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Welcome

Hello and welcome to the July issue of *The Woodworker*, now incorporating *Good Woodworking*. As readers of *GW* will have discovered in the last issue, the two magazines have now merged and this is certainly an exciting time for everyone. Combining the content of the two titles allows us to bring the very best elements of both to the forefront to create a 'super' magazine that is bigger and hopefully better. As you may have noticed, the new title now comprises 100 pages, so we hope you enjoy the extra articles we've got in store for you.

Readers and subscribers to both *GW* and *WW* will also now get to see all manner of features from new authors, many of whom have been writing for the magazines since they first started.

It is also with sadness that I have to announce the departure of Mark Cass as Editor, although you can still see regular tests and projects from him.

A little about me

For those readers of *The Woodworker* who are unfamiliar with who I am, let me take a minute to tell you a bit about myself. I've been Editor of *Good Woodworking* since August 2015, as well as Group Editor of both our woodworking titles. Prior to this, I was employed as Senior Deputy Editor on GMC Publications' four woodworking titles and, in total, I have over 10 years' experience in the woodworking journalism field. While I'm not a professional woodworker, or even a practising amateur, I'd like to think I know a fair bit about the industry and the various disciplines involved – I've definitely picked up a lot of information over the years! I may be some way off being able to build anything from scratch, but I'd try my best to give the theory side of it a good go! Around eight years ago, I attended a woodturning course in Devon with the great Colin Simpson and while I did struggle at the beginning, by the end of the two days I was getting the hang of it, and, with a lot of help from Colin, I eventually managed to produce two lovely bowls and even a box. I have to admit to being quite wary of machinery, so it's probably safest for me to stay behind a computer, rather than pointing a sharp gouge at an incredibly fast spinning object!

Expect more

But anyway, back to the new magazine. While most of the content will be quite familiar to everyone, there are some new elements, which we hope you all like. With the new title, you can expect to see more competitions, DVD and book reviews, tests on brand-new machinery and tools, as well as great prizes for submitting your 'letter of the month' and also for our new 'readers' tips'. If you'd like to find out how you can get your hands on a fantastic Veritas low-angle jack plane, worth over £250, see details on page 45.

In the meantime, if anyone has any questions regarding the changes, please do get in touch. I'd be very happy to hear your thoughts and encourage you all to make this new magazine your own. Could this be the start of something great? We certainly think so, and very much hope you do too.

Email tegan.foley@mytimemedia.com

Tegan Foley
Group Editor

Phil Davy
Technical & Consultant Editor

Dave Roberts
Consultant Editor

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

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77 REPAIR & RESTORE

Phil Davy takes us through the steps for one of his recent commissions, which involved replacing one of several Victorian church windows

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JULY 2018

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TRITON UNVEILS NEW POCKET-HOLE JIGS RANGE

Triton Tools has released an exciting new range of pocket-hole jigs, perfect for professional woodworkers and tradesmen. The new products, which were recently unveiled at Triton HQ, include the Single Mini Pocket-Hole Jig, Double Mini Pocket-Hole Jig, Adjustable Jig and Pocket-Hole Jig sets.

The company is delighted to take the wraps off this fantastic new range, which offers a product for every purpose, from keen hobbyist to busy carpenter. Their designers have worked hard to create a range of products that are strong, versatile and effective. The Triton jigs all offer a fast way of creating strong, concealed joints. With limited woodworking knowledge, anyone can easily create accurate and professional pocket-holes on multiple projects.

Perfect for use on materials 12mm thick or over, the new jigs create strong joints in a fraction of the time compared to more traditional methods. Various joints can be constructed, including frame corner joints, square corner joints, T-joints, mitre framed corner joints, plinths and angle joints. Intelligently constructed, the jigs increase the speed and ease of making items such as fencing, kitchen cabinets, benches and tables, while improving profitability and producing a more professional finish.

Single Mini Pocket-Hole Jig

Triton's TWSMPJ Single Mini Pocket-Hole Jig is perfect when the smallest, most compact jig is required. The jig is clamped to the workpiece and the drill bit is fed through the guide-hole and into the wood. The pocket-hole screw can then be driven in, followed by plugging the hole with a real-wood plug, resulting in a perfect angled, concealed joint.

Single Mini Pocket-Hole Jig

Double Mini Pocket-Hole Jig

Triton's TWDMPJ Double Mini Pocket-Hole Jig is the easiest and fastest way to create two concealed joints, side-by-side.

Double Mini Pocket-Hole Jig

Adjustable Jig

Triton's TWAJ Adjustable Jig is the optimum jig when concealed joints are required at various spacings up to 80mm apart. The adjustable ruler slide makes it easy to accurately determine where two holes should go.

Adjustable Jig

Pocket-Hole Jig Set

When space is not a concern, the bench-mountable TW7PHJ Pocket-Hole Jig is ideal. The built-in push-pull clamp can be adjusted to hold timbers of varying thicknesses, which makes this jig invaluable for the workshop and site-work.

Accessories

A new must-use range of accessories has been launched to complement the jigs, including perfectly-sized drill bits and drivers; a clamp to attach the pocket-hole jigs to the workpiece; a range of zinc pocket-hole screws with different lengths in pack sizes of either 100, 250 or 500; and pine or oak pocket-hole plugs for a clean, concealed finish.

The company is confident these pocket-hole jigs will prove to be very popular with established customers who have loved Triton products for many years, and by those new to Triton Tools. To find out more, see **www.tritontools.com**.

7-piece Pocket-Hole Jig set

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16 Pyrography
17–18* Woodturning
18–19 Bowls & platters
23–27 Windsor chairmaking
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1 Fan birds/carving
23–29 Windsor chairmaking
28–29 Dulcimer making/cigar box guitar
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Web: www.greenwooddays.co.uk

1–4 Decorative furniture painting
8–13 Advanced furniture making
19–22 Make simple furniture
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West Sussex PO18 0QZ
Tel: 01243 811 301
Web: www.westdean.org.uk

6–9 Beginners' four-day course
14–15 Dovetailing weekend
23–28 Make your own workbench
Chris Tribe, The Cornmill, Railway Road
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Web: www.christribefurniturecourses.com

23–27 Sharpening & hand skills
28–29 Sharpening & tuning hand tools
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9 Pyrography
9 Spiralling tools
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Oxford Wood Recycling (Oxfordshire)
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Stiles & Bates (Kent)
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Web: www.stilesandbates.co.uk

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Sykes Timber (Warwickshire)
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Web: www.thetimbermill.com

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Web: www.woodrecycling.org.uk

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Web: www.timberman.co.uk

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

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

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

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

Wentwood Timber Centre (South Wales)
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LASER SPOT VISIBILITY PROBLEMS SOLVED: BOSCH GLM 120 C PROFESSIONAL RANGEFINDER

For anyone whose work involves distance measurement on work sites, Bosch is offering upgraded performance in the shape of its new Bosch GLM 120 C Professional Rangefinder. In addition to a camera as a viewfinder with integrated zoom function, which solves the common problem of target invisibility, this user-friendly laser measure enjoys all the benefits of Bosch connectivity.

Bluetooth connection with the free Bosch Measuring Master app gives access to a range of useful facilities for recording, processing and sharing information to speed up workflow. The device also comes with GLM Transfer Software, which allows simple copying of data and photos from its own memory to your laptop or PC.

Easy measurement in all situations

Inability to see the laser spot from a measuring device often results from difficult light conditions outdoors, but even in indoor applications, it can be a problem. The new rangefinder, using its 5MP camera as a viewfinder to find and zoom in on targets, overcomes visual issues relating to lighting, long distance, complex surroundings and other factors. Its laser measuring range is up to 120 metres and it works to an accuracy of +/- 1.5 millimetres.

The device's large colour screen (2.8in), with flip display, has a familiar smartphone look. Readability from all angles is possible thanks to IPS (in-plane switching) technology, while optical bonding minimises the effects of condensation or reflected sunlight when viewing the screen outdoors.

A choice of measurement buttons, on the front and side, allows for comfortable and flexible operation in different situations. Automatic pin detection enables effective and precise measurement from hard-to-reach areas and edges. The ability to control this laser measure remotely through your smartphone or tablet, from a range of about 10m, eliminates any need for assistance from a second person. A timer function adds further convenience.

Intuitive functioning & faster workflow

Despite its technological sophistication, the Bosch GLM 120 C is straightforward to use. Its intuitive HMI (human-machine interface) is based on the well-proven approach used by Bosch in its popular GLM 50 C laser measure. Text support and an integrated help function are provided in case either are required.

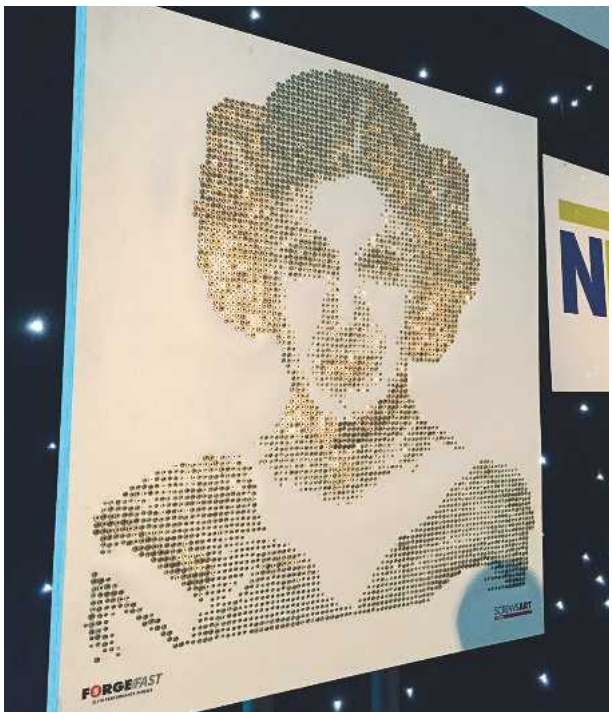
As well as lengths, widths and heights, the rangefinder's measurement functions include inclines, areas, volumes and more. It can be used to quickly create floor plans and pictures, complete with measurements and notes. Date and time information can be saved with all records for easy reference and proof of work.

Up to 50 measurements, including pictures, can be stored in the device's internal memory and then transferred to your computer through a micro USB cable. When information needs to be shared urgently, connectivity via Bluetooth means you can send measured values, plans and comments to your colleagues or customers immediately, even while you are still on site. These facilities not only save time but also eliminate the possibility of manual transfer errors.

Workplace-ready design

Robustly constructed for challenging environments, the new rangefinder's housing is sealed to IP54 standard against dust and splashing water, while the screen's Dragontrail cover glass is resistant to scratching and other damage. What's more, this measuring device is equipped for support by the Bosch TrackMyTools app (as soon as this service is available), which simplifies tool location and management.

Along with trade professionals of all kinds, the Bosch GLM 120 C Professional Rangefinder is aimed at architects, landscape designers, construction managers and specialised craftspeople working on metal, wood and other structural materials. Available from specialist retailers, its RRP is £283.19 inc VAT. To find out more, see **www.bosch-professional.co.uk**.



FORGEFIX SCREWSART™ PORTRAIT RAISES £500 FOR INDUSTRY CHARITY

Thanks to its donation of a unique piece of artwork, ForgeFix has helped to raise over £500 for CRASH – the construction industry charity which supports homelessness and hospice charities by sourcing pro bono professional expertise, building materials and awarding cash grants donated by the construction and property industry.

The image, which depicts actress Carrie Fisher in her iconic role as Princess Leia from the *Star Wars* films, comes from a series of portraits which ForgeFix has trademarked ScrewsArt™. It has been created using more than 5,000 of the company's ForgeFast elite performance wood screws and was sold at a silent auction held at the annual NMBS Gala Dinner, which took place earlier this year.

It was ultimately bought by Callum Kegg from Toolstop – an NMBS merchant member and one of the UK's largest independent stockists and distributors of quality professional tools.

Other ScrewsArt™ portraits created to date have depicted sporting legend, Muhammad Ali and music icon, David Bowie. This Bowie portrait was sold in a similar silent auction on behalf of CRASH held at the NMBS Gala Dinner in 2017 and raised £1,000 for the charity. To find out more, see **www.forgefix.co.uk**.

A ScrewsArt™ portrait of Princess Leia – created and donated by ForgeFix – was sold at a silent auction held at the recent NMBS Gala Dinner, raising over £500 for charity

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OSMO UK PROTECTS THE HEART OF THE HOME

Floor maintenance specialist Conrad Park turned to Osmo UK when renovating and refreshing an existing oak floor in a family kitchen. Thanks to its hard-wearing properties and aesthetically pleasing finish, Polyx-Oil was the ideal choice to rejuvenate the room in the heart of the home. When the client requested a timeless appearance that would refresh and protect the wooden floor in the kitchen, Conrad Park recognised that two coats of Osmo UK Polyx-Oil Effect Raw 3044 would create the desired result.

Preparation of the three-day project began with 60 grit sanding, before abrading with a mesh disc on 120 grit. The floor was then thoroughly vacuumed to remove the residue of dust before applying the finish. Due to Osmo UK finishes being very viscid, and containing both oil and wax, the wood absorbs the finish to provide a smooth surface, resulting in the extra level of sanding not being required.

Conrad Park applied the natural finish with an Osmo UK microfibre roller. For the hard-to-reach areas, including the edges, corners and under the kitchen island, Conrad opted for an Osmo UK flat brush. The finish was applied thinly, using just under two 2.2l to achieve the desired look.

For more information on the Osmo range of eco-friendly finishes, visit **www.osmouk.com**.

PROKRAFT LAUNCHES CHEESE KNIFE SETS & NEW BOTTLE STOPPERS

Specialist woodturning kit and hardware supplier Prokraft has recently introduced a series of new kits. The first of which is a stainless steel cheese knife set comprising four different blades, ferrules and end caps that allow for between centre turning, priced at £5.95 per set. These provide the opportunity to create a substantial set of turned items that make super gifts.

There are also new teardrop shaped bottle stoppers available in either a chrome or gold finish with the unique Prokraft hex-end thread and wood insert screw, which allows for easily mounting blanks and turning. The teardrop stoppers are available with a retail price of £3.95 for chrome and £4.95 for 24 carat gold plating, with shipping starting from 90p for small orders under 100g.

Prokraft owner Jon Whateley, said: "We supply all our stoppers with the hex-end thread for ease of use, particularly with acrylic tops. The wood insert screws provide an easy, secure and reusable way of mounting wood blanks and is very quick for production turners. We test our kits to make sure they are practical and easy to mount, so the turner can enjoy the turning experience rather than the mundane jobs. We don't sell kits designed to make an extra sale of unnecessary tools or accessories."

To find out more, see **www.prokraft.co.uk**.

INTRODUCING SAUNO WOOD KILNS BY LOGOSOL

Sauno is a range of wood kilns made by Logosol, offering a time-saving, cost-effective solution for hobby and professional woodworkers and woodturners. Incorporating new Swedish drying technology, Sauno wood kilns make wood drying achievable and affordable for even the smaller scale woodworker while producing better results.

In most cases, air-drying the timber outdoors is the best method. In certain instances joinery-dry timber is required, and for that you will need a wood drying kiln.

A Sauno wood drying kiln is recommended if you want to avoid your finished products cracking or warping, have the opportunity to get hold of unusual wood types that you want to use when doing woodwork or are making doors, furniture or windows.

A major problem when drying timber is the wood retaining the water it holds. However, Sauno overcomes this problem by using a method called 'relax' drying.

The 'relax' drying method is frequently used in large sawmills for their best timber, thereby reducing the risk of cracking and other damages caused by accelerated drying. The wood kiln heats and steams the timber at high temperatures, changing the timber's cell structure and making it possible for water to move outwards from inside the wood. The next step is to dehumidify the timber.

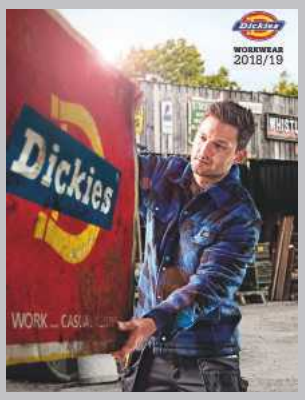
Sauno offers woodturners and woodworkers, requiring timber with a consistent moisture content, a choice of three kiln kits – VT1, VT3 and VT5 – depending on the scale of your requirements, ranging from

shorter pieces and low volume right through to larger sized pieces and bigger volumes.

These kits consist of just the dry control unit and thermostat. Once you have your kit, you will then need to construct an insulated kiln box. Two plans are included: one using an insulated wooden frame, the other using structural floor insulating panels. This DIY solution lowers your investment cost compared to other drying solutions.

The Sauno kiln will shorten the maturing process from years to weeks. It produces timber with less cracking and more stability than other drying methods. The drying process is quick and economical, which is a large benefit for woodturners and woodworkers. For further details and information on pricing, visit **www.axminster.co.uk**.

DICKIES WORKWEAR SHOWCASES NEW PRODUCTS IN LATEST CATALOGUE



Global workwear brand Dickies has published its brand-new catalogue, displaying a range of clothing and footwear across 22 sections, including 40 new products.

At 228 pages, the catalogue is the largest ever published by Dickies. New products include Industry+, an entirely new industrially launderable workwear range ideal for managed workwear services. Featuring Multinorm fabrics, it includes bib and brace, trousers, jackets, shirts and coveralls.

Products are split by ranges, special features and industry-specific, with symbols to help tradespeople quickly identify attributes such as water resistance and breathability. An updated 'What's Your Colour' chart helps to coordinate items across ranges, while the new trouser and jacket comparison chart makes it easy to shop for these items according to specific criteria (from jackets with hoods to trousers with reflective detail, for example).

The catalogue's footwear section displays details on Dickies' latest sole innovations, while the clothing ranges featured include the popular Pro and Eisenhower ranges.

In line with the company's efforts to operate sustainably, the catalogue is printed on Carbon Balanced paper and can be downloaded here: **www.dickiesworkwear.com/en/workwear/printed-catalogue**.

TEKNOS PAINTS – BUY FROM THE BEST

Finnish born company, Teknos, has over 25 years' experience of supplying water-based coatings to the UK joinery industry. Working with some of the best-known names in the industry, including Timbmet, Accsys (Accoya) and James Latham, Teknos has built up a tried-and-tested coatings portfolio that works.

TeknosPro paints are not only technically-advanced solutions designed to protect and preserve wood, walls and metal, they also have low VOC levels and, as waterborne paints, they have little impact on the environment compared to solvent-borne products from others in the industry. They are specifically designed for the discerning professional painter.

TeknosPro chooses high quality raw materials at the manufacturing stage to offer the best performing coatings. With superior pigments and binders, the coatings have a long life prolonging the times between maintenance and touch ups. The waterborne paints do not contain lead, chrome or other heavy metals, making them perfect for the home as they are safe for the homeowner and the environment. However, as with any paint, the use of protective equipment and clothing is advised.

The waterborne agent gives TeknosPro paints a smooth finish, which is often hard to achieve with chalk-based coatings. Whether brushing, rolling or spraying, the products are extremely easy to use and give a higher coverage than competitors, thus reducing the number of coats of paint needed.

TeknosPro's colour range offers richness in colour with the latest technology ensuring that the colour lasts as long as possible. The colour-match database has over 44,000 shades with coatings tinted to order, allowing customers multiple choice to find the perfect shade for their needs. Teknos also has their own colour card containing 147 popular opaque shades available from Teknos Colour Mode.

To find out more, see **www.teknos.co.uk**.

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D&M TOOLS

DEWALT DCC1054 – WORLD'S FIRST 54V CORDLESS COMPRESSOR

MANUFACTURER: DeWalt
D&M GUIDE PRICE: From £274.95 inc VAT (body only)

DeWALT have launched the world's first 54V cordless compressor. The DCC1054 has a 54V brushless oil-free motor for high reliability and eliminates frequent wear of components, with a 10 litre tank providing 9.3 BAR and Free Air Delivery (FAD) of 31 l/min @ 7 BAR, 0.3 kW/0.4HP, offering optimum capacity and excellent performance. With a run time of up to 1,220 nails per charge – using the DCB546 18Ga brad nailer and an 6.0Ah battery – this is enough to last 75% of pro users one working day.

This innovative compressor is lightweight, compact and portable, weighing just 11kg (without battery) and is designed to be carried flush against the user's leg. The OneTurn™ Regulator saves time and provides consistent performance. It also has a ball drain valve quick release for compressed air and water, and a rubber base for stability to prevent the unit from 'walking'.

The heavy-duty roll cage provides enhanced durability, and there is also an on/off switch for ease of use while a dust cover provides protection of the switch.

The DCC1054 is available as a body only (DCC1054N) unit or a kit with battery charger (DCB118) and 2 ×18/54V XR FLEXVOLT 6.0Ah/2.0Ah DCB546 batteries (DCC1054T2). Please note hose is not included.

METABO STA 18 LTX 100/STAB 18 LTX 100 CORDLESS JIGSAWS

MANUFACTURER: Metabo
D&M GUIDE PRICE: £134.95 inc VAT (body only – no batteries or charger)

This pair of new jigsaws from Metabo come as either body grip (handy in confined spaces) or conventional 'D' handle style. Precise and material-matched sawing is possible due to the variable stroke rate (pendulum stroke and low-lying saw blade guidance with spring support, plus a cutting depth of 100mm in wood and 10mm in steel). They also feature Metabo 'Quick' for changing saw blades without tools and with automatic ejection.

Simple bevel cuts are possible thanks to a footplate with rest points that can be adjusted without tools up to 45°. The selectable shaving blower function ensures a free view of the cutting line. Both saws are compatible with the new Metabo LiHD batteries and come supplied in a Metaloc case.

BOSCH PROFESSIONAL GOP 55-36 MULTI-CUTTER

Jamie Smith of **Atelier Cabinet Makers** is highly impressed with this multi-cutter's excellent power and cutting capabilities, and has no hesitation in recommending it for all manner of woodworking tasks

The Bosch GOP 55-36 has the look and feel of a conventional multi-tool, but this particular model features a 550W motor, making it the most powerful in its class. It has a sliding power switch located on the top, a power adjustment wheel located under the power feed cable at the back, and the Starlock Max lever on the side, which allows for fast blade and attachment changes.

Bosch have built the GOP 55-36 with a cutter head that oscillates 3.6° in total – 1.8° left and 1.8° right – whereas lower powered models only move 2.8°. This enables much faster cutting, which is backed up by the 550W motor.

A more versatile tool

The snap in, tool-free blade and attachment fitting featured on the Bosch GOP 55-36 is incredible. It couldn't be easier or faster to make blade changes. Gone are the days of having to align a cutter and hold it correctly in place while trying to tighten a screw with a hex key, not to mention having to do it again while the blade is scorching hot after use. With this multi-tool, to fit a cutter or accessory you simply push the tool down over the cutter, or push the cutter onto the tool. In doing this, the auto lock locates the blade and snaps through the centre of the Starlock fitting, locking the blade onto the tool. For removal, you open the lever on the side, which releases the auto lock and prepares it for the next blade engagement. Thanks to the Starlock mechanism, you can multi-position the cutters and have the blade prepared for cutting while using it in various awkward and tight spaces, helping to aid versatility.

Starlock system

The Starlock system, which is used for attaching the cutters and accessories, has been designed as a collaboration between Bosch and Fein, and in my opinion, it's the best system on the market. This allows for tool-free attachment and blade changes, along with the tools and blades to be interchangeable regardless of brand. This is great, as when searching for new blades for your tool, you'll be able to find compatible attachments much easier.

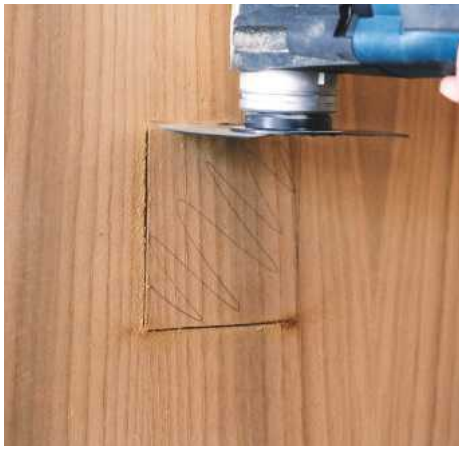
This system has three categories, starting with the basic and the standard Starlock mechanism. This then moves up to the Starlock Plus and further, the Starlock Max, as seen here on the Bosch GOP 55-36.

Tools compatible with the basic Starlock mechanism include FEIN MultiMaster, FEIN MultiTalent, Bosch GOP, Bosch PMF, Makita, Hitachi, Metabo, Milwaukee, AEG, Einhell, Ryobi, Skil and Dremel. DeWalt multi-tools, however, will require an adaptor. Tools compatible with the Starlock Plus system include some Bosch

Bosch GOP 55-36 with cutters

Multi-cutter fitted with sanding attachment and dust extraction

The tool fitted with a wood/metal cutter



Cutting a slot for an electrical switch in MDF

Fast cutting through solid oak

Cutting notches into a cabinet carcass

multi-tools, and all those by Fein, but other brands will require a manufacturer-specific adaptor.

This brings us on to the Starlock Max system, which is seen on the highest performing multi-tools from Fein and Bosch, as well as on the model tested here. The tools featuring this system are the most powerful and most capable, with one of the top benefits being the fact they will accept any blades and accessories featuring either the Starlock Plus or standard Starlock systems. The reason these three systems exist is to stop you from using the wrong sort of blade on the wrong tool. For instance, the Starlock Max blades are designed for the toughest of applications, so they will not be compatible with a low powered tool. This prevents the user from risking damage to a tool that wouldn't cope with certain heavy-duty tasks. The Starlock Max cutting blades are longer than others, which facilitates faster cutting.

A great selection

Supplied with the Bosch GOP 55-36 multi-cutter is an L-Boxx plus a set of 25 accessories, all of which are suited to a wide variety of tasks. The handy sanding plate and sanding sheets are perfect for working in tight areas and corners while also using the dust extraction adaptor. The varied selection of Starlock and Starlock Max sanding and cutting blades feature a carbide surface, and these are designed for use on grout and abrasive. Also included is a selection of the highest quality Starlock and Starlock Max HCS plunge cut saw blades as well as segment saw blades for cutting various materials, such as wood, metal and plastic. For further ease of use, Bosch have made sure that each blade's cutting application is easily identifiable via a colour-coded system, which shows the specific task that blade is designed for. For example, metal only cutting blades are colour-coded blue, whereas wood only cutting blades are colour-coded grey, which guarantees faster blade selection while working. The type of Starlock blade is also identifiable thanks to the shape inside the mechanism itself, which means you can see whether you're picking up a Starlock Max or a Starlock Plus blade without having to read the laser-etched description. The tool also has oscillation adjustment from 8,000-22,000opm

Conclusion

I have used all of these accessories for various jobs in and around the workshop as well as on site. Among the various tasks, I tried using the GOP 55-36 for cutting and removing parts of wooden skirting while fitting wardrobes. It was easy to change from this cutting blade to the one designed to cut metal and large stubborn old nails flush to the wall. Each time I use this tool I am highly impressed with how well it manages the tasks and how fast it cuts compared to other multi-tools I've used in the past. The blades are of an exceptional quality and more than capable of tackling many heavy-duty tasks.

This tool is corded and available in both 240 and 110V versions. I didn't find the cord to hinder my work in any way as most of the tasks I used it for were within range of a power socket.

In addition, I found the overall build quality to be extremely good and would recommend it to anyone in the market for a new multi-tool.

SPECIFICATION

Voltages available: 240 and 110V
Speed: 8,000-22,000opm
Oscillation stroke: 2 × 1.8°
Pad size: 93mm delta
Motor: 550W
Weight: 1.6kg

Typical price: **£265**
Web: www.bosch-professional.com

THE VERDICT

PROS

- Excellent power and cutting capabilities; highest power in its class; works with any Starlock accessory; super fast, tool-free blade change

CONS

- Corded tool may not be suited to some work environments

RATING: 5 out of **5**

FURTHER INFORMATION

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

Identification of compatible blade types

Storage within the accessory case

New Bosch L-Boxx

MAKITA LS1019L 260MM COMPOUND MITRE SAW

Mark Cass takes a look at this dual-bevel sliding compound mitre saw, which combines capacity, accuracy and efficient dust extraction, all with a reduced footprint

Buying a mitre saw isn't something you want to be doing more than once or twice, so it's worthwhile spending out on a good one that will (hopefully) never need replacing. Such a candidate would be the Makita LS1019L from the Japanese dependable manufacturer of long-standing. On a mission of constant improvement – much of it as the result of feedback from users – the latest embodiment of this philosophy is this very impressive 260mm mitre saw.

A joy to use

Available in battery (2 × 18V = 36V) or mains powered versions, the LS1019L has so many good features that it's hard to know where to start. One of the first things that becomes apparent when using a mitre or chop saw like this is the amount of dust it normally produces; a favourite joke used to be the dust-free zone, which was the inside of the cloth dust-bag supplied with many a mitre saw. Saw owners will often make their own arrangements for chop saw dust extraction, but the system integral to this particular saw – I'm very pleased to say – works really well and needs no further intervention.

Compound mitre saws have traditionally just tipped to the one side for bevel-cutting, sometimes resulting in awkward cuts and inconvenience, but this one will go to 45° both ways, and with little trouble too. And not only that, it's possible, with the flick of a lever, to go to 48° either side if the situation requires it. That's down to some advanced engineering and it's the simple yet radical design of this machine which has re-positioned the motor and allowed the saw body to achieve such nimble movements; movements which include the turntable swivel to 60° (and again, in both directions), thus increasing the range of compound angles and options available to the user.

In the past, many a mitre saw has suffered from a 'backs to the wall' syndrome whereby the rails, which slide in and out to permit full depth cross-cutting, are in constant danger of banging a hole in the wall behind the saw. This clear disadvantage has been negated at a stroke by re-designing the slide mechanism with a pair of fixed rails to one side on which the saw is suspended and is free to run backwards and forwards. It's a joy to use and means that you don't need quite so much room (or a deeper work surface) in which to operate.

Simple, yet very effective extraction

Bevel cuts go up to 48° on the left...

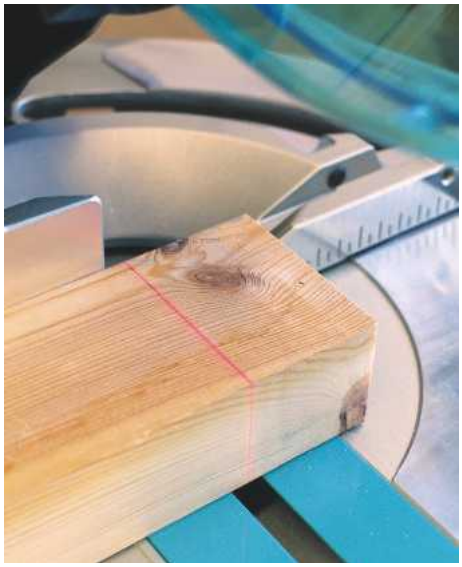
... and on the right too

Mitres can go up to an impressive 60°

The locking knob for bevel-cutting is nicely positioned

The work-holder makes for safer cutting

Vertical cutting now has an increased range



The laser provides extra assurance for accuracy

Light & responsive

Overall the saw is light and responsive to use, and performs with an eager precision and accuracy. Setting up the saw for trenching is a new and enjoyable variation of a well-worn theme, and easier to adjust than many saws I've encountered over the years. Generally, some considerable thought has been given to the controls and their positioning; one of the best is the front handle grip to permit the saw to tip (either side) for bevel-cutting, and there is similar ease of action in the turntable mitre handle too. Reaching the pre-set angles is easy yet positive and the on-board laser (independently switched so you only use it if you really need it) adds to the surety of each cut. Certainly the one that had been set up on the saw I was looking at performed with the desired accuracy and, in some cases, is a real boon for the user.

The traditional design of many a mitre saw has precluded the ability to make a deep vertical cut beyond the radius of the blade (less the spindle nut), something of an annoyance when you're cutting and fitting skirting boards for instance. Now, instead of having to make each cut – and the external mitres too – flat on the turntable with the tip-body bevel-cut in action, there's enough room above the blade to allow a bigger cut up against the fence. Very pleasing indeed.

Minor niggles

Workholding is a subject often overlooked on this type of machine, but here we have an easy and quickly adjustable/removable work clamp, which provides an often sorely needed third hand to keep your workpiece steady and safe. Articulated, and thus hugely versatile, it will simply drop into holes either side of the base behind the fences and readily bear down on whatever needs to be held. A genuine benefit, and something that every other manufacturer could do well to emulate.

Now it's not a huge surprise to learn that not everything in the garden is rosy and perfect, but the small niggles do feel a bit smaller in comparison with all of the big plus-points that have gone before. It's nice to have high fences to work against, and these traditionally can be loosened and slid to one side whenever there's a bit of mitre-work going on, and slid back into place directly afterwards. I don't know what happened here, but the upper portions of the back fence have to be physically removed to enable mitre cutting, and we all know what happens to parts which can be separated from the main machine, don't we? They don't always find their way back...

My only other criticisms of any note are the awkwardness of operation for the left-hander and the very close tolerances that become apparent when the saw is in turntable mitre mode. I feared there might have been a trimming of the fence at one point, but fortunately no trouble occurred, just the slight shadow of a worry for this user.

Conclusion

There's no question that this is a top-quality saw, and if anyone has one as their first machine then they are a very lucky woodworker indeed.

Removable fences – just don't lose them!

Too close for my comfort!

SPECIFICATION

Blade diameter: 260mm
Max mitre range: 60-60°
Max mitre cut at 90°: 68 × 310mm
Bore diameter: 30mm
Max bevel range: 48-48°
Noise sound pressure: 91dB(A)
Noise sound power: 101dB(A)
Input wattage: 1,510W
No load speed: 3,200rpm
Vibration K factor: 1.5 m/sec²
Vibration no load: 2.5 m/sec²
Weight: 26.1kg

Typical price: From **£944.40** (but shop around)
Web: www.makitauk.com

THE VERDICT

PROS

- No working depth restriction – the saw can be placed flat against a wall; great double-sided bevel-work; extended turntable range; easy and accurate control; first-rate extraction for a mitre saw

CONS

- Removable fences; close tolerance blade to fence; on/off switch awkward for the left-hander

RATING: 4.5 out of **5**

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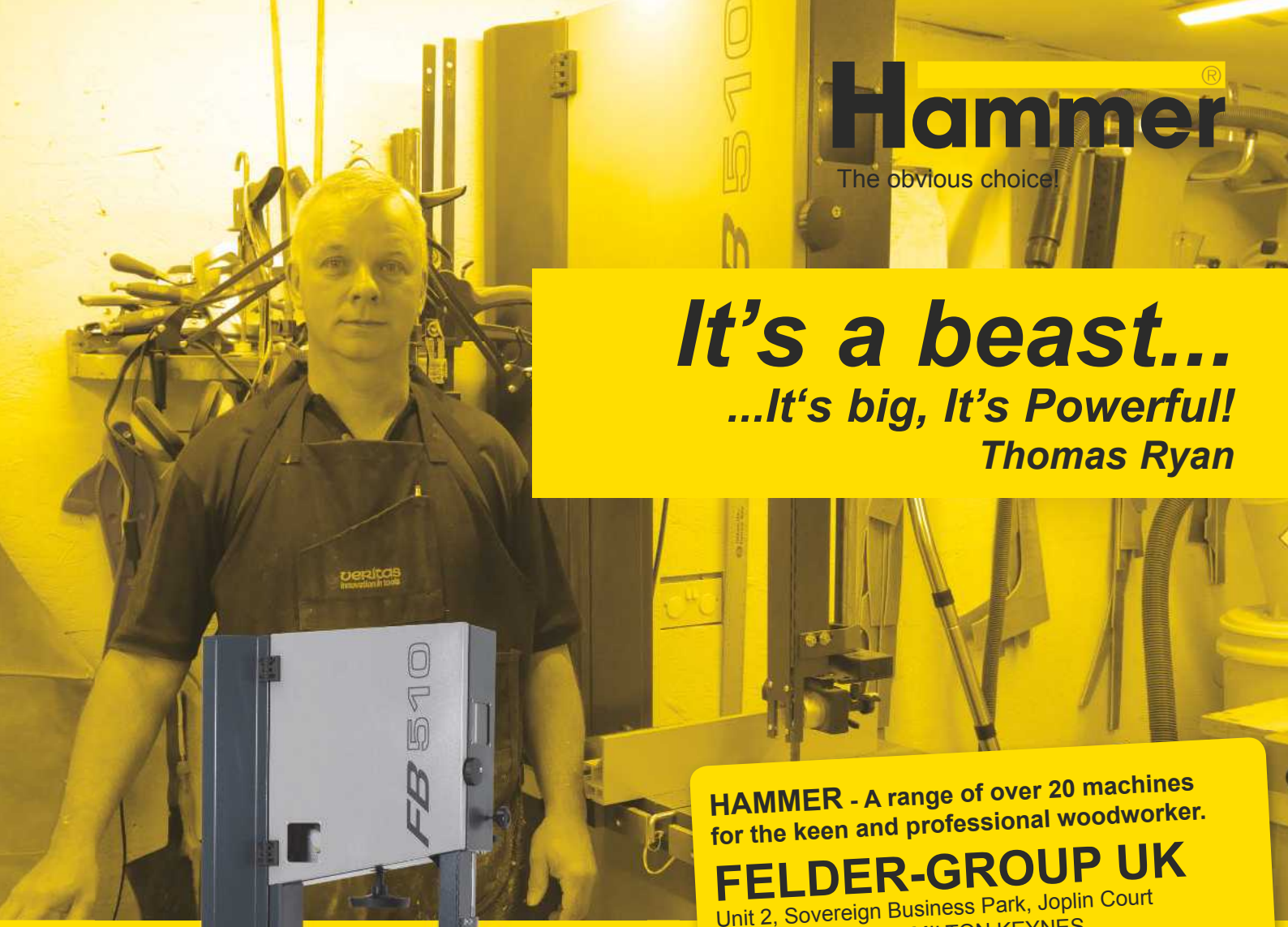

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FELDER GROUP UK HOSTS SPRING IN HOUSE EXHIBITION

FELDER GROUP UK recently hosted an annual Spring In house Exhibition at their UK headquarters in Milton Keynes. Visitors were given a great opportunity to see one of the widest range of machines on the market and have one-on-one time with the technical sales team, product managers and service technicians. The real highlight of the show, however, was the live demonstrations that were performed on the Hammer A3-31 planer/thicknesser, which was equipped with the award-winning Silent-POWER spiral cutterblock.

Felder Group UK's Chief Executive, Matthew Applegarth, commented: "It was great to see so many people in our showroom across the two days and for us to be able to demonstrate just how good our machines really are!"

FELDER GROUP is one of the leading suppliers of woodworking machines for private, business and industrial use, boasting one of the largest ranges in the industry with over 150 machines across the Hammer, FELDER and FORMAT-4 brands.

For more information on any products and services from FELDER GROUP UK, visit **www.felder-group.co.uk** or call **01908 635 000** to speak to one of their expert advisors.

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Tools & techniques

Robin Gates describes some favourite hand tools and shares tips on using them to advantage

Hand tools are so wonderfully versatile. With one ordinary chisel you can excavate a mortise, level a surface, round a corner, cut a rebate or a housing – and more. If there's one machine to do all this, I'd guess it only exists in the sketch books of William Heath Robinson.

The hand tool of choice is often a question of scale. When inserting screws, for example, a gimlet will suffice for the pilot hole, whereas a larger diameter bit in a hand drill will make a better job of the clearance hole.

While looking to make small improvements from one project to the next, I've kept notes of the tools and techniques that have worked for me, and following is a selection of these.

Bore from both sides

Anchored by its point, the centre bit first circumscribes the spot with its spur, then follows on with the low-angle cutter, slicing below the surface and churning out a froth of neatly twisted shavings. Call me simple, but I love it. What's less endearing is when the bit bursts through the back of the board, like a fist through a polystyrene ceiling tile. To avoid this disaster, either the work must be backed against a sacrificial block, supporting the wood fibres on the exit side, or the hole must be bored in two stages, going part way through from each side.

Using the sacrificial block is easy, especially if it's of a different type of timber – you just keep going until a change in the shavings shows you're all the way through. But when the bit is sharp and the board thin, boring from both sides requires more concentration, keeping watch for the moment when the point of the bit just breaks the surface. Then, withdraw the bit, centre it on the opposite side of the board, using the tiny hole just made, and finish the job. The last of the waste, cut around by the spur but not reduced to shavings by the cutter, comes out on the tip of the bit as smart as a button, leaving a crisp edge around the hole.

With a fixed structure, there's not always sufficient room to access the job from both sides, in which case you might consider stopping short, as before, drilling a pilot hole near the perimeter of the hole, and removing the last of the waste with a keyhole saw.

Before wandering too far from the brace and bit, I have to mention my respect for the brace itself, a true stalwart of the carpenter's tool bag. It's changed so little down the centuries that surely the carpenter aboard Henry VIII's

1 Working with the ratchet brace and centre bit

2 Alligator jaws with the knurled shell removed

3 Ratchet wheel, pawl and selector ring

4 Bore with the centre bit from one side...

5 ... until the point shows through...

6 ... then centre the bit on the second side...

7 ... and finish the job, as smart as a button

flagship *Mary Rose*, whose brace went down with the ship in 1545, off Portsmouth, would recognise the core features of his wooden-bodied tool in this iron brace made by Millers Falls around 400 years later (**photo 1**). The cranked body, the drill bit, the rotating pad of the tool recovered from the sea bed – it's all still there.

The key developments in that time have been the chuck, with alligator jaws inside a knurled shell (**photo 2**), accepting bits of various types and sizes, and a reversible ratchet, which allows the crank to be pumped back and forth without disengaging the bit from the work – a real boon when working in a tight corner.

Having been brought up on the springs, cogs and screws of Meccano, I find the brace ratchet mechanism hugely satisfying. It's a perfect example of the kind of visible, readily understood technology that was built to last generations but has all but disappeared from everyday life in the space of a single lifetime.

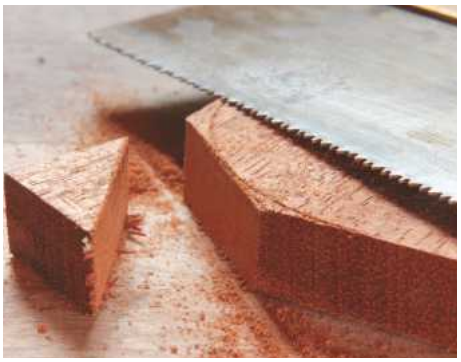
Essentially, the ratchet consists of a wheel with 12 teeth interacting with two spring-loaded pawls (**photo 3**). Behind the pawls is a selector ring and by turning this left or right you engage one pawl while disengaging the other, enabling forward or reverse ratcheting. If ratcheting isn't needed, you centralise the ring to lock both pawls. A brace may look primitive beside a power drill, but it has the leverage to deliver remarkable torque, and is also sensitive – you get excellent feedback, almost a shaving-by-shaving report of what's happening at the sharp end.

8 Run a pencil along the edge to be trimmed

9 Hew with the grain, using stop cuts to prevent splits

10 The hewn edge is ready for planing to the line

11 Scribe an arc around the corner with dividers



12 Saw off the bulk of the waste

13 Apply upper body weight to drive the chisel downwards

Hew to width

Consider a board with about 6-12mm to be removed from one side, and running with the grain. The narrow strip of waste could be sawn away, and sometimes I'll do that for the useful exercise of honing my technique with the rip saw. The excess could also be planed off, which may also appeal for the simple pleasure of taking long shavings from an easy-going board. Then again, using the rip saw to remove such a narrow piece could be risky if I lose concentration and stray off course, while the time and labour involved in removing that much with the plane may be out of all proportion with the job in hand. Even using a jack plane removing about 0.12mm with each pass, it'd take 100 passes to remove 12mm. It's a dilemma: too much waste for one tool and not quite enough for the other.

My answer lies in the carpenter's axe, an ancient tool capable of remarkable precision. Having run a pencil along the length to mark the waste (**photo 8**), I'll wedge the far end of the piece against a dog on the bench, or stand it on the floor, and begin by making steeply angled stop cuts at regular intervals along the edge to be removed. Tilting the axe to a shallower angle, next I'll hew close to the line, removing waste with an efficiency the saw and plane can only dream of. The stop cuts ensure the axe doesn't bite too deeply or allow a split to run (**photo 9**). Now all it takes is a few passes with the plane to make the edge straight and square.

Paring corners

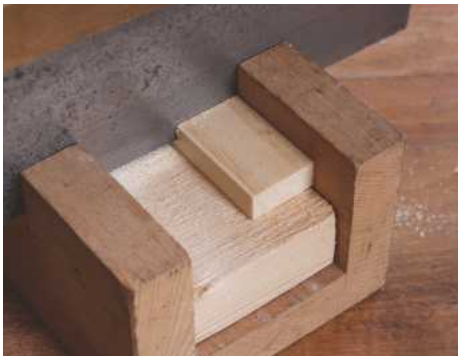
I recall having problems with the coping saw at school, 45 years ago. I was holding it wrong, being too forceful, and snapping blades by the packet. It must be the memory of all that which makes me over-cautious with the coping saw today, stopping to see how I'm doing every few seconds. So instead of sawing a nice smooth curve, I end up with something looking like the scalloped edge of a pie dish. And then it's over to the spokeshave or block plane to smooth out my bumpy work.

Again, it's one of those things which, like boring from both sides or hewing an edge, depends on circumstances to be feasible, but I've discovered a nifty alternative to the coping saw in the chisel. Instead of sawing a radiused corner, I'll pare it. Having scribed the desired radius with dividers

14 Thread the blade between forefinger and knuckles

15 A well-rounded corner direct from the chisel

16 Using the 45° guides to cut a mitre



17 Sawing an end square using perpendicular guides

18 Quick and tidy cuts for small stuff

19 The cutting gauge has a knife-edged blade

20 Run the gauge along the edge, then the face

21 Waste is parted in a single usable strip

22 Chamfer the far edge before planing across the face

23 Cross-grain shavings are typically short and brittle

24 Planing cupped plain-sawn 'whitewood' flat

(**photo 11**), for convenience I'll remove the bulk of the waste with a tenon saw (**photo 12**). Then, with the corner clamped over a piece of scrap timber, the rest of the waste is chiselled off in slivers, paring vertically. A well-organised grip on the chisel helps, with the dominant hand on the handle, while the other hand rests on the work with the forefinger looped around the blade to guide it. By lowering my shoulder onto the handle, I can put some upper body weight behind the edge to help drive it gently downwards (**photo 13**). The chisel may be slower than the coping saw, but no less fun for that, and when I consider the time saved in cleaning up an uneven cut, there's probably nothing in it. The curve that comes off the chisel requires barely a skim of the sanding block (**photo 15**).

Mitre box

The last time I cut a large mitre was for scarfing a new piece of timber into an old door frame, and for that I used a mitre square, carefully marking all around each piece so the 45° faces would meet without a gap. But for smaller stuff I find the mitre box convenient, especially as it locates the work securely at the correct angle to the saw, with no further clamping necessary, and the only marking out strictly necessary is where to begin the cut. That said, having made the mistake of cutting the work short by a length of the mitre itself, I tend to measure more than twice before putting the saw to the timber.

Important points to check in a mitre box are that the sides are square to the base, the guides for the saw are actually at 45° (**photo 16**), and that they're not excessively worn. A solid hardwood box is traditional, typically beech, with thick walls to prevent the saw wobbling in the guides, and sufficient mass for it to be stable on the bench.

It's usual to clamp the work with the free hand while sawing, but sometimes I use wedges or a small cramp to ensure the wood stays put. Sawing on a sacrificial insert prevents cutting into the base. For extra solidity, I push the box itself against a bench dog, or immobilise it with a holdfast.

But it's not all about 45°. A mitre box is usually equipped with perpendicular guides (**photo 17**), which are handy for cutting the ends of small stuff square, and for that the mitre box is probably more precise than a bench hook (**photo 18**).

Rebate with a cutting gauge

If the grain is willing, you can cut a narrow and precisely right-angled rebate (or rabbet) using a cutting gauge. This tool differs from the marking gauge in having a knife-edged blade instead of a pin (**photo 19**), since one of its intended uses is cutting veneer or strips for inlay.

Having set the distance between stock and blade, the technique is to run the gauge down the edge of the board repeatedly until the cut is down to the intended depth (**photo 20**), then turn the board through 90° and run the gauge along the face until the two cuts meet. In this instance I've cut a 2.4mm square rebate in a piece of reclaimed mahogany. I find there's a limit to the depth and width of rebate that's do-able with my cutting gauge, since beyond 6mm friction on the blade gets too much, and the tool itself grows unmanageable. The limit with a different make or design of cutting gauge may be different.

A rebate plane would do the job but it could be tricky maintaining such a bulky tool on a vertical

and straight course over such a narrow width. I think I'd need some kind of track or jig to guide it, besides which the waste removed would be just that – waste. The cutting gauge yields a neat strip of timber (**photo 21**), which could very well be used on its own account – which, of course, is what the tool was designed to do.

Reclaimed & cupped timber

There's some good timber to be reclaimed from discarded furniture, but the downside is that it's often stained or varnished. Generally, I strip away the coatings using a hand plane with a cambered blade pushed across the grain, but it's important to plane a chamfer on the far side of the piece before starting the cross-grain planing, otherwise the blade will splinter the unsupported fibres at the edge.

Anyone who buys so-called 'whitewood' (usually Norway spruce) off the racks of their local DIY store will be familiar with a wide range of timber's possible defects. Splits, knots, twist, warping – this stuff has it all. But the main problem I encounter is cupping.

Being flat sawn (also called plain sawn), the growth rings typically span the board, so that as it dries further when you get it home, and shrinks unevenly across the width, the board begins to look like guttering. Before I knew better, I used a load of this timber for floorboards, and it developed such cupping after fitting that the floor, which started out as flat as a mill pond, grew rippled as a stretch of the English channel in a fresh breeze.

But if the cupping isn't too severe, and the piece not too large, it's fairly quick and easy to correct this defect with a hand plane, albeit at the loss of some thickness. You simply work across the centre of the board on its convex side, then turn the board over and plane close to the edges on the concave side, monitoring progress with a straightedge. By storing the wood indoors for a few months, you can be reasonably sure it's cupped to the maximum before you begin planing.

Planing end-grain

How I treat end-grain depends on what I'm hoping to achieve. If there's only a bump to be levelled I find paring with a chisel, laid flat and bevel up, is as effective as the block plane, and perhaps more so for leaving the target area visible. Other times a pass with the old wooden spokeshave, which has a low-angle blade, does the trick, or a touch of the card scraper. But it's the block plane I use mostly, with a well-honed blade and the mouth narrowed to a whisper. It squares and smooths the end of the piece in one.

But planing the end of a board carries the same risk as planing across its face, in that unsupported fibres will be torn from the far edge unless steps are taken to prevent it (**photo 26**). The easiest thing is to plane alternately from either edge of the board only as far as the centre, making the same number of cuts in each direction. Alternatively, cut a chamfer on the far corner so that the last wood fibres to meet the cutting edge will have supporting wood behind them (**photo 27**). Then you can safely traverse the end of the piece from one side to the other.

Then again, if you need to retain a crisp right-angled corner, and there isn't the wood to spare on cutting a chamfer, you can support those fragile fibres by clamping the work edge-to-edge with a backing piece and plane across them both without a worry (**photo 28**).

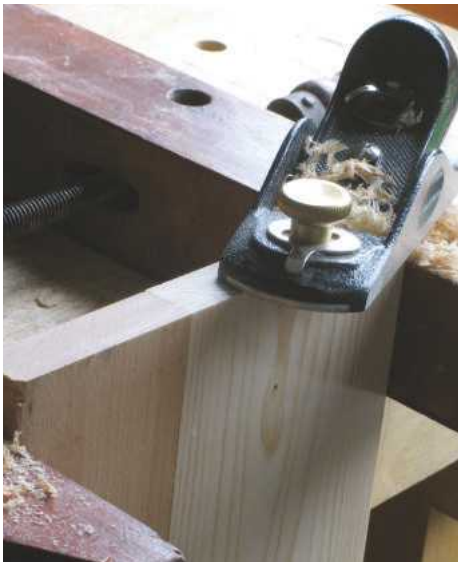
Non-slip faces

For sheer shocking delight, nothing beats bashing a big nail hard squarely on the head and seeing it sink cleanly into the timber. But for every instance of that, I have to admit, there have been less

25 A cupped board is flattened for a small loss in thickness

26 Planing end-grain splits unsupported fibres from the edge

27 Cut a chamfer on the far end before planing



28 Alternatively, clamp the board edge-to-edge with a backing piece

29 Abrade the hammer face to improve traction on the nail

30 Strike the nail squarely to avoid a glancing blow

glorious moments when the hammer slipped and bent the nail double, or missed the head entirely and imprinted itself on the wood – making what used to be called a 'half-crown' (and doesn't quite work as '12½ pence').

To lessen the risk of a glancing blow, I've learned to keep hammer heads clean and improve their grip with an occasional rub on abrasive paper (**photos 29** & **30**). Hammers don't get the attention we lavish on planes, saws and chisels, with their regular check-ups and visits to the whetstone. Once used, the hammer gets tossed aside without a second thought, but bearing in mind the harsh environments it encounters in its varied uses – glue, old painted timbers, rusty nails, a spell in the garden – a build-up of grime can turn the striking face into a slipping face.

Ragged copper nails

A nail hammered into end-grain, with its shank parallel to the fibres, is at risk of pulling loose, but you can increase the holding power of a square-shanked copper boat nail by roughing up or 'ragging' the shank with a knife or an old chisel (**photo 31**).

Old-school boat builders do this where planks are fastened to the transom (**photo 32**), at the stern, and prone to springing apart under the tension of being forced into position. Driving nails into end-grain here is unavoidable, and a significant weakness to look out for in old boats. I've had some success with ragging larger copper nails, but the smaller ones need good support if not to be bent beyond use.

Although soft copper boat nails are easily bent by a less-than-perfect hammer strike, they have their strengths. In a small pilot hole, the square-shanked nail is a classic example of the square peg in a round hole, with all the grip that provides. Copper nails are also safe to use in oak, which corrodes steel nails with its acidic tannins. But their key advantage is their very softness – being easily cut, fitted with a rove and spread by the hammer to make a rivet.

Claw hammer

When I'm reclaiming timber from cast-out furniture, whose next stop would otherwise be the tip, the claw hammer is never far from hand. While pincers pull the smaller nails, where some persuasion is needed to break the grip of a large nail, anchored to the wood by rust, my Garrington adze-eye claw hammer is not found lacking (**photo 34**).

The down force when using this hammer to lever out a nail can be considerable, so it's important to slip a piece of scrap timber underneath the hammer head to spread the load and avoid unnecessary damage.

That adze-eye fitting, by the way, is important in a hammer used for levering, since it provides a large area of contact between the head and the hickory handle, reducing the likelihood of it working loose. Further refinements are sharp edges on the claw, which grip a nail's shank during extraction, and a subtly domed striking face (**photo 35**), which, if you're feeling confident, allows a nail to be driven all the way home without leaving one of those 'half-crowns' as your calling card.

31 Ragging a copper boat nail with an old chisel

32 Nailed planks sprung from an old boat's transom

33 Light catches the barbs of a ragged nail

34 Pulling a nail with the adze-eye claw hammer

35 Domed striking face centred on the nail head

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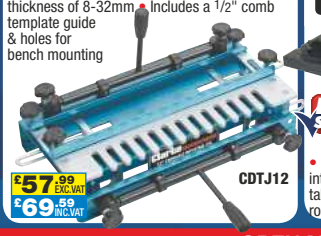

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Waste not, want not

Robin Gates finds 21st century concerns foreshadowed by this design for an emergency food safe from the May 1944 edition of *The Woodworker*

74 years ago Britain was at war, and the majority of able-bodied men and women were away fighting. Back home, Vera Lynn's dulcet promise of 'We'll meet again, don't know where, don't know when...' gave hope to those anxious souls gathered around the radio, and somehow, at a time when both timber and paper were in short supply, *The Woodworker* magazine remained not only part of the furniture but helped build it.

A good example of the projects which kept the magazine relevant through those dark years is this design for an 'Emergency Food Safe' published in the May 1944 edition.

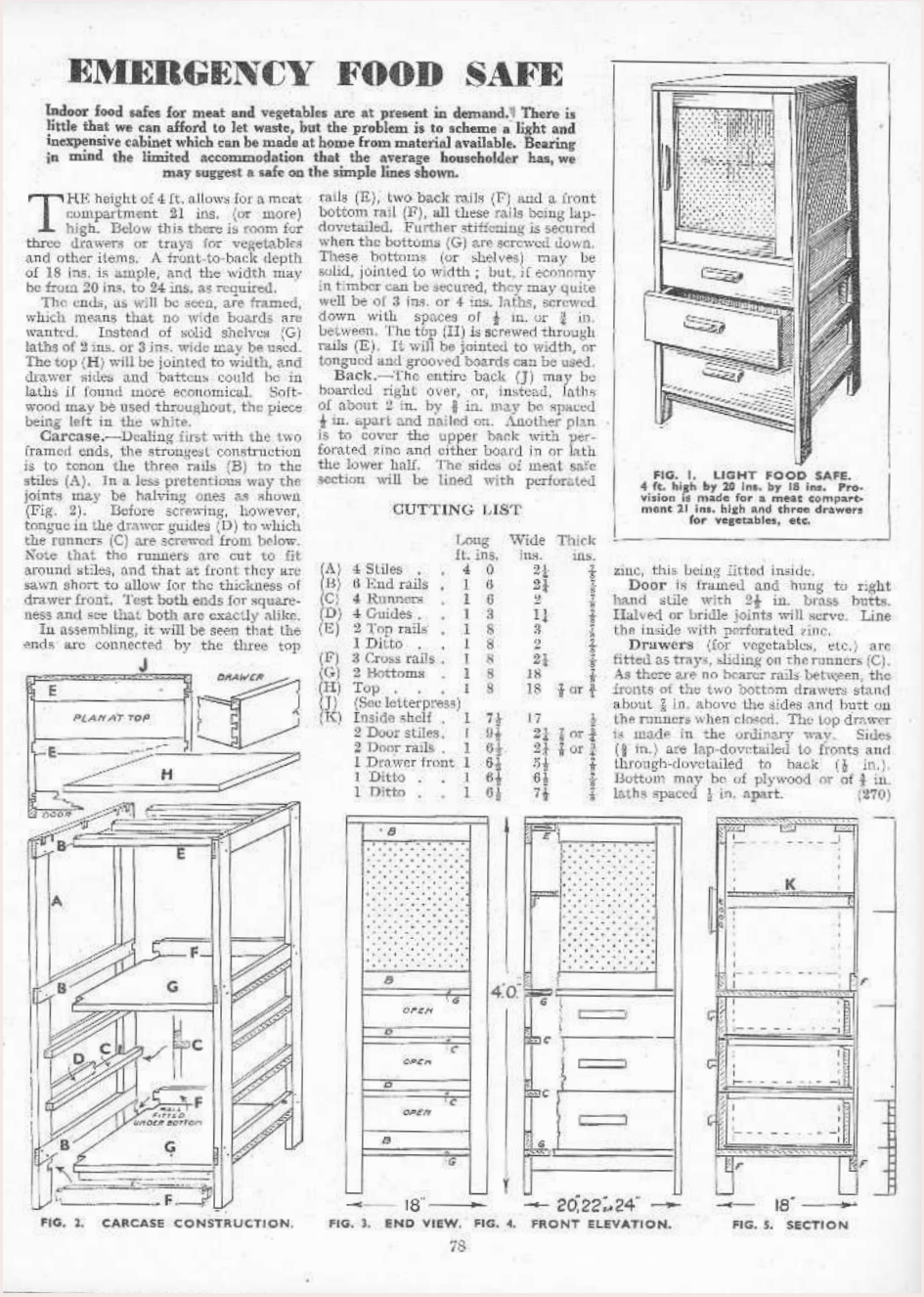
Then, as now, the country was heavily reliant on imported food, and with imports having been severely reduced by the war at sea, the staples of the British diet were strictly rationed. You had to exchange coupons (besides money) for every egg and every ounce of bacon, butter and tea, so it was important to keep those provisions safe from harm and safe to eat, which made a food safe a godsend to the home economy.

Maximum functionality

This design caught my eye because both sets of my grandparents had a food safe, albeit without the drawers. My Mum's Mum kept hers going as late as the 1980s, doggedly resisting every attempt to have a refrigerator installed. Not only that, she boiled her kettle on the fire in winter, and grew all her own vegetables on an allotment, which had its roots in the government's 'Dig for Victory' campaign. Evidently the wartime privations had instilled a habit for frugal living she had no desire to shake off, and it does me good to remember her example.

Clearly, this piece was designed to achieve maximum functionality with the minimum of fuss. Standing 4ft (1.22m) high and 18in (0.46m) deep, some latitude was allowed in the width recognising that it would likely be squeezed into a small and busy area of the home. The upper locker, with perforated zinc panels allowing air circulation while keeping the flies at bay, was for short-term storage of meat, cheese and butter, while the three drawers – essentially trays with handles – were for vegetables. Ideally, the food safe would stand in a cool, shaded position, perhaps outside. Although not mentioned here, the locker might be cooled in summer by draping it with damp hessian, so that evaporation would dissipate the heat.

It was suggested that rails be tenoned into the stiles of the carcass, although given the likely urgency of the job I'd have opted for the simpler option of halvings, as used for the door frame, while aiming for snug lap dovetails in rails joining the two sides.



EMERGENCY FOOD SAFE

Indoor food safes for meat and vegetables are at present in demand. There is little that we can afford to let waste, but the problem is to scheme a light and inexpensive cabinet which can be made at home from material available. Bearing in mind the limited accommodation that the average householder has, we may suggest a safe on the simple lines shown.

THE height of 4 ft. allows for a meat compartment 21 ins. (or more) high. Below this there is room for three drawers or trays for vegetables and other items. A front-to-back depth of 18 ins. is ample, and the width may be from 20 ins. to 24 ins. as required.

The ends, as will be seen, are framed, which means that no wide boards are wanted. Instead of solid shelves (G) laths of 2 ins. or 3 ins. wide may be used. The top (H) will be jointed to width, and drawer sides and battens could be in laths if found more economical. Softwood may be used throughout, the piece being left in the white.

Carcase.—Dealing first with the two framed ends, the strongest construction is to tenon the three rails (B) to the stiles (A). In a less pretentious way the joints may be halving ones as shown (Fig. 2). Before screwing, however, tongue in the drawer guides (D) to which the runners (C) are screwed from below. Note that the runners are cut to fit around stiles, and that at front they are sawn short to allow for the thickness of drawer front. Test both ends for squareness and see that both are exactly alike.

In assembling, it will be seen that the ends are connected by the three top rails (E), two back rails (F) and a front bottom rail (F), all these rails being lap-dovetailed. Further stiffening is secured when the bottoms (G) are screwed down. These bottoms (or shelves) may be solid, jointed to width; but, if economy in timber can be secured, they may quite well be of 3 ins. or 4 ins. laths, screwed down with spaces of ¼ in. or ⅜ in. between. The top (H) is screwed through rails (E). It will be jointed to width, or tongued and grooved boards can be used.

Back.—The entire back (J) may be boarded right over, or, instead, laths of about 2 in. by ⅜ in. may be spaced ½ in. apart and nailed on. Another plan is to cover the upper back with perforated zinc and either board in or lath the lower half. The sides of meat safe section will be lined with perforated zinc, this being fitted inside.

CUTTING LIST

		Long ft.	ins.	Wide ins.	Thick ins.
(A)	4 Stiles	4	0	2½	¾
(B)	6 End rails	1	6	2¾	¾
(C)	4 Runners	1	6	2	¾
(D)	4 Guides	1	3	1¼	¾
(E)	2 Top rails	1	8	3	¾
	1 Ditto	1	8	2	¾
(F)	3 Cross rails	1	8	2¾	¾
(G)	2 Bottoms	1	8	18	¼
(H)	Top	1	8	18	¾ or ¼
(J)	(See letterpress)				
(K)	Inside shelf	1	7½	17	½
	2 Door stiles	1	9½	2½	⅞ or ¾
	2 Door rails	1	6½	2½	⅞ or ¾
	1 Drawer front	1	6½	5½	¾
	1 Ditto	1	6½	6½	¾
	1 Ditto	1	6½	7½	¾

Door is framed and hung to right hand stile with 2½ in. brass butts. Halved or bridle joints will serve. Line the inside with perforated zinc.

Drawers (for vegetables, etc.) are fitted as trays, sliding on the runners (C). As there are no bearer rails between, the fronts of the two bottom drawers stand about ⅞ in. above the sides and butt on the runners when closed. The top drawer is made in the ordinary way. Sides (⅝ in.) are lap-dovetailed to fronts and through-dovetailed to back (½ in.). Bottom may be of plywood or of ¾ in. laths spaced ½ in. apart. (270)

FIG. 1. LIGHT FOOD SAFE. 4 ft. high by 20 ins. by 18 ins. Provision is made for a meat compartment 21 ins. high and three drawers for vegetables, etc.

FIG. 2. CARCASE CONSTRUCTION.

FIG. 3. END VIEW. FIG. 4. FRONT ELEVATION.

FIG. 5. SECTION

78

Design come-back?

With wartime timber restrictions making plywood (needed for aircraft production) and softwood (pit props for the coal mines) only available on licence, it was suggested the bottom and middle horizontal boards could be substituted by narrow laths nailed with gaps between, and the same for the drawer bottoms and the back, leaving only the locker top, drawer fronts, sides and backs as wider pieces to be found or jointed to size. For such purposes, I imagine many an old panelled door and bed headboard would have been recycled through the shed by a thrifty handyman. There wasn't much hardware to find, just screws, nails, and a couple of hinges, while handles might be shaped from offcuts.

My first impression of this design was of a period piece well past its use-by date, but given how tense international relations have been, and our growing awareness of food being wasted, perhaps the concerns of 1944 and 2018 are not so very different. Could the 'Emergency Food Safe' make a come-back?

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Date	Event name	Post code	Town	County	Website/retailer
May 26	Axminster Nuneaton	CV10 7RA	Nuneaton	Warwickshire	www.eventbrite.co.uk
June 13-14	Pro Builder Show	HG2 8NZ	Harrogate	North Yorkshire	www.probuilderlive.co.uk
June 15-16	Frank Clark	Ireland	Cork	Co Cork	www.frankclark.ie
June 23-24	Axe Vale Show	EX13 5RJ	Axminster	Devon	www.axevaleshow.com
July 7	Axminster Warrington	WA2 8NT	Warrington	Cheshire	www.eventbrite.co.uk
July 24-26	New Forest Show	SO42 7QH	Brockenhurst	Hampshire	www.newforestshow.co.uk
July 26	Norfolk Saw Services	NR3 2AW	Norwich	Norfolk	www.norfolksawservices.co.uk
August 12	Snainton Woodworking Supplies	YO13 9BG	Scarborough	North Yorkshire	www.snaintonwoodworking.com
August 18-19	South Downs Show	PO8 0QE	Petersfield	Hampshire	www.southdownsshow.co.uk
August 25-26	Model Boat Convention	WA12 0HQ	Newton le Willows	Lancashire	www.modelboatconvention.co.uk
September 1	Chalfont St Giles Show	HP8 4QF	Chalfont St Giles	Buckinghamshire	www.csgshow.org
September 7-8	Yandles	TA12 6JU	Martock	Somerset	www.yandles.co.uk
September 24-28	Basingstoke Green Week	RG22 6HN	Basingstoke	Hampshire	
September 28-29	Raitts	Ireland	Stranorlar	Donegal	www.whraitt.ie
October 12-14	'The' Tool Show with D&M Tools	TW16 5AQ	Kempton Park	Surrey	www.thetoolshow.com
November 3-4	Toolpost	OX11 7HR	Didcot	Oxfordshire	www.toolpost.co.uk
November 9-10	The Carpentry Store	Ireland	Naas	Co. Kildare	www.thecarpentrystore.com
November 16-18	Harrogate Show	HG2 8QZ	Harrogate	Yorkshire	www.skpromotions.co.uk
December 7-8	Toolite	GL17 0SL	Mitcheldean	Gloucestershire	www.toolite.org.uk

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THE COMPLEAT CRAFTSPERSON?

In the borderlands, **Dave Roberts** finds, the space to shape your own identity brings new meaning to the 'self-made man'

"My family is from Holt on the river Dee," says Richard, "the border between England and Wales; there are Chaloners buried on both sides of the river going back to the 1500s or 1600s." This history notwithstanding, when he met the last of the family's 1910 or 1920s generation, Richard was told: "'We're borderfolk, that's what we are,' as though it was a matter of family fact; as if being borderfolk suggests a lack of real roots, that you don't belong anywhere." There might, then, have been a small irony in the view from Richard's hilltop, if the river and its valley, which it overlooks, had been named for the original unbelonger, Cain. The word, however, comes from the Welsh and means 'clear water', and in the liquid clarity of its border prospects is all the freedom you could want to be yourself: ageing rock stars, minor aristocracy, and the wealthy have withdrawn into its accepting neither-here-nor-thereness, and with them craftspeople and artists, drawn not only by the relatively low cost-of-living but also by the borderlands' quality of a 'tabula rasa', a clean place to which you can bring all the pieces of your own identity – which, in a way, is what Richard, and his wife Sue, are doing.

The '70s & art-student sub-culture

In '73, they left the north-west with "open minds," and went to London and the City of London Poly', as the newly re-minted City of London College was called. In the '70s, before the gentrification of the East End was underway, Whitechapel was a different world: a home to a working-class Jewish community, buddleia growing wild on the gap-teeth of wartime bomb sites, and the sub-culture of arts students like Richard. It was the start of a nine-year stay in Whitechapel, beginning with his degree in social sciences, during which he took the opportunity to use the facilities of the Sir John Cass College of Arts & Science – which had become part of the poly's estate – and began learning to make jewellery. At the same time, he was rubbing shoulders with students at the London College of Furniture, and – in the course of being in and out of the guitar-makers' workshops, for whom he was doing bits of metalwork – he began, by a process of osmosis, to pick up woodworking skills of own.

After graduation, his extra-curricular craftwork led to a stall in Covent Garden: "Jewellery-making was my first trade – lots of bangles, brooches, necklaces, rings and earrings," because that's the scale on which jewellery is made. "At the same time, I was doing woodwork, and I found I could make anything. [Wood] was much more versatile: you could go larger or smaller; it was more diverse in terms of types of wood. I found I preferred working in wood; it was the meat and drink of projects of all sizes and descriptions, the material to be playing with if you want fun and opportunity.

"I was doing a lot of woodwork, a lot of this-and-that type of work. In the late '70s, I had a 'phone call from a friend who knew me as a craftsperson – I'd done basket-making and pottery as well – and he asked if I wanted to work part-time as a craft teacher in an FE college." As the decade ended, however, the walls and foundations of an era were vanishing with it: "When I first trained as a craft teacher, I went to ILEA courses near Greenwich; beautiful, beautiful workshops, the best you've ever seen. Serried rows of chisels in glass cases, men in white coats, and a casting workshop where there was this 7 × 7ft casting bed for propellors…" It was to become, though, one of what he considers the 'lost temples of knowledge': "ILEA has gone, the whole process of keeping teachers informed has gone; craft has gone."

Sue – who studied art during the Whitechapel years – "trained as a Craft, Design and Technology teacher, with the emphasis on craft, [but] the day she left college was the day… it became 'design and technology' – electronics and bits of Perspex – and the craft side of it was lost."

Smoother, jack, and jointer: some of these go back to the days when you could pick up a serviceable Record or Stanley in Brick Lane market for £12

Heavy metal: once back in fettle, the Cooksley saw and planer/thicknesser…

… takes all time and work out of dimensioning timber

Wombling free

Along with the temples and the teaching, the old industrial landscape was slowly going, too: "There was a lot of change in east London, and a great deal up for grabs. We did a lot of 'wombling', going down to the docks and finding things. We rescued lots of timber: people with an interest in wood and some equipment would plane it all up and have beautiful things made out of it." In the Greenall Whitley brewery, at the end of Whitechapel High Street, a massive pyre had been made from 14ft-diameter vats made of cowrie pine: "They were just burning pine that you're not even allowed to buy nowadays. We just ran in with a BRUTE" – British Rail's 'utility trolley'; it comes as no surprise to find that Richard has done a stint as a station porter, too – "and filled it to the brim three or four times over." In their workshop today, you'll find a weaving loom made of Greenall Whitley cowrie, on which Sue – a polycrafter like Richard – used to work. In Richard's music room, meanwhile, there's a guitar whose mahogany body was once part of the customs desk that stood in the offices at St Katherine's docks. Rescued, planed, and decorated with pear and ivory, it's a souvenir of a vanished world, and a memento of the work of a friend from those times, Tony Smith, whom Richard remembers as an inveterate craftsman: "He liked to keep score when playing cricket because it gave him an excuse to sharpen his pencil meticulously with a knife; everything he did had to be perfect. He was a crap cricketer, though!"

As the teaching of traditional metal- and woodworking skills was swept from the classrooms, with them went the machinery. In Richard's workshop, there's a pillar drill, heavy as a shipyard sliding way, that came from White Hart Lane School in Tottenham: "The drill was just thrown into the playground; I arrived in a Cortina and…" – and more wombling ensued. His Cooksley table saw and planer/thicknesser, meanwhile, with its massive cast table, came from the workshop-neighbour of a boat-building friend, and was refurbished with a two horse motor on the planer/thicknesser, three horses for the saw, "and lots of TLC all round." And because practical-mindedness tends not to recognise borders, Richard did the work himself; the ability to repair and fabricate is simply part of the making game; when he finally decides to make a fence for the saw, he'll stitch it together himself, too, using the welding gear in the corner.

"Until the late '60s or early '70s – when commercial craft businesses introduced 'appropriately targeted' tools – it was normal to make your own tools. You'd buy blanks," he says, picking up a pair of jeweller's box pliers by way of an example, "and shape the jaws to suit the task required." In the same way, Tony – he of the perfectly whittled cricket-scoring pencil – would make his own planes with brass bodies and tool-steel irons, each one suited to a particular task in the luthier's trade. "A lot of fine engineering takes place in woodwork," partly for the pleasure of making – the feel of a custom-made beech-handled cabinet scraper in Richard's workshop is all the explanation that's required – partly for pragmatic reasons (not everything can be bought or afforded), and partly, perhaps, because there is an ambition in the craftsman towards 'completeness'?

If, as Richard suggests, "the 'craft' that people mean when they [talk of] craft in the physical sense is the bringing about of something that can be identified as an object and not its component parts," then perhaps the same can be said of craftspeople: their collected skills are not separate strands, but rather part of one approach to doing. If nothing else, it makes for a type of independence, as Richard and Sue's plan to escape London's orbit showed.

"We knew we weren't going to be there for ever," and preparations for leaving involved moving from Whitechapel in 1981 to a near-derelict house in Hackney which – using their combined skills – they planned to renovate and sell on: "Just as when we first moved to Whitechapel, we bought from a lovely Jewish couple who were moving to better parts [of London]." They were only among the first of the wave of gentrifiers in the borough, however, and back then, Hackney was itself still a type of borderland between city and country: "We lived on a tree-lined road with a park at the bottom; you didn't know you were in London. We lived in semi-rural isolation; it was where Izaak Walton wrote *The Complete Angler*" – or tangler, as Richard would have it – "I saw my first kingfisher there." Before the Janes and Jamess arrived with designs on turning cellars into basement rooms, there were people like Phil', "an old guy over the road, who had an engineering workshop in his cellar, with machines all running off a single light fitting."

Japanese chisels: laminated steel that takes and keeps a fine edge, a tang on the outside of the handle rather than the inside so it won't split the wood. "If you start using them, you won't go back to English chisels." Richard's sharpening system also includes Japanese waterstones, and Water of Ayr stone

The aesthetic and practical benefit of rolling your own

Once removed from the host tree, old ivy has a hollow-form appeal; Richard's toying with the idea of using it to support small table tops

When it comes to clasps or inlay, box-making is an obvious example of combining the woodworker's skills with those of the jeweller or metalworker. To separate the lid, Richard's planning to use a Japanese saw: "The trick is to tape along the cut so that the kerf is held stable; cut down one side, then the next, retape, turn it over, and cut the other sides"

There was a time when you could buy chisel blades on Tottenham Court Road for £1.50, then add your own handles; round ones are attractive, but octagonal ones don't roll off the bench!

Time & tides

It was the start of 15 years of work, an exercise in 'complete craftsmanship', if you like, in which chancing upon a cancelled order of birch – "we used to be near Latham's woodyard on the river Lea: it's a Barretts estate now" – could be turned to advantage by the skills they both had to hand, and become the fitted kitchen that the next wave of incomers would want. The irony is that the return on this investment was inextricably linked to the tide of changes taking place at the time: Richard was working as a senior lecturer in FE colleges and a jobbing builder, Sue was teaching, "the [education] cuts were coming, and we were enjoying work less and less. So I started writing texts books, which proved successful; we paid off the mortgage, and I gave up the [lecturing]," while always having some other enterprise – examining, graphic arts – on the go.

When Richard talks about 'accumulating money' it's only as a means to an end, the thing that could buy freedom, or rather the potential for freedom in the clear water of the borderlands. "We wanted somewhere rundown, so that we could afford it and have the fun of doing it up ourselves, and rural, so we'd have space," which is what brought them, in '99, to that view over the Cain valley. They're only a couple of dozen miles from those ancient Chaloners buried by the Dee, but if Richard's first cousin once removed was right, and being borderfolk does mean a certain rootlessness, then a farmhouse of stone built around a 16th century oak cruick frame is surely a pretty good substitute; an anchor around which to collect family, and to craft the other pieces of your identity into a type of belonging?

Up, then, came the pillar drill, the lathe, and planer/thicknesser; up came the workbenches, the tools, and materials – the tangible points in a network of connections that, all together, is a map of accumulated experience. There's a thread, for instance, connecting the pair of to-be-restored 19th century Windsor carvers, whose walnut, fruit wood and bent-ash remains were pulled from a skip in Whitechapel, and Richard's love of working with spokeshaves; another between the scraps of silver and sheet of spinning brass by the jewellery-maker's bench, and the burr walnut box waiting for a clasp; and also between the Japanese pull-saws – so much better to use, Richard's experience tells him, than pushing on our occidental backsaws – and the box lid that needs to be parted from the body. Heck, even the poured concrete of the workshop floor beneath that reclaimed pillar drill and refurbished planer/thicknesser represents and connects those years in London, accumulating the resources that are part of his wider craft.

In the old stables next door is some of the timber that'll be a focus for that craft: two alders from beside their pond, now sawn through-and-through and destined to be a kitchen table ("It's beautiful timber; I planed a bit up and it shines nicely"); plum from the orchard waiting to be milled; lime for carving; the last of the Greenall Whitley coopered cowrie staves. Here's a branch of laburnum that would've provided a decorative 'oyster' if only worm hadn't spoiled the sapwood, and over there the rest of the tree is waiting to be sawn. "I want to make a chair from it; the side-grain has a gorgeous gold and black figure," though there's danger in its beauty, too; every scrap of the tree is poisonous. "Sue and I nearly came to grief years ago," says Richard. "We did a project for a library, making some gates from old shelving," which turned out to be iroko. "Hard as [proverbial] nails! We made these gates in our kitchen in our little flat in Whitechapel, sanded them by hand for a day and a half, then spent two weeks in bed. It was like the worst flu you can imagine: we could barely breathe, we could barely move. We'd poisoned ourselves!"

If we needed to coin an expression for the way that all this experience comes together in an identity (providing you don't poison yourself, that is), it might be true to say, 'you are what you were', though it seems rather lacking in a sense of optimism and futurity until Richard, closing the door on the woodstore, says: "We've been building for so long" – staircases, flooring, green oak framing, repair sections for beams, and only the odd bookcase or bed – "we haven't had time to do any projects for fun. It's time I started making some furniture again!"

Carver's lime: "I've just been messing about doodling there, but once you start you can't stop; it carves like soap, you can see why Grinling Gibbons used it"

To keep his carving chisels bright, Richard favours the felt mop of a stone-polishing wheel, and a smear of jeweller's rouge

School's out: when local education authorities emptied the metal and woodwork shops, makers like Richard fell on the old British machinery…

… and the workbenches. But 'Wayne 4 Ophelia'? It's Richard's candidate for the most improbable graffiti on a north London school bench. "I think Wayne wrote that; can't imagine an Ophelia chewing gum"

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YOUR TABLE, MADAM

Edward Hopkins throws a curver

1 Several boards ripped down to remove major blemishes, and reassembled with as symmetric a pattern as possible. Notice the step at the end, bottom left: very deliberate, not a mistake

2 One over length end about to be trimmed, using the already trimmed half as a guide

Imagine a world where adults are 15ft high; where all their furniture is more than twice the size it should be, and where the sharp corner of a dining table is the same height as your forehead. You don't have to imagine this world, it already exists. After you've learnt to walk you learn to run and such is your joy of life that sometimes you forget to stop. Ouch! Whaa! So thinking of Imogen and Pjay (my daughter and son-in-law) who are soon to own a house, but have very little furniture; thinking about the remainder of my Devon field ash that is well and truly dry, and thinking about Jaya (my granddaughter, and her sibling on the way), it came to me: a dining table with rounded corners.

I'm not suggesting that all family tables need rounded corners (though they don't need sharp ones), but I liked the idea. More than that, I liked where it would lead, which was initially, as so often, into the unknown. Straightaway there is a design brief. How do you make a table with rounded corners that doesn't belong in a canteen, a caravan or a school room? There is something utilitarian and 1950s about rounded corners. I used to call them 'television corners' but I can't do that now we all have flat screens.

My answer was to brazen it out. I could have made a standard rectilinear table with a top overhanging enough to be rounded, and left it there, but that, to my mind, would be a waste of an opportunity. Rather than gloss over the rounded corners, I felt like emphasising them. Anyway, good design has integrity with all parts talking to each other, so somewhere there would have to be more curves. It's a delicate balance.

Take a sitting room in which the owner has decided to paint one wall midnight blue. It's a bit of a shock, and perhaps a little odd. The usual consequence is to hang blue curtains on another wall, or have a matching sofa. Now there is a dialogue and some dynamism in the room. Too often this is followed by painting the skirting board blue and, hey, why not the architrave? By the time a rug featuring scarlet, emerald and deep blue is put down by the fire, the impact of that wall is diluted and lost. It happens time and again. The trick is to stop at just the right moment.

Contemplating the design

I stayed with my first thoughts, which were to echo the curved corner in the adjacent top leg assembly. This 'knuckle' would create an emptiness in what would normally be considered a place of critical strength, and I liked the perversity and humour of that. Where else for curves? The rails were obvious candidates. They could be thinned out with more scallops. Deep rails that impinge on your thighs as you sit are not good. Shallower rails are more elegant and comfortable. And, here, they are all that is needed.

The simple psychology of this sort of construction is to make a sturdy frame to support the top, forgetting that the top has considerable structural strength in itself. It is clipped to the frame with buttons (so that it can move as it acclimatises), which does not detract from its horizontal rigidity. The thinned out rails borrow strength from the top.

The main structural event is the corner with those whacking 4in joints; and in the reinforced joining of end frames and side frames. The ex-2in backing pieces (heavily chamfered) offer a large glued area between the frames and afford enormous rigidity. To evaluate the integrity of this or any construction you have to imagine where, if it was put under great stress, it would fail. I think it would be the knuckle, but you'd have to be viciously determined to break it.

3 Cut the template accurately then draw round it to ascertain the waste

4 Jigsaw away the waste leaving a clear margin

5 Cramp the template in place

6 Run round it with the router

Dowelmax in action

Having recently been converted by the Dowelmax jig, there is not a mortise and tenon in sight. Neither are there loose tongues joining the pieces of the top. Here, the Dowelmax is superior. The trouble with loose tongues, apart from having to stop them so that they don't show on the end-grain, is the correct snugness of fit of the tongue. Too tight and cramping becomes anxious; too loose and the alignment of the boards is compromised, meaning a lot more sanding and scraping later on. A timber tongue offers no great strength because of its grain direction, so better work uses thin ply. A dowelled joint, in contrast, has substantial cross-grain strength and, using the Dowelmax, virtually perfect alignment. I used nine dowels on each joint, cramping up two halves of the top separately before gluing those halves together. Substantial cramps were needed as the tightening dowels creaked like a galleon in a gale.

Now I want to tell you something clever. I was very pleased with myself about this. As you know, you join boards together and then cut them to length, not the other way round, because however careful you are jointing and gluing, there are likely to be discrepancies at the ends. My table saw has the sliding table and an extension bar, but even so, it can only accommodate a cut of 2ft. The table top was three. How would I trim those 3ft? Not by hand because I don't trust myself and anyway I'd then have to shoot the end-grain, quite possibly teetering on a pair of step-ladders. Yech! Cramp on a baton and rout the end clean? I definitely didn't fancy that – risky, unreliable and a lot of bother. What else? I couldn't think. Then I did. I trimmed one end of each half and left the other end over length; carried on gluing them together and could then trim the over length half on the table saw using the trimmed end as a guide! What might have taken half an hour by another method took me half a minute; and it was cleaner and more accurate (**photos 1** & **2**). I like that.

Tight joints

I wanted to be sure of a tight dowel joint between leg and rail, so the leg components were dowelled, glued and cramped tight before the curves were cut. If cut first, the curves would make cramping

7 A Japanese carving file to the rescue

8 The Dowelmax making do quite well without an accessory plate

much more difficult and less direct. How to effect the curves? There's only one sensible way, and that is to run a router along a template. You can use a copying collar on the router itself, but this involves an amount of calculation when shaping the template. It is easier to use a router bit with a guide bush – then the template is exactly what you want to replicate. My biggest and favourite cutter is such a beast, and has done service many times; a few too many without being sharpened. Thin MDF makes a good template. It is worth taking time to be accurate because, of course, the shape is reproduced here 12 times. The procedure is pretty obvious (**photos 3–6**).

Making do

My natural inclination was to take it easy with the router, but when I did this, a combination of bluntness of cutter and end-grain readily produced scorching. The best result was achieved by the fastest pass. My hefty cutter could remove a lot of wood in one go, so towards the end I was almost doing it in one three second pass! Make sure those cramps are tight because you need to heave against the template. Grain direction is important. Take a few practice passes first (on a piece with a larger margin of waste).

The same went for the sides. I jigsawed and bandsawed the shape, then touched the curve in on the end of a static belt sander. I was wary of running over the corner, and so was left with waste there to remove. How would I do this? Sounds simple. It is simple, but only with the right tools. I don't have a bobbin sander, oscillating or otherwise, but my radial arm saw has a bobbin mode so I tried that. Still there is a risk of misjudging the touch and spoiling the shape in an instant, especially considering that a few smooth sweeping movements are called for. I took a rasp out of the drawer but I could immediately tell it was too brutal and medieval for this job. Then I alighted on a recent visitor – a Japanese carver's file (**photo 7**). It looks like a piece of threaded bar, but each of those threads is cut with an edge. It purports to produce shavings not dust, but because MDF produces nothing but dust, I reserved judgment. It worked beautifully and, in complete contrast with the router, all the better with multiple light strokes.

A couple of cross-rails make the table's undercarriage that bit more stable. Without them there would be flex in the sides. Previously I would have used wedged through tenons but now, of course, it's dowels (**photo 8**). It took a little while but nowhere near as long as the mortise and tenon. Anyway, a noticeable joint would not be in keeping with the rest of the design, so if I did that I'd have to do something compatible elsewhere, and just at the moment, I didn't know what that would be.

10 Buttons pinch the top, primarily across the grain where any warping should be dissuaded

9 Gluing in the cross-rails

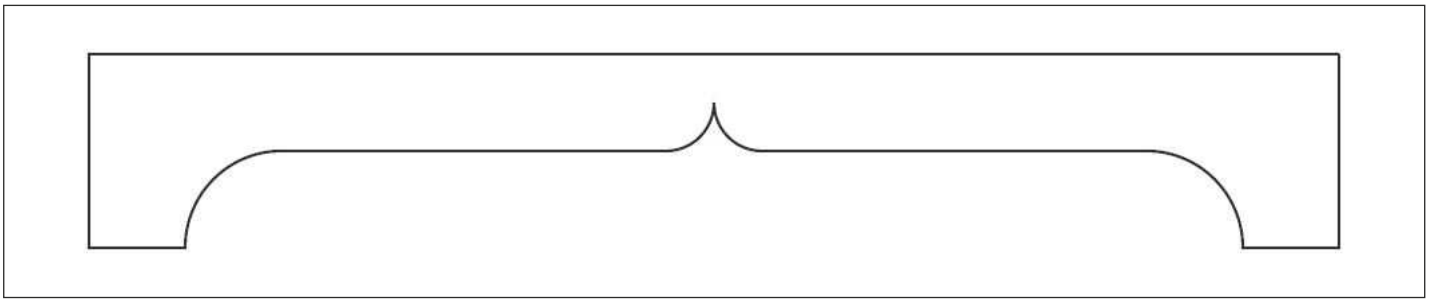
Clamping up

Though the cross-rails were dowelled, the joining of the frames at the corner wasn't. I only have four of these long cramps, but even with more it would have been a fraught operation. Good thick PVA grabs fast. A glued dowel is a pneumatic fit and takes a bit of pressing home. Doing this on the whole assembly at once would have been far more stress (literally) than I needed or wanted. The final assembly then is only rub glued.

Parting thoughts

Four short days later, I'm in a familiar place – wondering what I've done. This morning I saw the table the right way up standing on the floor for the first time. I monitored my reaction. What did I think of it or, better, how did it make me feel? I like its humour and non-conformity. I love the timber. The table feels fresh and lively but at the same time solid and bulky. The ash planed down to ¾in, the top is a bit thicker.

That crude thickness is unalieviated by any lighter lines. Do I mind? Well, before I answer that, I have to know what the alternative would be. What would the next level of decoration be – the midnight blue mirror frame and standard lamp? Rounding over the table top? Too globular, and where would that be echoed on the base? All I can come up with is a little swept curve up and down in the middle of the long rails (**photo 11**), which though it might add a little finesse, is really neither here nor there.



11 A tulip might have added another touch of finesse

JAPANESE CARVER'S FILES

Edward Hopkins puts four Japanese carving files through their paces

I've been sitting in the sun (don't comment). Axminster Power Tools sent me four Japanese carver's files to play with. I don't do a lot of carving and I wondered what use I'd make of them. I had a fleeting image of a matchbox-sized Henry Moore sculpture, but I only had round files, no flat ones, so all work would have to be internal and hollow. Anyway, I'm not Henry Moore.

It's a funny thing but as soon as you have a new tool, you wonder how you ever did without it. I don't know why this is. Perhaps the creative mind grabs a chance to do something new whether or not you're aware of it. Sounds a bit weird, but I know when it happens and it just did. Nothing would have been better than the largest of these files for finishing the MDF template, and for safely removing sanding/scorch marks from the curves on the ash table rails. Without the largest file I'd have had to find a cylinder just a little small, wrapped it with abrasive paper and stood there twisting my wrists till they ached. An oscillating bobbin sander is what's needed for this sort of thing but as yet, one hasn't bobbed along.

Testing the four

Wanting to try all four files I looked around and noticed a square stick of holm oak. This would be hard work but it was a small section piece and these files were meant to be sharp. I reverted to form and made (just for fun) an Italianate tower, cutting a doorway, first floor windows and a pointed roof. I'd use the files to carve a narrowing pathway winding up the unnaturally square rock on which it sat.

A little 'polishing' on very hard timber, but the files give as near perfect a cut as you will get

A test piece. (Windows drilled. Door drilled and chiselled. Roof and corbels mitre-sawn.) Pathway filed

It might have taken me an hour. Sounds peaceful doesn't it, a bit like whittling? Yes, I did enjoy it, but peaceful it isn't. I'm glad I have no near neighbours. All the files cut well but the smallest squealed and shrieked like an hysterical child. The next one up was less irritable, but still vocal. The bigger ones were progressively quieter and lower-key, but still noisy and would be annoying for anyone near (yes, I could have gone indoors).

The files purport to cut shavings rather than dust. I wouldn't have known this; it looked like dust to me. I was more interested in the speed of removal than the description of the waste. Remove it, it did, but not astoundingly fast. Halfway through, I had a stab of doubt and thought that a round metal file might do just as well. I found a new file and thought its helical edge might even be better than the rings on the Japanese file. I expected a comparable action but after a couple of strokes, I could see that the metal file wasn't doing anything at all beyond a bit of light polishing. Then I tried the Japanese files on pine. The cut wasn't very much faster and the tiny file still yelled like an irascible bee. However, the finish from all the files was excellent. It has to be really because nothing else is going to get in there to improve it.

Conclusion

If you're producing decorative pierced work or little Barbara Hepworths, you'll want a set of these files. Flat files, fine rasps and rifflers will also be necessary. So too if (rather less interestingly) you want to elongate holes for slot screwing. Or cut keyholes to be covered with an escutcheon plate.

SPECIFICATION

Round file with blade:
8mm diameter
Fine 1.6mm tooth pitch for smooth finish
185mm cutting length
Fitted with wooden handle
Typical price: £34.96

Round file:
6mm diameter
Extra fine with 0.7mm tooth pitch
Typical price: £24.35

Round file:
5mm diameter blade
Extra fine with 0.7mm tooth pitch
Typical price: £20.95

Round file:
3mm diameter blade
Extra fine with 0.7mm tooth pitch
Typical price: £16.10

6, 5 and 3mm files:
100mm cutting length
Fitted with moulded handle

Web: www.axminster.co.uk/tools-from-japan

LETTERS

★LETTER OF THE MONTH

TWO LOVES COMBINED

Hi Tegan,

I've just started subscribing to the magazine and my main interest is to expand the self-taught woodworking skills I have with novel techniques and tools. It will also complement my on-going subscription to *Model Engineers Workshop*.

I retired nearly 11 years ago and began to develop my interests in both woodworking and metalworking. The woodworking began with scrollsaw projects, but I also started to play guitar – badly. So to hide my inability to play this instrument, I decided to combine my woodworking and metalworking efforts into making copies of well-known electric guitars. Your article by Les Thorne 'a platter full of apples' (see *GW*331) regarding a piece of spalted beech has prompted this letter.

During a walk through a local wood, I came across a large segment of beech trunk that had been left behind after evident felling of diseased beech trees. With the help of a luggage trolley, I managed – on my return – to get the lump into the back of my car. I had no idea what I was going to do with it – until I began a project to make a copy of a Gibson SG guitar (the model in various disguises used by Tony Lommi (Black Sabbath) and Angus Young (AC/DC), among many others). The body of this guitar is quite small and thin and I reckoned I had just about enough spalted beech to make it work. Unlike Les, I used a hand saw (and a lot of effort) to separate the spalted beech into layers, because I wanted book-matched parts to the body (the trunk segment wasn't big enough to make this in one piece). All my guitar bodies and necks are fashioned using just hand tools, a bandsaw and various belt and orbital sanders, and I even use microscope glass slides as final scrapers.

The photos attached show the original lump of spalted beech and the guitar fashioned from it. For durability, I tend to use acrylic spray paints as the finish, although I have, like Les, used Danish oil, or teak oil, while my current favourite finish is Chestnut melamine lacquer, which is very close to the nitro-cellulose lacquer used on top-end commercial guitars. Incidentally, many toothpastes make great final polishes – the more 'whitening' they are, the more abrasive (see **http://dendds.com/uploads/RDA_index.pdf**).

My wife complains that I don't sell any of these guitars, but it's very hard to part with something you've put a lot of effort and love into. I currently have 15 of them and am in the process of making a copy of Brian May's 'Red Special' guitar, which he and his father designed and made from wood and metal materials lying about the house. This is the guitar he still plays today.

With best regards, **Colin Lloyd**

Hi Colin, thanks so much for getting in touch and sharing your story. I absolutely love your guitar – it is very unusual and the spalted beech looks fantastic! I agree with your wife that you really should think about selling these but completely understand how difficult it would be to part with any one of them!

Thank you again for taking the time to email me and I hope you continue to enjoy the magazine and your woodworking!

Best wishes, **Tegan**

The original piece of spalted beech Colin used to make his guitar...

... and the Gibson SG fashioned from it

Jon's 'Air Conditioner Prosthesis' is the perfect example of a whimsical project

The carved hand really does a good job of turning those dials!

A WHIMSICAL PROJECT FROM AMERICA

Dear Editor,

I enjoy reading each issue of *The Woodworker* and saw your request for whimsical projects in the March 2018 edition. I think my 'Air Conditioner Prosthesis' fits that description. I manage the Bookmobile at the Akron-Summit County Public Library in Ohio, USA. Some smaller staff members were having a difficult time reaching the truck's controls for the overhead air conditioner; I was going to make a simple forked stick so they could turn the control knob, but decided to have a little fun with this project. I have included a few photos of the results.

Take care, **Jon Hershey**

Hi Jon, thanks for responding to our recent request and what a whimsical joy your project is! It's always great if we can impart a sense of humour into our woodworking and this is a classic example of that. The carving on the hand must have taken you a while but you've managed to capture the individual digits very well. I really like the hand grip, too. What a novel idea and I'm sure your colleagues love to use it – I know it'd certainly brighten my day!

Thanks again for taking the time to write in and share your projects; that's what makes our jobs as editors so worthwhile.

Best wishes, **Tegan**

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READERS' HINTS & TIPS

For the next 12 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**

CIRCULAR SAW CUTS MADE EASY

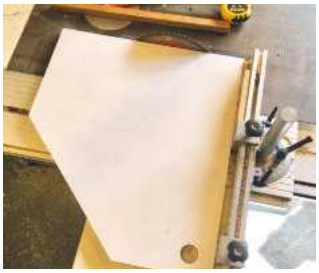
When setting up your circular (table) saw to make 90° cross-cuts, it's essential to get the blade exactly square to the fence. This always seems a bit awkward with a traditional woodworker's square: they never seem quite big enough; the stock and blade are different thicknesses; the blade can slip under the fence; and worse, they move around as you make adjustments.

A while ago, hunting for my square, I came across a left-over melamine shelf, computer cut somewhere in Sweden at exactly 90°! With this plonked on the saw table, it's easy to see if the fence is aligned properly, the super white finish and crisp edges work well in a dusty shop, and best of all, it's heavy enough to sit still while you make any adjustments.

With care you can also cut a useful 45° angle, and drill a big hole to hang it on the wall for next time. **Please note that in all these photos, the blade guard has been removed for clarity**.

Fred Courtenay

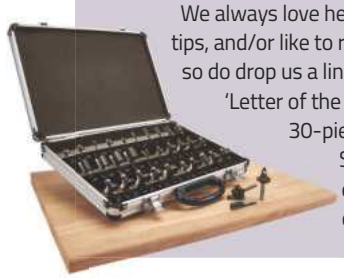
A traditional square never seems to do the job properly...



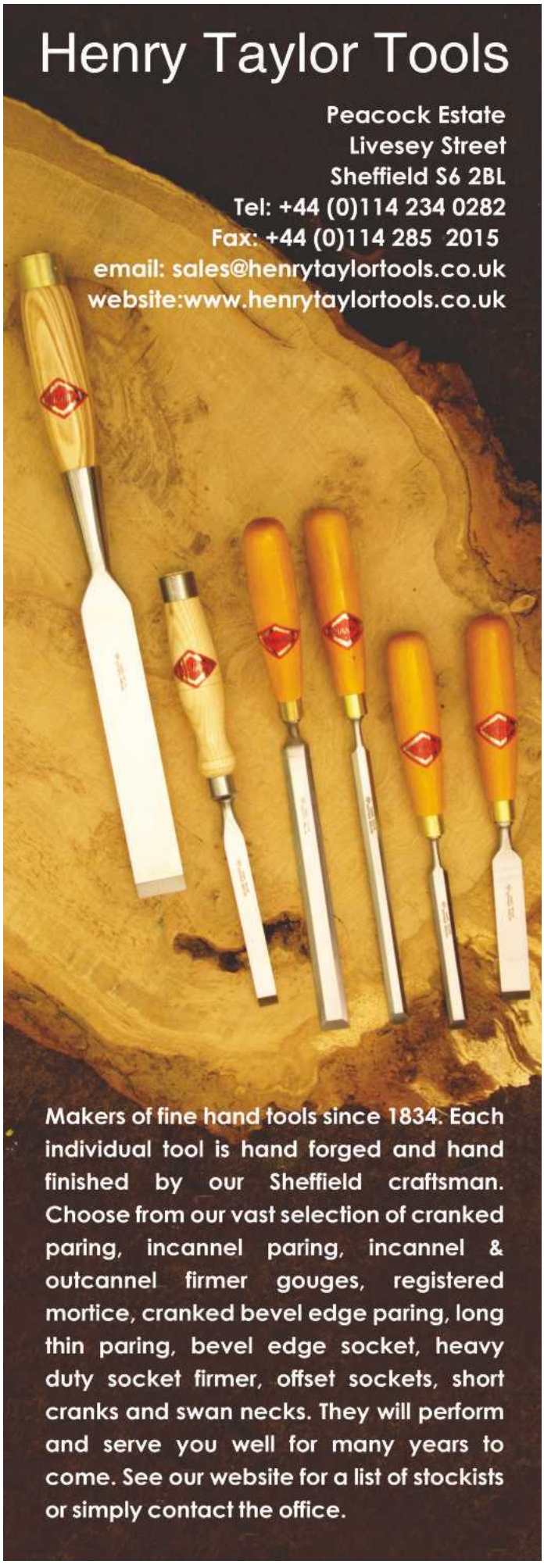
... but an old IKEA shelf works perfectly

Hang it on the wall next to your sawbench

WRITE & WIN!



We always love hearing about your projects, ideas, hints and tips, and/or like to receive feedback about our features, etc. 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!



Photographs by Adrian Lambert

Students from Glossopdale Community College with their stools, which they made with Ben Naylor and Sophie Gilpin from Jack Badger Ltd, as well as support from their teacher and technician

BACK TO SCHOOL FOR JACK BADGER CARPENTRY & MASONRY

A project to make good use of wood scraps turned into a lesson on how businesses and schools can collaborate to help solve the industry's skills gap, explains **Ben Naylor**, MD Jack Badger Ltd

Jack Badger MD explains how to use a smoothing plane to a student

Each week in our workshop, set in the heart of the Peak District, our team of seven carpenters regularly work on projects using pieces of oak, which can be up to 5m in length. At Jack Badger, we've always strived to work as sustainably as possible to minimise our impact on the environment and world around us. But one problem we've always had is how to make the best use of scrap wood.

One solution we came up with was to give our waste offcuts to a local school, along with some basic designs focusing mainly on using hand tools so the students could learn how to make a traditional stool. Initially, our plan was to simply supply the design we'd created, along with the materials and tools. But when I approached Sue Johnson at Glossopdale Community College to discuss the idea, it soon became apparent that for the students to get the most out of the classes, we would need to go in and deliver the workshops, so they could learn from our experience and skills first-hand.

Skills shortages

Myself and our intern, Sophie Gilpin, spent an afternoon a week with a class of year 10 students over a 12-week term. Not only did the 14 and 15-year-olds benefit from having two carpenters from Jack Badger there to teach them, they also had their usual teacher and John the workshop technician. A team of four teachers and trained craftspeople for 12 pupils, meant we could spend quality time with everyone, showing them how to set up and use the different hand tools, as well as explain about the oak we were using to make the stools.

A few weeks into the project and I could see how the students were thriving in the workshops. They were clearly benefitting from learning new skills, having a more balanced ratio of staff to students, and being given the opportunity to do something creative and hands-on.

From speaking to teachers and hearing reports on the news, I realised that arts and craft subjects are being squeezed out of our schools. A report from the BBC found that nine in every 10 schools have cut back on lesson time, staff or facilities in at least one creative subject. With schools under pressure to put more emphasis on core subjects like English, maths and science, as well as a lack of funding, it's the arts subjects

that are being hit the hardest. But should teenagers really be deprived of subjects like art, design and woodwork? Not only do these classes offer the students the chance to be creative and express themselves, they also teach new skills and put the theory behind other subjects – maths and science, for example – to practice. If taught in the right way, these subjects can also open up a whole world of training and career opportunities that may otherwise be missed by the students who need them the most.

I soon started to think how projects like the one we were running with a local school could not only help the students there and then, but also address some of the wider issues our industry faces.

With fewer teenagers choosing – or being able to choose – to study arts, crafts and practical subjects, businesses like Jack Badger are facing a huge skills shortage. We just don't have the same pool of energised and inspired young people to take on as apprentices as we used to. There is also very little career advice or up-to-date information available to explain what it's like to train and work as a carpenter. Do young people even realise that a job in carpentry is an option for them? Do they know what it's like to work in a company like ours?

Inform & inspire

At Jack Badger we use traditional techniques and tools to create architectural features and furniture, all inspired by designs from across the centuries. Our work features in castles and period properties across the UK and around the world. We've won prestigious awards, collaborated with famous designers and architects, made exclusive limited edition products and exhibited at internationally acclaimed shows.

And I'm not saying these things to brag about our accomplishments – although they are achievements the team are rightly proud of – but to show how exciting, varied and fulfilling a job as a carpenter can be. But my experience of working closely with the students has shown me this isn't the view of carpentry that young people have. It's made me realise it's up to us – the people working in different creative and vocational industries – to build relationships with local schools and colleges so we can show and tell them first-hand what it's like in our field. We need to inform and inspire them to consider how they too could develop their career. Because if we don't, who will? How will young people ever choose to work in these fields if they don't know

A student gets to grips with hand cutting...

... a mortise in the stool ends

A student assembles a nearly completed stool in the hands-on workshop designed and led by Glossop-based Jack Badger

Jack Badger produced how-to guides to explain to the students how to build their stools

It was great to see some of the students taking the initiative to develop their own designs

A student takes time to mark out his components, making sure it's as accurate as possible

Jack Badger provided all the materials and tools required for the stool project

The stool project proved to be a great way to inspire

what it's like? Or even that these roles exist at all? One way to do this is for local businesses to offer specific skills training or help with unique projects. Although Jack Badger built a relationship with a local school to teach students about carpentry and woodwork, this could be adapted for different skills and areas of interest. For example, after visiting the school to take photos of the workshop we ran, our photographer, Adrian Lambert, is now working with the art department to help with a photography-based project.

Such partnerships between businesses and local schools can take time to develop. The decision makers need to see the value of hands-on workshops and training coming from professionals and tradespeople, and there's a fair amount of paper work and bureaucracy to deal with. But the more we can help to promote the benefits such schemes can have for students, schools, local businesses, industries and the wider economy and society, the more opportunities we can create.

And it's not just something people currently working could get involved with. Retired woodworkers and carpenters could pass on their experience and skills to young people, and even use some of the space in the schools and colleges as their own workshops to build furniture or joinery. What better way to inspire the next generation of woodworkers and carpenters than have them be able to see designs of skilled and experienced tradespeople come to life?

With funding cuts and a lack of opportunities for students to experience creative and vocational fields like our own, we need to do what we can to keep these skills and passions of our trade alive. Education should be about more than teaching students to pass their exams; we need to show them what options are available once they leave school, college or university.

There are a whole series of wonderful career paths out there, but we need to show young people the right direction. And we need to act now, to help make sure we future-proof our industry and ensure our trade and craft lives on for generations to come.

FURTHER INFORMATION

To find out more about Jack Badger Ltd, see **www.jackbadger.co.uk**

To read the BBC article in full, see **www.bbc.co.uk/news/education-42862996**

Ben Naylor, MD of Jack Badger, with Sophie Gilpin, intern at Jack Badger

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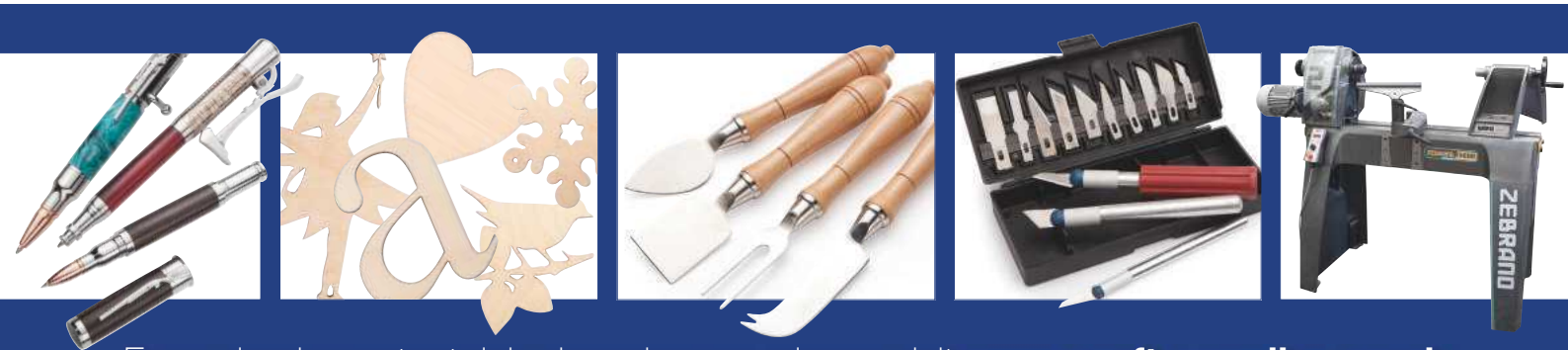

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ME AND MY WORKSHOP

Rick Wheaton

Retired boat builder and *WW* author **Rick Wheaton** shows us around his South Devon workshop

1. What is it – and where is it?
It's an old granny flat, 5 × 5.5m, tacked onto the side of my house.

2. What's the best thing about it?
It's snug and warm, I can walk right into it from the kitchen, and I can play my CDs as loud as I like.

3. And what's the worst?
Billy, our one-eyed cat, likes to pee in the sawdust.

4. How important is it to you?
It's hard to imagine being without it. I'm in there almost every day.

5. What do you make in it?
Toys, small bits of furniture, automata. Mostly things for friends, relatives and the house.

6. What is your favourite workshop tip?
Keep Billy out!

7. What's your best piece of kit?
My old LAB 260 combination machine. The heart and soul of my workshop.

8. If your workshop caught fire, what one thing would you rescue?
The LAB weighs half a ton, so it would have to be the old wooden-handled Stanley claw hammer I've had for a million years.

9. What's your biggest workshop mistake?
Without giving it the required amount of thought, I once checked an extension lead while it was plugged in. The shock threw me across the workshop and stopped my heart. I had burns on both hands. Terrifying...

10. What's the nicest thing you've ever made?
Easy: a 40th birthday gift for my wonderful daughter Sally. I made her an automata which enacted several rather embarrassing events from her teens. It took me three months, and I enjoyed every minute.

Rick with Billy, his one-eyed workshop companion

11. And what's the worst?
Hard to choose from a long list, but there was a free-standing hammock stand which collapsed as I proudly leaped into it. The family laughed for about a week.

12. What's the best lesson you've learned?
Be somewhere quiet and alone the first time you demonstrate something.

13. If you won the lottery, what would you buy for your workshop?
Oooh, a CNC machine of some sort. Imagine the wonderful precision!

NEXT MONTH
In the next issue, we step inside the workshop of retired engineer, John Creevy. We'd love to hear about your workshops too, so do feel free to send in a photo of your beloved workspace, and please answer the same questions as shown here – just email **tegan.foley@mytimemedia.com**

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1 The most popular choice for Woodturners is still Cellulose Sanding Sealer. It binds the loose fibres of the timber together, gives a solid base for finishing and seals the open pores so that less top coat is needed, producing a more resilient final finish.

2 Prepare your work, then apply Cellulose Sanding Sealer with the lathe stopped. On small areas a cloth is ideal. Beware of using paper towel as this can leave bits behind which can spoil the finish. Safety Cloth is an ideal choice for application.

3 Apply sealer over the entire surface. It is quite forgiving and doesn't normally show lines where overcoated. Don't apply too much, you shouldn't leave puddles on the surface, just an even coat.

4 On larger areas use a brush (or spray equipment). A brush makes it easier to keep a wet edge. Don't flood the surface.

Only one coat of sealer should be applied.

5 The sealer dries quickly and is normally ready to sand within minutes. Lightly smooth the sealer with a fine abrasive, before overcoating with any of the waxes, lacquers or polishes in our range. We do not recommend using oils on top of sealer.

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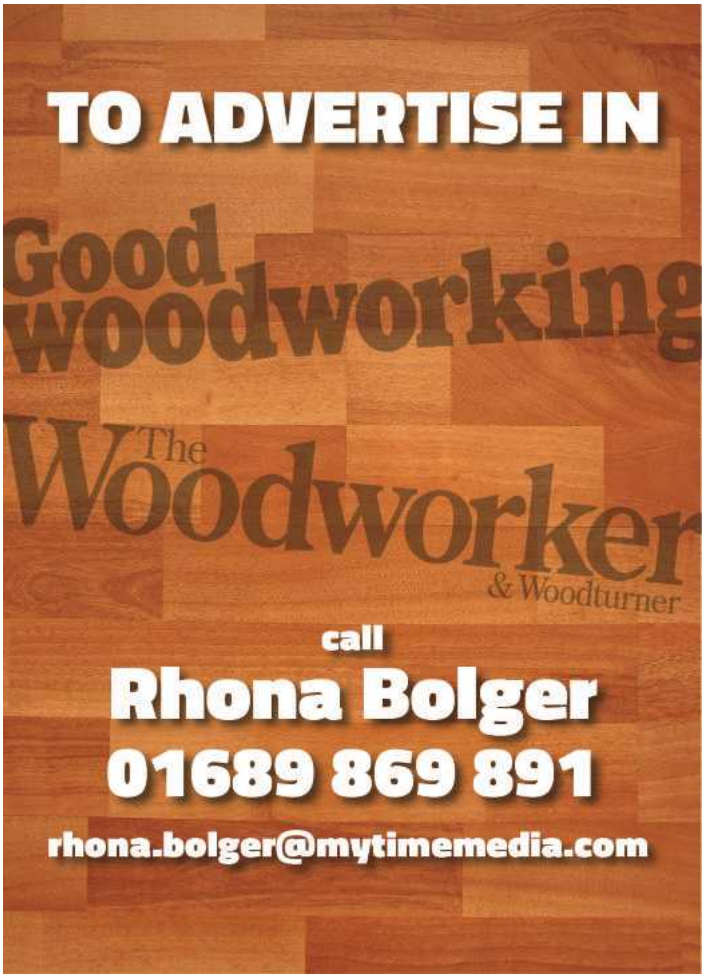


1 A solid billet of oak is ripped on the bandsaw into strips thin enough to bend in a shallow curve with moderate hand pressure

LAMINATING FURNITURE

John Bullar considers the advantages of laminating over other bending methods before looking at a variety of different techniques

2 The strips of oak, glued together in layers with synthetic resin, are pressed between two formers, or 'cauls', made from MDF boards

To a furniture-maker 'laminating' is one of the more advanced techniques. It means building up layers of thin wood to make a thicker component usually so they can be bent into shape while the glue sets – great for producing flowing organic forms.

Unlike plywood where the layers alternate in direction, laminated furniture components normally have the grain aligned so that the glue lines are barely visible. By carefully laminating, a maker can produce amazing forms with the grain following curves, such that it still looks like a solid piece of wood.

In this article we will first consider the advantages of laminating over other bending methods before looking at some laminating techniques and how they can be applied in a small workshop.

Traditional wood bending

Steam-bending is the traditional way of introducing curves to thick, straight pieces of wood, especially pliable woods such as ash and yew. While the technique is simple, it is not altogether reliable. Only certain wood types are suitable for steam-bending and the thickness is limited by the ability of steam to penetrate. When the bending force is taken off, the wood will spring back to varying degrees while any irregularity in grain leads to kinks.

Dry heat bending around a hot metal former is suitable for extremely thin woods, such as those used in musical instrument making, but not generally suitable for furniture making by itself. However, this method can be used to pre-shape thin layers prior to laminating, which eliminates any tendency to spring back.

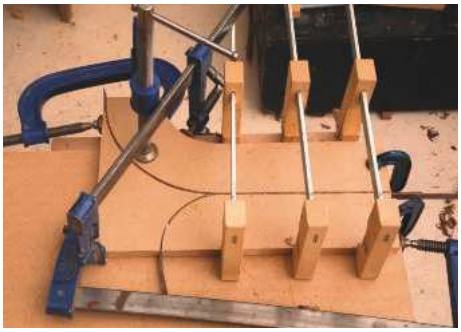
Preparing to laminate

The first stage in laminating is to obtain wood that is suitably thin to take on the required curvature with little force.

With care, practically every type of wood can be laminated into curves. If the wood is stiff or brittle then try cutting it thinner and building up more layers. Running a piece of evenly-grained solid wood through the bandsaw with the fence set around 1 or 2mm from the blade produces a series of thin matching strips that can be bent into a curve (**photo 1**). The bandsaw blade must be fine and sharp to give a smooth finish. The next stage of laminating is for the layers

3 The glue squeezes out while the laminate sets to form beads around the edge (right). The laminated components are edge-planed as soon as the glue sets but before the resin becomes too hard (left)

4 Miniature scale laminating with walnut strips to form cabinet glazing bars. Note how the bar branches in two directions



5 The glazing bar is pressed into its branched form using three shaped cauls

6 The laminated glazing bars and glass cut to match are fitted in the frame of a cabinet door

7 Large scale cauls built up in sections provide a versatile way of laminating wider boards

8 To form the curved lid of a box, inner layers of oak and outer layers of walnut are laminated in alternate directions, producing custom-made curved plywood

to be coated in glue before they are pressed into shape while they set (**photo 2**).

Glues for lamination

Modern synthetic resin glues are best for withstanding the sheer force that would try to separate the layers due to spring-back of the wood. Flexible glues such as PVA types produces a more resilient finished component and the excess glue that inevitably squeezes out is quite easy to plane away afterwards.

Alternatively, hard-setting resins will produce more rigid components. Disadvantages, however, are that in certain applications finished joints can be shattered by impact and glue squeeze-out must be removed before it sets too hard (**photo 3**).

Sets of cauls

Formers or 'cauls' are used to press the sandwich of wood and glue into shape while it sets. They are typically made up from manufactured board such as MDF or stiff foam, sawn to the required shape. The gap between cauls must be shaped to make allowance for the thickness of the laminate stack.

The internal surfaces of the cauls can be treated with a releasing agent to prevent the glue sticking to them. Hard wax furniture polish can be used so long as there is no residue that might rub off on the laminated component.

The formers may be in pairs for simple curves, or sets of three or more if the finished component is to include branches (**photos 5** & **6**). Obviously the size of moulds that can be accommodated in a small workshop is limited; however, they can be built up in stages for producing larger components (**photo 7**).

9 Using a single curved former (rather than a pair of cauls), the laminated sandwich is inserted into a vacuum bag to press tightly onto the former

Building up ply

The laminated components we have considered so far are hard to distinguish from the solid wood out of which they were originally sawn. However, if the sides and ends are concealed, such as a curved panel made to be trapped in a frame, different woods can be used for internal layers to improve strength for a given thickness (**photo 8**). Grain direction of the internal layers can be alternated for strength and to suit external appearances.

Single formers

The previous article in this series (see *GW*332) introduced the vacuum bag as a tool for pressing veneers. As it is totally flexible, this bag is also ideal for pressing laminated components against a single shaped former while the PVC from which

10 Large section formers are built up from rigid expanded polyurethane sheet

11 Large deep-section formers can be used for laminating in a vacuum bag provided the bag is carefully positioned to follow the curves before suction is applied

it is made will not stick to wood glue. Both the former and the stack of glued laminates must be introduced into the bag before it is sealed up and the vacuum applied (**photos 9, 10** & **11**).

Thick laminated components can be built up in stages, making the process more manageable and the finished component more reliable. First a few layers are laminated against a former, which is set to the required shape, then the thin component is removed from the bag and more layers of wood and glue applied to build it up before being vacuum pressed again.

Three dimensions

Laminating thee-dimensional forms, which require bending in both directions, is not as easy as making simple bends. When cut thinly enough, most woods can be bent along the grain, using a little heat to soften them if necessary. However, bending across the grain, while requiring less force, is likely to split a wide layer of wood. One way around this is to prepare the laminate by rip-sawing twice, first into thin layers then at right angles into narrow strips like a bundle of thin matchsticks. These can then be bent or twisted in any direction.

Alternatively for making shaped panels, there are special manufactured veneer sheets available, which are made from thin strips. These are designed to be bendable in both directions without splitting (**photos 12, 13** & **14**).

Combined techniques

Laminating, as a practical way of building up unusual shapes, sizes and properties in wood, lends itself to being combined with conventional solid wood construction and veneering (**photo 15**).

Manufactured boards such as MDF can of course be laminated themselves to build up large shaped structures that would be impractical to cut out of solid or to bend. This is an ideal way of building the groundwork for veneering, which can also be lipped with solid wood (**photo 16**).

Conclusions

Although laminating is not a new technique, modern adhesives and vacuum bags have transformed it into a way of producing strong, ambitiously shaped components of any size in a small workshop. By varying laminate thickness, wood-type and glue-type, the furniture maker can create new forms at the same time as controlling strength and flexibility in a variety of ways.

NEXT MONTH

In the next issue, John will look at using router jigs to make joints

12 Special constructional veneers are available, some of which can be bent in both directions to produce 3D laminated panels

13 PVA glue is suitable for bendy veneers because it sets semi-flexible

14 Three-dimensional curved shapes, formed by laminating onto a former in a vacuum bag, open up new possibilities in furniture making

15 Glue lines being scraped from a component made of laminated maple and solid oak

16 A combination of laminating, veneering and solid wood shaping are brought together to produce this large oak stand

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MAGIC MOMENT

Colin Simpson takes an age-old magic coin trick and incorporates the concept into a turned cylindrical box design

I, like many dads, enjoyed doing 'magic tricks' with their young children. You know the type of thing – taking your thumb off, palming a coin and making it appear from behind their ear... None of these tricks would get me into the Magic Circle, nor do they fool any but the naive young, but it was fun while it lasted. Now I am a granddad, I have the opportunity to do it all again with my grandchildren and, with that in mind, I thought I'd make this 'magic' box.

The turning is not that difficult but the joints of the box need to be well done – not too tight or too loose – so some accuracy is called for. The beading on the outside of the box helps disguise the joints.

Shaping the cylinder

Start with a blank of ash measuring 60mm square and approximately 130mm long. Find the centres of both ends, mount it between centres and use a spindle roughing gouge to convert the square into a cylinder (**photo 1**). Next, square off the ends of the cylinder and cut a chucking spigot on both ends (**photo 2**), then mount the cylinder in your chuck using one of these spigots. If you wish, you can bring the revolving centre in the tailstock up for additional support.

For the illusion to work well, it is important that the outside shape – a barrel – is symmetrical about its centre. Measure the length of the cylinder and carefully mark a centreline (**photo 3**). Now cut a bead on this line, leaving the line as the highest point. **Photo 4** shows my Ashley Iles beading tool, but other manufacturers also make them. This particular one is designed to be used 'flute' down (**photo 5**). Start with the handle low and enter the wood with the two wing tips, then raise the handle to cut the bead. These tools scrape the wood, so keep them sharp and take light cuts or there is a danger of tear-out, particularly on open-grained woods like ash. If you don't have a beading tool, you can always cut a bead with a skew chisel on its side, like I am doing in **photo 9**.

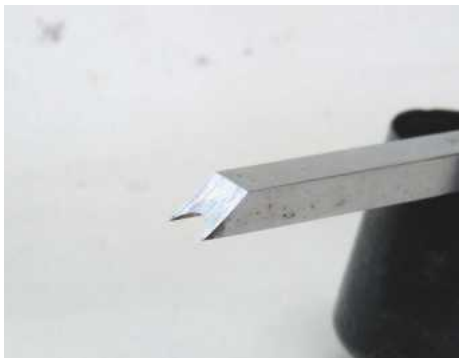
Highlighting the grain

Once you have cut the first bead in the middle of the cylinder, cut a tenon on either side of the bead (**photo 6**). These tenons will eventually be what the two lids fit over. Now cut the cylinder to a barrel shape using a spindle gouge (**photo 7**). Next, cut three or four more beads on either side of the tenons, using a beading tool (**photo 8**) or a small skew (**photo 9**). Sand the outside of the barrel, cleaning up the beads and then finish with sanding sealer and wax. I felt that the grain in the ash looked quite attractive and I decided

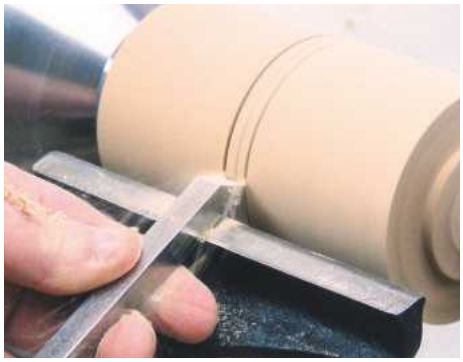
1 Rough the blank down to a cylinder

2 Cut a chucking spigot on both ends

3 Mark the exact centre of the cylinder



4 This is the cutting edge of my beading tool…

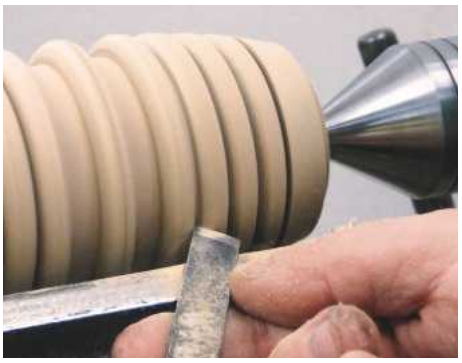


5 … and this is how to use it

6 Begin to cut a 6mm wide tenon on both sides of the middle bead

7 Use a spindle gouge to shape the box. I made mine a barrel shape

8 Cut beads along the outside of the box with a beading tool…



9 … or a skew chisel on its side

10 I used a bronze brush to pick out the timber's softer spring growth

11 Use a narrow parting tool to part off the right-hand lid…

12 … or cut it off with a saw

to highlight it with liming wax. So instead of sanding sealer and wax, I used a bronze brush on the outside to open up the grain (**photo 10**).

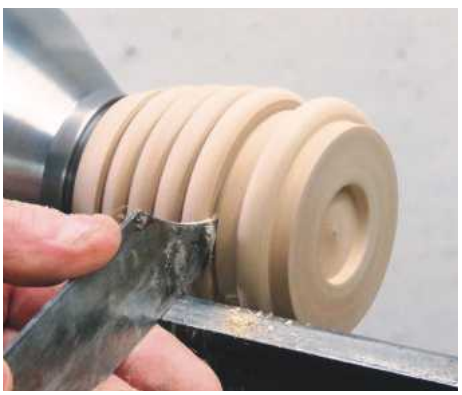
Creating recesses

If you have brought the tailstock up for support during the last few tasks, remove it now. Use a narrow parting tool to part off the lid to the right of the right-hand tenon (**photo 11**). If you do not wish to part off completely with the parting tool, stop the lathe and use a saw to complete the cut (**photo 12**). Use a spindle gouge to clean up the exposed face of the tenon (**photo 13**), then use a parting tool to cut a recess large enough and deep enough to hold the coin that is going to disappear (**photo 14**) – my recess holds a £1 coin. Sand and polish this surface, then cut off the second lid, to the left of the left-hand tenon (**photo 15**).

Remove the lid from the chuck and mount the middle section on the tenon so that the un-worked face is exposed. Now cut a similar recess in this face to fit your £1 coin (**photo 16**). Sand and polish this surface of the middle section. Remount one of the lids. Measure the size of one

13 Clean up the exposed surface

14 Use a parting tool to cut a recess to hold a coin



15 Use a narrow parting tool to part off the second lid

16 Cut a similar recess on the opposite side of the middle section

17 Measure the diameter of the tenon…

18 … and transfer this to the underside of the lid

of the tenons using Vernier callipers (**photo 17**) and transfer this measurement to the lid (**photo 18**). At this stage, this measurement is just a guide – it doesn't have to be accurate. Now hollow the lid. To hollow end-grain, you can drill a hole down the centre, using a drill bit in a Jacobs chuck held in the tailstock, but it is very often quicker to do it with the spindle gouge. Position the spindle gouge on the toolrest with the flute facing up and the handle low. Gently raise the handle until the tip of the cutting edge touches the very centre of the work. Bring the handle to horizontal and push the tool towards the headstock. It should start to bore the hole (**photo 19**). Do not attempt to bore a deep hole in one go. Keep removing the gouge from the hole to release the shavings otherwise these may bind round the tool, making it twist in your hand, thus causing injury.

19 Use a spindle gouge to drill a hole down the centre…

20 … and start hollowing from just inside the hole, then swing the handle away from you

21 Continue hollowing with the spindle gouge, but ensure to stay within the line

22 Use a skew chisel on its side to cut a straight-sided recess just inside the marked line. This should be about 6mm deep

23 Take light cuts with a round-nosed scraper to smooth out the hollow

24 Use a skew chisel to cut a small chamfer on the tenon…

25 … and offer up the lid. The lid should fit somewhere on the chamfer and if the lathe is running as you do this…

26 … the lid will leave a light burnish mark

27 If you then cut the tenon to this mark, the lid will fit perfectly

28 Fill the grain with liming wax

29 Reverse the lids onto the chuck and remove the chucking spigots

Hollowing the box

Once you have drilled your hole, use the spindle gouge for the hollowing. Start with the gouge about 2mm inside the hole with the flute pointing towards 10 o'clock. Begin to swing the handle away from you in an arc (**photo 20**). Repeat this action, using the gouge's bottom wing, going a little deeper and wider with each successive cut (**photo 21**). Hollow to within 2mm of the marked line made at step 18 and then use a skew chisel on its side to cut a parallel-sided step about 5mm deep, but be sure to still keep the marked line (**photo 22**). After hollowing, use a round-nosed scraper to clean up the inside shape of the lid (**photo 23**). Use the scraper with the handle held slightly higher than the cutting edge and take very light cuts, particularly on end-grain as in this case. Sand and polish the inside of the lid, then repeat steps 17 to 23 on the second lid.

Fitting the middle section to the lids

You can now mount the middle section in the chuck and cut a small chamfer on the corner of the tenon using a skew chisel (**photo 24**). With the lathe running, offer up the appropriate lid to this chamfer (**photo 25**). The lid should fit somewhere on the taper and needs to leave a light burnish mark (**photo 26**). I have deliberately held the lid onto the taper longer than necessary in order to highlight the burnish mark for the camera, but you don't need as large a burn when you do it. Now cut the tenon down to the burnish line (**photo 27**). The mark should just disappear, and the lid should be a perfect fit. Turn the middle section of the box around in the chuck and repeat steps 24-27 to fit the second lid.

Box assembly

Now that both lids fit on the middle section well, assemble the box on the lathe for final finishing. You could just sand and polish the outside, but, as I said earlier, I decided to lime wax the grain. Apply the liming wax with a paper towel, ensuring you fill all the grain (**photo 28**) and remove the excess with Danish oil. Finally, mount each lid in the chuck to remove the chucking spigot and finish both ends with liming wax and oil (**photo 29**).

I am sure you have all worked out how this 'trick' works. Place the coin in the recess of one side, close the lid, say the magic word and open the other lid. Wow! The coin has disappeared.

30 The completed 'magic' box

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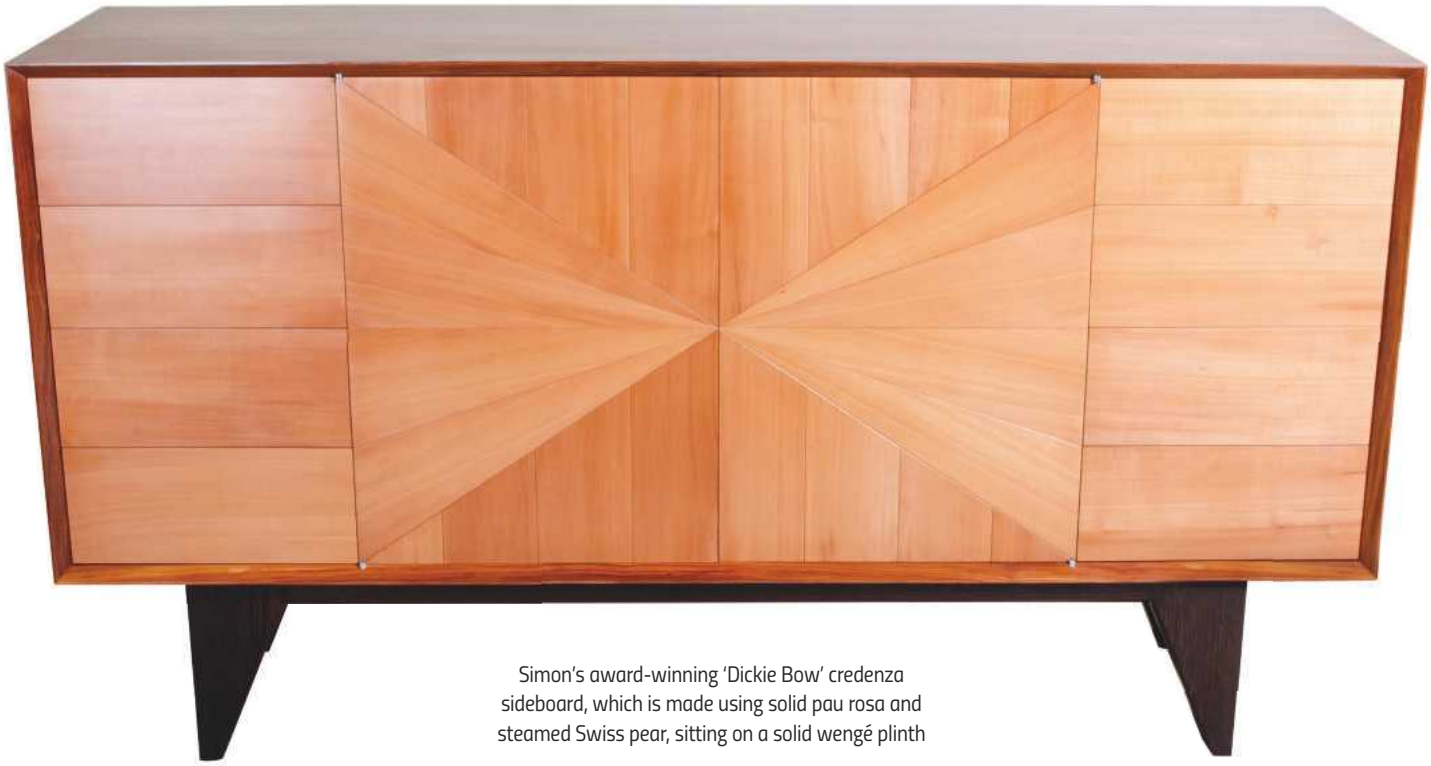


Simon's award-winning 'Dickie Bow' credenza sideboard, which is made using solid pau rosa and steamed Swiss pear, sitting on a solid wengé plinth

MAKING MUSIC & FURNITURE

Peter Sefton Furniture School graduate **Simon Denton** tells us of his plans to forge a successful career combining his two lifelong passions: music and furniture making

Graduating from the Peter Sefton Furniture School last year having undertaken the one-year Professional Long Course, Simon Denton's 'Dickie Bow' credenza sideboard certainly helped him to stand out from the crowd, but as I learnt, when he's not working with wood, he's actually a freelance cellist, playing with some of the UK's best orchestras. Simon tells me that he's been lucky to see many different countries, touring as part of the job, as well as making many friends along the way.

When asked about his background, Simon comments that he can pin-point discovering a love for woodworking to a BBC Philharmonic Tour to Japan in March 2011: "It's a long story as to why I was alone in Tokyo that day, but after an unprecedented earthquake and tsunami to follow, all our concerts were cancelled. Over the next few days, many people who played in the orchestra made their way out of the hotel for some much needed retail therapy, which was when I discovered a little shop full of handmade bowls and sushi dishes." Simon explains that all were made using cherry and some in walnut, with the pieces being unique, signed, and individually boxed by the owner. "Over the next few years," he says, "I began looking into the possibility of learning some woodworking skills and last year my uncle informed me that my great granddad was in fact a cabinetmaker working in the High Wycombe chairmaking tradition, and along with my granddad, was a keen woodturner." Now Simon could be certain that woodworking was in the blood.

Fusing passions

Having learnt about his link to music, I was eager to discover if Simon's career as a professional cellist has influenced the pieces he has either made so far or will go on to make, to which he comments that there are many attributes in learning a musical instrument that are transferable to making furniture, but certainly a keen attention to detail and a lot of patience are high up on the list. Simon tells me that he's found designing furniture to be a liberating experience, as most of the time, as an orchestral musician, it is a 'group interpretation' that is most successful: "Having the freedom to fully commit to my ideas has been essential to my enjoyment of the whole process. Perhaps, from this point of view, my career as a cellist is most influential."

Simon also speaks of his aim to marry his career in music with that of furniture making, and, as he explains, being freelance allows him to take on projects as and when he has finished the designs. "I can't see a future without music or furniture making now," he finishes.

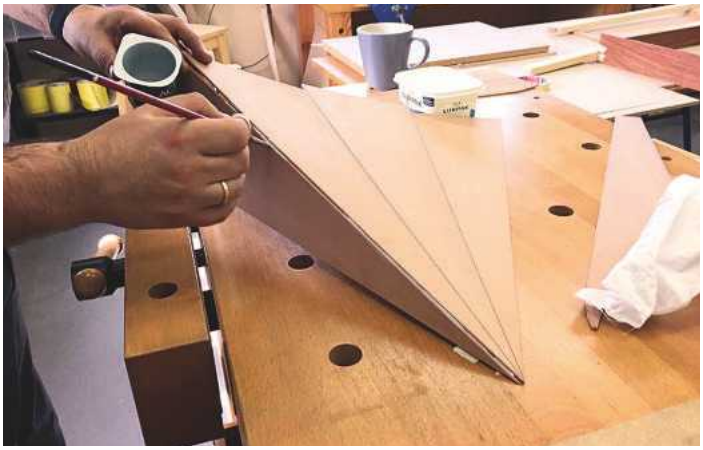
Award-winning pieces

When asked how it felt to be awarded two prestigious prizes upon graduating from the Peter Sefton Furniture School – the 'Favourite Piece using Wood Machining' prize, sponsored by Felder UK, along with the 'Visitors Choice' prize, awarded to the favourite piece as voted for by visitors to the School's End of Year Show – Simon says that the final day exhibition was an overwhelming experience for the students, with

Stool with ash frame, pau rosa top and dowels

Ripple sycamore table featuring traditional drawer with copper 'ring pull' handle

Simon receiving his certificate from Sean Feeney at the 2017 awards ceremony



Gluing Swiss pear constructional veneers for 'bow-tie'

so many visitors engaging in their work. "Most makers are very critical of themselves and so to win anything was a genuine shock, but I was very happy. I was particularly honoured to win the 'Visitors Choice' prize; it's great to see so many people enjoying your furniture and sharing the end result with you."

When asked why he chose to make a credenza as his final piece, in Simon's view sideboards offer the chance to really express a sense of interior design with the choice of timber and the style involved in the details. "Being drawn to Mid-Century Danish furniture, I set about on a rather ambitious project in making my 'Dickie Bow' sideboard, which uses pau rosa, quartersawn Swiss pear and quartersawn wengé." From a technical point of view, Simon says the main challenge was in achieving the 'bow-tie' design on the centrally located doors, which required calibrating his own constructional veneers at 2.5mm and piecing the shapes together with a small 45° chamfer at the edges to create a 'V' groove at the joins. "Fielded panels would have compromised the design as would using standard veneers at 0.6mm. From a purely physical point of view, the sheer size and weight of the pau rosa boards were a challenge and involved lots of late nights to ensure I finished it on time."

Simon thinks it could just be a coincidence that the bow-tie shape jumped out to him, but it is something he has been wearing as a performer since he was a child, and so most likely locked up in the subconscious somewhere. "I wanted the sideboard to have a contemporary design that was new, but also to achieve this with symmetry. Using asymmetry as a tool for creating something new is often seen in sideboards, but the challenge was to break up the usual rectangles and squares. I wanted to somehow use the lines created by the doors and drawers in a different way and incorporate them into the design," he says. The bow-tie concept led him to the idea of adding a kind of fourth dimension to the piece using the element of perspective. In the end, the idea was to show the drawers on the outside emerging from a single point in the centre of the piece.

Retro meets Japanese

In terms of the ethos behind his designs, Simon comments that it's probably too early in his career to have a fully developed sense of design; however, he does try to have clarity within each project. "Lately I must have been designing with retro glasses on as my sideboard has a 1920-1930s Art Deco pinkish style colouring, which is all set within a frame that has the feel of a 1950s television." As well as being influenced by this design era, Simon also finds Japanese woodworkers fascinating as well as those influenced by Japanese methods, such as Alan Peters. "His furniture is timeless, and almost constantly relevant." Another furniture maker Simon is drawn to is Hugh Miller, whose pieces he first saw at the Celebration of Craftsmanship exhibition back in 2016. "I like to follow his work," says Simon, "as he is also heavily influenced by Japanese techniques."

Simon admits that he's always drawn to the creative side of woodworking, but some tools, such as the spokeshave, lend themselves

Telephone shaped veneer hammer with African blackwood handle

Figured ash handle with 'honey bee' detailing

Simon playing cello for an album recording back in 2016

Preparing pau rosa surface for spray lacquer finish

Working on a large piece requires some improvisation!

to mostly using touch and feel to shape a detail. "I also like the fore plane as it practically sings when set up nicely," he tells me. When making or designing a piece, Simon's intention is to always combine woods that complement one another: "I want to attract the viewer's eye for the right reasons and in the right way. In this case, one is drawn to the intense swirly grain of pau rosa as a feature wood, and to the design aspect on the Swiss pear. The pear wood takes a 'step back' as a timber." In Simon's view, the choice of timbers used draw attention to themselves in various ways. Working with the timber's natural figuring is important from an aesthetic point of view but, when making joints, can cause problems if you ignore this during the making process.

A multitude of design ideas

In terms of the piece he's currently working on, at present Simon is in the process of designing a music stand: "I'm all too aware of the problems musicians have with existing models and hope to solve one or two within an elegant design." He is also looking over the dimensions of a Baroque cello bow for which he has plans to experiment with using more dense timbers. Both projects are music-related but a bespoke ladder, chair tables and a double bed will also be going on in the background. Simon says that when contemplating other possible pieces to make, everyday objects seem to creep into his work. For example, he is influenced by anything that has a strong sense of design or style: "My landlady's old-fashioned telephone was the inspiration behind my reworking of the traditional veneer hammer and a classic Coke can ring pull was the brains behind a bespoke copper drawer pull on a bedside table."

The future

When asked about his plans now that he's graduated, Simon informs me that he immediately set about finding the right workspace in order for him to continue his woodwork: "I am fortunate to have a large cellar space and work has finally started on renovating it into a usable workshop, and it should be ready to kit out very soon. I would definitely be open to working under a professional furniture maker I admired, however, as there is so much to learn and, of course, many projects require an extra pair of hands."

Last year was undoubtedly full of exciting firsts for Simon, but he says that to design and make an award-winning piece of furniture was probably the highlight. "Arguably the toughest part was taking the leap of faith and having a year away from music by signing up for the course, and this decision was only made possible by the support of HelpMusiciansUK, to whom I am eternally grateful." Simon's ultimate aim is to successfully juggle the two careers side-by-side, but in terms of woodworking it's important for him to design pieces that help develop his skills further. "There is so much to learn and therefore I plan on spending a long time trying." It's clear to see from having spoken to Simon, however, that a happy future for him will definitely involve both of his passions, and the results of that journey are likely to reveal some truly interesting pieces.

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AN EVER EXPANDING PROJECT

Niall Yates introduces us to his 'elephant in the room', a Baroque cupboard that, despite many hours of work, is still only three quarters finished

No matter how keen or avid a woodworker you are, I'm sure all of us have had them – those unfinished projects that look accusingly at us from the corner of our workshop, where they remain for a while, until the materials are 'borrowed' for other things and they fade from our memory. Others are more in evidence and they are either too large or too nearly-finished to be set aside in this manner.

I must confess to having had my fair share of abandoned projects over the years. Mercifully, a lot have slipped my memory, unless in an unguarded moment I catch a glimpse of a piece of hardware or a scrap of wood hidden in the corner of my workshop and I'm reminded. Which is how it is with workshops – the evidence of all past projects is still there, just out of sight.

The cobbler's children

In my own defence, as someone who has earned a living from woodworking, work for the customer always had to take precedence. Anyone who has run a workshop knows that there is quite a discipline associated with making things – one has to produce to a time scale, to a budget, and have the work be of an acceptable standard.

1 18th century style painted cupboard – an influential commission

A wiser soul than I once remarked that you could have two out of three of these qualities, but not all three. Time is the one that usually has to give, and when working long hours there is little time for personal projects.

There is a further conundrum that arises from this, in that when the work slows down and time is no longer an issue, overheads still have to be covered and at this stage one doesn't feel free to indulge, at least, not until one is assured of the next batch of work. There is, however, a way through – you just have to choose your moments carefully.

The nature of the beast

My most spectacularly unfinished project to date – and one that seems to reproach me on a regular basis – is a piece of furniture of a size that is difficult to ignore. Standing 9ft 6in tall × 4ft 6in wide × 2ft 6in deep, it is every bit the 'elephant in the room'. The best way to describe it is as a large Baroque cupboard. And perhaps I am being a little harsh on myself, in that the woodwork side of things was actually completed several years ago, although the piece itself is by no means finished. Looking back it's difficult to remember why I started it. It's progenitors were an 18th century style painted cupboard I once enjoyed making for a customer (**photo 1**) and a Venetian gilded, painted and decoupaged bureau I had seen in a Sotheby's catalogue, and much admired. I suppose that, at a time when I was making fairly run-of-the-mill kitchens, it gave me an opportunity to try other things, learn new skills and stopped me starting to feel bored with woodwork in general. From the outset everything about this cupboard was larger than life; from it's out-sized proportions, as it started to rise into the roof

2 Base cupboard with ornately profiled shelf, amidst piles of maple for a kitchen job

space of my last workshop (converted from an old cowshed), to the gilded pineapples with lacquered copper leaves that now adorn the outer corners of the ornate cornice. It was one of those projects that I was content to have standing in the corner of my workshop, being added to, as and when I could, over many years and 'had we but world enough and time', there it would have remained, until it finally emerged in all its Baroque extravagance. This, however, did not take into account the last recession; and the fact I had to close my workshop and go back to working on site.

With the contents of the workshop being safely placed in storage, the wardrobe/cupboard was prematurely pressed into service in the tall-ceilinged bedroom at home. Now, don't get me wrong; it was good to see it in its proper setting, but it's almost the kiss of death if you start to use something before it's finished. With all the ornate decoration still to be done, it was certainly going to be a challenge to complete.

The journey continues

Over the next year, if I was careful to cover everything with dust-sheets and safely remove and protect the contents of the wardrobe, I was able to progress further. At this stage, I reinforced the mitred joints with linen and was able to apply all the gesso coats to the parts of the cupboard that were to be gilded. I also finished gilding the pineapples. Then there was another lull, as my partner and I decided to downsize and move home. So now it was all hands on deck de-cluttering and decorating, with all the upheaval that moving generally creates.

A new location

I must admit that the cupboard even influenced our choice of property, as the ceiling had to be at least 10ft high, in parts. After moving, there was no immediate opportunity to work on the wardrobe, as I had to set about building a workshop and renovate a section of the cottage.

When the dust eventually settled and I resumed the project, I now discovered – when trying to source paint for it – that time had indeed moved on. The original 'Dead Flat Oil' paint that I was intending to use was no longer available. In fact, in the intervening period, the firm in question had switched its entire production to water-based paints. After consulting other suppliers without much success, I finally hit upon using an oil-based eggshell with a matting agent. This had certainly

proved a salutary lesson on the progress of time. The wardrobe now stands in our sitting room, as it was not able to fit up the stairs and into the bedroom. It has a new lease of life housing the overflow of the baking paraphernalia for my partner, who regularly bakes and sells cakes at the local market.

Most recently I have painted and gilded the majority of the cornice as well as polishing and lacquering the copper leaves of the pineapples, but still there is work to do.

Reviewing the situation

Looking back over the many years during which this project has been ongoing, I find it puzzling that it has proved so difficult to bring to a conclusion, especially as I have tackled countless others successfully over the same period. A friend who regularly saw it in my old workshop would jokingly refer to it as 'The Tomb of Mausolus'. It has certainly taken up a lot of time and effort, but perhaps a kinder way of looking upon it is as more a series of discrete projects, all gathered under the umbrella of a unique Baroque cupboard.

The cabinets

As this piece was to be painted I used a mixture of timbers: whitewood for the framework, tulipwood for the panels and joinery quality redwood for the mouldings. Although preparing and assembling the carcasses was fairly straightforward, with many of the parts being simply nailed or housed (**photos 2-4**) there were several more complicated elements to it. The woodwork itself could be thought of as falling into several, distinct stages. The framework for the panelled sides and doors of the two carcasses that form the complete cupboard are not simply rectangular. As a design feature, each internal corner was infilled with a section of timber in the form of a quarter circle (**photo 5**). These pieces were turned on a faceplate and given a groove around their circumference to accommodate the panel. Two corners could be obtained from each turned disc and tenons were formed along both straight edges so they would locate in the panel grooves of the stiles and rails (**photo 6)**. With the stiles and rails for the frames grooved and jointed in the usual manner, they were first clamped together dry. The infills were then tried for fit and once this was successfully achieved, they were glued and screwed to their respective bottom and top rails with a pair of long thin screws, which were countersunk into the base of the panel groove of

each infill piece. Of course, the panels then had to be made to fit these modified frames. Those on the carcass sides were not fielded but presented a flat face to the front. They were, however, relieved at their backs so that the panels could be made somewhat thicker and still fit into their corresponding groove. I found the best way to proceed with both the relieved panels and the fielded panels – which were used on the doors – was to machine the slope to their edges while they were still in rectangular form. Only then were they cut to shape and the concave corners formed with a shallow carving gouge, likewise the convex sections of fielding on top of the door panels and the base of the bottom door panels. The step on the fielded panels was made by first forming a shallow rebate around the panel. On the tops and bottoms of the doors, the specific shaping of this rebate was carried out with a router and templates (**photo 7**).

A specially shaped rail formed the top of the frame into which the matching profile of the upper doors fits, jig-saw like. This also provided an anchoring point for the roof and front cornice. It was laminated, from knot-free redwood, to form a strong three-ply component. The top of the carcass relies on this, as well as the upper shelf, in order to help keep it square and rigid (**photo 8**). The roof of the cupboard has an exaggerated serpentine form to it. The construction of this comprised three thin curved panels that were held by four rebated rails that run front to back. The sections for the panels needed to be steam-bent over a former. They also had to be coopered, to make up the widths required (**photo 9**).

The cornice profile was made using three layers of redwood worked separately and glued together, which presented no problem for the straight sections (**photo 10**). The curved ones, however, required the making of a set of six shaped MDF running boards, all with the correct amount of offset, to allow them to be run against the roller bearing on the spindle moulder (**photo 11**). The four thinner vertical sections on the cornice – the breaks – had their altered profile drawn onto them after all the sections of cornice were first cut, mitred and laid out prior to assembly (**photo 12**). These are then re-worked by hand to fashion their modified profile.

The final stage of the cabinetry was to run the bolection mouldings that fit over the rebate that runs around the four side panels (**photo 13**). Again, the straight sections presented no problem, but the curved sections at the corners required a bit more effort. These were turned on a faceplate. Several sections of clean redwood stock were first turned to form slightly oversized discs, before a central circular housing was formed to the correct radius and depth to fit over the rebates at the corners of the panels. Pieces of 18mm MDF were then turned to form faceplates and their outer circumference rebated to accommodate the redwood cores (**photo 14**). Each redwood disc was glued with PVA onto its MDF faceplate, using cartridge-paper spacers to allow for easier separation later. The turning was carried out with a wide, specially ground, scraper. This allowed the classic profile to faithfully mimic

3 Router template for the profiled shelves – also one for the top of the cupboard

4 Base cupboard from beneath, showing apron and bun foot

5 Base cupboard from rear – the infilled corners of the side frames can clearly be seen

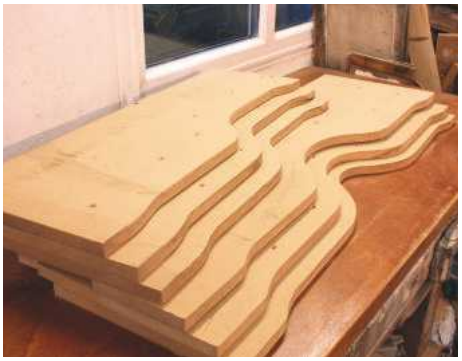
6 Turned infill corners with tenons

7 Templates for fielding door panels

8 With the upper door open, you can just about make out the shaped frame behind the cornice

9 View from above the curved roof of the cupboard

10 Slice of cornice, showing three-part construction with ovolo, scotia and ogee mouldings



11 MDF running boards for cornice

the straight sections already run on the spindle moulder. As a full quarter of a circle section was required for each of these curved mouldings, then depending on how they were cut, only two or three could be obtained from each disc (**photo 15**). Furthermore, mitring these curved sections against straight ones presented additional problems, as the profiles would not properly match. One way of overcoming this would be to give the mitre a gentle curved sweep. I achieved this using a jig with a drum sander on the pillar drill (**photo 16**). Even with the woodwork complete there was still a lot more work to carry out. With the clarity that hindsight has given me, I now realise that, at this stage, I was probably less than half-way through the project (**photo 17**).

The metalwork

When tracking down hardware for a project such as this, it's not easy finding everything that's required. I was lucky with the fiche-type hinges I wanted to use and was able to purchase them at a reasonable price (**photo 18**). The other items – two elaborate escutcheons and a set of bolts – I could not source so had to set about making them.

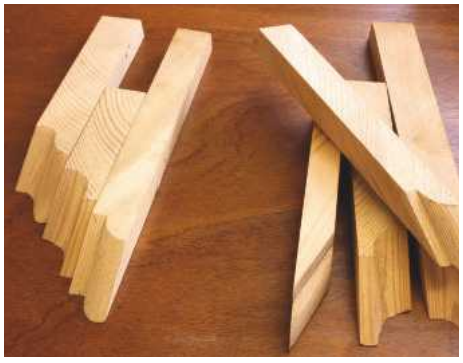
The escutcheons are of a type commonly found on armoires, with a peacock's head merging into a stylised body and terminating in a spiral. I found a good example in an old museum catalogue and set about making a pair from mild steel. The first stage was to produce a template in aluminium and then transfer the design to a section of steel. The profiles were next cut and shaped with a jigsaw, hacksaw, jeweller's saw and files. The modelling to the surface was carried out with the aid of a Dremel fitted with a diamond blade and a series of needle files. The keyhole was drilled, filed and fixing points were drilled through the peacock's eye and the centre of the spiral (**photo 19**). Escutcheon pins were fastened through these to fix the escutcheons in place.

The bolts that hold shut the two left-hand doors fall into two categories: three are standard, but the fourth is cranked and much longer in size. Given the tallness of the cupboard, this extra length enabled me to more easily fasten the upper part of the top door into the shelf above, without having to stand on a chair. Making these was most definitely a complete project in itself and did push my basic metalworking skills to the maximum (**photo 20**).

Even the locks proved tricky: I found two identical Victorian cupboard locks in good repair, but with the locks centralised on the door stiles, their bolts failed to engage behind the adjacent doors. The solution to this problem was to undo the locks and make and fit two longer internal bolts (**photo 21**). Another key also had to be made, as the door stiles were too thick for the original key to reach through to the locks behind. This was cut from a longer standard key blank.

Fruit corners

When I first fitted the cornice, the top of the cupboard still felt incomplete. I decided that a couple of small finials at each corner might solve the problem, but everything seemed a bit lost so high up there. I even resorted to standing



12 Slices of cornice moulding used for breaks

13 Side of the base cabinet showing finished bolection mouldings and panels, with gesso applied

14 Rebated MDF faceplate used for circular moulding

15 Turned bolection moulding on its MDF faceplate – with specially shaped scraper

16 Jig used with pillar drill to impart curve to mitred corner of turned bolection moulding

17 Tucked in a corner of the workshop – woodwork finished, but plenty of work still to do

18 Fiche-type hinge on upper cabinet

19 Steel escutcheon with its aluminium template

20 Almost completed bolts with their aluminium template

21 Victorian wardrobe lock with extended bolt

22 Looking up at the pineapple on the corner of the cornice

23 Bent copper blank with location tabs

24 Jig for bending copper leaves – basic but effective

25 Fitted in jig prior to bending…

26 … and after bending

27 The leaf with curves cut at the tip

28 The curve being formed at the base of the leaf

29 Both pineapple tops finished

a couple of empty 5l paint cans at the corners of the cornice to try and assess the scale of what was needed. This was definitely the correct size. I eventually decided upon using a pair of large carved pineapples – and why not?

The pineapples, in design, owe more to a south east Asian way of carving than the classic European form, which has more in common with a pine-cone. They were first turned to overall shape from two blocks of lime, before a series of stepped bands were turned around their circumference. At this stage two holes were drilled with a 35mm Forstner bit to a depth of 30mm at the top and bottom. These holes allow for short lengths of 35mm maple dowel to be fitted either end. The bottom section locates the pineapple in a corresponding hole in the cornice. That at the top is longer and is further turned with a series of seven sloping stepped bands to locate the successive rows of individual copper leaves, which form the foliage element of the pineapple.

The profiles of each of the individual cells that form the pineapple's characteristic surface pattern were then drawn across pairs of bands around the circumference of the whole pineapple before they were carefully carved to shape. After carving, the pineapples were given several coats of gesso before being re-carved to regain some of the crisp detail. They were then rubbed down with fine wet and dry paper to give a smooth surface. A further coating of red bole (a type of red clay) was next applied to give a red oxide coloured undercoat before the application of the gold leaf, with an oil-based size (**photo 22**).

Foliage elements

I decided to make the pineapple leaves from copper sheet. There were 98 leaves in total: seven bands of seven for each pineapple top.

The first part of the process was to cut out rectangular pieces slightly longer than needed, using aviation shears. I gave myself a few spares to make up for any mishaps along the way. These were then bent at right angles centrally along their length. A small cut was made with the shears from one end along this bend and the two resultant sections were bent back at right-angles to form two small tabs. These helped to hold the copper leaf blanks in the bending jig (**photo 23**). The jig was a fairly simple design and the bending former was turned from maple. Its outer edge was given a shallow concave V-shaped profile and its diameter governed the backward curve of the leaf. A section of stock was cut out from the edge of the former for a small timber block to be screwed in place; this held the leaf in place prior to bending. A piece of hardwood of a profile that mated with the maple former was screwed to the metal arms of the jig, which were themselves bolted through the centre of the former in a way that allowed them to freely rotate the hardwood profile around the circumference of the former (**photo 24**).

To carry out the bending process, each prepared copper blank was fastened by trapping the tabs against the small timber block screwed into the former, which in turn was held at its base in the bench vice (**photo 25**). The arm was then pulled around the former, giving a uniform V-shaped profile and characteristic backward sweep to the leaf (**photo 26**).

With all the bending complete, the next step was to cut the curved point at the top of the

30 The gessoed moulding disguising where the two cabinets join

31 The gessoed apron moulding and splayed corner of the bottom cabinet

leaves (**photo 27**) before trimming them to size by cutting off the fixing tabs. The V-shaped profile at the base of each leaf was now blended into a curve, which allowed the leaves to fit more closely around the stepped maple dowel at the top of the pineapple, and to do this another jig was required; this was made from a small block of iroko. A sloping sided hole of the correct diameter and depth was drilled and turned on the lathe, in the centre of this. A punch was also turned from maple with a matching profile minus an allowance for the thickness of the leaf. To use, the sharp bend at the base of each leaf was first flattened lightly with a hammer against a curved metal profile (the handle of my bench vice). It was then placed in the jig and the wooden punch struck with a hammer. This gave the correct profiled curve to the bottom of the leaf (**photo 28**). The base of each leaf then needed to be cut to width, with the sides slightly splayed, so that groups of seven leaves would fit neatly around the stepped dowel. A small hole was drilled near the base of each leaf to take a short No.4 screw. The edges were then filed smooth and the leaves polished with compound on a buffing wheel, before being degreased and dipped in protective lacquer. The foliage was then screwed in place one leaf at a time, starting at the top and working down, one row after another, with each successive horizontal row being slightly offset from the one above, helping to give a characteristic helical twist to the foliage (**photo 29**).

Where to go from here?

Eventually the cupboard is to be fully painted with matt oil paint in shades of red and verditer (a type of turquoise-green colour) and gilded in parts. With this in mind, the whole piece has been sanded smooth and stained with a walnut spirit-stain, so that any subsequent wearing through of the paint will reveal a darker wood colour beneath. You will notice, from some of the earlier photos, that the panels were first stained prior to assembly. This was to ensure that any subsequent shrinkage would not reveal a tell-tale strip of pale bare wood. Most of it has also been given several coats of shellac to seal the surface, which acts as a primer and the interior has been coloured with a drab grey-green paint.

32 Complete view of Baroque cupboard – 'the elephant in the room'

As of now, the exterior still awaits the rest of its finish paintwork and gilding. I have, for the most part, completed the cornice, though this still needs some decorative detail picked out in gilding. The bare gesso on the mouldings, the side panels and the splayed corners still needs to be rubbed back to form a smooth surface (**photos 30** & **31**). With this complete, the painting can be finished. The side panels can then receive their patterned gilding, the small mouldings can be fully gilded, the large mouldings partly gilded, and the splayed corners can have gilded paintings of flower garlands applied to them.

One last push

What I realised, during the course of putting together this article, was that this project had certainly faded into the background and despite its size, was well on its way to becoming truly invisible. Gathering together the photos and going back over the processes involved in its construction has certainly exercised the mind and brought things into much sharper focus.

Some of the best advice I was given by a colleague many years ago was that if you are struggling, you should make a list, which is precisely what I have done – in fact I have made several. I calculate that I am about three quarters of the way through the project. I now have a much clearer idea of what is required in order to bring it to a close and a much more realistic grasp of the time-scale involved. I also have items to tick off the list to motivate me as I approach my goal.

Wood fungi in timber

From woodworm to wood rot, **Peter Bishop** looks at what happens when timber comes under attack

I've mentioned in an earlier article that wood comes under destructive attack from two different directions: fungi (wood rot to you and me), and wood-boring insects. The most invasive fungi are those feeding off the wood tissue and, in the process, they are physically destroying it.

Wood borers and fungi
Photograph courtesy of **TRADA**

Types of fungal attack

Some damage can occur while the tree is growing. This might be exacerbated by the logs being left lying around for too long. Fungal attack may follow this if the lumber is wet or kept in damp conditions. Even after drying it is possible that outside factors will enable the situation to be reversed, thus revitalising the original attack or creating a new one. This sounds bad but with common sense, maybe a few chemicals and good housekeeping, there is no reason why this should be the case.

Generally there are two types of fungal attack: fungis that grow on the cell contents possibly causing some staining, and fungi that eat the cell tissue, causing decay and degradation of the timber's structure. The latter group, wood rotting fungi, seriously damage the timber and can lead to total collapse of the affected areas. The former type eats the cell contents and leaves the structure sound. Some fungi do one, the other or both. There are two parts to the fungi and the first is the fruiting body. The mushroom or visible plate is where, on the underside, the spores or seeds are stored and disbursed from, and the second part, which does the damage, is the vegetative system or 'mycelium'. This is made up of a mass of fine tubes called hyphae, which grow from their tips by invading and eating the cell or its contents in an ever increasing extension from the fruiting body. To ensure that fungi survive they need four things: adequate moisture, suitable temperature, a food source and air. If this recipe is available, and the fungi's spores are introduced, they will thrive.

WOOD-ATTACKING FUNGI

There is a large number of fungi that attack wood in its primary form and in service. Here I will describe three of the most common that we as woodworkers may come across.

Dry rot – *Serpula lacrymans*

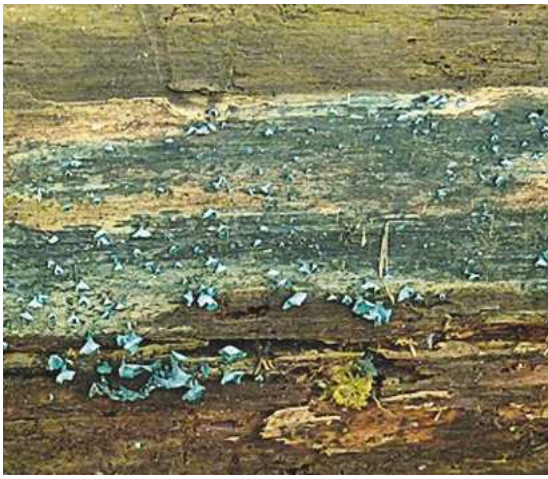
The name is confusing because this fungi will not survive if the moisture content is below 20% and obviously the wood is not dry then. In the advanced stages of decay, this brown rot breaks the wood down into cube-like sections. The fine, leading mycelium can cover extensive areas, penetrating mortar and crossing steel and concrete in its quest to find fresh wood to attack. Due to this, dry rot is the most invasive of the wood in service attacking rots. As it extends the tubes, sections closer to the fruiting body will thicken and strengthen. Where it can be seen, a cotton wool type effect spreads across the surface of the timber being infected. The fruiting body is a soft, fleshy plate often with white edges and it produces a microscopic, red dust-like spore. In areas where the attack is hidden, the first indications of the presence of the fungi will be depressions and splits appearing on the surface.

Removal of some or all of the four components needed for survival will halt the attack. Eradication can be achieved by the total removal of all affected timbers, fungicidal preservative

Blue stain fungi invading sapwood

Typical cube-like damage caused by dry rot

Friable and longitudinal damage caused by wet rot



Sap-staining fungi

Various stages of blue staining in rubber wood

treatment of the surrounding areas and replacement with appropriately treated components.

Wet rot – *Coniophora puteana*

This fungi usually prefers to grow in areas where there is a permanent supply of moisture created through condensation or a leaking gutter, for example. When the wet rot attack is fully advanced it produces longitudinal cracking with some horizontal breaks creating a variable cube-like appearance on the infected areas. Where the attack is fully advanced the affected wood becomes brittle and powders to the touch. The mycelium grows as per dry rot, extending from the tip and invading fresh wood. When visible it tends to be of a dark brown colour and thread-like in substance. It is localised and cannot penetrate masonry and mortar. The fungi's growth can be contained within the core of the wood under attack and not visible on the surface until well advanced. The fruiting body is small and not always clearly identifiable; it is a green plate-like structure.

Eradication should follow a similar pattern to that of dry rot and the removal of the source of moisture is most critical.

Blue or sap-stain fungi

There are several fungis that cause this mould-like blue stain in the sapwood of softwoods and in the less durable, light hardwoods. It has no structural effect on the timber but does disfigure the wood with an adverse colouration. The stain is in fact the hyphae of the fungi, which tint the surface of the timber. To survive, the blue stain fungi require the usual four key ingredients: food, light, heat and moisture. To avoid blue staining lighter coloured woods that are susceptible to attack, they should be dried as quickly as possible so that these ideal conditions are not created.

Some tropical timbers are dipped or sprayed with a fungicidal solution to ensure there is no attack. Providing the wood is dry, blue staining will advance no further. Therefore, if the affected wood is to be used, it's best in less visible areas, such as carcassing.

Conclusion

It's not often that we will be faced with wood rot problems unless building restoration features as one of our main types of projects. Then, in most cases, it's essential to find the cause of the problem, fix this and then eradicate the fungi or replace the damaged wood with sound stuff. Blue stain can be a bit of a problem if boards have been selected to show a natural finish. If not, most can be used, once dry enough, in areas that will be hidden, painted or stained a darker colour. Knowing your different types of wood rot and how to deal with them is just another string to the general woodworker's bow. Let's just hope you're never faced with a major infestation that results in irreversible structural damage to the fabric of a building.

NEXT MONTH

The old adage 'prevention is better than cure' is very apt, as Peter goes on to discuss in the next issue where he examines the treatment of timber with preservatives

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AROUND THE HOUSE WITH PHIL DAVY

Is there anything more tedious than shopping for a new kitchen? All part of moving to a new house, but it does get frustrating. Deep down you know you could probably build a fairly decent kitchen given the right machinery, materials and workshop space. But even though you may have the necessary skills, you don't have the resources or time. And there's a chance it could end up looking decidedly homemade, so you opt for a bog standard kitchen. You start off full of enthusiasm, but by the time you're flicking through the third or fourth brochure or revisiting yet another showroom, the zeal has definitely waned. But you can still make your mark by installing the kitchen yourself or maybe a hardwood worktop. Oiling a worktop can be quite therapeutic and you may even like its smell, too. At least you can say with some pride that you fitted it yourself.

ON TEST:

RYOBI R18BS-0 CORDLESS BELT SANDER

Developments in battery technology in recent years have meant that many power tools previously restricted to the 240V arena are now emerging as cordless machines. We've seen three successful cordless routers launched recently and now Ryobi have turned their attention to the belt sander. Without bigger capacity 18V batteries (4.0Ah and upwards), these power-hungry tools would not really have been viable a few years ago.

The R18BS-0 is a no-frills power tool, with a single fixed speed of 250 metres per minute. Compared with many 75mm wide, 240V sanders this is quite slow, though barely noticeable when sanding. Plenty of textured rubber grips make controlling the tool comfortable, which weighs 3.5kg with 5.0Ah battery fitted. There's a lock-on button above the hefty trigger, both of which are easy to reach.

You can lock the front handle in any one of three different positions by first depressing a button underneath. With the handle angled backwards, access at the front of the tool is improved when sanding a floor up tight against a wall, for example.

An 80mm wide steel platen provides a sufficiently flat area for the belt. The front roller sleeve is dense plastic while the rear is rubber, both crowned. Belt dimensions are 76 × 457mm, a common size, so obtaining replacements shouldn't be too difficult. Three aluminium oxide belts are provided:

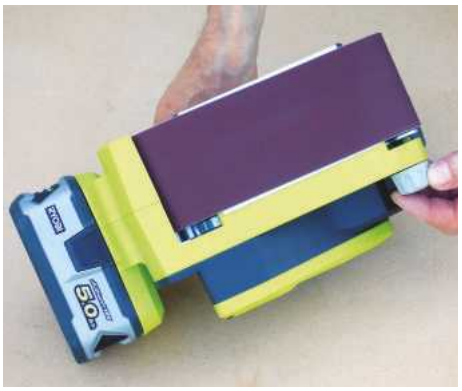
Plenty of textured rubber grips make controlling the tool comfortable, which weighs 3.5kg with a 5.0Ah battery fitted

There's a lock-on button above the hefty trigger, both of which are easy to reach

You can lock the front handle in any one of three different positions, by first depressing a button underneath the sander

An 80mm wide steel platen provides a sufficiently flat area for the belt

To change a belt you simply open out the spring-loaded side lever, which retracts the front roller



Tracking is adjusted in the normal way, rotating a knob at the side of the roller

60, 100 and 120 grit. To change a belt you simply open out the spring-loaded side lever, which retracts the front roller. This mechanism appears to be quite sturdy. Tracking is adjusted in the normal way, rotating a knob at the side of the roller. In use, the belt had a tendency to track slightly diagonally on the model I tested. Applying too much downwards pressure when sanding caused the belt to veer to one side, though lifting off the tool meant the belt corrected itself.

Sanding performance

With dustbag fitted there can still be a small amount of dust discharged, so you need to make sure this is twisted firmly on to the port.

Wearing a face mask is strongly recommended if working indoors. Hooking up a vacuum extractor improves efficiency, though this obviously makes the tool less convenient to use, with hose and cable to consider. That said, Ryobi have a cordless vacuum extractor up their sleeve, so it will be interesting to see how these tools work together. An angled plastic adaptor is included to connect the hose.

It's hardly worth using a smaller battery – I only got five minutes sanding from a fully charged 1.5Ah power pack. Switching to a 5.0Ah battery, this increased to about 12 minutes, which isn't great. That said, you can cover quite a big area in around 10 minutes of finish sanding. We can expect bigger batteries from Ryobi later this year, which will obviously extend the run time.

Conclusion

Probably the world's first cordless belt sander, the R18BS-0 is undoubtedly a convenient tool. For any serious sanding you'll really need at least two 4.0Ah or 5.0Ah batteries fully charged, which gets expensive. I can't see a woodworker buying into the Ryobi 18V system initially on the strength of this product, though if you're already a user it's quite a handy addition for the odd preparation job. Like all OnePlus tools, this one comes in a cardboard box, rather than a sturdy plastic storage case. Warranty is three years.

Applying too much downwards pressure when sanding caused the belt to veer to one side, though lifting off the tool meant the belt corrected itself

With dustbag fitted there can still be a small amount of dust discharged, so you need to make sure this is twisted firmly on to the port

An angled plastic adaptor connects the hose

Switching to a 5.0Ah battery yielded about 12 minutes of use, which isn't great

Probably the world's first cordless belt sander, the R18BS-0 is undoubtedly a convenient tool

SPECIFICATION

Voltage: 18V
Belt speed: 250m/min
Weight (with battery): 3.0kg
Belt dimensions: 76 × 457mm

Typical price: **£99.99** (bare)
Web: www.ryobitools.eu

THE VERDICT

PROS

- Sanding without a cable; adjustable front handle

CONS

- Smaller capacity batteries drain fast; belt can track to one side

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REPAIR & RESTORE

Phil Davy takes us through the steps for one of his recent commissions, which involved replacing several Victorian church windows

We've probably all been there. You know, when a job comes along that really gets you scratching your head knowing just where to start. This happened to me a while ago when I was asked to restore several Victorian church windows. Installed in an elegant listed building, the completed windows had to feature the original glass where possible, though in reality most of the brittle panes broke when removing them before stripping the timber. The sashes themselves were dipped chemically, a process that has its pros and cons. It can lead to glued joints working loose, which happened here. But the biggest problem was the bottom rail on each one, most of which had rotted badly. A combination of internal condensation and poorly maintained exterior paintwork was the cause.

Made from pine, I was surprised to find several large knots in each window, proving that not all old timber is necessarily top quality. Although the sashes were screwed into the frames and were never designed to open, condensation in the building was a problem during the winter months. To overcome this I was asked to hinge the windows at the top, so they could be opened a small amount for ventilation. Easier said than done, when each window measured approximately 1,800 × 1,200mm and weighed a fair bit when reglazed.

Traditional joints

Most of the upper stiles were in good condition, so only the lower sections needed replacing. This was done by sawing across the bottom end, then cutting a simple halving joint. New bottom rails were machined up, with traditional mortise & tenon joints formed at each end. Each bottom rail was glued to the new stile sections and joints wedged. With halving joints cut in the short new stiles, the new timber could then be glued and screwed to the existing windows. I used polyurethane glue mostly, which is messy but perfect for exterior work.

Glazing bars

Matching the profile of the glazing bars was probably the trickiest part of the job. Three sashes needed entire new bottom rails, with an internal ovolo profile to match the existing stiles.

I started with a couple of wooden moulding planes, one of which had a similar profile. With some tweaking here and there, a shoulder plane and plenty of sanding, the first rail was a reasonable match. But with more windows to repair, I turned to the router. Fortunately I found a glazing bar set in Trend's CraftPro range, which matched pretty closely. More about that next month, though.

Because the original glazing bars were so slender, halving joints would have been too weak where they intersect. Instead, each vertical bar had a slim hardwood dowel at each end, inserted into a corresponding hole in the horizontal bar. Although not easy to take apart, this design seemed to provide enough strength for a fully glazed window. One or two snapped off while dismantling, though it was straightforward to replace them with new oak dowelling.

Restoring the first window was quite daunting as I had little idea how it had been constructed. After that I built the remaining rails and stiles in one batch, which made life easier. Leaving routers and gauges set up certainly saved time. So, an interesting project, but not one I'd wish to repeat in a hurry...

1 Each window had two lower rows of reeded glass. Putty was loose or missing and paintwork was generally in poor condition

2 After removing each fixed sash from its frame all glass was taken out. All windows were then stripped chemically to remove paint

3 You need to assess work carefully before starting a project such as this. All the lower mortise & tenon joints had rotted badly

4 Support the sash off the floor and saw through the bottom rail at each end

5 Tap the bottom rail away from the stiles, taking care not to damage the attached vertical glazing bars, which may work loose

6 With the rail removed, number each glazing bar before dismantling. Saw through the rail alongside each bar if they're tight

7 Plane new timber to size. Bottom rails and stiles finish at 45mm thick, though allow extra for final planing up when assembled

8 Cramp both stiles together and mark out the mortise positions. Each stile is then cut to a length of 350mm, including horns

9 Mark each mortise with a gauge, plus matching tenons on the rail. Chop out from each side with a hollow chisel mortiser or by hand

10 Cut the tenon shoulders on the bottom rail with a sliding mitre saw or bandsaw. Remove the waste material from the cheeks

11 If necessary, trim the tenon cheeks with a shoulder plane, ensuring these are flat. Check tenon corners fit snugly into their mortise

12 With a table-mounted router, machine a profile along the inner edge of both stiles and bottom rail. Do the same with the rebates

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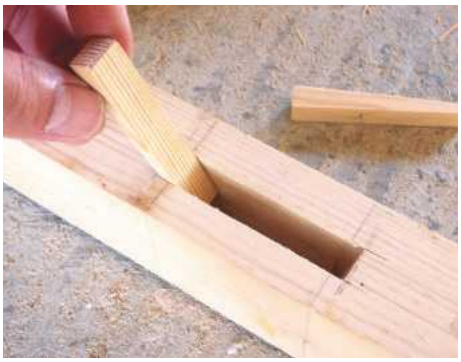
13 The tenons on the bottom rail are franked for strength, rather than haunched. Mark the joints and saw away the waste

14 You'll need to scribe the tenon shoulders where they intersect with the stiles. Do this with an appropriate in-cannel gouge

15 Using a marking gauge, mark a halving joint at the end of each new stile. Cut away waste and clean up with a shoulder plane

16 Saw off the ends of the stiles on the original sash. Mark out at the same gauge setting and clean up surfaces as necessary

17 Dry assemble the corner joints. Drill clearance holes, align the new stiles with the original sash and screw them together temporarily



18 Dismantle the components and taper the ends of each mortise with a chisel for wedges. Cut wedges from the waste tenon cheeks

19 Apply exterior glue to the tenon surfaces and assemble the rail and stiles. Cramp across the width and tap wedges into the mortises

20 Once the glue has dried, saw off the excess tenons and wedges just proud of the stiles. Plane the surface flush on each stile

21 The replacement bottom rail is slightly wider than the original one. This enables a bevel to be sawn after gluing everything together

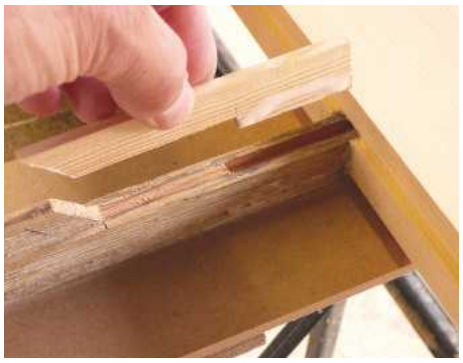
22 Each vertical glazing bar intersects with its adjacent horizontal bar via a hardwood pin, set into a matching mortise

23 Where existing pins have snapped off, replace with hardwood dowels. Glue in place and cut to size, about 50mm protruding

24 During dismantling it's likely that one or two existing pins will snap off. Where necessary, drill out bars to accept new dowels

25 Some glazing bars are likely to split when removed from the bottom rail, though it's easy enough to glue these back together

26 Other bars may need more in the way of repairs. Where necessary, cut away damaged wood and splice in replacement pieces



27 As these glazing bars are so slim they split easily. Repairing them means narrow chisels, sharp planes and light cramps

28 Once the new bottom rail and stiles have been glued to the sash, plug the screw holes and trim flush. True up surfaces with a plane

29 Saw off the excess horns. Mark the sash for length, then cut a bevel along the lower edge of the bottom rail with a circular saw

30 Tidy up the inner rebates of each new stile with a router, where necessary. Trim the internal corners square with a sharp chisel

31 Both outer edges of each sash will need to be planed. This will create sufficient clearance for opening when fixed into the frames

32 When several hinges need to be fitted it's easier to make an MDF jig for the housings. Cramp to the top rail, then rout the recesses

33 Drill and fix the hinges in place using stainless steel screws. Mark and cut the matching recesses in the head of the frame

34 Three stainless steel hinges are used on each sash. Once removed, the sash can be finished with a suitable exterior paint system

35 Refit the sash after painting and check it opens and closes without binding in the frame. Then it's ready for the replacement glass

36 Fit a pair of traditional casement stays to each sash. If using brass screws, insert steel ones first to prevent damage to the slots

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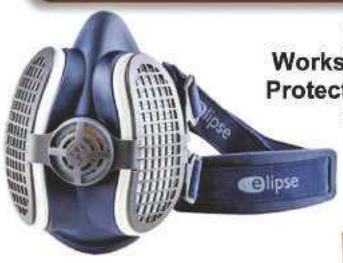

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CLOCHE BOX

Les Thorne comes up with a novel way of presenting a hole in one ball to a lucky golfer

Boxes and bowls seem to be the staple diet of woodturners across the land and I'm always coming across variations on a theme. The box shown here represents an idea that's been rattling around in the recesses of my mind for a while now, so when a request came in for a container to hold a golf ball, it seemed the perfect opportunity to put this project into being. I have made many trophies in my woodturning career, especially for the golf club. This was a hole in one ball and the remit was to find a way of presenting it back to the lucky golfer, but covering the ball so he didn't know what it was. The thought of hiding the ball was not something I'd done in the past as normally they are just stuck on a pedestal on a base. The cloche-type cover is a traditional way of keeping the contents (normally food) hidden from view, awaiting the unveiling. To get the diameters I wanted, I did have to use cross-grain blanks, which I generally wouldn't use for a box due to the likelihood of the timber moving and altering the fit of the lid. Using kiln-dried European oak did go some way to alleviating that issue, however.

1 Cutting the blanks round on the bandsaw will stress the blade and, as a result, it will struggle to cut in a straight line. Therefore, it is best to cut the timber into an octagon shape on small pieces

2 The thickness of the blank dictates that I can't use screws to hold it on the lathe, so the only real option is to use a glue chuck. A hot glue gun is a cheap, quick, easy and strong option

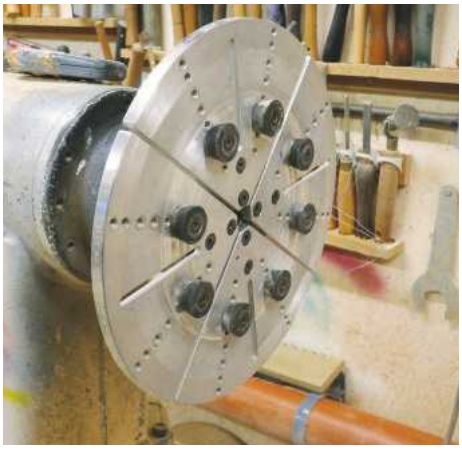
3 Kiln-dried oak can break-out on the edges, so I make sure that I cut in from either end towards the middle, so the grain is always supported. A small bowl gouge is perfect for this

4 I like to shape small pieces like this using the 13mm signature spindle gouge. This tool is not to be confused with the spindle roughing gouge, however, which isn't suitable for cross-grain work

5 This small bead is probably not needed, but I do like to add little details such as this on my work. I use a small spindle gouge with the bevel in contact with the wood, which gives me the best chance of achieving a great finish

6 It's important to always try to position yourself and the tool in the optimum place to make each cut. So when working around the back of a piece, move the toolrest accordingly, which minimises the overhang and maximises cutting edge support

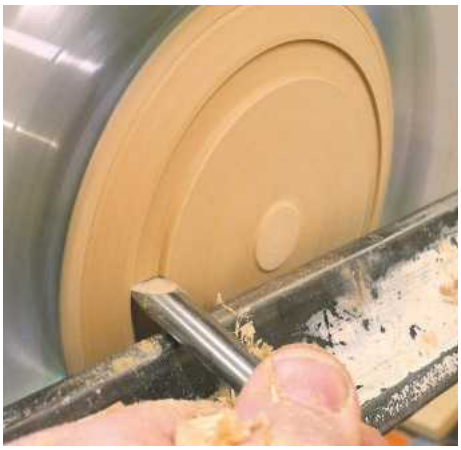
7 The base is now finished and needs sanding. To get into all the fine detail, you will need to use an abrasive that can be folded without cracking. I start with 180 and work through to 400 grit



8 A useful asset to your chucking system is these aluminium bowl reversing jaws. They are available for all the major chucks on the market – you want a set with soft buttons

9 I like to tighten up the jaws so there is a small amount of compression on each rubber bung; this will not mark the timber and the dovetail shape on the buttons pulls the blank onto the faceplate

10 When using these jaws, do not exceed the recommended speed, which is normally marked on the outer edge. Using a pair of dividers, mark the diameter of the lid onto the base

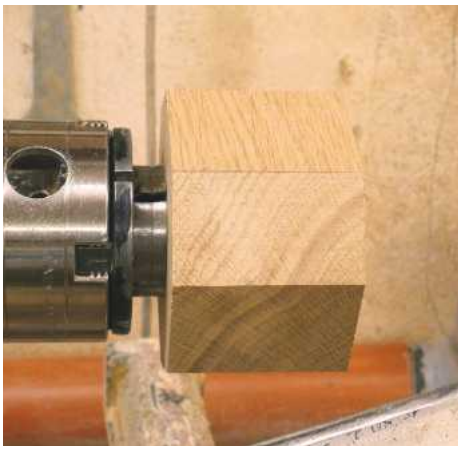


11 At this point I need to decide how the lid is going to sit on the base. Cut a slot to the left of the line with the round sizing tool and you can then shape the edge, being careful not to come into contact with the spinning buttons

12 I had to give a little thought as to how I would attach the ball to the base. I decided to cut a small dish and the ball will be glued in using a small amount of epoxy. I have used this method in the past and it seems to work well

13 Shape the bead onto which the lid will sit and then flatten off the top of the base. I work from the centre out using a small bowl gouge. The bevel is always in contact with the wood

14 The small dish in the middle did look a little lost in the whole design, so I decided to cut a small groove to accentuate this feature. The point of the skew, used in scraping mode, is the safest way of doing this



15 Mount the lid onto a screw chuck and make it round with a bowl gouge. I leave it maximum diameter at this stage, as at this point, I'm not yet sure of my final shape

16 I use my smallest dovetail jaws to allow me to turn as much of the shape as possible in the first fixing. A small gap in the jaws shows that they are making a circle, which affords me maximum grip

17 The perfect dovetail – 15° to suit the jaws and 4mm deep – and I have also marked the centre with the point of a tool; this means I will be able to remount the piece to finish off the top

18 These are the fun cuts, when you can just hog the wood away with a freshly sharpened bowl gouge. I could use a pull cut, but I like to use a push cut as it tends to give me a better finish, especially on oak

19 The diameter of the bead on the base needs to be transferred onto the underside of the lid; this is the measurement that will determine the final size and shape of the lid

20 The underside of the lid is hollowed in the same way as a bowl. The flute of the tool is pointing at 3 o'clock before entering into the wood; this creates a shoulder for the bevel of the tool to rest on

21 Once you are inside the bowl section and the bevel is in contact with the side walls, you can open the flute of the gouge so it's pointing at 11 o'clock; this will allow the tool to cut more cleanly

22 The first section of the lid needs to be straight, so it fits snugly onto the bead on the base. To achieve this, start with the bevel at right angles to the edge; this creates the desired shoulder

23 I was undecided as to the sort of fit I wanted – normally a loose type fit is better on boxes with this grain orientation as it allows for a little movement in the timber – but as this oak is so dry, I decided to go for a tighter 'click' fit

24 More than happy with this, all I need to do now is to take some more wood from the outside to create a pleasing shape that suits the base. Do as much of the shaping as you can now; this will leave you with the minimum to finish at the end

25 The bottom of the lid section needs to be finished completely and the 60° bowl gouge is the best tool to use for getting right into the bottom. I power sanded the inside to achieve the best finish possible

26 If you want to expand your turning horizons, using jam chucks is a very important part of turning to master. This piece of pine is roughed out and mounted up in the chuck

27 I have turned a shoulder for the lid to fit on tightly, using pine means that it should compress and hold the oak well. The tailstock is in place while I do the bulk of the shaping

28 Once you're confident using a jam chuck, you will find no problem with holding on a small section. Remember, though, that any dig-in or loss of control of the tool will see your lid flying off, so be careful

29 To attach the finial/handle on the lid, I drill a 10mm hole part way through the top. Because there is a hole left by the live centre, a dormer-type drill is better than a brad point

30 I have turned a little flat on the top, which will correspond with the bottom fillet on the knob that I'm going to turn. This will create a seamless transition from oak to ebony

31 I could have used a piece of oak for the top, but thought a contrasting piece of ebony would make the box look better. Mount the ebony between centres and turn it down to the required diameter

32 Turn a 10mm diameter spigot on the end to fit into the lid and then create a fillet to the left of the spigot; this needs to be the same diameter as the flat turned on the top of the lid

33 On a piece this size, most of the shaping is done with the 10mm signature spindle gouge. I have gone for a classic organ stopper type shape. When you are happy with the shape, sand through to 400 grit

34 The more you do on the lathe, the less you have to do by hand. I am parting the knob off by cutting down with the skew chisel until there is a tiny section of timber remaining

35 The top needs a little sanding to clean it up and then I am going to spray the ebony with gloss lacquer before finishing the oak with lemon oil

36 The completed cloche box in oak and ebony

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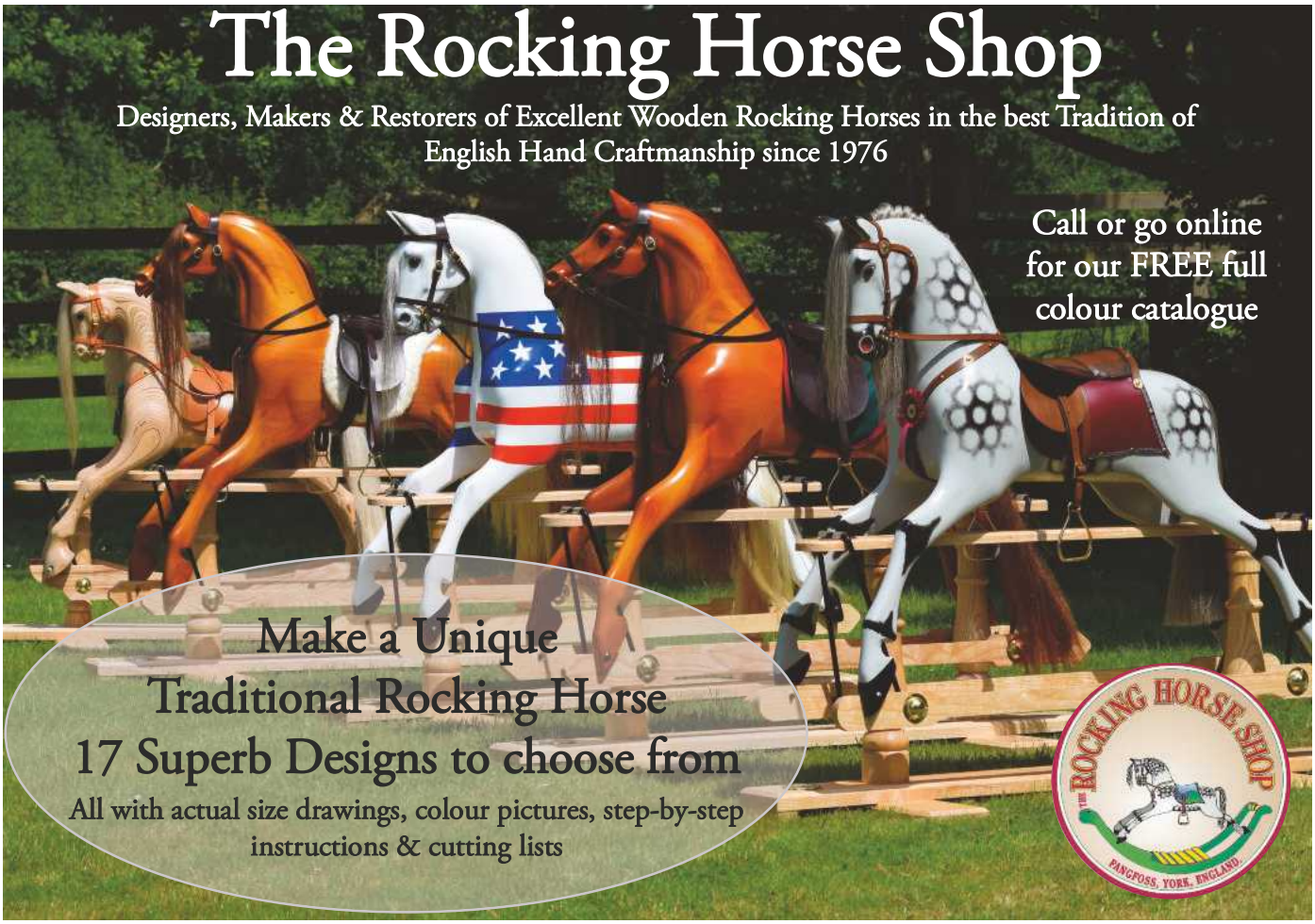

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LET'S ROCK!

After undertaking a course at The Rocking Horse Shop, **Chris Finch** is inspired to build a personal heirloom which he sends to his granddaughter in Canada

1 Thoroughbred head made on the three-day carving course

The finished article ready for shipping to Canada

The history of rocking horses can be traced back to the Middle Ages, when a popular children's toy was the hobby horse – a fake horse's head attached to a long stick. Children would place the stick between their legs and 'ride' the horse around. The rocking horse in its current form is widely believed to have first appeared in the early 17th century. The horse on bow rockers that we know and love today was a product of 18th century England, when it was popular with the wealthy and it is said they were used to help develop children's balance for riding real horses. There were, however, improvements to be made to these early models. Being built from solid wood, they were heavy and their centre of gravity was high, so they could easily topple over. In the Victorian age, the 'safety-stand' was introduced and the idea of making the horses hollow was conceived. This made the horses lighter and more stable, and gave birth to the idea of a secret compartment being fitted into the underbelly. The safety-stand was an American invention patented in England in 1880 by Philip Marqua, but surprisingly this patent was not renewed and now anyone can make horses on safety-stands. By the early 20th century the safety-stand horses became far more popular than the bow rockers, mainly because so much less space was required to ride the horse and they gave a shorter, more controlled ride for children.

Family heirlooms

The family heirloom horse could store photographs, mint coins, locks of baby hair and other such trinkets for future generations to find. During this era the style of choice was the dappled grey rocking horse, which was a favourite of Queen Victoria. Her love of rocking horses was instrumental in increasing the popularity of the toys; however, during the 20th century there was a significant decline in rocking horse makers, largely as a result of the World Wars and the Great Depression. By the 1960s it seemed like the craft was disappearing forever. Fortunately, a few skilled craftsmen began returning to the art of making rocking horses, restoring old pieces to their former glory and creating new designs. It is thanks to the work of those determined craftsmen that these beautiful toys continue to enchant adults and children alike all over the world.

I am one such adult who is so enchanted and, having never carved before, I have often wondered whether making a traditional carved Victorian style rocking horse would be within my abilities. My wife was aware of my quandary and so bought me a three-day 'Carve a Rocking Horse Head' course at the Rocking Horse Shop in the small village of Fangfoss, near York. I reasoned that if I could carve the head, then I must be able to sort out the rest of it! More importantly, I needed to know whether I would enjoy the challenge before I purchased the plans and timber to make the rest of the horse. Motivation would not be an issue, as I have a two-and-a-half-year-old granddaughter in Canada who would love such a family heirloom. I can highly recommend the course, which is

2 Head, neck and muscle blocks glued and cramped to the upper body block

3 Legs glued and cramped to the lower body block

4 Side and end body blocks glued and cramped to the lower body block

5 Completed horse after gluing-up stages

6 Let carving commence!

7 Bench dogs used to hold horse during carving

carried out in an informal but structured manner and is a very enjoyable and satisfying way to spend three days; however, should you decide to try this course prior to making a rocking horse, then research and decide what size of horse and style of head you require. The cost of the timber for the head is included in the cost and if you subsequently decide to buy a timber pack to make a horse, then the cost of the timber for the head (approximately £90 for a medium-sized horse) will be deducted. Having completed a 'thoroughbred' head in September (**photo 1**), I bought the plans and timber packs to make a medium-sized rocking horse on a safety-stand and started the project in October last year.

Beginning the build

Tulipwood (US poplar) was used for the horse and American white ash for the safety-stand. In essence, the horse body comprises two longitudinal planks for the sides, two blocks to close off each end and then a broad plank for both the upper and lower surface of the body. Each leg is bandsawn from a flat board and there are a number of blocks to glue to the sides of the neck, the shoulders and the haunches to provide the muscle bulk in these areas. After planing and shooting the ends of each board, it was a simple matter to glue-up and cramp all the relevant parts to resemble a closed, oblong, hollow box with a leg at each corner and a head and neck protruding at one end (**photos 2-5**). I secreted a copy of the *Times* newspaper inside the horse before closing-up the body, together with a copy of a book I had published about riding motorcycles across Canada and America some four years earlier. Then came the daunting moment, when I had to start chopping away wood with a mallet and 25mm gouge, but with no real knowledge of how much to remove (**photo 6**). However, the plans include full-size profiles of five different datum points along the length and across the width of the horse and the instructions that accompany the plans give a logical sequence of work. Once work was underway and the adrenalin levels returned to normal, I began to enjoy the challenge and, as some recognisable shape emerged, confidence levels soon began to rise.

Securing the work

One of the very real problems is how to hold the work while carving each side. I had not seen this on the 'head' course but was aware that they use a carver's chop – a sort of wooden vice assembled onto a flat sole plate – which can be clamped to the workbench and turned as required to permit good access while carving. The jaws of the chop open sufficiently wide to accommodate the body of the horse. Not having such a chop, I secured a solid piece of scrap beech in the tail vice, laid the horse on its side across the bench with its back against the piece of beech and then used a pair of Veritas 'Wonder Dogs' in appropriate bench-top dog-holes to cramp up tightly against the horse's belly, using more scrap beech to prevent bruising (**photo 7**). This held the work securely and I moved the bench on its retractable castors to provide all-round access.

8 Horse after carving and sanding

9 Groove cut to accept the mane

10 Unfinished horse mounted on safety-stand

Carving & sanding

The instructions suggest that beginners would most likely want to carve a particular area on one side of the horse, the neck for example, and then turn the horse over and carve the corresponding part on the other side. Personally, I preferred to complete one side of the horse so that I knew what I was trying to achieve and then turn it over and repeat the exercise. I had purchased a set of six Ashley Iles' carving gouges while on the 'head' course and a good friend of mine had turned me a beautiful boxwood carving mallet with a larger than usual handle diameter to comfortably fit my big hands. This small collection of tools, together with a Veritas drawknife, removed the majority of the waste, while a collection of various Microplane rasps helped remove the final gouge marks. The initial sanding was completed with a 25mm diameter drum sander in a power drill, using a selection of abrasive sleeves. Of course, at the end of the day, it came down to sanding by hand to achieve the desired finish (**photo 8**). From the outset I had wanted to achieve a sufficiently fine finish with tight glue lines and no use of filler, so that I could stain and then varnish the horse. Had this not worked out, then it would have been necessary to apply several hot coats of gesso to hide imperfections and provide a 'billiard ball' smooth finish prior to painting. However, before staining and varnishing could be done, it was necessary to drill the hole for the tail and cut a groove up the back of the neck for the mane (**photo 9**). I also made the safety-stand, which was straightforward, so that I could mount the horse on the rails and drill the holes through the hooves and rails to accept the securing coach bolts (**photo 10**).

Final stages

Toy safe water-based acrylic paints, stain and varnish were used for the finish and once fully cured, the tail was glued into the body and wedged and the mane fitted into the groove in the back of the horse's neck before being secured with a strip of leather, which was nailed down tightly with brass nails. Finally the saddle and tack were fitted to complete the horse. Just one small job remained – that of fitting a small engraved brass plaque to the safety-stand to remind our granddaughter where the horse had come from (**photos 11-12**).

I don't have any more young grandchildren for whom to make further rocking horses; however, I am now hooked on this pastime. I think that now I have learnt some of the wrinkles, this horse might be the first of several to come out of my workshop!

11 The finished rocking horse meets its maker!

FURTHER INFORMATION

To find out more about courses at The Rocking Horse Shop, visit **www.rockinghorse.co.uk**

12 An engraved brass plaque conveys the maker's message

13 Lauren receives her rocking horse

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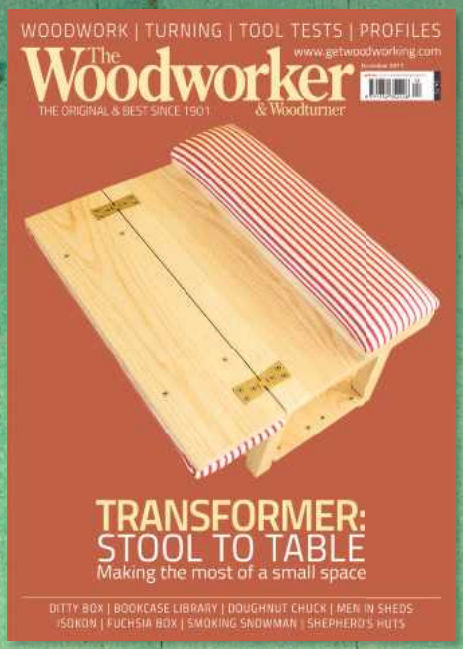

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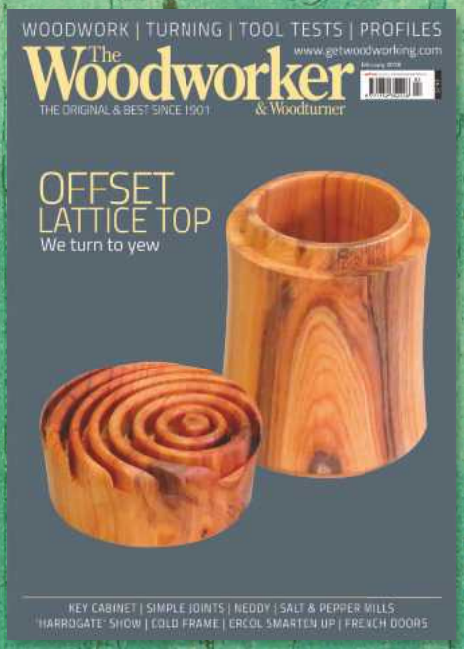

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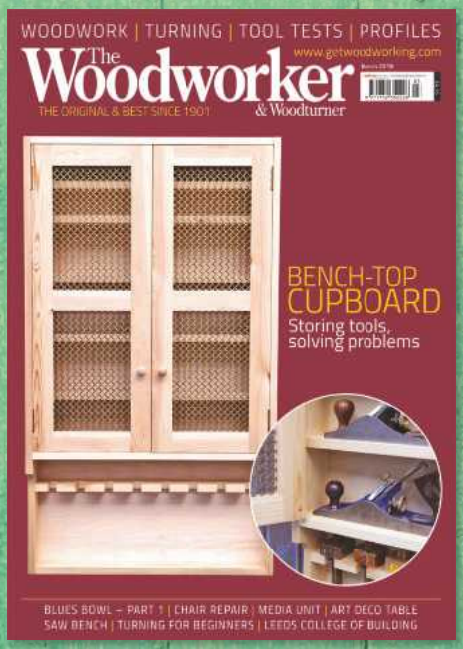

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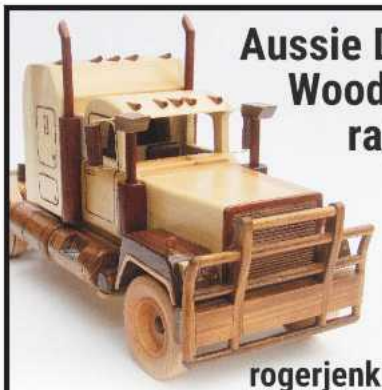

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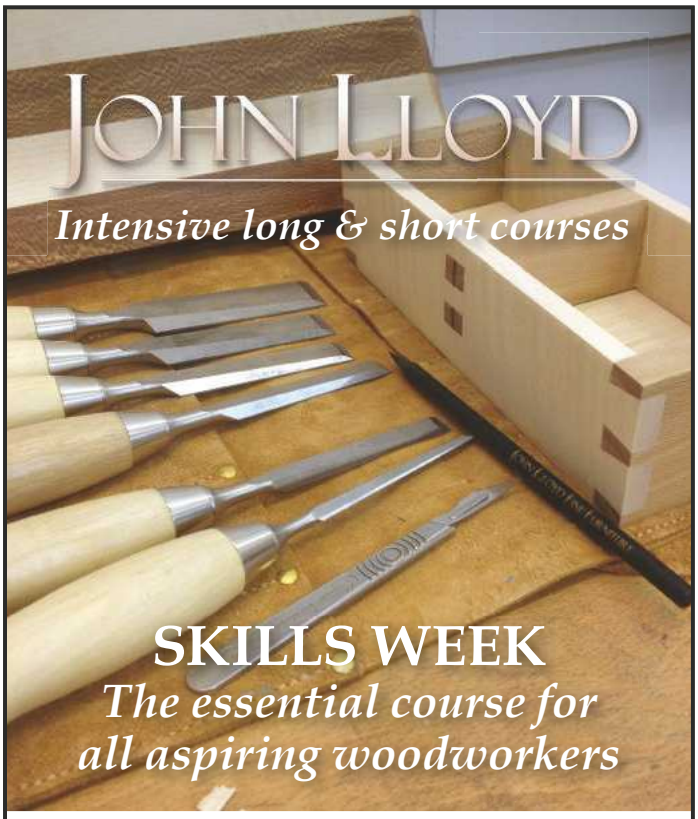

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Sole brothers

The need for correct footwear

To be a good woodworker, you have to feel like a good woodworker. Capable. Confident. Enthusiastic. Long before the job has gone even slightly wrong, you will feel that everything, everything can and might go well – it's all pointing in the right direction. Your plans are well laid; your timber well-seasoned and your workshop is tidy. Kettle and music are on stand-by. All that remains is you. And what is it about you? You have to be properly dressed.

You can't work in your best clothes. This sounds pretty obvious until you find yourself popping into the workshop after Sunday lunch just to do a bit more, and finding that you can't. Try going in there any day in slippers. You just can't get going. You can't engage. You may not know it but your feet do. They know you're not serious. To be serious, you have to be able to walk into things without minding. Woodwork doesn't have a lot in common with acrobatics, but occasionally you have to stand on one leg like a flamingo about to scratch itself, and hoik up a component or a cramp with the other foot because both hands are busy. You must be able to catch things, or at least stop them hitting the floor so heavily. Stand on a screw without wincing. You mustn't mind being scuffed or dripped on, usually by glue.

Don't exaggerate

The snap reaction to these demands is work boots with toecaps. I bought a pair of hard-working steel toe capped boots, quarter price in a sale. I went for a walk on the beach and could hardly make it back to the car. I know about breaking in shoes: that wasn't it. I tried them again later. I had a day in the workshop (not much walking) to reacquaint myself with them and welcome them back into the wardrobe. I don't think there were three consecutive seconds when I was unaware of them. I might as well have had bricks chained to my feet.

You're not a deep sea diver, and you're not on a building site. Unless you're in a factory workshop or a quarry you don't need to wear armour. But don't drift too far back in the slipper direction. Trainers might not be heavy enough – not physically but psychologically. Your shoes talk to you. They tell you who you are (and who you are not). You don't climb Snowdon in brogues. You don't go sailing in hiking boots. When you wear brightly polished leather shoes don't you stand a little taller? Don't soft shoes in summer make you more relaxed? I'm sorry to forget her name, but I remember an actor talking about her need to wear the shoes appropriate to her role before she could identify with it, and absorb herself in it.

Don't be stingy

You spend all night on your mattress and so it makes sense on all levels except the wallet to buy a good one. The same goes for easy chairs in which you might talk and gawp, read and doze for hours each evening. So why would you be stingy with something that you wear throughout your working day, and costs not a thousand pounds, not five hundred, but merely fifty?

I'm talking to myself here. Over the years I've built up a resentment towards shoes and boots, which are never perfect, and wear out too quickly. I wouldn't pay much money for them because they weren't worth it. I think I've only just twigged (it takes me some time): I didn't withhold finances because the product was rubbish: the product was rubbish because I withheld finances.

Some prices are falsely inflated through the marketing of a brand, but in general, you have to pay for quality. The most expensive (general purpose/walking) boots I've bought – way, way above the rest (I was coerced/encouraged/subsidised) – are, six years later, extremely comfortable and showing no signs of wear, and are therefore pro rata cheaper than cheap alternatives. So I've done it. I've walked in to an ordinary outlet shop, tried on a pair of everyday shoes, seen that they were well-made, substantial, rugged, most importantly reassuringly comfortable and, by the way, attractive, and paid more for them than I ever intended.

I've been wearing them for two months now. Previously I'd have some negativity towards my footwear. It was cracking, beginning to leak, disintegrating from the inside out; awkward to get on or off, tedious to lace up. It's not a good way to start the day. Now I have nothing but positive feelings towards my shoes. I know it's real: I did something the other day that I've never done to work shoes before. I polished them.

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