might have clogged the surface.

Using the bench grinder to sharpen a simple drill bit

Wet stone grinders

One of these will eradicate the problem with overheating the cutting edge. Wheels are mounted vertically or horizontally; they run in a trough of water or have a drip feed from above. The surface of the wheel is continuously drenched with water, thus keeping the wheel cool. The grit range is wide and quite fine and some tools can be used directly after without further honing.

Combination machines are available. These have a dry stone wheel at one end and a waterstone wheel at the other. This is an ideal way to get the best of both worlds. For most grinders there will be a range of additional fittings that can be added to help with the process. Some will be suitable for narrow blades and simply hold the tool at the correct angle. Grinding wider edges sometimes causes problems; it's difficult to keep them straight. If you are not confident enough to do it, then attachments are available to help with this. On a note of safety, always ensure to wear safety glasses, goggles or a face shield when using a grinder.

Sharpening drill bits

Drill bits are often damaged; this sometimes happens when they get dropped or driven into a nail. In a lot of cases, a set of small files will

2 Japanese combination waterstones from Axminster Tools & Machinery

3 A couple of small diamond sharpening tools

4 Double-ended bench grinder with rough and finishing wheels

5 My Tormek wet grinder with leather strop wheel for finishing

probably be more than sufficient to restore an edge. You'll probably need a range of sizes and cuts. Coarse cuts will be needed when a large imperfection has to be filed out and fine for touching up. You might find that some of the small diamond stones will also be useful, especially for sharpening any bits with wings.

Auger and spur bits should be sharpened from the original angles. This will have to be done by hand unless you have a special wheel for your grinder. Some of the adapted dowel bits can be sharpened quite simply on a grinding wheel, providing you have a square corner to fit. Forstner bits are sometimes problematic. Getting the right curve to the edge on the inside is difficult unless you have a cone-shaped grinding wheel. Fortunately most of these can be taken apart making the different edges easier to sharpen. Flat bits are reasonably simple to do and can easily be sharpened on a grinder provided you maintain the original angles. Remember to provide some clearance to the side cutting edge; this will ensure they don't burn during use.

Engineer's twist bits are always breaking, especially the small ones, and will be thrown away or re-ground if long enough. The recommended cutting angle is 59° and this can easily be reproduced. As you grind the end, turn it away from the wheel to provide some clearance. If you wish to play around with the cutting angle, then do so. A sharper point will help to pull the drill bit through quicker; a shallower angle will slow the process down. There are automatic grinders available that are capable of sharpening these bits in one go.

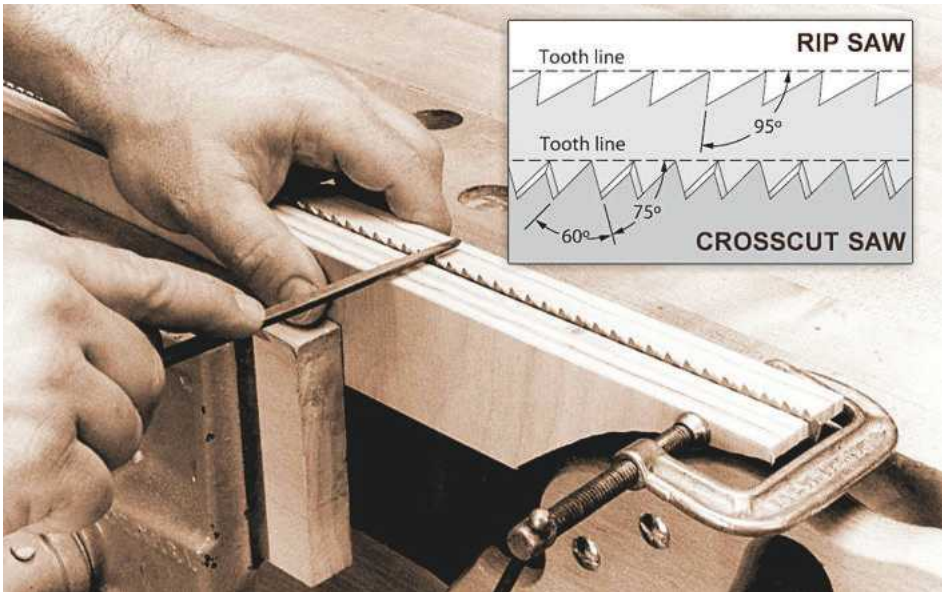
Sharpening & setting saws

Sharpening traditionally comes with practice and application, but you will soon master the technique. The worst you can do is to sharpen the saw so that it ends up with a hollowed cutting edge or set it to run off to one side. The key to sharpening saws is to have the right tools for the job and to take your time. Depending on the materials being cut and the quality of finish, you might reduce or increase the set. Certainly for rip sawing it would not be appropriate to have too fine a set. Tenon and dovetail saws can be very effective with little set and are more accurate to use. With new saws, it's reasonably easy to follow the manufacturer's angles when touching up.

The first job is to go along to your hardware store and buy the appropriate tapered file to fit the shape of the saw tooth to be sharpened. You'll need a jig to support the sides of the saw blades – these are often called 'chops'. These will hold the blade firmly while you work on it. Make sure there is enough room below the two loose pieces to take a back saw. For sharpening, the teeth should protrude about 12mm or so, and be fully supported throughout the length being worked on. Before starting to sharpen the saw it may need 'topping' out. This is a process that levels off the tips of the teeth to ensure you have a straight row when finished. The process can be carried out in the chops. Simply run a mill file, lengthways, down across the tips of the teeth until they are straight. This should not take a great deal of effort. Never take off more than you need to. The last thing you will need is a saw set. This gadget bends the teeth out from the saw blade to create the kerf. There are a variety of these on the market; one of the best has a magnifying glass to help you see what you're doing.

You're now ready to start. Fit the saw into the chops and make sure it is firmly held. If the jaws are not long enough to do the whole blade in one go, that's OK; do a bit at a time. Depending on the blade being sharpened, stand easy and in a comfortable position for filing. Mark the top of the saw chops' jaws with the appropriate angles

6 Sharpening a spur bit with a micro file – more in the background



7 Sharpening a saw in a set of chops

8 Using a special tool to set the saw teeth

9 Sharpening a chisel on an oilstone using a guide

to help guide you when filing. Simple pencil lines at 45° and 65° will cover most. Even if not spot on to the original, you will be able to work to one side or the other.

Every other tooth should be sharpened from the inside to outside with two or three strokes of the file. Don't stretch – move your body or the chops. Using a piece of chalk, mark the last tooth sharpened so that you don't lose your place. When you've completed one side, turn the whole thing round and start on the other.

By this stage the sharpening process should be completed. Most setting mechanisms relate to the number of tpi: more for less and less for more. Your tool should identify the number of teeth and a position that it is to be set at. The actual setting process can be carried out in the chops or on the bench. Select alternate teeth and apply the setter. It will push the tooth out by a predetermined amount. Make sure you exert the same amount of pressure each time; if the handles are supposed to be closed then close them. Swap round and do the other side. Mark your position with chalk; it'll save you having to do some of the teeth again.

Sharpening chisels & plane irons

The principle is basically the same for both these cutting tools. Depending on the bluntness of the blades to be sharpened, there will be one or two processes to follow. Let's assume they are blunt. The first thing to do is to re-grind on a dry or wet grinder at about 25°. The most important thing here, for general-purpose use, is to get a straight edge. Be careful not to overheat the cutting edge when grinding – keep it cool by dipping it in water. When you are about right you will notice 'spark out' along the top edge; this is when the grinding stone is fully in contact with the surface it's working on; small sparks fly away from the top edge. At this point it is most likely to overheat, so take care. With chisels I tend to mark a pencil line on the back; this gives me a guideline to work to on the toolrest. If you are not confident about this process, then consider buying a special guide attachment for your grinder. They can certainly help with the wider blades.

Honing starts on a coarse grit stone unless you're just touching an edge up. The honed angle should be about 30° but you may wish to experiment with this. The aim is to create a small flat at the very tip of the ground edge. Lubricate the stone well and make sure you keep doing this regularly throughout the process. Place the ground blade face down to the stone and make contact right across it. You can tell if you have by slightly lifting the back end and letting it go. With your fingers positioned at the front it should rock back into place. To get the 30° angle, lift the back off the blade or top of the handle slightly. You're effectively lifting the blade so that it rides on the front leading edge and will be close enough for most jobs. Start to run the blade alternately back and forth and in a figure-of-eight pattern. This action will help to maintain a flat surface on the oilstone and hone the edge evenly. Check the edge often. It should not take many circuits to create the small flat; less is better. Turn the blade over and, holding it flat against the oilstone surface, rub in a circular motion to remove the burr. Always finish with a stroke away from you. Repeat the process on a finer grit stone to finish off. If a tiny burr remains, then gently draw the cutting edge through a piece of gash wood to remove it.

If you're not confident about maintaining the honing angle, then buy a jig. There are several on the market and one that provides adjustable angles is best. Another alternative is to use a wetstone machine that allows the cutting angle of choice to be selected and the chisel or iron then sharpened. These machines often have a leather wheel that is used to fine-tune and hone the edge to finish off.

Sharpening & caring for router cutters

If you knock chunks out of your router cutters then there is little that can be done for them. Getting them re-ground professionally may be an option but will probably not be cost effective; in most cases, a new one will be cheaper. Because they are reasonably expensive, it's always best to look after them in the first instance. For cleaning you'll need a solvent to get rid of any resin build up. If that doesn't work, an abrasive cleaner may have to be used. If the cutter has a guide roller, then take it off. If you have time, soak everything in solvent overnight. Using a stiff bristle brush, clean off all the dirt.

Honing all the cutting edges may not be possible; it's only the flat ones you can do. You'll need a range of the small diamond stones for this part – go for a fine grit. Holding the cutter firmly on the bench, position yourself in such a way that you can stroke the flat under-face with the stone. You will find it useful to protect the cutter from damage by resting it on stiff foam or something similar. Remember that the cutter is balanced and has, most likely, two cutting edges. To maintain the balance, and not damage your router bearings, count the strokes for the first side and then repeat them on the second. In most cases, two or three stokes will be enough but check the edge to see how you're doing. When you've finished, make sure the cutter is clean and bright. To avoid rust, store in a box away from moisture. Look after your cutters and they will give you hours of life in return.

10 Sharpening a router cutter with a diamond slip

NEXT MONTH

CHRISTMAS IN THE WORKSHOP

Robin Gates fires up the paraffin lamp to stop his bench freezing over, makes a wonky branchwood tree, and experiments with log dishes and spatulas as gifts

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