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July 2021

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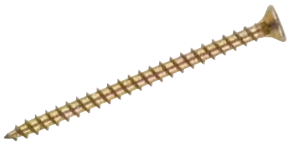

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Welcome

As Phil Davy correctly states in his 'Sundowner table' article (p.73), weather conditions leading up to the summer months have been largely disappointing, especially here on the south coast. Rewind to this time last year and, if memory serves me correctly, I was enjoying regular al fresco lunches in the garden as well as warm walks along the prom. Fast forward to the same time this year, however, and we've had hail storms, torrential downpours, and many cold, damp days, with temperatures struggling to get into double figures.

Carrying out some meteorological sleuthing, an "associated strong north-south surface pressure gradient across the north Atlantic" is to blame, and goes some way to explain the persistent and heavy rain which seems to have plagued most of the UK.

Sunshine for all

Us Brits do love to complain about the weather – if you're anything like me, it's either too hot or too cold – but taking into account the widespread effects of the COVID-19 pandemic, surely we're deserving of a pleasant summer? Having been subjected to extended periods of lockdown, isolation from family and friends and the resulting stresses, it's no wonder that everyone I speak to seems to have experienced their own personal struggles. All of these measures were of course necessary, and while we're by no means out of the woods just yet, looking ahead with a sense of optimism and hope feels good.

According to the Met Office, the bad weather is due to subside, making way for high pressure and resulting sunny days, and hopefully this will help to raise spirits after what has been a very tough two years for all.

Outdoor projects, hats, boxes & bowls

So, with my weather commentary out of the way, let's have a look at our July issue. We have a fair few summer projects for you, including Phil's folding outdoor table, and if you're feeling a bit more adventurous, how about a bespoke summerhouse build? Andrew Hall returns with part 2 of his hat-turning series, sharing tips for adding colour and texture to various pieces, including a textured and coloured Fedora plus a Derby hat with pierced detailing. Featured on this month's front cover, Ian Hawthorne's complex fuchsia box project will give you something to get your teeth into, and if you fancy practising your joint-making skills, Andy Standing's technical article on the houndstooth dovetail tells you all you need to know.

Furniture of the future

Before I go, I'd like to sing the praises of two incredibly talented furniture designer-makers, both Bespoke Guild Mark holders, who we're lucky enough to have in this issue: Laurent Peacock – our profiled maker – and Fernanda Nuñez – profiled in the September 2020 issue – who's stunning 'Guilloché' bedside tables, recently awarded Bespoke Guild Mark No.476, can be seen on our news pages. Paving the way for the next generation of furniture makers, talent such as theirs is not only inspirational, in terms of embracing modern methods and practices, but also owing to the fact that, despite moving with the times, traditional values still remain a central focus of their craft.

Another positive takeaway in the wake of the pandemic is the emergence of a burgeoning online woodworking community. It seems that more woodworkers than ever are taking to their workshops and making various projects, but also sharing these with like-minded makers. If you haven't done so already, then why not add your voice to the crowd? Why not start by following the **#woodworkfromhome** hashtag on Facebook and Instagram and see where the journey takes you. Enjoy!

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38 MATERIALS MASTER

Awarded Bespoke Guild Mark No.465 for his stunning 'Sika' console table, self-confessed 'materials geek' Laurent Peacock fuses custom-made surfaces and unexpected materials combinations, which keep the viewer guessing and wanting more. Here, Martin Pim-Keirle delves deeper

WIN!

1 OF 5 FASTCAP 0.5L GLÜBOT GLUE BOTTLES

We've teamed up with **Wood Workers Workshop** to give five lucky readers the chance to win one of these uniquely-designed **FastCap GlüBot glue bottles** – see **page 29** for entry details

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SEND IN YOUR TOP WORKSHOP HINT/TIP/ POINTER OR PIECE OF ADVICE & YOU COULD BE IN WITH A CHANCE OF WINNING A **VERITAS APRON PLANE FITTED WITH PM-V11 BLADE** – see page 67 for details

The Woodworker & Good woodworking
JULY 2021

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Women in woodturning

WIZARDRY IN WOOD 2021

When it comes to the world of woodturning, females are generally in the minority. Luckily, however, the landscape has been changing and evolving over the past few years, and at a very exciting rate. With many craftspeople exploring new techniques and working methods, more and more extraordinary, beautiful artwork is being created, and much of it by women.

Woodturning has never been so accessible, but sadly, not enough people know about it. The Worshipful Company of Turners is looking to change that using its voice to inform people about how creative, exciting and fulfilling working with timber and a lathe can be, with its seemingly endless possibilities.

The Register of Professional Turners (RPT) is privileged to have 11 female woodturners and the Register, in its 45-year history, has just appointed Jay Heryet as the first female Chair.

This isn't the result of gesture politics, but rather a clear, determined, positive drive from the RPT and the Worshipful Company of Turners to welcome women into the craft. A fantastic range of female woodturners will be exhibiting their pieces at Wizardry in Wood 2021, from 13–16 October, at Carpenters' Hall, London.

Sally Burnett

Sally admits to being quite solitary in her making practice, so the feeling of loneliness created by the isolation of lockdown was unexpected and impacted on the mindset required for creativity. She was 'rescued' from this malaise by a commission for Lexus UK, which required her to make a piece inspired by the Lexus RX plug-in hybrid. Sally was one of five makers participating in this Takumi project. The process of design, development and making was documented on video and still, which Sally found particularly challenging due to lockdown and a very small studio space. It was released on social media platforms in early 2021, as a short film.

As many of her usual routes to market were closed or limited, Sally could therefore devote more of her time to developing original work, with the exploration of new techniques and processes, the results of which will be launched in Paris next January (2022) – **www.sallyburnett.co.uk**.

Joey Richardson

For Joey, quality is of paramount importance and involves just two factors: concept and execution. The concept, which includes the material, message and story of the artwork, must exist in a symbiotic relationship with well executed high craft skills and detail.

Each of Joey's creations start with stimulation, inspiration, imagination and the original thought. This then leads to research, working out the concept, and finally, the execution. She never creates a maquette as all of her energy, excitement and inspiration goes straight into the passion and soul of the finished piece. From memento mori through mimesis via a mischievous wit, her delicate wood forms and contemporary, mixed-media sculptures are moulded by, and seek to encapsulate, nature – **www.joeyrichardson.com**.

Carlyn Lindsay

Carlyn's number one priority is quality. She'll remake a piece repeatedly until it's right for her; never getting bored. Citing woodwork and art as her favourite subjects at school, Carlyn is excited by linear structures and has been working with materials her whole life. During her career, she's worked in various large furniture workshops, which were largely dominated by a male workforce, but Carlyn impressed with her skills and eventually set up her own business in 1989. With many of her loyal clients following her, she picked up a solid customer base early on, with signature work developing from there. Even though attitudes are changing, Carlyn is still surprised when people realise all the work she produces is hers alone. "Thankfully some attitudes have changed, but there's still a long way to go," she says – **www.carlynlindsay.co.uk**.

Louise Hibbert

Louise discovered woodturning at university, back in the early '90s, where it was simply another technique that could be used to create the designs she came up with. With a body of work largely made up of her own nature-inspired pieces, Louise enjoys finding innovative solutions to problems, learning new techniques and breaking the rules of tradition, which she's always found to be the most exciting parts of the making process. Mixing materials to increase the possibilities for texture, palette and material qualities that wood offers on its own, allows her to further articulate the often overlooked intricacies of the incredible flora and fauna we share this beautiful world with. Louise has exhibited widely and her work appears in various private and public collections. She'ss also been part of collaborative projects, such as an international sculpture project entitled 'Nature and Nurture', which took place at the Vidyarihi Niketan School, Bhaktupur, Nepal – **www.louisehibbert.com.**

Jay Heryet

Jay explores the many techniques of woodturning, but she particularly enjoys working with wet wood as this affords spontaneity and working timber straight from the log provides endless joy and inspiration. Hollow vessels form the basis for much of her work; she transforms them by composition, manipulation, and uses these as a canvas for painting and carving. The precise nature of hand thread-chasing is such a contrast; meticulous planning and timber selection is necessary for the success of each threaded piece. Whichever piece she's working on, however, form and attention to detail are of paramount importance to Jay.

All 15 exhibitors appearing at Wizardry in Wood can be viewed here: **www.turnersco.com/turning/wiw**. As the new Chair of the RPT, Jay won't be exhibiting, but you can visit her on the RPT stand.

Wizardry in Wood will be held at Carpenters' Hall, London, from 13–16 October 2021. The Turning Competitions will also be on show and visitors will have the opportunity to purchase these unique pieces. Tickets are available now via Eventbrite: **https://bit.ly/33xhkDB**.

Timber Suppliers Directory – July 2021

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The Wood Recycling Store (East Sussex)
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Web: www.treestation.co.uk

UK Timber Ltd (Northamptonshire)
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Tel: 01200 423 263
Web: No website

Wenban Smith (West Sussex)
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Wentwood Timber Centre (South Wales)
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MAKITA adds new woodworking & carpentry-focused tools to its XGT range

Makita has expanded its 40VMax XGT range of high performance tools with the addition of a new Brushless combi drill, Brushless brad nailer and Brushless circular saws.

HP002G Brushless combi drill

The versatile HP002G 40VMax XGT Brushless combi drill has drill, hammer-drill and screwdriver modes, a mechanical two-speed control (high and low), variable speed trigger and 21 torque settings for full user control. It has a rotational speed of up to 2,200rpm and will deliver up to 33,000bpm in hammer mode. The HP002G features an all-metal gear construction and aluminium gear housing to ensure long-term durability, even with high levels of use.

FN001G Brushless brad nailer

The new FN001G 40VMax XGT Brushless brad nailer is compatible with 18Ga nails between 15 and 40mm, has a magazine capacity of 100 and will drive up to 5,000 nails on a single 2.5Ah battery charge. The slim nose design makes it easy to drive nails securely and accurately into areas such as narrow grooves on baseboards, while the driving depth adjustment allows easy adaptation to the task and material. It also features an ergonomically designed grip and low-recoil mechanism to make it comfortable to use, and for safety, features a trigger lock and anti-dry-fire mechanism.

RS001G & RS002G circular saws

Also new to the range are the RS001G and RS002G 40VMax Brushless circular saws, featuring 185mm and 260mm blades respectively. Both offer a comparable performance to the equivalent corded tool and feature Makita's Automatic Torque Drive Technology (ADT), which automatically adjusts the cutting speed according to load conditions for optimum performance. With a maximum speed of 6,400rpm, the RS001G offers a maximum cutting depth of 65mm and a bevel angle of up to 53°. The RS002G is capable of delivering up to 4,000rpm with an impressive 95mm cutting depth and a bevel angle of up to 56°. The RS002G also features Makita's innovative Auto-Start Wireless System (AWS). The AWS allows the tool to connect to compatible dust extractors via Bluetooth when fitted with an AWS chip, so the extractor can run automatically while the tool is in use, delivering simple dust management for a cleaner and healthier environment.

Job site radios

Alongside the new tools, three new job site radios have also been launched, which are compatible with Makita's 40VMax XGT, 18V LXT and 12VMax CXT batteries. The MR001GZ01 has stereo speakers and a digital AM/FM radio tuner as well as an AUX-IN socket for connection to an external source. The MR002GZ01 offers the same AM/FM function and AUX socket as well as Bluetooth for wireless connection to a mobile device. Finally, the MR003GZ01 is capable of receiving DAB/DAB+ frequencies in addition to FM signals.

All three job site radios have a rugged construction and are IP65 rated. They also feature clear LCD backlit displays and easy to use illuminated controls. Using a 40VMax 4.0Ah XGT battery, the radios will run for more than 24 hours, with the MR003GZ01 delivering as much as 34 hours of run-time.

The new combi drill, brad nailer and circular saws all benefit from Makita's efficient and effective Brushless motor, which minimises friction and energy wasted as heat. This maximises tool performance and run-time per battery charge, leading to increased productivity. Kevin Brannigan, Marketing Manager at Makita UK, said: "We are delighted to offer these new tools to our expanding XGT line up. These additions provide those in the woodworking and carpentry trades with a greater choice of tools, delivering the performance levels of corded products but with all the flexibility and safety of cordless power."

To find out more about Makita's 40VMax XGT range, including the latest product innovations, visit **www.makitauk.com**.

CRAFT FESTIVAL CHELTENHAM: Live event from 13–15 August

Craft Festival Cheltenham will return this August when over 100 of the finest designer-makers and artists from across the UK will exhibit at Cheltenham Town Hall for a celebration of making, creativity and shopping.

Sarah James, Festival Director, commented: "We're thrilled to be bringing back our live event programme, with the safety of our visitors, exhibitors, contractors and colleagues at the forefront. Taking place from 13–15 August and now in its third year, typically, over 3,000 local people join us to experience the best in handmade, original jewellery, ceramics, glass, textiles, woodwork and furniture. For over 18 years, Craft Festival has built a reputation for excellence, and as responsible and experienced event producers, we're taking the best advice to ensure we host a safe event that everyone can enjoy.

"Craft Festival customers tell us they love the experience of meeting the makers, understanding the making process, hearing about inspiration for a design, and the unique shopping experience," Sarah finishes.

In addition to meeting over 100 inspirational small businesses, the Craft Festival hosts workshops for all ages, plus a range of demonstrations, a live portrait booth and free children's activities.

Safety measures planned for the event include socially distanced queuing, crowd management and a one-way system to ensure visitors can be spread out comfortably. There will also be an enhanced cleaning and waste disposal programme, cashless transactions where possible, monitoring to ensure safe distancing, masks to be worn indoors and track and trace check-ins. All measures are subject to change following Government and local Guidelines, plus advice from the Association of Independent Festivals.

For more information, see **www.craftfestival.co.uk/Cheltenham**.

Fernanda Nuñez adds a **BESPOKE GUILD MARK** to her list of achievements

Fernanda's 'Guilloché' bedside tables received Bespoke Guild Mark No.476

Furniture designer-maker Fernanda Nuñez was recently awarded Bespoke Guild Mark No.476 for her striking 'Guilloché' bedside tables. Bestowed by The Furniture Makers' Company, the Bespoke Guild Mark is the ultimate accolade for designer-makers, recognising excellence in design, materials, craftsmanship and function for exquisite pieces of furniture made as single items or a limited run of up to 12. It's awarded to beautifully crafted pieces of bespoke furniture and, since its launch in 1958, has been the apex of distinctions for UK designer-makers.

A humbling achievement

Profiled in the September 2020 issue, Fernanda said she feels "honoured and humbled" to know that her work is recognised and appreciated by some of the most talented and respected people in the field. "The journey continues and it's only just begun," she said.

The award-winning bedside tables represent Fernanda's first self-designed project – an endeavour that took six months to complete and over 100 hours of extremely detailed carving and sanding work. The design draws inspiration from a once much used, but now almost forgotten, decorative technique for engraving metals – the Guilloché – which creates an illusion of movement on the tables. The effect of the Guilloché pattern is enhanced by the pale beauty of the maple, evoking the rising sun. It's framed by the dark silhouetted shape of the bamboo scaffolding, conceived to create contrast through its black stained legs and rails.

Designed to be functional as well as eye-catching, the depth of the drawers serve different purposes. Each bedside table has a deep, general purpose dovetailed drawer, and a secret, shallow drawer for smaller and valuable objects, like wallets, phones, jewellery, diaries and letters.

Daniel Hopwood, Bespoke Guild Mark Chairman, said: "We were delighted to award Fernanda a Bespoke Guild mark for her 'Guilloché' bedside tables. Not only are they well-made, but also offer interesting techniques in shaping the drawer fronts to create the illusion of movement, as well as being a thoughtful, useful design. This was an early project for Fernanda and we look forward to seeing what she makes next."

Items of quality & distinction

The 'Guilloché' bedside tables are the first design to be bestowed a Bespoke Guild Mark since the launch of the award's new brand identity in April 2021. Pieces awarded a Bespoke Guild Mark are recognisably items of quality and distinction, and to substantiate and promote this accolade, Bespoke Guild Mark holders receive a certificate of authentication, PR opportunities, permission to use the Bespoke Guild Mark branding in communication materials and automatic consideration for the annual Claxton Stevens Prize – a £1,000 prize for the best Bespoke Guild Mark-awarded piece of the year.

In addition to celebrating the creativity, skilled craftsmanship and technical ability of Britain's established designer-makers who win an award, the Bespoke Guild Mark provides invaluable expertise and insight to unsuccessful applicants to further improve their craft for the future.

For more information, visit **www.furnituremakers.org.uk**, and to see more of Fernanda's work, visit **www.woodchuckchick.com**.


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MAKITA'S NEW WOODWORKING & CARPENTRY-FOCUSED 40V XGT RANGE

MANUFACTURER: Makita
D&M GUIDE PRICE: See our website

Makita has expanded its 40VMax XGT range of high performance tools with the addition of a new Brushless combi drill, Brushless brad nailer and two Brushless circular saws.

The versatile **HP002G 40VMax XGT Brushless combi drill** features drill, hammer-drill and screwdriver modes, a mechanical two-speed control – high and low – variable-speed trigger and 21 torque settings for full user control. It has a rotational speed of up to 2,200rpm, and in hammer mode will deliver up to 33,000bpm (blows per minute). The HP002G features an all-metal gear construction and aluminium gear housing to ensure long-term durability, even with high levels of use.

The new **FN001G 40VMax XGT Brushless brad nailer** is compatible with 18Ga nails between 15 and 40mm, has a magazine capacity of 100 and will drive up to 5,000 nails on a single 2.5Ah battery charge. The slim nose design makes it easy to drive nails securely and accurately into areas such as narrow grooves on baseboards, while the driving depth adjustment allows easy adaptation to the task and material. An ergonomically-designed grip and low-recoil mechanism aid comfort in use, while a trigger lock and anti-dry-fire mechanism ensures safety.

Two new **40VMax XGT Brushless circular saws** – the **RS001G** and **RS002G** – have 185mm and 260mm blades respectively while offering a comparable performance to the equivalent corded tool. Both benefit from Makita's Automatic Torque Drive Technology (ADT), which automatically adjusts the cutting speed according to load conditions for optimum performance.

METABO 18V CORDLESS RANDOM ORBIT SANDER, WET & DRY VAC & COMPACT CIRCULAR SAW

MANUFACTURER: Metabo
D&M GUIDE PRICE: See our website

Among several new products recently launched by Metabo is the **SXA 18 LTX 125 BL** – an 18V 125mm cordless random orbit sander. With its low overall height and perfect ergonomics, this Brushless, low-vibration sander features an infinitely variable speed of 4,000-10,000rpm. Supplied in a metaBOX as a body-only unit, it also comes with removable protector and textile dust bag.

Next up, the **AS 18 HEPA PC Compact** is a portable, compact cordless vacuum cleaner with HEPA filter for wet and dry vacuum cleaning (IPX4), making it ideal for smaller cleaning and extraction jobs. With an integrated blow function and Eco mode for longer runtime, a stretchy hose allows for comfortable handling. Also included are three plastic suction tubes, 120mm suction nozzle and a crevice nozzle, which can be stored on the body of the vac.

Finally, the **KS 18 LTX 66 BL 18V** Brushless circular saw features a 165mm blade and boasts an impressive 66mm cutting depth. When combined with the new **Metabo KFS cross-cutting rails** – available in 30cm, 44cm and 70mm lengths, sold separately – it can perform fast, precise mitre cuts. Owing to its compact, ergonomic and lightweight design, the new circular saw is both safe and comfortable to handle. Supplied in a metaBOX as a body-only unit.

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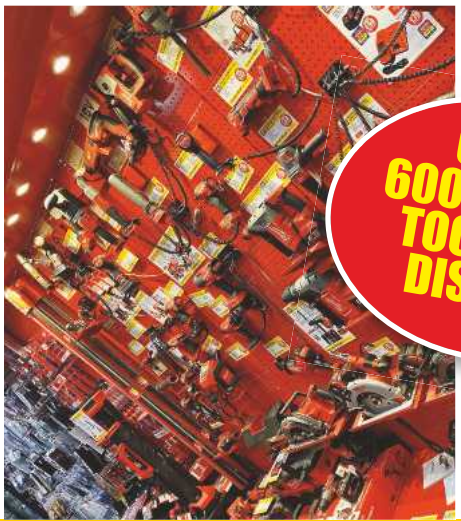

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MAKITA DTD171 18V LXT BRUSHLESS IMPACT DRIVER

Jonathan Salisbury is impressed with this high-end, yet compact cordless impact driver from **Makita**, but just because it's small doesn't mean there's any loss in power – quite the opposite in fact!

Screwdriving has long been an additional feature of cordless, variable speed, reversible drills, but the disadvantage of owning one combination tool is all too apparent when you need to use it for both functions simultaneously. I recently had to fit 40 twin-slot shelving uprights, with display boards in between some of them. The sequence of swapping between drill and driver was slow to say the least and as the drill also had to be set on hammer mode, I couldn't even cheat with an unassisted drill setting.

First impressions

The DTD171 is compact and drill-shaped, with a comfortable, neutral hand position, textured, soft-feel grip, variable speed trigger and a reversing switch, which means that going from drill to driver doesn't require a shift in technique. Two super-bright LEDs illuminate the work area, and can be switched off if not required.

There's no chuck; the sleeve accepts standard-size hexagonal driver bits with a 'power groove' – the technical term for the recess – 12mm from the end. A spring-loaded ball-bearing locates in the groove and holds the bit in place.

I tested the driver with bits where the groove is correctly located, some where it's further from the end, and others with no groove at all. None of the 'incorrect' bits came loose, but the sleeve remained in its outwards position. Changing bits was quick and easy and a magnetic bit holder makes changes even swifter. If you need a new set of driver bits, it's worth buying those that have been designed for impact drivers, as they are made from tougher and harder materials. Compromising on the quality of drivers leads to reduced life and damaged screws. The instructions state that driver bits can just be pushed in, but I found that I always had to slide the sleeve forwards first.

Setting up

While drill drivers are usually set up by switching the speed to '1' and moving a collar to the desired torque setting, the DTD171 is controlled electronically with a series of presets on the control panel located on the front of the base. When buttons are pressed, LEDs illuminate to indicate which setting has been chosen. The left half allows the impact force to be set; this goes from '1', which provides 1,100bpm for small screws, up to '4', at 3,800bpm for longer bolts and screws and those requiring more torque to drive them into harder materials.

The DTD171 – with full beam headlights

Neat and compact drill-shaped design

On the right-hand side there are four assist functions: wood mode provides a slower rotation at the start of the operation until the screw bites and the drill speeds up to full; bolt mode stops rotation as soon as the bolt is loose enough to remove; and T modes 1 and 2 for tightening self-drilling screws in thin metal sheet, which respectively stop or slow down rotation as the screw tightens. The most-used setting can be stored and instantly recalled using the quick mode-switching button located above the trigger.

In use

The word 'impact' implies a hammer drill experience – it can feel as aggressive as this in use, but only activates when required.

I tried to keep to the recommended settings, but, without realising, used T1 instead of the Impact Force 1, so there must be a little overlap. With smaller diameter screws into softwood, driving doesn't activate the impact function at all, but it does when driving larger or longer screws and when using harder woods. The clutch that activates at the end of the drive prevents over-tightening and works well most of the time, as long as it's set correctly. The impact vibration is most pronounced when loosening stuck nuts and bolts; I hoped it would help with some rusty 75mm wood screws, but sadly not.

Evaluation

The driver worked very well, especially removing screws at high speed. The preset functions help to ensure consistent results, as far as this is

The sleeve accepts standard driver bits…

… but remains forward if they don't have the correct power groove

Only the first bit is correct

Settings are selected on the control panel

An LED lights up to indicate the mode in use

The quick mode-switching button is above the trigger

possible in wood; small changes in density require a tweak of the settings to prevent overdriving. This is where I encountered my first niggle. The impact force setting cycles from 4 down to 1, but would be better if it went in the other direction. Beginning at 1, to increase by one step you have to press three times: 4, 3, 2. The only other thing of any note is that, occasionally, the impact kicked in just as the screw head reached the surface, when it really wasn't needed, and drove the screw too deep. I'd have liked to have been able to turn it off, but I don't think that's possible. The sensitivity of the trigger is much lighter than my drill, so swapping between them required a bit of concentration to avoid too high a speed. Overdriving into thin metal sheet is all too easy, even on the lowest T1 setting.

If you're not yet a Makita user, a battery and charger will need to be bought separately, but most sellers will offer a deal of some sort. The 5Ah battery I was sent is big and makes the unit quite heavy, although it will last a full day's use, and then some. I'd probably opt for something smaller and have a second as a backup.

A full charge lasted me all day

Excellent control for most driving requirements...

Conclusion

The drilling function of a drill driver will always dominate its design, but there's no such compromise with the DTD171. Ergonomically speaking, it offers a far better way of driving screws compared to a drill. The smaller body is better balanced and the shorter distance from body to driver makes it far easier to apply pressure to the screw in a direct line with its axis, ensuring it enters the material straight – vertically, horizontally or at an angle. There's very little to prevent this neat little power tool from scoring full marks – just a few minor niggles. All in all, the DTD171 is a fantastic dedicated driver that I'd definitely consider adding to my shopping list.

Opt for a smaller battery to keep weight down

Cycling from 1 to 2 requires three presses of the button

... although a gentle touch is required when tightening into thin metal

SPECIFICATION

Voltage: 18V
Standard bolt: M5-M16
High tensile bolt: M5-M14
Coarse thread (length): 22-125mm
Max fastening torque: 180Nm
Blows per minute (max): 0-3,800ipm
No load speed (max/hard/med/soft): 0-3,600/3,200/2,100/1,100rpm
Impact selection: Four-stage + Tek mode (×2) + Assist mode (×2)
Blows per minute (Hi) – ipm0 – 3,600ipm
Blows per Minute (Med) – ipm0 – 2,600ipm
Blows per Minute (Lo) – ipm0 – 1,100ipm
Machine screw: M4-M8
Weight: 1.2kg
Overall dimensions: 116 × 79 × 236mm
Drilling capacities: 6.35mm (¼in)

- **Steel machine screw:** M4 – M8 (5/32-5/16in)
- **Wood standard bolt:** M5 – M16 (3/16-3/8in)
- **Concrete – high tensile bolt:** M5 – M14 (3/16- 9/16in)

Typical prices: DTD171RTE supplied with 2 × 5.0Ah batteries – BL1850, charger (DC18RC) and storage box – £390; DTD171Z – impact driver only – £179; BL1850 battery – £85; DC18RC charger – £35
Web: www.makitauk.com

THE VERDICT

PROS

- Compact head makes driving easier than with a drill; takes most of the effort out of stuck or rusted in nuts and bolts; very fast removal of screws; charge on a 5Ah battery lasts a very long time

CONS

- Trigger requires a very light touch to keep rotation speed low; settings have to be cycled through rather than selected individually; impact setting can't be switched off entirely; can overdrive into soft and thin materials even on lowest setting; quality comes at a price

RATING: 4.5 out of **5**

TORMEK DIAMOND WHEELS

For **John Lloyd**, fitting a diamond wheel to a **Tormek** is a real game-changer. Available in Coarse, Fine and Extra Fine, choose depending on your intended use and sharpening method

Tormek grinding machines have been around for more than 40 years now, and I've been using them for over 20 of those. During that time, the company has been continuously working to perfect the water-cooled grinding process, introducing new improvements along the way. For example, the bodies of the grinders are now cast in corrosion-resistant zinc and the main drive shaft has been upgraded to stainless steel.

Game-changing upgrade

One of the main benefits of the Tormek system is that the slow turning, water-cooled wheels will never overheat steel – something that's quite easy to do with a standard high-speed bench grinder. One of the consequences of this, however, is that grinding out damage from an edge, or changing a bevel angle, can be frustratingly slow. In my quest for speed, I tried one of Tormek's Blackstone Silicon Wheels, but apart from working well with harder steels and tungsten carbide, for most chisels and plane blades it's not really any quicker than the original grindstone. So, up until now, my lack of patience when altering bevel angles and dealing with blade damage has usually meant a visit to the bench grinder, which always involves the added jeopardy that goes hand in hand with this rather more enthusiastic method.

The new Extra Fine Diamond Wheel, supplied with Anti-Corrosion additive

The ideal upgrade for my old Tormek T-7 sharpening machine would be the Coarse Diamond Wheel

There may be a solution on the horizon, however, as Tormek has since added Diamond Wheels to its armoury – perhaps this would be the game-changing upgrade I've been waiting for? So, what are the benefits? Well, the obvious one is the fact that a solid metal wheel with a diamond coating won't change shape, and consequently, won't require continuous truing to maintain flatness and roundness. In fact, wear won't be an issue at all, and wheel diameter and speed of grind remain constant. The diamond coating is, of course, on the wheel's circumference, but it's also on the side, and this significant difference means that the flat face of the wheel is now definitely designed to be used for grinding duties, with a special tool support designed to utilise this side coating. Due to its very nature, the side coating produces a flat grind, which can sometimes be useful.

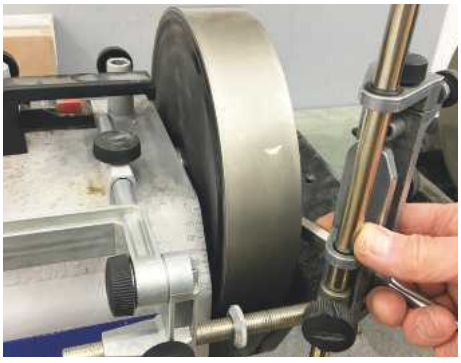
Coarse, Fine & Extra Fine

Three grade options are available – Coarse, Fine and Extra Fine – which equate to 360, 600 and 1,200 grit respectively, and with a 250mm diameter, they'll only fit larger Tormek machines. If you're tempted by a Diamond upgrade, your 'accounts department' might strongly suggest that you only invest in one, but which should you choose? This will depend on what you sharpen and your personal sharpening method. The 'Coarse' wheel romps through the steel at an impressive, but completely controlled, rate and is great for establishing a new bevel angle, dealing with a very dull or damaged edge, or just renewing a hollow grind very quickly. The 'Fine' wheel is good for general sharpening, leaving a perceptibly finer finish than the 'Coarse'. The finest, 'Extra Fine', would be perfect for knives and any edge tools that need touching up, and being diamond, they all work well with any steel, including the harder alloys, ceramic, and tungsten carbide.

Build your own Tormek

If you're buying a new machine, Tormek now offer a T8-Custom – a 'naked' machine supplied without grinding wheel, honing wheel or jigs – which allows you to build the model that suits you. So, if you want a Tormek with a Diamond Wheel, you won't have the added expense of initially buying a standard machine with an unwanted standard wheel – what an excellent idea! If you decide to go Diamond, remember

Grinding on a wheel gives me the hollow grind that suits my method of freehand honing



The MB-100 Multi Base affords you complete control when using the coating on the side of the wheel

A flat ground chisel, which can be achieved using the MB-100 Multi Base

that in order to make best use of the coating on the side of the wheel, you'll need a MB-100 Multi Base, and the Anti-Corrosion Concentrate is essential to prevent rust and damage to the coating. If you're looking at honing wheels, the new CW-220 Composite is good for removing a burr and doesn't need dressing with honing compound, but the original dressed leather wheel does seem better at polishing bevels.

Conclusion

For me, fitting a Diamond Wheel to a Tormek is a real game-changer. The consistent size, lack of constant truing and adjusting, combined with a fast, reliable grind, is a real winner. I can't definitively vouch for Tormek's claim that these have 'exceptional durability' – they obviously won't last forever – but a workshop full of students has been using them every day for about four months now, and there hasn't been any perceptible drop off in performance. Personally, having tried all three, I'd go for 'Coarse', but this is primarily because it grinds fast and fits perfectly with my honing system. The appropriate wheel for you will depend on what you're using it for and what suits your method of sharpening – unless, of course, you can justify buying all three...

The WM-200 AngleMaster features a second MB-100 scale, which gives accurate grinding angles when using the Multi Base

The CW-220 Composite Honing Wheel doesn't need to be dressed with honing compound – just dampened with a sponge

SPECIFICATION

Typical prices: Tormek DC-250 Diamond Wheel Coarse – £230.68; **Tormek DF-250 Diamond Wheel Fine –** £215.28; **Tormek DE-250 Diamond Wheel Extra Fine –** £215.28; **Tormek MB-100 Multi Base –** £61.28; **Tormek ACC-150 Anti-Corrosion Concentrate (pack of 2 × 150ml) –** £33.58; **Tormek CW-220 Composite Honing Wheel –** £72.78
Web: www.axminster.co.uk

THE VERDICT

PROS

- Maintain shape and diameter; should make jig set-up, and sharpening, quicker; truing not required; consistent level of sharpening; usable diamond coating present on circumference and flat face of wheel

CONS

- A diamond wheel is not a cheap option, but should have 'exceptional durability'; Multi Base MB-100 tool support is a bit of a fiddle to set up; cooling water requires anti-corrosion additive in order to prevent damage to the diamond coating, which is an added expense

RATING: 4.5 out of **5**

SUMMER RETREAT

Choosing to work to his own specifications rather than buying off the peg, **Dave Long**'s corner summerhouse build is a real triumph

For the last 10 years, there's been a metal-framed gazebo structure with decking in a corner of our garden, but eventually rust and rot took its toll so the area was cleared for a new corner summerhouse. It soon became apparent that this needed to be bespoke: the maximum size we had – without major tree and path surgery – was a 2.3m square footprint, and the shorter window walls needed to be about 1.5m long so that we'd be able to see the flower beds, etc. Normal commercial corner summerhouses seem to have the shorter walls 50% of the longer wall length and 1.15m wasn't going to be enough. The final challenge was that it had to have a 'pointy' or 'cathedral' roof.

Initially I looked to buy one, and found a site that implied any size was possible. As a guide, I priced their listed 2.4m one to the materials standard we wanted, but with delivery and assembly it tipped the scale at over £5,000! With self-build now the more attractive option, I set myself a £2,000 budget, including essential tool purchases, and got very close, spending £1,300 on materials and £750 on tools.

Design/dimension constraints

Planning permission (in the UK) states that the maximum eaves height of an outbuilding shed/greenhouse/structure is 2.5m, if within 2m of the property boundary. I settled on the centre of the cathedral roof being just under 2.5m from the floor. Even with the long walls just 150mm from the boundary fence, however, they could still only be a maximum length of 2.3m. The summerhouse also needed to contain a two-seater sofa, chair and footstool, so the shorter walls needed to be as long as possible – in the end we settled on 1,470mm as that still gave enough door space for a double door.

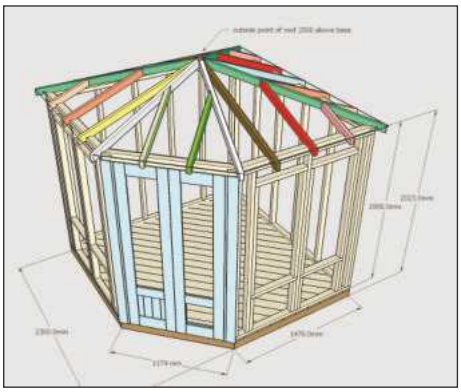


Fig.1 The summerhouse framework

Design & materials

I started by creating a 3D design in SketchUp, using separate layers for base, floor, walls, door, roof, cladding, etc. If you don't have a computer or use SketchUp, the SketchUp Viewer app can be purchased fairly cheaply for Android or iOS. **Fig.1** shows the framework and some key dimensions, all of which are taken from SketchUp.

Up to the top of wall height, the design was pretty straightforward, but the cathedral roof proved a challenge. I spent over a month asking forum questions, researching designs and following tutorials in order to understand the process. Given the inside of the roof and walls were to remain exposed, we settled on a timber roof – rather than ply – externally covered in rectangular grey felt shingles.

Timber selection

Prior to starting a SketchUp design, it helps to know the material dimensions that will be used, so a trip to the local supplier to confirm availability, stock lengths and to get accurate details is important, especially with cladding and flooring to determine the finished thickness and visible width/rise. I like to build solid constructions, so all the wall framing and rafters used 38 × 62mm CLS. The subframe/base is 100 × 50mm treated timber and the floor and roof used 22 × 125mm T&G softwood flooring – finished size being 18 × 119mm. Given this was a summerhouse and not a shed, I opted to use a 'V' matching profile – 16.7 × 100mm, finished to 12 × 94mm with an 86.5mm rise – rather than shiplap for the walls.

Spend time with the cutting list and available lengths to maximise the use of timber and reduce waste, but buy a few extra lengths to allow for defects and the odd mistake – such as cutting a floorboard with the 45° going in the wrong direction...

Other materials

- **Foundations** – I opted for 'QuickJacks' to avoid any digging of foundations or the need for concrete – search for 'QuickJack sheds'. QuickJacks Kit 7 is specifically for corner summerhouses so has the eight

1 The main timber order

2 Roof timber

3 Base with QuickJacks

appropriately shaped brackets to fit the baseframe – 100 × 50mm.

- **Glass** – the doors and windows required six pieces totalling 3sq.m of 4mm toughened glass. Shop around as one quote was £250 delivered, whereas I ended up paying £120 delivered.
- **Roofing shingles** – the roof coverage is approximately 6sq.m, but due to wastage caused by the angles, 9sq.m (three packs) of shingles were required.
- **Paint** – Cuprinol Garden Shades Fresh Rosemary for external walls; Seagrass for detail; Country Cream for the internal walls; and Pale Jasmine for roof and floor.
- **Door furniture** – hinges, catch, shoot bolts, etc. to suit personal taste.

Base, floor, wall & door design

The base design uses standard 100 × 50mm timbers with softwood T&G flooring on top. I opted to keep the floorboards parallel to the door rather than to the walls; this is where SketchUp comes in handy to determine the exact lengths needed. I made the base and floor plan 5mm smaller than the external wall dimensions. The cladding on the walls finishes 18mm below the wall frame so as to overhang the floor and protect the end-grain. Making the floor slightly smaller allows space to get the walls absolutely square. As I discovered, this is very important if the roof rafters are going to fit from design length!

Due to the summerhouse's final location being only 150mm from fences, I needed to build and clad the walls before assembly, so had to think carefully about the cladding lengths and relationship to the frame. One of my SketchUp diagrams showed that the cladding/matching fitted to the back frame extends 28mm beyond the frame edge. On the adjoining window wall frame, an edge strip is fitted and cladding on this wall butts to it. When the two walls are fitted together, it all 'comes together' neatly.

The wall frame vertical CLS timbers are equally spaced, but one end has two CLS timbers joined together; this gives a stronger connection to the next wall. In the final build, I also added corner braces. The window walls follow the same design, with the window frames constructed so that load is carried by the vertical components. Playing with dimensions in SketchUp, I ended up with window openings 1,210 × 470mm, at a height to suit a cladding edge.

The door design needs to take into account the door furniture ordered, particularly the timber thickness – mine finished at 38mm.

I chose to use a double door with the rebated join visually in the centre, which required each door to be made a different width. After experimenting in SketchUp, the positioning of the glass panels ended up not quite aligned to the windows, as I opted for a better glass proportion. My SketchUp design showed a 'V' matching lower panel, but when built this looked wrong, so it was replaced with a raised panel. As per normal door design, the width of the top and bottom rails are slightly different to ensure they look visually balanced – 30mm at the bottom and 115mm at the top.

Roof design

This was the challenging part! After a fair amount of online research, I found a tutorial by Matt Jackson – search for 'exploring octagon roof framing part 2'. The tutorial is for an octagonal roof, which is simpler than mine,

4 Spotting the Jacks

5 Final levelled base

6 Cladding overhang

CUTTING LIST

TIMBER	SUPPLIED LENGTH	QUANTITY	TOTAL LINEAR LENGTH (M)	COST PER M (2016)	TOTAL COST	USE
1. EX50 × 100 treated	2.4	10	24	£2.18	£52.32	Subframe
2. Softwood PTG flooring – ex 22 × 125mm	5.1	25	127.5	£1.80	£229.50	Floor & roof
3. CLS – ex 50 × 75mm	2.4	55	132	£1.34	£176.88	Frame & rafters
4. 'V' groove matching – ex 16 × 100mm	4.2	42	176.4	£1.38	£243.43	Cladding
5. PSE – 50 × 115m	4.5	4	18	£4.75	£85.50	Door frame
6. PSE – 50 × 130mm	1	1	1	£5.68	£5.68	Door frame
					£793.31	

but it gave me the SketchUp techniques I required. **The key points taken from the tutorial were as follows:**

- **How to determine the size of the kingpin** – the centre point of the roof. To make assembly easier, I opted for a small kingpin with vertical faces 38mm wide to suit the CLS dimension.
- **How to create the guide point – not line** – that marks the true rafter point of the roof. In my case, I set this to 2,470mm above the top of the subframe so that the total height with roofing timber and felt came in at just under the planning permission 2.5m.
- **How to draw the rafters by creating a vertical face from the centre point, so that the rafter guides and lines could be drawn** – I made these faces a group so as not to interfere.
- **How to copy/rotate the rafters** – in **Fig.1**, rafters shown the same colour are identical.
- **How to ensure the various rafters at different pitches on a roof face all sit in the same plane** – to ensure the roofing timber sits flat.

Wallplate

In a 'normal' shed roof, the rafters run from wall to wall and are mechanically fixed to the walls, which stops the walls from spreading. But in a cathedral roof, there are no such rafters, so a rigid wallplate is needed. It's made from 62 × 38mm CLS and follows the top of the wall frame CLS components. Where they join, a halving joint is used, which is then glued and screwed to give the required strength.

Rafters

- **Common rafter** – these connect from the wallplate at 90° and rise to the kingpin. There are only two in this design. The blue ones that go from the middle of the back walls are the easiest to cut as they are angled in a single plane. If I'd chosen a different kingpin design, there could have been four – the brown and yellow rafters.
- **Corner hip rafter** – these connect from a corner of the wallplate to the kingpin, so similar to cutting the common rafters, but these also have Jack rafters joining them. There are five in the design – green and white. The green ones have identical pitch and angle cuts; the white ones are also identical but at a different pitch to the green ones – such is the complexity of roof design!

SketchUp showed this difference in roof pitch. The horizontal distance the roof travels from the door to the kingpin is less, hence the rise angle/pitch needs to be more.

- **Jack rafters** – these connect from the wallplate to the corner hip rafter. They feature complex angles where they join the hip as they need to be cut both vertically and horizontally. Exact angles can be taken from a SketchUp design, but these cannot be directly mapped to a mitre saw tilt and turn angle as the timber sits flat on the saw table. There are 16 Jack rafters and eight unique angle combinations. A rafter needs to be positioned at least every 450mm along the roof and, in this design, they are spaced at approximately 400mm centres. Ideally, the rafter positions would align to the vertical wall framing components so that the load is transferred from roof to floor. In my case, some of the rafters are actually midway between wall verticals – an issue I only realised once the walls were built! However, given the solid construction and size of this roof, luckily it's not a problem.

The need to keep all rafters in the same plane for each roof face means that the

7 First walls in place

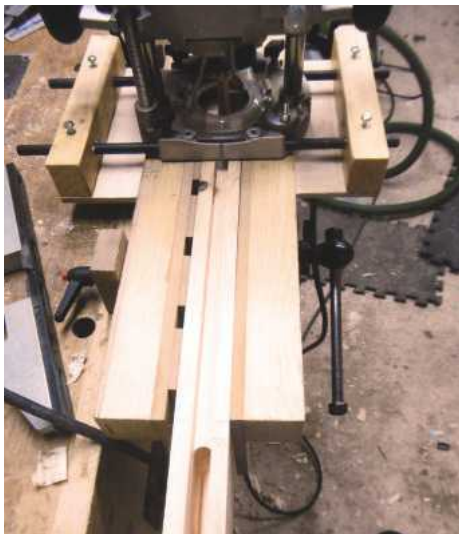
8 Window wall detail

9 Wallplate fitted

10 Setting the spindle moulder rebate

11 Rebating the door frame

12 Stopped rebate for the door window



13 Door mortise

birdsmouth cut doesn't start at the inner edge of the wallplate. My SketchUp design also showed the allowance for space due to wall cladding.

Kingpin

I originally designed the kingpin as a standard octagon with eight direct fittings: three corner hip rafters, two door hips and three common rafters from the long walls and door wall. Each face width of the octagon was 38mm to match the width of the CLS used. This would have been a suitable design if the window walls had been 50% the length of the long walls, but they aren't, so the SketchUp plan revealed I would've needed to cut compound angles on the door hips. I redesigned the kingpin to be a 'seven-sided octagon' – the simplest way to describe it – as five faces of the original octagon remained and the other three became two, such that just a plumb cut for the door hip rafters was required, therefore ensuring all the rafter to kingpin joints were simple to cut.

The vertical length of the kingpin sides was 100mm plus extra, which was required to turn a decorative finial on the inside of the summerhouse. A separate external finial was added at the end of the build.

Roof cladding

I'd originally planned on using plywood, but found myself overruled as 'planks' needed to be seen from inside. So with this in mind, I opted to use the same T&G flooring timber.

14 Door glue-up

CONSTRUCTION

General preparation

Once the cutting list was generated from SketchUp, it was a case of mapping as best as possible to the lengths available from the timber yard and getting it delivered. Most of the cladding needed to be 2.3m long but the timber yard only stocked 2.8m and 4.2m (still not enough for two lengths). Two walls would be against the fencing, so waste was minimised by butting some lengths together as a vertical framework on these walls, so it couldn't be seen from inside.

The timber piles (**photos 1** & **2**) were delivered, ready for starting, and the roofing timber (**photo 2**) – 12 lengths of 5.1m – was ordered later due to the roof covering design change.

Given that the summerhouse was going to be close to the fences, I needed to paint the cladding before assembling the walls; this also meant that any future shrinkage wouldn't reveal unpainted lines. A Cuprinol battery sprayer – and plenty of tarpaulin on the grass – made short work of that.

The framework uses CLS timber and remains exposed. Check the timber for manufacturer's marks and sand/plane these off before assembly; this is far easier than trying to do it later, as the Cuprinol Shades paint won't fully cover such marks – yes, hindsight is a wonderful thing!

Tools

Obviously good tools help any project, and seeing as I'd already bought into the DeWalt 18V system, I purchased a DCN692 first-fix framing nailer and a 16g DCN660 second-fix nailer. From Axminster Tools, I also bought the Evolution mitre saw stand and a digital angle ruler. The total tool spend was approximately £750, which covered the 'essentials' once the cost of nails, in various lengths, were included.

15 Kingpin in situ

The base & foundations

The base is made from treated 100 × 50mm timber nailed together, with enough cross-pieces to rigidly support the floor. With the base assembled on the drive, we decided the door area was too wide and the window walls could be 100mm longer, so a quick base rebuild confirmed it looked better. A good few hours were then consumed reflecting that in SketchUp, as almost every other component needed to be changed...

We have heavy clay soil and I didn't fancy the time, effort and cost of digging out for concrete foundations and then disposing of the soil. I was tempted by the plastic honeycomb foundation systems but settled on 'QuickJacks'. These are M24 threaded spikes that have a 200mm disc screwed on and then each assembly screws into a bracket fitted to the 100 × 50mm base frame (**photo 3**).

I used 'Kit 7', which has the correct mix of eight brackets required for the shape of the base. After the photos were taken and before the floor was laid, I added additional timbers to further stiffen the base frame near the doorway.

The ground for the base needs to be prepared level and must be firm, but no trenches, etc. are required. In nice soil, the spikes can just be pushed in and the plates spun up to reach level, but as per the manufacturer's recommendations, I drilled 20mm diameter holes into the soil, which also pushed any stones or flint out of the way. The time taken from fitting the first bracket to having the full frame in place, and finally levelled, was just under 2.5 hours. Each disc can take 500kg, so with the eight and an even load that's four tonnes, and it hasn't noticeably moved in the time it's been installed. I discussed the 'issue' of clay and movement with the inventor, and he pointed out that over the local area, any

16 Confirming the Jack rafter angle

17 Rafters fitted

18 Roof in progress

19 Roof fitted – internal view

20 First row of shingles

21 Working on the roof

movement is normally consistent at each Jack, so therefore not noticeable.

Photos 4 & **5** show the process. In hindsight, the weed membrane should have been laid later as it snagged with the drill. If using QuickJacks close to fencing, avoid any concreted fence posts – I caught one but the easiest option was to just shorten that threaded rod to stop the contact. With the base levelled, the next few hours were spent fitting the T&G floor and making sure all the 45° ends were cut the right way.

Walls

The wall frames are simply butt-jointed and nailed CLS timbers as per the plane, using the first-fix gun with 90mm nails. It's amazing how a battery-powered tool can place that size of nail in just one hit! CLS corner joints were then added for extra rigidity. With the frames assembled, the cladding was next fitted using the second-fix nailgun, and over 2,000 32mm nails! Clear marking of the frames is needed to ensure the cladding overhangs or butts up horizontally to the frame. The first row of cladding also starts 18mm below the base of the frame, so asto weather protect flooring end-grain (**photo 6**).

With the walls assembled, I started with the two long walls and fixed these using 6 × 80mm screws (**photos 7** & **8**). In **photo 8** you can see the extra work I gave myself by not sanding logos off the CLS before fitting! I continued with the other walls and ensured that the structure was perfectly aligned, double-checking diagonals, etc. at the wall top as this impacts roof dimensions. Once in place, I fixed to the floor using 6 × 80mm screws.

Given that the top of the walls should now be at 'perfect' dimensions, the easiest way to make the wallplate is to take the dimensions from the walls and cut the halving joints in the CLS. I glued and screwed the wallplate then fixed to the walls, screwing up from the wall frame. The structure should now be completely rigid and the top of the wallplate dimensions millimetre perfect to the plan (**photo 9**).

Doors & windows

I actually made these components after the roof was fitted, but here, I'll logically detail them before moving on to the roof. The windows were straightforward: 30mm wide strips cut from offcuts of the 12mm cladding, sized to fit into the window opening and nailed so they were flush with the outer face of the cladding. Self-adhesive window seal rubber was then attached to the inside edge of this frame, the glass fitted from inside and a further 40mm strip of cladding nailed in place. The width of this needs to be adjusted so that it ends flush with the inside frame. Once fitted, more cladding offcuts were used to frame the window from the outside. When ordering glass, measure the exact opening and subtract 2mm from each dimension.

The doors took more effort. Once all the timber was planed flat and dimensioned, I used the spindle moulder to rebate the door centre verticals and various rails. With the spindle moulder set up (**photo 10**), I ran some test CLS 38mm timber through it – only because the door timber is also machined to 38mm and I had more spare CLS than PSE timber – then spent a good couple of hours with the test wood, working out how to fit a rebate catch and what extra allowance was needed for the weatherseal that runs up the central rebate. Once that was sorted, I then used the power feed to safely make the cuts (**photo 11**).

The next task was to cut the same depth rebate – but 'stopped' – in the vertical components, which gives the glass rebate. I know the technique for doing this on a spindle moulder, but couldn't safely do it with that length and weight of wood, so moved to the much slower and noisier router table (**photo 12**).

The lower panel is fitted in 12mm deep × 12mm wide grooves, so I stayed with the router table to cut these, starting from the position of the bottom rail tenon up to the bottom of the glass rebate. All door rails were fitted into the stiles with 12mm-thick tenons, so machining the grooves to include the mortise areas helped with the next stage: routing the mortises. I used a home-build jig based on a Steve Maskery DVD to cut these (**photo 13**).

With the main machining complete, I cut rebates for the door shoot bolts and lock. When doing the bottom bolt, don't forget that the door bottom will be rebated to fit over the doorstep – I forgot and had to do it twice! The door hinge positions were then cut in the verticals and mapped to the door lining timber for perfect alignment. It was then time for a dry fit and final glue-up. Once dry, all tenons were reinforced with glued 12mm dowels, the verticals trimmed to length and the bottom rebate extended to full width (**photo 14**).

ROOF CONSTRUCTION

The kingpin

The kingpin's widest dimension is 99.3mm, so I planed a length of knot-free softwood to this width and approximately 45mm-thick. I set SketchUp to show the kingpin in 'top view', printed it full-size and then stuck this onto the timber before cutting it out. The kingpin was built from four thicknesses of timber, with the grain rotated each time and glued with waterproof

22 Ridge tile template

TIME TAKEN & COST

The base was laid in late April 2016, but construction of the floor, etc. only started in mid May. I took a couple of days off work, which gave me four days to get from foundations to wallplate level, and after that the build was tackled at weekends and evenings as weather and family life permitted. The summerhouse was declared finished at the end of July 2016, approximately nine weeks after the floor was laid. The longest single task was actually fitting the roof shingles

- **QuickJack Kit 7 foundations** – £190
- **Timber from local timber yard, plus a bit from B&Q** – £800 (see cutting list)
- **Six glass panels** – 3sq.m of 4mm toughened, including delivery – £120
- **Roof shingles and associated adhesive tubes** – £90 (three packs required, each giving 3sq.m of coverage)
- **Paint** – 5 × 2.5l tins of various Cuprinol Shades – £80
- **Screws, contribution towards nailgun nails, etc.** – £40

23 The completed summerhouse with cathedral roof

Titebond. The shape from the paper template was then accurately reflected along the length of the assembly. The lathe was used to shape each end – a ball for inside the house, tapered at the top to roughly match the pitch angle. **Photo 15** shows the kingpin with key rafters fitted.

Main rafters

If the wallplate dimensions are perfect, then the lengths of the common and corner hip rafters – which fit to the kingpin – can be cut to the exact dimensions and angles taken from SketchUp. The simple angle of the rafter to kingpin can be cut on a mitre saw, but the angles need to be accurate to within 0.1°, hence why I purchased a digital angle gauge. Remember that not all angles are the same, as some rafters have further to travel.

I started by drilling a clearance hole in the rafter and a pilot hole in the kingpin. On flat ground, I fitted the two corner hip rafters to the kingpin using a 6 × 80mm Torx screw in each. Using scrap wood to brace this assembly, I took it to the wallplate and temporarily held it in place with clamps. I actually tried to adapt metal rafter joints on the corners but wouldn't recommend them. Next, I fitted the third corner rafter to the kingpin and temporarily clamped to the wallplate. If all is correct, the centre of the kingpin should now be in the correct place. I continued fitting the remaining four common rafters to the kingpin, and once happy that everything was centred, fitted the rafters to the wallplate using 6 × 110mm Torx screws. At this stage, the two Jack/common rafters, which go from the door corners to the kingpin and corner hip rafters, were fitted. Two angles need to be cut in these: one for the kingpin and one for the corner hip. With just these nine rafters fitted, the roof took my weight without any movement.

Jack rafters

Jack rafters are all the other rafters that give stability to the roof covering and further stiffen the roof. They all have complex angles that cannot be directly mapped to the mitre saw as they are rising with the pitch – the plumb angle of the commons – but also need to join the hip rafter that is rising and coming from 45° when viewed on the plan. Setting the mitre saw to the plumb and tilt to the measurements from SketchUp doesn't result in a fit, as the rise isn't taken into account. I tried many techniques but ended up resorting to cutting a joint freehand –transferring the plan angles – then using that as a pattern to set the saw up for cutting similar ones. I made some simple test rigs out of scrap wood, which had the various hip rise and common rise accurately sawn. I screwed scrap wood to the run of the common and then offered up each cut rafter to the jig, to confirm it fitted in all planes (**photo 16**). Once confirmed, I then cut to length. Next, the rafters were fitted to the roof and secured using first-fix nails – **photo 17** shows the rafters fitted.

Roof timber

The roof is covered in T&G floorboard timbers. The timber run around the roof's lower perimeter required the groove cutting off first. The easiest way to build up the roof is to lay the timber in place and from inside the roof mark the angle of the corner hip. Remember that the roof timber is rising, so don't use the SketchUp angle on the saw! I set the saw to this drawn angle and also tilted it 5° to help with butting up to the next timber. With that angle cut, I took the timber back to the roof, clamped in on the centreline of the rafter, and marked the other end from inside. I then extended this by 19mm to get the centre of the rafter, or you can just 'eyeball mark' the centreline from the top. I cut to length, again with the saw tilted, but checked to ensure the tilt was in the right direction.

I fixed to each rafter using two first-fix 63mm nails, which sounds like a long-winded process, but it quickly becomes rhythmical. As you work up the door face, the timber lines won't stay aligned to those on the window wall faces, as the pitches are different. I chose to fit the first run of timber all round the roof, then built up two faces at a time (**photo 18**), as this made the most efficient use of the saw settings. **Photo 19** shows the internal view once completed; this was just after the roof was finished and all joints were tight. Looking at the structure now, the T&G joints show gaps on the inside, but the flexible shingle roof covering has remained perfect. During the winter months, the joints will close up again.

Roof covering – shingles

There are so many styles and colours to choose from, but we ended up settling on black rectangular ones, purchased online from eBay. The fact the roof has triangle-shaped faces means there's a lot of wastage, so 9sq.m coverage was needed, even though only 6sq.m of timber was actually used in the roof.

As per normal instructions for shingles, the first row is put on 'upside down' to give a continuous felt edge (**photo 20**). After that, the first proper row is fitted with the bottom of the shingles 5mm from the edge of the roof. The shingles I used had the reverse side completely covered in bitumen – whereas some only have a strip – but I used extra roof and gutter sealant on the edges and a heat gun, plus a paper roller, to achieve good adhesion. With the first visible row fitted, each subsequent row goes up the roof by 135mm – I just cut a piece of MDF to 135mm wide and rested it on the top of the last row of shingles, which gave me the line for setting the next row to. I also needed to ensure the tiles were offset by 50% of a tile on each row (**photo 21**). Given the angles, this resulted in a lot of wastage and I actually used every full length of tile by the time I'd finished. The pile of offcuts were then used for the ridge shingles. After some experimenting, we settled on ridge tiles being 100mm wide. I made an MDF template, then cut 60 from the offcuts (**photo 22**). These were fitted with roofing adhesive and clout nails; these took some persuading to stay in place, along with plenty of heat in order to get the shape to conform. In total, completing the roof shingles required almost 40 hours of effort!

Finishing touches

The door was first to be fitted into the frame followed by window and door glass. External trim, barge boards, etc. were next and the inside timber painted using Cuprinol Wood Stains. The last task was to turn and fit a finial for the top of the roof. There was already a separately fused armoured cable power to the gazebo area so this was reinstated, with two double sockets including USB ports. For lighting, we used Christmas lights tucked in and around the top of the walls, and a small fan heater keeps the chill off for autumn sessions.

FURTHER INFORMATION

SketchUp tutorials for roof design – **www.finehomebuilding.com/2013/01/30/exploring-octagonal-roof-framing-with-sketchup**

Please be seated

Robin Gates sits and thinks about chairs with a copy of *The Woodworker* from January 1935

In the last year I've spent more time sitting on fallen trees and rocky outcrops than for a good few years beforehand, pausing in the daily constitutional to appreciate the wonders of nature and a country view. Given a pandemic, picnic and panoramic prospect of the Welsh borders from the Devil's Chair on Stiperstones, I can remain happily seated until numbness sets in, and never mind the jagged seat of quartzite I've pressed myself into like a blob of glazing putty. Suffused with endorphins by the brisk walk uphill, the sit-upon can prove remarkably tolerant.

Back indoors again it's a different story. For looks alone I love the well-saddled seat of a Welsh stick chair or a Windsor, but I can rarely sit in one for long without the sympathetic padding of a cushion, and I've noted from old prints of cottage interiors that our ancestors were much the same. My favourites at home are the Gimson-style rush-seated ladderback, and Thonet's lightweight café chairs with their steam-bent frames and springy cane seats.

Thus seated, and in one of those rudderless intervals between novels, reluctant to meet a new set of characters while those of the last week remain so alive, I'll often divert myself with a dip into the archives of *The Woodworker* and, as luck would have it, the issue I picked up recently was from January 1935 with its 'Story of the Chair.'

THE STORY OF THE CHAIR

ITS DEVELOPMENT FROM EARLIER TIMES

WHAT formed the first chair in this country? The answer, of course, is entirely speculative. Maybe it was the rough section of a hewn log or just a stone, but so far as a structure made specifically to provide seating accommodation is concerned, it does not go back very far—at any rate, for general usage. The Romans, of course, had chairs, but in this country nothing of so ancient a date has survived and probably the oldest example of a chair still in existence is the Coronation Chair in Westminster Abbey, made for Edward I. This, however, is hardly a fair example since it was made for a special purpose, and it had little or nothing in common with what one would find in humbler places.

We have noted before in these articles that in early days furniture was most scarce. Conditions did not lend themselves to luxury, and the probability is that in a mansion there would be only two chairs, one for the lord, and the other for his lady. The rest of the inhabitants had to be content with long rough forms, stools, and even chests. We mention the chest in particular because, apart from its thus forming an early "chair," it was the structure from which the chair grew.

This was natural from many points of view. It was the commonest of all furniture; its form seemed to lend itself specially to the development of a chair, and the framed-up construction which it ultimately had was suitable for the purpose. A in Fig. 1 is a typical chest of the early sixteenth century, and it was but a step to lengthen the posts and add panels to form the arms and back as shown at B. These early days of the late fifteenth and early sixteenth centuries were stirring times. Men still wore armour and it was natural that chairs should be of substantial, heavy construction to withstand the heavy usage. They were invariably of oak, the national wood, and the posts and rails were of thick substance with long tenons held in their mortises with pegs. Another point was that tools were comparatively crude, suitable only for heavy, rather barbaric work when judged by woodwork of later periods. They certainly did not lend themselves to any delicate, refined workmanship.

The story of furniture is one of gradual refinement, a progress which came about partly from the slowly increasing skill of the craftsmen, partly from the changing conditions of life, and partly from the introduction of new woods and the benefit derived from foreign craftsmen who settled here from time to time. In B, Fig. 1, for example, the chest formation is still obvious—in fact, the box part beneath the seat usually did continue to form a small chest. As more settled conditions began to prevail this rather strict economy became less pressing, and so the panelled sides of the lower portion were omitted, leaving an altogether lighter structure. This is shown clearly in the Elizabethan chair at C, Fig. 1.

From the illustration it will be noticed that both examples B and C have wooden seats. Possibly squab cushions were used to make them more comfortable, but it was not till the Jacobean period that any serious attempt at upholstery was made. An early upholstered chair is shown at D, Fig. 1. It is of the slightest character, consisting of material stretched across the framing

FIG. 1.—THE EVOLUTION OF THE CHAIR: A, EARLY 16TH CENTURY CHEST. B, EARLY 16TH CENTURY CHAIR WITH PANELLED BASE. C, ELIZABETHAN CHAIR. D, EARLY 17TH CENTURY CHAIR WITH COVERED SEAT AND BACK. E, CROMWELLIAN CHAIR. F, CHARLES II TALL BACK CHAIR. G, LATE 17TH CENTURY CHAIR. H, QUEEN ANNE EXAMPLE. I, SECOND HALF OF 18TH CENTURY.

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A lightening of parts

In tracing its development from 'the rough section of a hewn log or just a stone' the author suggests that, as a purpose-built item of furniture, the chair's real starting point was the framed oak chest. And we can see that it's only a matter of raising the corner posts, back and sides of a 16th century chest for the joiner to deliver a four-square panel-back armchair, its mortise & tenon joints securely pegged, and sturdy enough to seat the Elizabethan lord of the manor in full suit of armour.

Studying the detail of the illustration reveals how the box below the seat lost its panelling while rigidity was maintained through the addition of stretchers. There was a general lightening of parts and in that the pole-lathe turner obviously spotted a chance to show his skills by adding balusters, bobbins and reels to the legs, which, over time and as fashion dictated, took on the shapely cyma curve of the cabriole and – not shown here – the sabre leg of the 18th century flush-sided chair.

Scallops, feathers, shields & lyres

Meanwhile the starchy uprightness of the back took on a more relaxed profile, raking backwards and ultimately making it imperative that rear legs do likewise. If the well-fed diner were to lean far back while reflecting on his good fortune with his umpteenth port, he'd soon discover that his chair with raking back and plumb rear legs displayed a fateful tendency to send him toppling base over apex. Freshly deposited on the floor, and with a good view of the backs and legs of chairs of fellow diners, he might avail himself of the opportunity to appreciate the skills of the woodcarvers who'd really gone to town with their gouges in following the designs of an 18th century Chippendale or Hepplewhite. What began as plain right-angled oak frames and panels 300 years earlier had blossomed into an absolute riot of scallops, feathers, shields and lyres embellishing the walnut or mahogany knees, arms, rails and splats of spoon, fiddle and balloon-backed chairs.

Looking further into this magazine of 86 years ago reveals it as something of a seating special, with the first in a series on 'The Art of Upholstery' telling us exactly how to upholster loose chair seats. And for the really keen, insisting on weaving their own fabrics, there are detailed plans for making a hand-loom.

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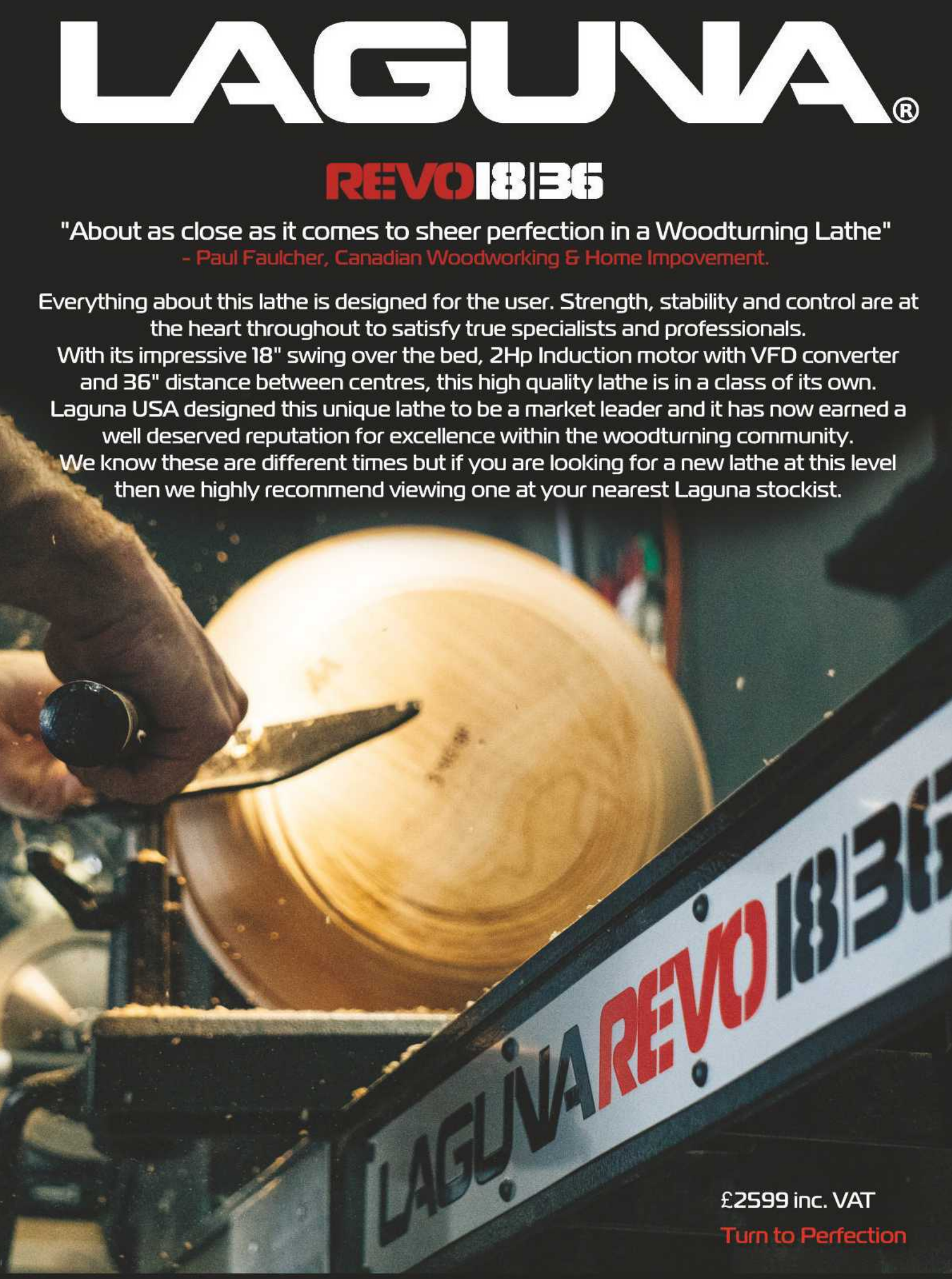

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Wood Workers Workshop – **www.woodworkersworkshop.co.uk** – an online tool shop run by woodworkers, stocks a huge range of quality woodworking tools from various brands.

WORKSHOP SET-UP: GETTING IT RIGHT

John Bullar takes you through the steps for setting up a workshop and choosing the best tools for the jobs in hand

This series on making your own furniture will guide you through setting up a workshop and choosing the right tools and materials, as well as studying in detail some of the most useful construction techniques. We'll start by looking at why making your own furniture is so rewarding, and how to decide on the space required for a workshop.

Why make furniture?

People start making their own furniture for many reasons. Often it's because they have an idea or a request for something unique that cannot be bought, or else they want to make an item of high quality that will be passed down through generations (**photo 1**). Once your newfound furniture making skills are common knowledge, there'll be no end of requests asking for bespoke pieces to be made. You then need to decide if you want to explore that route further, or keep your work exclusively to the workshop.

Saving money is another possible reason, but good tools and good wood are pricey. Although there's some very cheap mass-produced furniture imported nowadays, this doesn't compare with the quality you can make yourself, so it doesn't make sense to compare it on price. If you were going to buy custom-made furniture, however, you'd be saving money in the long-run.

When you start making furniture, you'll be continuously learning and so each step will probably take longer than anticipated. You may even have to revisit some areas, but that's OK – give yourself time to learn. It's far better to work slowly and produce something you can be proud of. Next time you do the same task, you'll have anticipated the problems and therefore gained more skill, so will be quicker.

1 Your own furniture can be unique and treasured, such as this collector's case made from English sycamore and English walnut

Workshop size

Furniture makers often establish their first workshops in garages, outbuildings or spare rooms, or they purpose-build a workshop. The choices depend on space, budget, noise and consideration for other people around you. Size of workshop obviously depends on the size of projects you plan to tackle.

Remember that the workshop will also need to accommodate wood, tools and any machines as well as finished pieces.

Having a limited space doesn't prevent you starting to make furniture. Ideally, the pieces you plan to construct should fit into the size of workshop available. In a small space, it can be very satisfying and rewarding to concentrate on small items such as display and jewellery cases (**photo 2**); however, with suitable designs, it's also possible to build large pieces in small modules, which can later be assembled on site (**photo 3**).

Invest in a good bench

A cabinetmaker's bench has a large, flat surface made from heavy-duty wood with one vice on the front and another at the end (**photo 5**). If you can acquire a second-hand bench, then so much the better. If the top is badly chipped, be prepared to flatten it or fit a new surface.

Building you own bench is a good early project for a new furniture maker to consider. It needs

2 Small, fine detailed pieces are ideal for making in a small workshop

3 Larger furniture requires more space to accommodate the wood, tools and machines as well as the finished pieces themselves

4 Furniture made by hand can be specially designed to hold equipment, or to fit in oddly-shaped spaces

to follow a good design and be sturdy in terms of build quality. It's also great practise when it comes to honing your construction skills.

In the beginning, you can get by with a workmate-type bench – its long grip vice jaws will always come in useful later as a second bench. The main shortcomings of this type are its small size and lack of mass compared to a real cabinetmaker's bench. You may also need to block it for the right height to avoid bending.

Storing tools & materials

An open tool rack close to the main workbench is best for frequently used tools. Other tools and materials, or jars and bottles of finishes, are best stored behind cupboard doors where they won't be able to collect dust. Recycled kitchen cabinets are ideal for this (**photo 9**).

The space under the bench itself is useful and close to hand, and some expensive benches have built-in cupboards beneath.

Seeing the details

Fine, detailed work is demanding on the eyes, so the workshop will need plenty of light if you're planning on making joints that fit well without gaps (**photo 10**). Daylight from a large window is great as it produces little shadow, has a good colour with no flicker, and it's also free!

A fluorescent tube is efficient but two or more of these spaced out, preferably at right angles, are much better for reducing shadows (**photo 11**).

A desk light with a long moveable arm is an excellent supplement to background lighting, and ideal for close, detailed work (**photo 12**).

Keep down the dust

Cutting wood creates dust, which then floats around in the air we breathe as well as settling on floors, shelves and tools (**photo 13**). Machines create far more dust than hand tools and they also have fan-cooled motors that propel it into the air. Sanding machines and hand-held power sanders are definitely the worst offenders. If you plan on buying any woodworking machine or a sander, you must also invest in suitable extraction, which ensures that any dust produced is collected

5 One essential thing a furniture maker needs is a solid bench to work on, like this simple and traditional design

6 This upmarket design of furniture maker's bench features built-in storage space

7 The bench vice is a necessary tool that grips wood while sawing and planing

8 In this overhead photo, you can see that my frequently used tools – for hand tool work – are positioned close behind the bench

at source. The hand plane is a low-dust tool that creates crisp, clean surfaces and edges while producing beautiful curly shavings. Planing smooth surfaces and straight edges will ensure the need for sanding is kept to a minimum.

Stay dry

It's important that the workshop stays dry in order to prevent tools rusting and wood swelling, or being eaten by woodworm.

A good roof on the workshop and well-sealed windows will stop drips and also keep the atmosphere dry (**photo 14**). If the workshop stands by itself, it'll need insulating and some low-powered background heating is essential in winter. The temperature doesn't need to be high; just a few degrees above outside to drive out moisture and prevent liquids freezing.

In fact, when I'm working hard it can be nice to breathe cool, fresh air, but not so cold that my breath condenses on the tools! Provided the workshop is free from leaks and draughts, an electric de-humidifier will keep the moisture level down and uses less energy than a heater.

9 Old kitchen cupboards on the wall or floor provide excellent storage, keeping the dust off bottles, tins and lesser-used tools

Hand tools or power?

Before looking at any tools in detail, it's best to have an idea of how you'll be equipping your new workshop. Divided into three main categories, you can choose between hand tools, power tools and machines.

Hand tools, which are unpowered, include small saws (**photo 15**), chisels, planes and

10 Fine, detailed work is demanding on the eyes and requires plenty of light if you're wanting to make joints that fit well without gaps

11 Skylight windows and fluorescent tubes at right angles will ensure you're never working in shadows, while a filtration unit extracts airborne dust

12 A desk light on the bench is ideal for fine work and can also be used, as here, to check for gaps

special gouges, scrapers, etc. Hand tools are extremely versatile and developing accuracy in terms of their use is the first and most important part of a furniture maker's training.

Power tools are hand-held motorised devices such as drills, jigsaws (**photo 16**), circular saws and routers. Their usefulness to the furniture maker is more limited than many people would imagine. Generally, power tools aren't accurate enough for fine furniture making, but the router is an exception to this rule, as it can be guided on rails or jigs.

Woodworking machines are large, fixed tools driven by electric motors. They range from small cross-cut saws and bandsaws to large saw-benches, planer/thicknessers

13 Sanding dust needs to be collected at source otherwise it gets everywhere

and versatile combination machines. In a big workshop, there may be several large, expensive high-precision machines, but their cost is only justified when the maker is producing a lot of work.

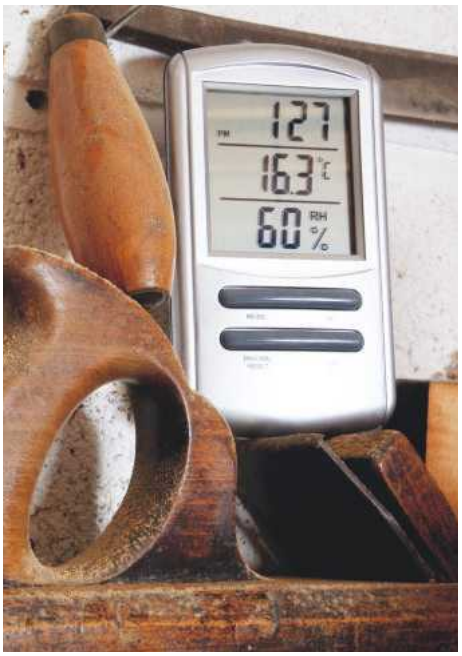
Small machines can be useful, especially cross-cut saws (**photo 17**) and bandsaws. If you're planning a small workshop, it's worth thinking ahead to the space these will require.

In summary, I recommend concentrating on learning hand tool skills first. I would only invest in a machine when you need it to tackle a larger project, and have a good idea of how you're going to use it.

Old tools or new?

Good tools can be expensive and it's easy to buy the wrong ones. With this in mind, it makes sense to buy them one at a time and get to know each one before investing in the next.

When it comes to choosing tools, you need to decide whether to buy old or new. If you're lucky enough to have some old cabinetmaker's



14 A good roof and well-sealed windows will keep the workshop dry and humidity normal

tools handed down to you, or you pick them up for next to nothing, then you're bound to use old tools first. Cleaning and restoring nice quality equipment is very satisfying and helps you appreciate its details.

You can obviously save money buying second-hand, but good tools are expensive and that often includes old ones, too. Also, be aware of the many tool collectors around who push up the prices charged for certain makes of 'antique' tools.

A few years ago, I would have said that vintage hand tools were better quality than the new ones available, but now there are some very good modern versions. As well as not being worn or knocked about, these benefit from the addition of high-tech alloy steel blades, which are less easily chipped than old carbon steels.

What's coming next?

Over future articles, we'll look at using planes and saws for wood preparation, marking tools, chisels and routers for creating joints, as well as various glues and adhesives, plus clamps, fittings and finishes.

15 Big saws like this can be very accurate, but they tend to be used less by furniture makers nowadays. Small hand saws, however, are essential for fine work

16 Portable power tools, such as this jigsaw, are good for roughing out wood before finally trimming to size with a hand plane or machine

17 A sliding cross-cut saw, one of the smallest fixed woodworking machines, is handy for cutting angles or straight ends on relatively narrow pieces of wood

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CONTRACTOR

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WW PROFILE

Materials MASTER

Awarded Bespoke Guild Mark No.465 for his stunning 'Sika' console table, self-confessed 'materials geek' **Laurent Peacock** fuses custom-made surfaces and unexpected materials combinations, which keep the viewer guessing and wanting more – **Martin Pim-Keirle** delves deeper

'Sika' console table – inspired by the stance and hide patterns of a young deer. An elegant study in form, texture and contrasts, combining rippled sycamore, laminate of silky oak veneer, aluminium honeycomb and carbon fibre – 1,000mm wide × 320mm dia. × 900mm high. Awarded Bespoke Guild Mark No.465 by The Worshipful Company of Furniture Makers in June 2017

One of the many wonderful things about woodwork is the sheer range of techniques and materials that can be used to create beautiful, functional objects. If you needed proof that furniture making is an exceptionally broad church, then the subject of this month's profile is surely it. Doubtless many of you will have read features in this very magazine on skilled green woodworkers who use age-old techniques to create beautiful chairs, using nothing more than sharp tools and sweat. Somewhere at the other end of the spectrum, however, sits the supremely talented and inventive Laurent Peacock. Not that his work requires any less skill or effort; it's just that you won't find aluminium honeycomb, oak laminate, or peppercorns in the manual for green woodworking – at least not yet...

In 2019, Laurent added a commendation from The Furniture Makers' Company Design Award to his growing and impressive list of official recognition, as well as being 'Highly Commended' the year before. The achievement of greatest note, however, is his possession of not one, but two, Bespoke Guild Marks, something many makers in the field can only ever dream of achieving. In all cases, it's Laurent's particular mix of fine craftsmanship, unique design work and innovative construction techniques that have gained him attention and appreciation in equal measure.

Reflecting on his formative years and beyond, Laurent recalls having an interest in how things worked, which fascinated him from an early age. Born in Kenya due to his successful science lecturer father's postings around the world, Laurent admits that it's actually his Devon (Exeter) upbringing that forms the bulk of his childhood memories.

Describing himself as an active youngster, Laurent spent much of his time either outside playing sport or indoors making or dismantling things. The usual suspects, such as Lego and Airfix kits, all feature as well as an unfortunate bicycle that came apart easily enough, only for him to discover that reassembly was a bit more of a challenge!

The surface of the 'Sika' console table features 60 layers of silky oak veneer, which are laminated together

Surprisingly, perhaps, woodworking wasn't a notable feature of Laurent's childhood, although a strong creative drive led him to apply for a design degree, as he explains: "I originally completed a degree in 3D Industrial Design back in 2001, at what was then the Birmingham Institute of Art & Design, part of the University of Central England, now Birmingham City University."

Interestingly, Laurent's journey from design student to furniture maker is a surprisingly rational one. That's not to suggest a lack of passion, however, but the fact that he's somewhat unusual in his ability to articulate a sound set of reasons as to why furniture making was the right destination for him.

"Initially, it wasn't necessarily furniture that I wanted to make," Laurent explains, "but I was ultimately drawn to it for a number of reasons. It exists, by definition, at a human scale. Not too big to be impossible to build as a one-man-band outfit, but substantial enough to have presence, as well as being functional and feeling like time and effort well invested.

"Working largely with wood offers the opportunity to complete every stage of the process yourself," he continues, "which was something that always felt lacking in my industrial design past. I felt very clearly

Laurent has found a way to add spice to his designs!

from the start that I wanted to both design and make my pieces, wherever I could."

From academia to woodworking

Even towards the end of his degree course, Laurent had grown disillusioned by the likely prospect of designing "plastic widgets for mass production in far-away factories." This, combined with the fact that there seemed to be few related jobs at the time, and a great many design graduates competing for those that were available, led him to take a more academic career path after University. As well as a keen interest in design and construction, Laurent has strong academic abilities and a gift for mathematics, both of which served him well in a decade-long career within research and data analysis. The lack of options for creative self-expression in this world, however, eventually became frustrating, prompting him to change tack.

A move into freelance work afforded him the flexibility required to start taking a few short woodworking courses at London Metropolitan University: one focusing on hand skills and the other on machine skills. Completing these was the catalyst Laurent needed to convince himself that not only did he enjoy the work, but that, perhaps more importantly, he also had the potential to do so at a professional level, therefore making it a realistic and viable career option.

"My design background served me pretty well," he says, "but I realised that I probably wouldn't be able to develop good enough making skills quickly enough if I were to teach myself. So I decided to take the plunge and enrolled on a one-year fine furniture making course at Robinson House Studio, under the expert guidance of Marc Fish and Theo Cook. And from that point onwards, there was really no looking back."

Laurent describes the course as "just what he needed." It wasn't a pure 'woody' course, as the tutors encouraged students to experiment with composites, laminations, cold casting and various other cutting-edge techniques. But in woodworking terms, it certainly laid the foundations for being able to produce incredibly accurate work.

One of the key lessons that stood out for Laurent was the importance of taking

Through-tenons on 'Sika' display the laminate's end-grain

'Piper x' credenza – highly Commended in the Furniture Makers' Company Design award 2019. Featuring Laurent's signature 'Piper' peppercorn surface, this is his most substantial piece to date. Oak carcass with laminated fumed oak, brass handles and detailing – 1,600mm wide × 450mm dia. × 750mm high

the necessary time to get hand tools perfectly flat and sharp – which was instilled from day one. "Obsessive practice of marking out, planing finely, sawing straight, chiselling accurately and getting pieces precisely flat and square felt a bit like overkill at the time," he comments, "but with hindsight, it really set me up well for everything that followed."

Fast forward a month or two and Laurent was able to work with hand tools to tolerances within hundredths of millimetres – something he found not only hugely satisfying, but also very encouraging.

Describing his observations around the place of hand and machine tools in the workshop, Laurent's findings are particularly interesting: "I'd previously (naively) assumed that machines are used for the really accurate work and hand tools are best for the 'touchy, feely' processes. In reality, however, machines can only get you so far, and it's your ability with a very sharp chisel or plane that really makes the difference between run-of-the-mill and fine craftsmanship." Reaching this conclusion, and armed with the necessary knowledge and skills, Laurent began to differentiate himself, viewed by many as something of a force to be reckoned with, which the following career milestones go on to show.

The Michelin Star of furniture-making

Asked as to when he first felt able to call himself a furniture maker, Laurent reflects back to June 2017, and receiving his first Guild Mark, which he describes as akin to a "Michelin star, but for furniture." Few are awarded each year, and the stringent judging process means that the route to acquiring one of these statements of recognition sounds challenging to say the least. Submissions are initially reviewed by a panel of expert judges, based on photographic and written evidence. Pieces that make it through to the next stage are then visited for judging in-person by two members of the panel.

The doors and central drawer are adorned with black peppercorns in a semi-translucent black tinted resin, while white peppercorns in an opaque ivory resin feature on the fronts of tucked-away internal drawers

"Those visits felt very intense," remembers Laurent. "In my case, two heavyweights of the industry – Richard Williams and Rupert Senior – visited on separate occasions. They posed a range of questions about the conception and production of the piece and then asked me to leave the room so they could thoroughly scrutinise it in private. They gave me some really positive feedback on my return, but their poker faces left me with no idea on their leaving as to whether or not I stood a genuine chance."

Laurent was, of course, delighted upon hearing the positive outcome, and the accolade was particularly profound as this was actually the first piece of furniture that he'd 100% designed and made himself: "It felt like folly to submit it for judging," he admits, "but Marc Fish – of Robinson House Studio, himself a well-established designer-maker – felt it had a chance and suggested I give it a shot. All I had to lose was a modest application fee."

The piece in question was Laurent's 'Sika' console table, a remarkable achievement in terms of how pure and clean the final form appears, not to mention the complexity of engineering that lies beneath the surface. The curved legs are carved from solid rippled sycamore, and likely the most conventional aspect of the piece. The top, constructed using veneers of silky oak over a substrate of aluminium honeycomb and carbon fibre, is a combination that allows for extraordinary strength and stiffness in a board not much more than 10mm at its thickest point. Lippings of laminated silky-oak veneer stacks surround the edges, leading the viewer to believe the piece is in fact crafted from solid wood. The elegant x-shape connecting the legs was cleverly formed using a stack over 60 layers of silky oak veneer, laminated with resin over a curved former, before being cut lengthways and flipped to give the symmetrical x-shaped configuration. Through-tenons expose the layers' unique end-grain patterning. To attempt such a challenging piece while

'Hubble' side table – featuring an evolution of the Piper surface material with a pattern fade from centre to perimeter

'Aesculus' small collector's cabinet – designed as an abstraction of the form and textures of a conker. The cabinet 'splits' along a three-way crack of exposed 'pith'...

... to reveal the shiny nut piston-fit drawers within. Built almost entirely out of solid woods – 550mm wide × 300m dia. × 540mm high

still studying his craft, then going on to win an award of no small significance, clearly sets Laurent apart as a designer-maker. He's candid about how much this meant to him, however, commenting: "Until that point, all the feedback on my designs had come from friends, family, fellow students and tutors, and it can feel like a bit of an echo chamber. To have two judges who are so experienced say positive things about my work really spurred me on."

After finishing the course, Laurent stayed on at Robinson House Studio for a short while, making pieces for Marc Fish, before going on to earn a second Guild Mark as co-maker on Marc's 'Vortex' table. So, having now acquired an extensive furniture making skill set, not to mention two prestigious awards, Laurent was finally ready to strike out on his own, beginning work on his first substantial commission at the very start of 2018.

Reaping benefits & new opportunities

In terms of his young business, Laurent's growing collection of accolades has allowed him to reap various benefits as well as being presented with opportunities that would otherwise have been unavailable, as he explains: "I was invited to exhibit alongside the likes of John Makepeace and Thomas Heatherwick in a Guild Mark holders' show at Chelsea Harbour, which was slightly surreal. I can also attribute at least one of my recent commissions directly to having been included in the online gallery of Guild Mark awarded pieces, which can be viewed on the Furniture Makers' Company website – **www.furnituremakers.org.uk**."

Describing himself as "nicely busy," Laurent's order book has been spilling over for some time now, a position he recognises as being extremely fortuitous at such an early stage in his new career. And although he admits that commissioned pieces will almost inevitably be slightly more limiting in terms of self-expression, they nevertheless challenge in other ways and never fail to scratch that creative itch.

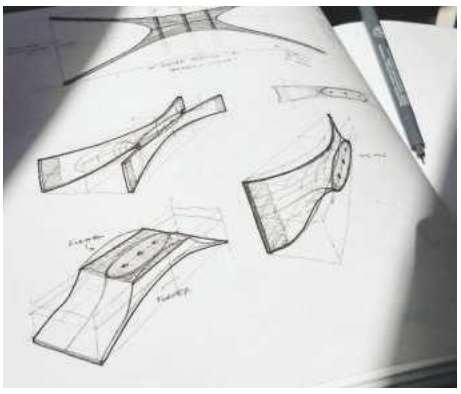
"Some commissions are almost entirely prescriptive, and then it really becomes more of a technical challenge to make something in the best way possible," he comments. "Other commissions do offer genuine room for collaboration, though. There are some very talented interior designers out there and it's always interesting to see them articulate their grand vision for a project, and help to develop a piece that not only works well in its own right, but which also plays nicely with new friends and neighbours, in its new surroundings."

While commissions do make up the bulk of Laurent's paying work at present, so far it's been self-initiated pieces that have earned him the most industry praise. In addition to securing his first Guild Mark, the 'Sika' console table was also awarded a commendation as part of The Furniture Makers' Company Design Award in 2018. To follow that up and be Highly Commended again in 2019 for another boundary-pushing piece is hugely impressive, and for Laurent, the novelty certainly hasn't worn off, as he describes: "The competition is always very strong, and the judges highly respected, so it's an honour to be recognised in this way."

Surface texture secrets

The piece in question, and one that continues to stand out, is Laurent's remarkable 'Piper'

Rippled walnut slab waney-edge dining table, book-match jointed down the centre – 3.2m long × 1.2-1.4m wide × 0.75m high



Planning every element in detail is crucial

sideboard. Despite the clever use of some fascinating construction details, let's cut to the chase: it's covered in peppercorns. Real, whole peppercorns. Annoyingly, but entirely understandably, Laurent's keeping the details of how he achieves this unique finish under wraps: "I'm not going to give too much away, but there are several stages to the process, and the finished surface is actually composed of a number of layers. I'm often asked if each peppercorn is sliced and placed individually, but thankfully it's not quite as laborious as that, although definitely not a quick thing to make."

The end result is as eye-catching as it is unique. Individual peppercorns are suspended in resin, and apparently sliced in two, meaning that the surface is a myriad cross-section of these tiny balls of spice. I can't help but ask what the sanding process is like, unable to stop imagining a great deal of self-inflicted sneezing... Well, according to Laurent, an effective extraction system and a substantial mask takes care of things, but when working on fresh panels, the workshop develops a peppery aroma, but I'm assured there are worse smells out there. Indeed, given the fact the workshop is situated on a farm with lots of cows means there's often unpleasant odours in the air, and during summer, the pepper does help to nicely mask some of the less appealing countryside variety...

The idea for this novel surface finish originated with a request from Laurent's wife for a spice rack, and the finish worked so well that it also inspired a range of occasional tables plus a mirror frame, although the sideboard remains his most substantial piece to date.

Laurent receiving the commendation for his 'Piper' sideboard

As seen by the casual observer, an immaculate, razor-sharp oak carcass presents two cupboard doors and a single central drawer, all fronted in the black peppercorn finish and sporting elegant brass handles. Two of the three spaces behind the doors contain further drawers, this time fronted in a white peppercorn finish. The overall effect is stunning, like a high-definition tribute to Scandi-chic, sent back in time from 200 years in the future.

Surface texture secrets

Like a great many makers, Laurent designs pieces that excite him, trying to conceive forms that work together before worrying as to how these can then be created. But the difference here is that when it comes to meeting those challenges, we have a maker who's able to think beyond the realms of traditional cabinetmaking, as Laurent affirms: "The fact I'm not a time-served cabinetmaker by background means I'm not strongly wedded to any particular techniques or approaches at the expense of others. Once I know what I want to achieve with a design, and the requirements of each component, I'll then try to find the best material and process for each one."

While it's not necessarily about creative expression, Laurent agrees that having an open mind and a relatively wide technique toolkit to choose from certainly helps when it comes to solving tricky design problems.

There's no doubt that he'll push more boundaries as his furniture making repertoire grows, continuing to pioneer new combinations of traditional joinery and cutting-edge materials and techniques. And while switching careers after 15 years was a big risk, it's one that certainly seems to have paid off for him.

Now in its fourth year, Laurent's furniture making business remains healthy, affording him an income he's happy with. Initially setting out to discover a mode of work that didn't fill him with the familiar "Sunday-evening dread," he seems to have struck gold when it comes to finding the winning combination, something he acknowledges as very rare in this day and age. In our opinion, however, it's very much deserved, and if there was ever a talent to watch, then Laurent must surely be it.

'Anta' side tables – subtly patterned solid end-grain timber top with contrast dowel detailing on the leg joinery. Currently available in English oak with ebony dowels (reclaimed from old piano keys) or chocolatey brown wenge timber with solid copper dowels

FURTHER INFORMATION

To find out more about this award-winning contemporary furniture designer-maker, visit **www.laurentpeacock.com** and follow him on Instagram: **@laurentpeacock**

WOODWORKER'S ENCYCLOPAEDIA A-Z PART 28

In this section of the directory, **Peter Bishop** gets stuck into the Ps – we'll part, peel, have pie crust and end up planing some wood

Parting tool

This is a special chisel used in woodturning to 'part' – separate sections or ends once the work is finished. A number of standard shapes are available, plus a couple more fancy ones.

Robert Sorby 1/8in (3mm) midi parting tool

A selection of narrow parting tools – Ashley Isles, Crown Hand Tools, Henry Taylor and Robert Sorby – all from Craft Supplies USA

Patina

Those wonderful layers of muck and grim that build up on the surface of wood and other materials over time. We hear the antique experts eulogise about it and claim that it's difficult to replicate. I look at some of the surfaces they rave about and think "it's just dirt!" However, they are right about the deep and variable colours that build up or wear away on some wood surfaces. The rich, golden tones we might find are certainly difficult to repeat, so it looks like we've all got to rub our hands over our favourite pieces of furniture for just a bit longer.

Pcs.

A simple abbreviation for 'pieces', meaning, on a list, for example, how many pieces of this or that length or width, etc. are required.

Peeler

Peeling machines, or logs associated with them, are used to produce continuous lengths of thin veneers sliced off a round trunk, just like unravelling a toilet roll. The veneers produced are invariably made up into multi-grain direction plywood sheets when laminated together. The stock logs are heated and soaked to make them malleable enough for the thin layers to be cut. They are then mounted between centres, just like a lathe, and rotated and brought up to a fixed knife. The peeler log then moves in smoothly so that equal thickness stuff can be cut off. A fascinating process that produces, in the main, rather plain veneers.

2,900mm high duty spindle-less veneer peeling

Ball peen hammer with hickory handle

Peen
A word used to describe the rounded end of a ball peen hammer.

Penetration
We talk about penetration when discussing how deep into the timber a preservative might have gone. A number of factors will affect this, and one will reflect on the density of the wood we're trying to preserve. Tight-grained stuff will not take preservative as easily as open-grained material. One could argue that the former will be naturally more durable than the latter, but that's not always the case. The cellular structure of the host wood will also have an impact on penetration. Open-pored timbers will allow freer flow while others with teloses – an obstruction in the vessels, which we'll cover when we get to the Ts – will restrict penetration. Apart from always following the manufacturer's guidelines, there's one more point to bear in mind: having treated your material, make sure you don't cut into the protective surface again. All you'll be doing is removing that layer of preservative, however deep it's penetrated, thus defeating the object of the exercise all together.

Ambrosia maple board – so named for ambrosia fungi, which is found in association with ambrosia beetles. The beetles bore into the trunk of the tree, bringing with them the ambrosia fungi, which subsequently stains and discolours the surrounding wood. The discolouration can be very similar to spalted maple, though with the ambrosia variety, the discolouration is centred around the beetles' boring paths, and their entrance holes can usually be seen. This can also create a challenge when finishing the wood as these holes usually need to be filled before applying a final finish

P.h.n.d.
This is a simple abbreviation for 'pin hole no defect'. What this means is that in some woods, especially tropical hardwoods, there might be a limited infestation of pinhole borers that, in reality, aren't really affecting the quality of the material apart from appearance. The timber is therefore sold in the full knowledge that there are worm holes present. It should be much cheaper and, if the holes can be hidden, still be fit for purpose.

1,800 × 900mm picket fence panel

Picket fence
This is the small, thin slat fencing discussed earlier on in the directory.

Picking up
When we plane timber with interlocking grain, or similar stuff, we might find that the grain picks up, thus leaving an uneven surface. It's very difficult to overcome this and you should always ensure your cutting edges are sharp. Altering the cutting angle might help, but you'll need to do some trials until you find the best results.

Large, plain dado and picture rail

Brass picture rail hooks

Picture rail
In older houses, picture rails were common but today we hardly ever see them. These are mouldings that run around the wall, towards the ceiling, from which you can hang pictures. A special 'S' shaped hook was required, which went over the top of the rail and up and under the picture frame. Perhaps they'll come back into fashion someday?

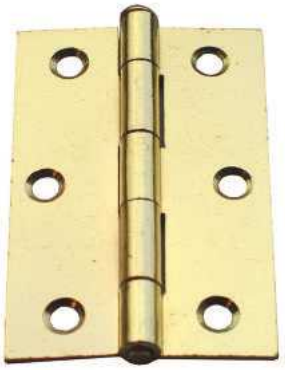
Chippendale pie crust tilt-top table

Pie crust top
Typically made from mahogany or walnut, this is a particular design of 18th century antique or reproduction table top. So called because the round top has a regular, indented, moulded and raised pattern around its outer edge, in its true form, the top will tilt on a central column with three cabriole-type legs.

Pigeon hole stacking
If you have a pile of planks that require air-drying and you've run out of stickers to go in between, this might be a solution. You simply put a layer of planks onto some bearers, leaving gaps between each piece. You then select a piece to go on top that bridges the gap, and so on. You'll end up with a pile that has loads of 'pigeon' holes, which allow the air to circulate while the wood dries.

A selection of pincers, or pinchers

Pincers or pinchers
A must-have for every workshop, I call these 'pinchers' but it doesn't really matter. A great tool for drawing out bent nails, here's a little tip: to avoid marking the surface from which the nail might be drawn, place a thin piece of wood, or folded abrasive, under the curved head before you press down to pull it out.

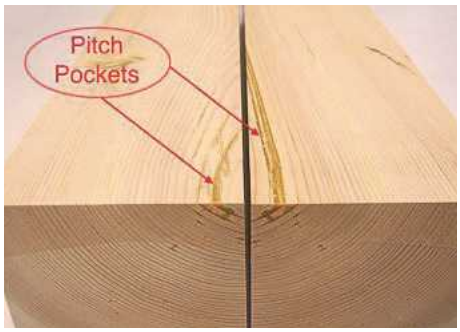


3.5in loose pin hinge

Pin hinge
These hinges have a centre pin that can be pulled out, on purpose, so that the door, or whatever that's attached, can be taken off. Great for decorating and removing awkwardly placed doors when moving furniture around.

Pinhole borer is a pest mostly of oak trees, although it will also attack other hardwoods

Pinhole borer (*Platypus cylindrus*)



Pitch pockets in wood

Pinhole borer & pin holes

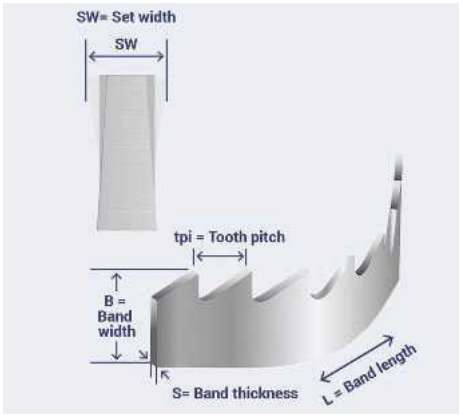
This is a small wood-boring beetle (*Platypus cylindrus*), which can make lots of small holes in the timbers it attacks. Because they're relatively small, hence the name, the damage may disfigure the wood but only in extreme cases will it make too much difference to the structural value, thus we talked about P.h.n.d earlier on.

Pin knot

Small, live knots, which are defined as not having a diameter larger than, say, ½in, or 12mm across.

Pinned

These are joints which have been fixed with a wooden pin, peg, or a metal one to hold them in place.



Tooth pitch refers to the number of teeth per inch (tpi). 1in = 25.4mm. The relevant variable for selecting tooth pitch is the contact length of the bandsaw in the workpiece

Pitch

In saw blade or bandsaw blade terms, the pitch is the distance from tip to tip. Larger teeth will have greater pitches for rapid removal of waste and quick cutting. Smaller teeth will have the opposite. Bandsaw blades may have variable pitches: one short, one long. These types of saws are intermediate ones that can cut fairly finely while still having a relatively quick cutting action.

Pitch pockets

These are pockets of resin found in resinous woods. Rather than being spread evenly around the wood structure, the pitch has collected in a cavity – 'pocket'. This may be a natural feature as often seen in softwoods or, perhaps, as the result of some lesion damage which has therefore created a gap.

The tiny central dark spot in this piece of yew – about 1mm in diameter – is the pith

Pith

The pith is the very centre – the core of a trunk of wood. It may be sound, hollow, or soft and damaged. It's from the pith that all the subsequent wood growth, layer on layer, then occurs.

Pith knot

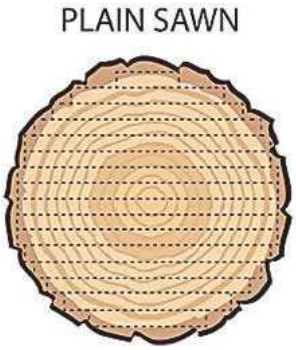
A sound, live knot with a central hole – pith hole no larger than 25mm (1in) across.

A pit saw in use near Kalomo, Zambia

Pit saw & sawing

I'm pretty sure we all know what these are, but I've never fancied having a go myself. A log is suspended over a pit or in the air on a frame. One sawyer stands below and another up above, and they cut lengthways through the trunk, repeatedly, to produce planks. Frankly, I can't think of a worse job than being the pit man! This technique can still be found in remote areas and may be the only way lumber is produced.

Plain sawn



Plain sawn: most common, least expensive – also commonly called flat sawn, this is the most common lumber you'll find and the most inexpensive way to manufacture logs into lumber

These are the boards with no 'figure' produced from a log that is cut through and through. A goodly number of the planks so produced will have a rather 'plain' character to their grain pattern. The other boards, with figure, will be called quartersawn.

Plane, to plane, & planed

WoodRiver No.5½ jack plane V3

24mm skewed rabbet hand plane

Makita DKP180Z 18V 82mm LXT cordless planer

We refer to both hand and machine planes in the same way. These all have the ability to plane off wood, which result in it being planed. There are so many different types available, and once more, 'you pays your money and you takes your chances'!

NEXT MONTH

In part 29, Peter keeps going with the Ps, discussing plywood in some detail but also spending time in the countryside where pleaching and pollarding are rife

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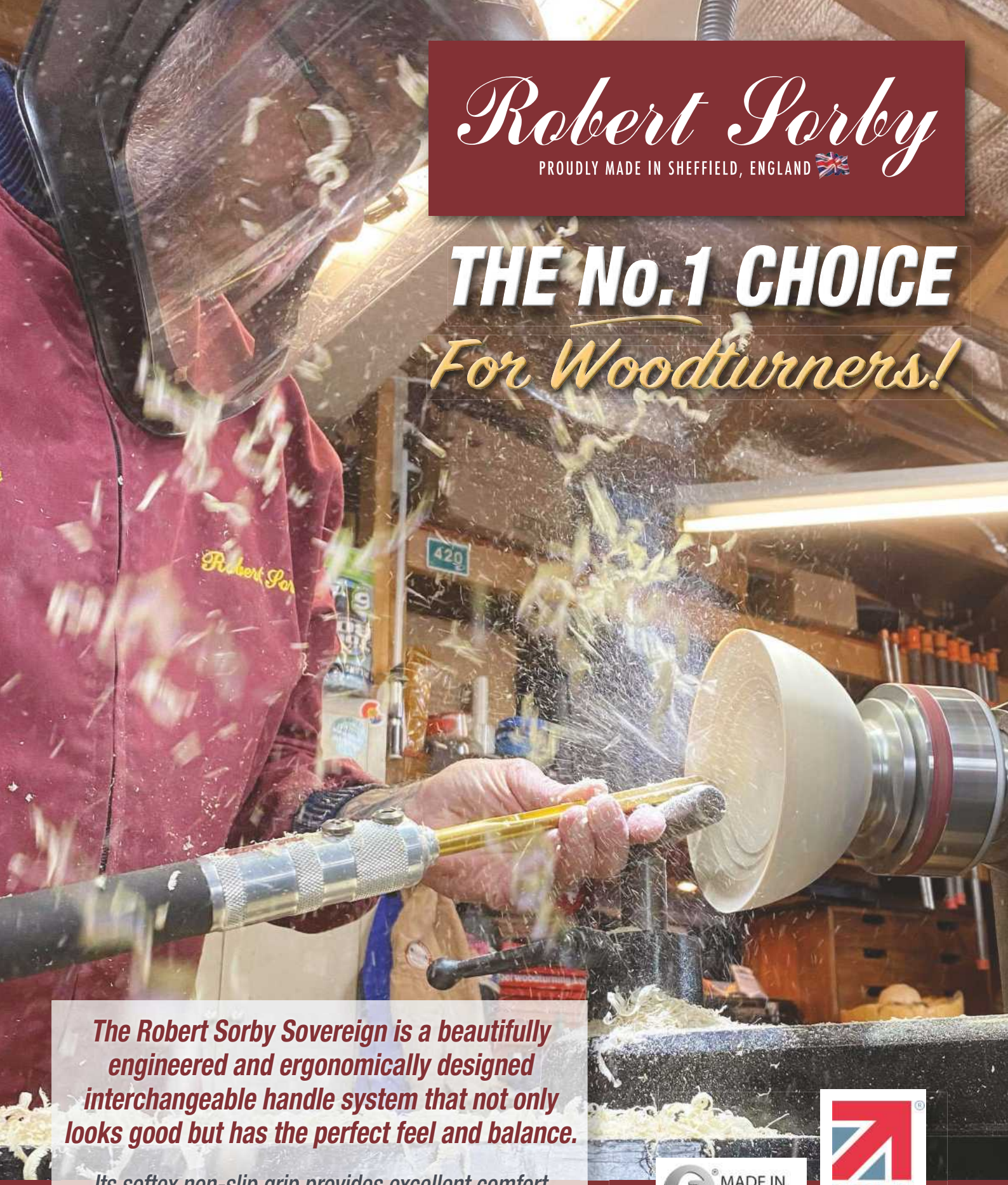

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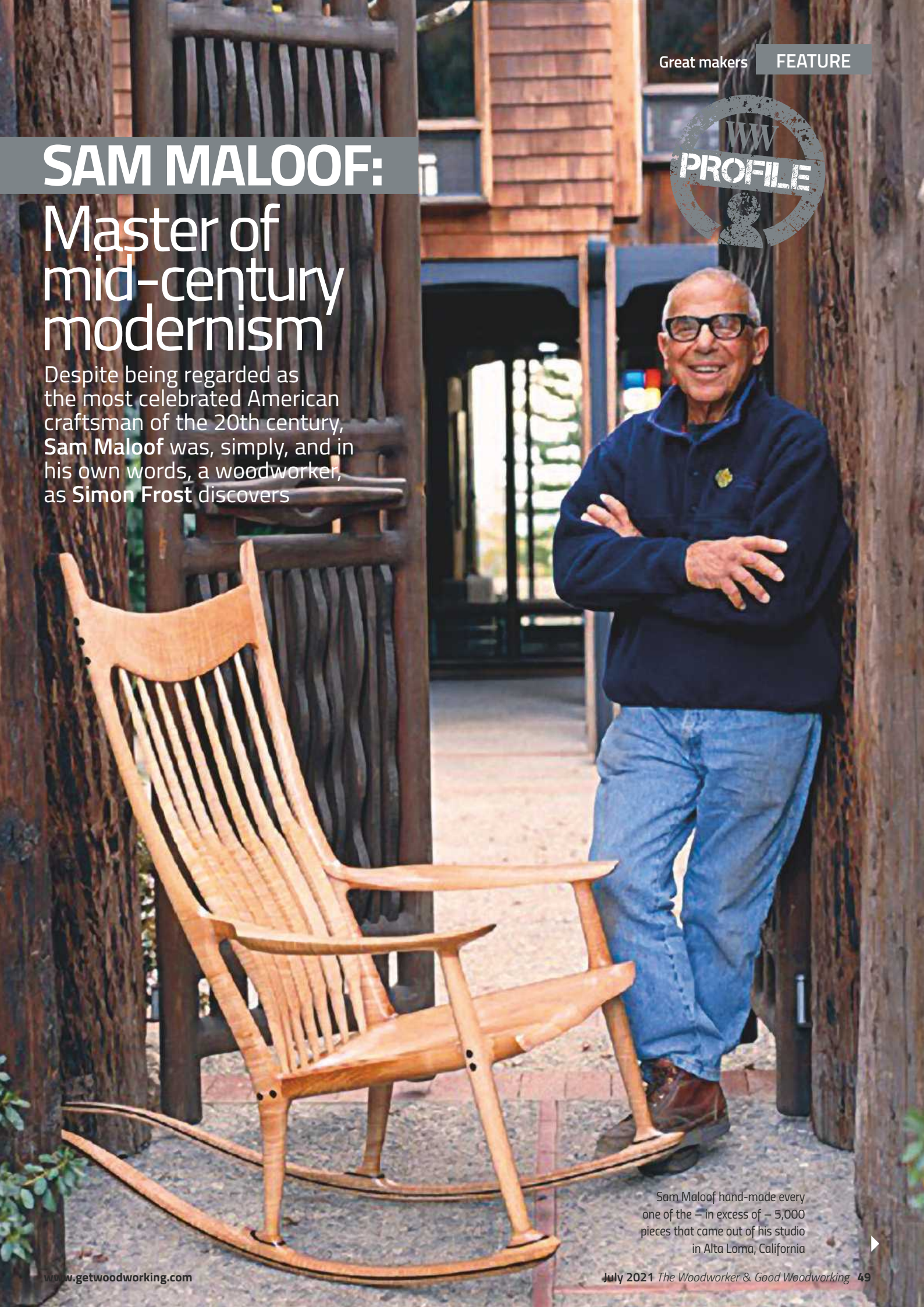
WW PROFILE

SAM MALOOF:

Master of mid-century modernism

Despite being regarded as the most celebrated American craftsman of the 20th century, **Sam Maloof** was, simply, and in his own words, a woodworker, as **Simon Frost** discovers



Sam Maloof hand-made every one of the – in excess of – 5,000 pieces that came out of his studio in Alta Loma, California

'Exceptional rocking chair', 1990, carved fiddleback maple and ebony – 116mm high × 68mm wide × 114mm dia.

'Rocking Chaise Lounge' – this design is the result of a creative burst of energy by Maloof at the age of 92. The prototype was completed just three months before his passing

Sam Maloof received more craft and design awards than any other 20th century furniture maker. He was the first craftsman ever to receive the MacArthur Fellowship – a $500,000 prize commonly referred to as the 'Genius Grant'. His was the first piece of contemporary furniture to be housed in the White House Collection, and, for much of his prolific, six-decade career, he was hailed as a pioneer of American craft – 'The Hemingway of hardwood', as *People* Magazine once put it.

But Maloof didn't promote himself as a craft pioneer or even a designer-maker, let alone a genius or the Hemingway of hardwood. Ask him to describe himself and the answer would always be the same: 'I'm a woodworker'. Indeed, Maloof wasn't one for exploring mixed materials, choosing instead to work only with wood, almost exclusively walnut. He certainly did the 'work' part, too; in fact, his is the quintessential story of greatness growing out of meagre means, where talent is nothing without hard work and sheer, bloody-minded perseverance – it's textbook 'American Dream' stuff.

Make do & mend

Born in Chino, California to Lebanese immigrants in 1916, his father sold vegetables from a horse-drawn carriage, from which his mother sold handmade items in lace, embroidered linens and crochet. Maloof was interested in handmade crafts from a young age and his Depression-era upbringing provided many opportunities to pitch in with all manner of practical tasks. In a crowded home – 17 Maloofs under one roof – the family had no choice but to make do and mend, and this instilled in Sam a legendary work ethic and renowned lack of pretension or self-importance, despite the esteem he was held in for much of his long career.

In the 1930s, Maloof made a modest living while still in school hand-lettering signs for local businesses, before turning his artistic skill to commercial graphic work for engineering companies and industrial designers. After four years in the US army, rising to Master Sergeant while posted to defend Alaska from the Japanese during World War II, Maloof spent three years as studio assistant to prominent Californian artist and architectural designer, Millard Sheets.

The house that Sam built

It wasn't until he was 34-years-old that Maloof set out to make furniture, alone, from a small home workshop back in southern California. Despite working from 8am until the early hours of the following morning, however, he wasn't able to turn a profit in his first 20 years as a professional woodworker.

In 1953, Sam and his wife, Alfreda, moved to a six-room house, where he'd go on to build the workshop he'd use for the rest of his life, and, over the course of 40 years, lovingly added to the house itself, growing it by a further 16 rooms, entirely handmade, as time and money allowed.

Every door is unique; every detail from carved latches to natural beams tells a story. The home's iconic sculptural spiral staircase, leading to a mezzanine, was made from inexpensive apitong timber typically used in shipping crates, laminated and carved with an elaborate walnut rail winding alongside it, an enduring legend being that Maloof would leave chisels and rasps at the top and bottom of the staircase, picking them up to continue its refinement, little by little, each time he climbed and descended.

State authorities protected the house from demolition in the early 2000s when plans for a new freeway route ran through the site. Instead, the house was disassembled into seven pieces, moved three miles away on flatbed trucks and rebuilt in sequence. Today, the historic home is open to the public, allowing visitors to immerse themselves in a staggering collection of Maloof's

'Free-standing Cradle', 2007. 'Babies do not wait' – Sam Maloof

'Demo Half-Chair', 1993, California walnut. Inscribed: "For Gail – my love and appreciation for you and your work. Love / Blessings / Peace – Sam Maloof"

'Side Chair', 1975
Photograph courtesy of **Gene Sasse Photograph**

'Walnut Arm chair' – 'No.21, 1993, 1,067mm high × 540mm wide × 476mm dia.

work, and more importantly, the furniture he actually lived with himself.

Chairs & rockers

Throughout his career, Maloof made tables, church furniture, entire interiors, boxes and other case goods, music stands, coat racks and everything in between, but it's chairs, and particularly rockers, for which he'll always be best known. Maloof's chairs are characterised by graceful, fluid lines, seamlessly blended components and exposed joints that are as strong as they are beautiful. 'I just didn't feel that joinery should be covered. I thought that after all the hard work of making a beautiful joint, and then to cover it over, took something away,' Sam commented in a 1983 interview.

To make a chair, he'd first bandsaw the components to rough shape, having marked these out from plywood templates. There's a kind of puritanism in some quarters when it comes to woodworking – a belief that as soon as a motor becomes involved, the craftsmanship

Distinguished guests such as Jimmy Carter were served in the dining space of the home Maloof began building in 1953
Photograph courtesy of the **Sam and Alfreda Maloof Foundation for Arts and Crafts**

Spiral staircase at Maloof house
Photograph courtesy of the **Sam and Alfreda Maloof Foundation for Arts and Crafts**

or honesty of a piece is diminished, but even the staunchest hand tool purist would struggle to watch Sam Maloof shaping the arm of a rocking chair freehand on the bandsaw and fail to see the incredible hand skills employed in the process.

The 'Maloof joint'

The seat of a Maloof chair comprises five pieces cut at angles to create the desired curve, which are joined with dowels. This would then be carved as one piece to create a smooth, elegantly scooped seat. The legs were joined to the seat using the famous 'Maloof joint' – a striking dado and rabbet hybrid that increases glue area and mechanical strength. The rockers are made from 5mm laminations glued over a former, and the seat back comprises a row of signature spindles that are shaped and located to create a continuous curve across the back of the chair; these are then glued into holes in the seat and curved headrest.

The Maloof joint – shown here on a walnut rocker – is a three-sided (two-sided on the rocker's back legs) housed tongue & groove

Each bandsawn element of a Maloof rocker is delicately shaped with spokeshaves, scrapers, rasps and grinders, then assembled and sculpted together to blend seamlessly, before sanding to 400 grit and finishing with his specific oil-poly mix. Maloof had an instinctive gift for design, and each chair is uniquely made, varying during the construction according to elements such as density and figure of stock. The proportions of Maloof's chairs were determined early in his career, using his own body measurements through trial and error, designing through feel. The blind musician Ray Charles was a notable fan of Maloof's furniture, commenting that he could 'feel it had soul'.

Continuing the Maloof legacy

Maloof didn't believe there should be secrets in woodwork, and spoke often at gallery exhibits and woodworking shows. His 1983 autobiography, *Sam Maloof, Woodworker*, is more of a how-to than a life story. An educator who believed in the power of craft, he established the Sam and Alfreda Maloof Foundation in 1994 to foster the arts and crafts movement and to 'reconnect human values with natural forms and materials'.

For the second half of his career, Maloof employed a small team of makers, but worked on every single piece of furniture produced in his shop until shortly before his death in 2009 at the age of 93, having never retired. As per his wishes, Maloof furniture is still made today in the same workshop by senior maker, Mike Johnson, who worked closely with Maloof for 30 years, along with Mike's son, Stephen.

Perhaps the most celebrated American craftsman of the 20th century, Sam Maloof was, simply, and in his own words, a woodworker.

FURTHER INFORMATION

To find out more about Sam Maloof Woodworker, his legacy, and Craftsman Mike Johnson, visit **www.sammaloofwoodworker.com**

'Fine rocking chair (No. 30)', 1986, sculpted fiddleback maple and ebony – 1,194 × 686 × 1,067mm

Kitschy hens overlook the breakfast table at Maloof house. Sam considered the room where he entertained guests, the nest of the home Photograph courtesy of the **Sam and Alfreda Maloof Foundation for Arts and Crafts**

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WW PROJECT

FULL BLOOM

With its fuchsia pattern and black veneering, **Ian Hawthorne**'s box is a real challenge

Fuchsia flowers symbolise confiding love, and I certainly found myself completely captivated during the making of this jewellery box! The intricate detail involved was really exciting, and to have the fuchsia pattern trailing over the lid top to halfway down the front demanded precise veneering work. What's more, black can be tricky to finish to a high standard and this added another layer of complexity to the project.

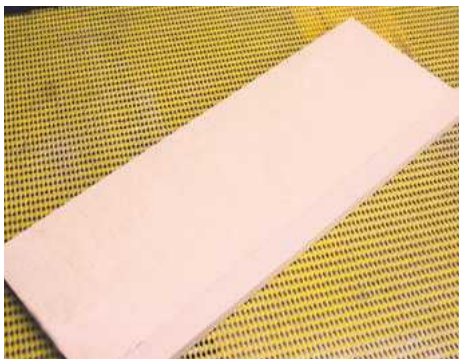
Flowery design

The marquetry was made to dimensions of precisely 378 × 220 × 120mm, and I used the CAD program SketchUp to produce a model which I then used as my main reference. For stability I opted for birch plywood throughout, cutting it with the face-grain running vertically as the finishing veneers would be running horizontally. The box sides, front and back were cut approximately 10mm larger all over than their final size.

The box was to have a predominantly black exterior with inner box edges, and a contrasting sycamore interior. As the base and visible edges were to be black, I only added solid wood to the base, giving the impression it was in fact solid throughout (**photo 1**).

MATERIALS REQUIRED

- 12mm birch plywood for main carcass
- 6mm birch plywood for lid and base
- 3mm & 18mm MDF for tray base and pressure block
- 6mm foam/thick card/material offcuts for padding
- 'Fuchsia' marquetry
- Nickel hardware – my 'Neat' hinges, lock and key
- Red suede
- Native sycamore
- Shellac, baby oil, cotton cloth and cotton wool
- Low-tack masking tape
- Scalpel/scissors



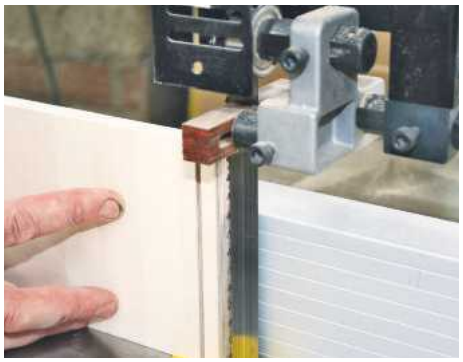
1 Substrate sandwich: sycamore was added to birch plywood to create the base edge

2 Use a bandsaw to cut the bookmatch interior veneers

3 Arrange the box parts on top of the sycamore veneer and cut around these with a scalpel

4 Tape up one side of the veneers, turn them over and open up the seam to add glue

5 Using a side-to-side motion, sand the veneer until it's level with the MDF



6 Instead of cutting rabbets on the router table, I used a combination of table saw, bandsaw and mill

Interior veneers

Once the plywood is cut for the carcass sides, front and back, and the sycamore added to create the base edges, set them aside to dry and commence work on the veneers for the box interior.

This is finished using native sycamore bandsawn veneers. I started with a plank 25mm thick, 150mm wide, and long enough to ensure that one slice off the side of the plank would create enough veneer to cover the inside carcass. I cut this wood to a thickness of 1.2mm, then put it through the drum sander, taking it down to 0.8mm. My intention was to bookmatch the inside of the lid, so I cut two consecutive pieces for this purpose and marked them appropriately – A and B – to prevent any mix-up (**photo 2**). While the bandsaw is set up, cut the veneers for the main base and tray base.

Out of the press

Next, take the carcass pieces out of the veneering press and give each veneered side a sanding with a random orbital sander through to 320 grit, in preparation for being cut to size. Remove the tape from the glued lid, base and tray veneers, scraping off any excess glue. Now glue the veneers onto the appropriate substrates – two pieces of 6mm birch plywood for the base and lid with the grain running vertically, and a single piece of 3mm MDF for the tray base – and place in the veneering press for about an hour.

Back to carcass

Now it's time to cut the carcass pieces to their final dimensions. Prior to cutting the rabbets, I added low-tack masking tape to the veneered sides for protection. Although the rabbets could have all been cut on the router table using a series of light passes, I decided, for the sake of accuracy, to use a combination of table saw, bandsaw and mill for this particular procedure (**photos 6** & **7**).

TOP TIPS

1. My method for producing the perfect joint is to have a piece of MDF approximately 600 × 300 × 25mm as the sanding board. Clamp the MDF at the ends with the concave side face up, onto a reasonably flat surface. This will force the higher ends down and result in a flat surface – you'll need to check this with a straightedge. Attach a strip of 120 grit abrasive 100mm wide using double-sided tape. Clamp your veneers between two pieces of 25mm MDF with the veneer protruding from the bottom very slightly. Using a side-to-side motion, sand the veneer until it's level with the MDF (**photo 5**)
2. When cutting the carcass to final dimensions, keep the veneered sides facing upwards to avoid any scrapes from the saw table
3. When de-nibbing, use some talc to prevent any clogging
4. Place your glue-covered roller in a plastic bag; this will ensure the glue is kept moist between applications

Getting groovy

Cutting the grooves for the lid and base is reasonably straightforward. Sand the outside of the base, fit a 6mm downcut spiral into the router and, using some scrap, make a light pass 5mm from the bottom edge, followed by several more passes until you reach a depth of 6mm. Widen this until a good fit is achieved. Cut the groove for the lid just enough to ensure it sits below the surface and is deep enough for a 3mm border all around. Fit a V-groove bit and cut a small chamfer to both the outside of the base groove and inside of the lid groove.

Base time

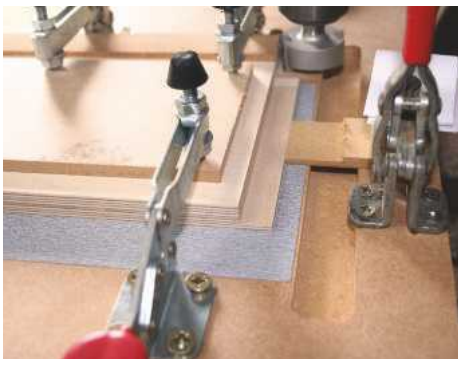
Cut the base to size with the sanded side facing upwards to protect it, raising any small dents with a damp cloth. Next, sand with 400 grit to remove the raised grain from the dampened areas and apply several coats of shellac, leaving 30 minutes between coats and de-nibbing with 1,000 grit after the first coat and 1,200 grit between the rest. After the last coat and sanding, follow up with very fine wire wool until all is matt, then apply some wax, leaving it on for a few minutes before buffing off.

Base & lid glue-up

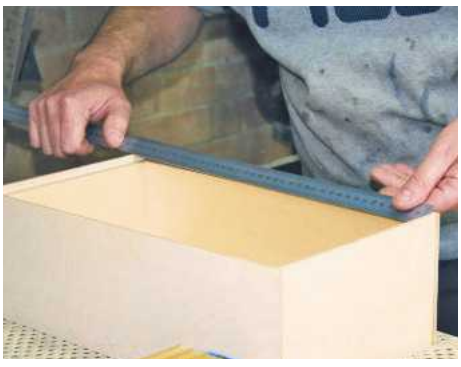
To reduce my stress levels, I always prepare for the box glue-up stage with a dry practice run. Once satisfied with the box fit, I added a small amount of glue to the base groove, taking care to avoid the lower part, and adding some more glue to the rebates before clamping up.

Leave the box to dry overnight, then remove the clamps and any squeeze-out using a scalpel. Sand the inside of the lid to 320 grit and measure from the box rim to ensure that when the lid top is cut it'll be a neat fit (**photo 8**). Since the lid top interior was a bookmatch, I took extra care to keep this centred.

Before dry-fitting the lid, I initially added some fine ribbon into the grooves so that



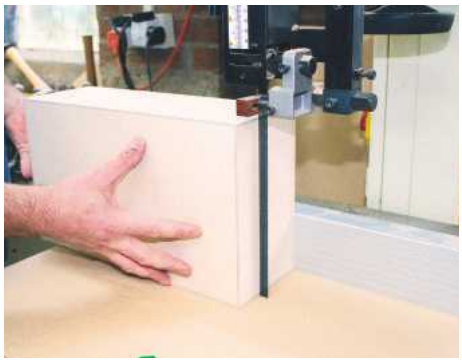
7 The mill comes into its own for final cleaning up purposes



8 Measure from the box rim to ensure that the lid top will be a good fit

9 Mask off the glue area on the lid and add several coats of shellac

10 With glue on the inside corner of the lid, groove the lid, placing under a pressure block held with clamps



11 Use the bandsaw to separate lid from base

12 Remove the bandsaw marks using a sanding board. The lid should sit on the base with a nice join

it could be easily removed. After masking off the glue area on the lid (**photo 9**), I added several coats of shellac and followed the same procedure as used for the inside.

After waxing, remove the masking tape, then make a pressure block out of 18mm MDF, just slightly smaller than the lid. Add some 3mm thick × 8mm wide MDF to the underside of the 18mm MDF with double-sided tape.

After a dry run, I added some glue to the inside corner of the lid groove and put the lid in place, adding the pressure block and a few clamps (**photo 10**), before leaving to dry for a few hours. Once dry, remove the clamps and clean the upper edges with a scraper.

Lid separation

Bandsaw lid from base (**photo 11**), then sand the separation on a sanding board until the bandsaw marks are removed and the lid sits on the base with a nice join (**photo 12**). To prevent telegraphing, I double veneered the lid using a piece of black veneer with the grain running vertically (**photo 13**). Next, cut two pieces of MDF to fit inside the lid, enough to raise it off the bench, and place foam inside the lid to protect the surface from damage and keep the area free from debris. After cutting a piece of 18mm MDF and a piece of foam the same size as the lid, apply some glue to the lid of the box with a gloss roller and put the veneer down on it, pressing firmly to help it grab, before adding the foam, 18mm MDF, then clamping up (**photo 14**).

When dry, trim flush with a scalpel and lightly sand the top with 180 grit abrasive. Putting the lid down on the base, check for misalignment by straightening up the front and adding some standard masking tape along the seam, repeating for the sides. Using a sanding board covered in 100 grit, sand the back until lid and base are flush, then add masking tape to this seam and remove the tape from one of the sides to sand flush. Repeat for the other side and front.

Cut the box inner lips with black veneer to about 0.5mm wider than the box thickness and 20mm longer than the length (**photo 15**). Glue the front in place and hold there with low-tack tape. Add a board of 18mm MDF to the top using two clamps – I used the lid pressure block – and leave for 20 minutes. Repeat for the back.

When dry, trim the mitres using ply the same width as the strips with a 45° cut at the end. The side strips are cut using the plywood template and glued in place using the same method. Once dry, the strips are sanded flush on a flat board covered in 400 grit. Lightly sand the interior at a 45° angle with a block covered in 400 grit, to produce a fine chamfer.

13 Double veneering the lid using a piece of black veneer with the grain running vertically prevents telegraphing

14 Roll some glue onto the lid and press the veneer firmly before adding the foam and 18mm MDF, then clamping up

15 Cut the box inner lips with black veneer so they are about 0.5mm wider than the box thickness and 20mm longer than the length

16 Before gluing the marquetry, have a dry run

17 Attach four clamps to the positioned marquetry

18 Using standard tape, hold down the lid along the front edge, which helps to prevent slippage

Now for the marquetry

Start working on the back of the box first, roughly trimming the marquetry for the back and leaving about 0.5mm all around for precision trimming later on. I'd already prepared some pressure blocks from 18mm MDF with the face covered in 6mm foam, and planned to use them to help evenly distribute the pressure. I also made a block for the inside, which was covered in foam – but you can use any material such as card or cotton – to help protect the inside surfaces.

After a dry run (**photo 16**), roll on some yellow glue and position the marquetry, applying hand pressure to help the glue grab and minimise slippage. Quickly place the blocks on the inside and outside and attach four clamps (**photo 17**). Use the same method to add the lid back marquetry and leave to dry for about two hours. Once dry, gently sand both back parts with the sanding block, covered in 180 grit abrasive, until flush.

Hinge fitting & lid marquetry

Fit an 8mm spiral bit in the router table and set it offcentre by the thickness of the veneer, which still has to be added to the side. Set the depth of cut to slightly less than half the barrel thickness of 3mm – to 2.95mm. Next, cut the mortises, then screw the hardware into place. Remove and mark it to ensure that the hinges go back to the same mortise.

The lid marquetry is cut leaving 0.5mm all around for trimming later. Lay the edge that lines up with the front down onto it, then mark using a pencil to indicate where the join will be cut later.

Tape down the lid along the front edge, to help prevent slippage (**photo 18**), applying glue and hand pressure. Clamp the lid in place using the pressure block and the block for the inside lid.

When dry, sand edges with the 180 grit sanding block, and trim the marked front edge to 0.5mm larger. I carefully laid it down on the lid front and took my time lining up the marquetry. When satisfied with the alignment, I taped it in place (**photo 19**) to prevent slippage, then applied glue and pressure with my hands before adding the clamped up blocks (**photo 20**). When dry, un-clamp and attach the hinge to ensure alignment of the lower front.

Tape, glue and clamp marquetry for the box's lower front, then add the plain black box side veneers and gently scrape flush.

Add the nickel lock and cut the keyhole before sanding the whole box to 320 grit, using compressed air to blow out the dust.

Tray bien

I calculated the tray dimensions by measuring the inside of the box and subtracting 1mm from each side, then veneered a piece of 3mm MDF for the base. By the time it was dry, I'd cut the rebate joints for the tray using the table saw and bandsaw, employing the mill for final clean-up.

Sand the base on the show side and cut the base groove on the router table fitted with a 3mm spiral bit. A 2mm dado in the front and back holds the divider in place.

Finish the inside of the tray and base with three coats of shellac, following that up with wax. After gluing up the tray and letting it sit overnight, unclamp and cut a piece of sycamore for the divider, then glue in place. Once dry, trim the rebates flush and add a brass pin to each corner to reinforce the joint, then plug it with sycamore. Next, sand everything and give the exterior several coats of shellac, again followed by wax. The tray will soon rest upon sycamore-veneered steps placed at each side in the base.

19 Once satisfied with alignment, you can tape the lid into place...

20 ... then add blocks and clamp up

Finishing

To achieve an open-grain polished look, mix 20g of blonde shellac flakes to 250ml of alcohol, applying several coats with a folded piece of cotton T-shirt fabric. Fill any small gaps with z-poxy finishing epoxy, which dries rock hard and sands very easily.

Once all gaps are filled and sanded, apply several more coats to achieve an even finish. Sand the box exterior with 1,200 grit until you achieve a matt finish. Make a rubber from a small ball of cotton wool wrapped up in clean cotton cloth (**photo 21**) and use it to build up an excellent finish over several days.

Lining the interior

To complement the fuchsias, I chose rich red suede to line the box and tray bases. Cut three pieces of card to size for the three base areas – two trays, one box – then reduce by 1mm all around before adding double-sided tape to one of their sides and placing sticky side down on the back of the suede. Using a scalpel or scissors, cut the suede slightly oversize by 1mm all the way round and try for size, taking fine skims until the suede pieces slot perfectly into place. Use latex glue to stick the pieces to the bases.

21 The finish is down to shellac and hard work, with a rubber, over several days

The only chance

Creating a fully veneered box with intricate marquetry requiring precision alignment probably sounds like an extremely pressurised job, and so it was. But to be honest, I was in my element with this project, completely absorbed in matching up the blossoms on the lid top to the front. You only get one chance to get it right, so I took a great deal of time to think everything through and tremendous care of the marquetry until I was ready to incorporate it.

Thus a standard shell was transformed into a beautiful, breathtaking oriental-style jewellery box that would forever touch the heart of its owner. As for me, I now have a 'blooming' great interest in veneering and similar projects are already taking shape.

MAGNIFICENT MARQUETRY

Anne created the marquetry as a complete overlay, ready for pressing

The brief, given to Anne Harrison, designer and maker of the marquetry at Aryma, was to create a design incorporating fuchsias, which would effectively use the visible areas of the box surface. Serious thought was given to the veneer choices as she wanted to ensure exceptional colour balance and the use of interesting grain characteristics.

The veneers had to be as flat as possible to minimise any gaps that might appear after pressing. The fuchsia shapes were carefully cut from the veneer selection and then placed into a prepared sticky-faced template to keep all the veneer pieces in place. To enhance the sense of depth, the veneers were sand-shaded to create the illusion of shadows. Sand shading involves dipping the veneer edges into very hot sand to scorch and darken them.

If you have any questions regarding marquetry or require a design produced to the highest standards, visit the Aryma website: **www.aryma.co.uk**

FURTHER INFORMATION

Hardware for this project can be purchased directly from **www.hawthornecrafts.com**
If you have any questions regarding this project, email **ian@.hawthornecrafts.com**

PART 2

Sanding, finishing, texturing & applying colour

Picking up from the point of placing his turned hat into a bending frame, **Andrew Hall** discusses steps for sanding and finishing headwear, followed by techniques for adding texture and applying colour

Following on from part 1 of my hat-making series (see May 2021 issue), where we looked at selecting timber for turned hats, converting it using a variety of chainsaws, then turning it to shape, I rounded things off by placing the Scots pine hat into a bending frame. This method, which allows the hat to dry out, takes anywhere up to three days, but can be assisted with gentle warmth from light bulbs. Once completely dry, I decided to finish the hat in an unusual way, sandblasting it at the workshop of good friend and fellow woodturner, Tracy Owen, before applying Woodoc Ultra Matt Interior Wood Finish. In my opinion, this water-based product looks really effective, accentuating the sandblasted grain without imparting any shine whatsoever.

Here, in part 2, we'll look at drying small hats as well as the finishing of full-size versions, plus the application of various colours and textures to the completed pieces

DRYING & BENDING

1 The four hats shown here, from left to right, were turned over two days, then placed to dry in individual timber drying frames. Hat 1, far left, is the most recently turned, and by day two, the bend is visible

2 Here you can see a half-size and mini hat. The elastic bands and threaded bar help to shape the brim, taking the crown from round to oval

BENDING WITH SPRING CRAMPS

3 Another method used for persuading the brims to bend is a hand-held spring cramp, shown here on hats of varying sizes

WET SANDING

4 Once the hats are dry, it's time to sand them again. During the turning process, I sand using wet abrasive; this ensures that the hat doesn't distort and eliminates any chance of cracking due to the heat from the abrasive. Next, they are sanded through the following grits – 80, 120, 180 and 240. I never go beyond 240 grit and when dry, I start the process over again, but at 180 grit. My favourite abrasive is Rynogrip, in either the cloth- or hook-and-loop-backed varieties. Brown J flex abrasive is fine to use, but avoid the blue variety as if used wet, the colour will leach out and potentially stain the wood

SANDING PADS & ARBORS

5 When dry sanding, I sand both by hand using hook-and-loop-backed soft interface pads plus a variety of Hope Sanding Arbors – **www.hopewoodturning.co.uk**. I start at 180 and work through the following grits: 240, 320, 400 and 600

FINISHING: SPRAYS & AEROSOLS

6 Once I'm happy that the hats have received the required amount of sanding, I'll begin to apply my chosen finish. I mainly use those from the Chestnut Products range, shown right, plus Morrells cellulose aerosol lacquer

FINISHING: COMPRESSOR & SPRAY GUN

7 Finishes from Chestnut Products are sprayed from the can, but the cellulose aerosol lacquer is applied with a compressor and spray gun. While I'm doing this, I wear a solvent- and smoke-proof mask from either JSP or Ellipse

SAFETY NOTE: FINISHING & SANDING

JSP PowerCap® Active™ IP powered air respirator

AC400 Air Cleaner from Record Power

CamVac twin-motor 55 litre extractor

When carrying out any sanding or finishing tasks, I always wear my JSP PowerCap® Active™ IP powered air respirator and have my AC400 Air Cleaner and twin-motor 55 litre CamVac extractor running throughout. It's important to ensure that your workshop, or work area, is well ventilated if using finishing products such as this

8 I've started to use quite a bit of colour on my hats of late as well as applying various textures. When it comes to the application of these colours, I use safety cloth, airbrush or sponge applicators. In step 6, you can see the hats before, and here, the result after using various spirit stains from Chestnut Products. These were applied with a sponge then fringed darker using an airbrush

9 Here's one of my full-size top hats, shown here in its natural state, with just a minimal band of colour applied. The next step, however, is the application of various wood stains, again from the Chestnut Products range...

10 ... and here's the end result achieved using the wood stains, before applying Chestnut's melamine lacquer. This particular piece was a commission for a racehorse owner who wanted to wear the top hat at Ascot

11 The hats shown here have each received four coats of Colron mahogany stain...

12 ... before being finished with six mist coats of Chestnut's acrylic gloss lacquer, cut back in between each with either Webrax or 1,200 grit abrasive

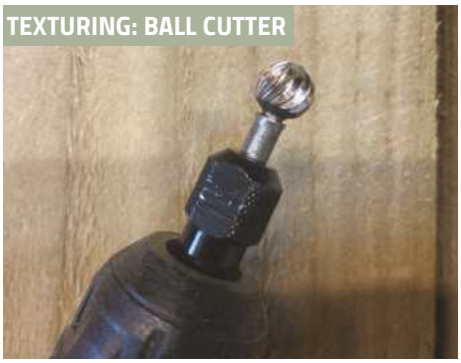
13 Another technique I like to use is piercing the tops of the hats. While looking good, this also aids ventilation as a turned hat can make the wearer quite warm. The piercing technique uses a Dremel multi-tool followed by cutters from Woodart Products – **www.woodart-products.co.uk**. The photo here shows a full-size Derby hat with pierced top...

14 ... which was then stained using Colron Indian Rosewood wood dye...

15 ... before being finished with Morrells 90% sheen acrylic lacquer. Again, the top and external edges of the hat have been fringed – a technique achieved using an airbrush – along with SSPUR250 purple spirit stain from Chestnut Products

16 Another method I like to use is to stain hats made from oak, ash or elm with an age-old mixture of vinegar and either wire wool, iron filings, or rusty nails. The tannin in these three timbers reacts with the vinegar, changing the colour of the wood from a nice nutty brown to an almost ebonised black. The photo here shows the result of one coat on a small section...

17 ... through to the full-size Bowler hat shown here, which has received two coats on top and six coats on the brim. The more coats you apply, the darker the result. This hat was finished with Chestnut's melamine lacquer as the customer wanted to wear it to The Laurel and Hardy Convention



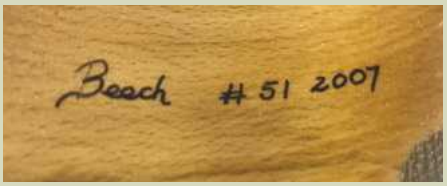
18 Texturing can add a new dimension to turned hats, and to achieve this effect, I use cordless Dremel-type tools fitted with various texturing cutters available for the Henry Taylor Decorating Elf

19 Here you can see an Australian Bush hat in elm, which was textured using a round cutter. To accompany it, I also made a mirror frame, which makes use of the ring removed during turning. Requiring over 100 hours' work in total, the hat and mirror frame were then finished with 12 mist coats of Chestnut's acrylic satin lacquer

20 Modelled on the *Indiana Jones* Fedora, this hat was textured using an oval cutter, then finished with a variety of spirit stain wood colours from Chestnut followed by acrylic gloss lacquer

21 Here's another Fedora, this time finished using a vinegar and iron filings mixture, with texturing achieved using an oval cutter, before being fringed with an airbrush

HAT NO.51 – A SAD TALE WITH A HAPPY ENDING



22 During my turning career, I've had the opportunity and pleasure of demonstrating throughout the UK, Ireland and Europe. Prior to the COVID-19 pandemic, my last trip was to the lovely Emerald Isle – Naas, in County Kildare, which is home to The Carpentry Store. I was demonstrating there in November 2019, before the first lockdown, in a big outside marquee. I had a display area, plus lathe and bandsaw, so I set myself up on the first morning of the show. I'd sent over, via courier, two strong boxes, comprising my display, tools and materials for the demos, plus my favourite hat, turned from beech, which I'd made following my return from the IWG National Seminar in Cork, which is where I first saw the King of Hats, Johannes Michelson, demonstrating. During the first day, the wind really picked up, blowing in the side of the marquee and sending my hat flying off the table. When I picked it up, I noticed a crack but didn't think it'd pose a problem, and I'd therfore be able to easily repair it using CA adhesive.

I have to say that I absolutely loved the show, and The Carpentry Store – a family-run business in the truest sense of the word – all worked together to produce a brilliant event, and as demonstrators we were looked after like royalty. We finished late and in my haste to get packed up – yes, it was my own fault as I didn't pack the hat too carefully – on arriving back in sunny Weardale, I was shocked to find that three cracks had developed and a piece broken off the brim altogether. At first I thought I'd just chalk it up to experience, but then decided to rescue it. The top left photo shows the hat before repair, cracks visible, and the inset maker's mark below indicates that this was hat No.51, made in 2007, directly after seeing Johannes demonstrate. It was my favourite hat, fitting perfectly and featuring a nice bend. In fact, it was the first hat I was genuinely pleased with. It took 50 made prior to this before I finally produced one I truly liked

23 I decided to fill and spray the brim so that it could then be finished with various metallic paints, again from Chestnut Products. Prior to doing this, I masked up the crown both inside and out

24 Next, I filled the cracks using Plastic Padding 'Leak Fix' – a dark grey, hard, polyester-based filler used for repairing leaks in radiators and petrol tanks – before spraying the rim with Chestnut's ebonising lacquer

25 After ebonising was complete, I applied three metallic colours – gold, turquoise and red – blending these together using plastic bubble wrap

HATS TURNED FOR FUN

26 To conclude part 2, shown here are a few hats made for fun, which I display on my stands at both the North of England and Midlands Woodworking Shows. The small Mad Hatter's Tea Party hat was the result of a collaboration with Emma Cook – AKA The Tiny Turner. As temperatures fluctuate through the night at such events, a crack had developed due to the hat being left on the stand. Emma came to the rescue, taking it away and returning it to me at the 'Harrogate' show the following year, fixed and as good as new

MY FAVOURITE HAT SO FAR

27 Last but not least, here you can see my favourite turned hat to date, which fits perfectly and is worn during shows. It's made from a blank of Scottish elm, which was gifted to me by good friend Gary Lowe, AKA The Tartan Turner

TURNED HATS – PART 3 – SEPTEMBER ISSUE

This leads nicely on to part 3 of my hat-turning series, which is coming up in the September issue. Here, I'll show you how to make a display stand for turned hats, as well as decorative buttons for placing around brims, plus a mirror frame, which uses the ring saved from wet-turning

LETTERS

★LETTER OF THE MONTH

Ron's fall front tool case is still in good shape after 50 years

A 'CASE' OF DÉJÀ VU

Hello Tegan,
I think this may be another 'case' of déjà vu! On page 81 of the March issue (Geoff Gray's 'fall front wooden toolbox'), I again spotted a familiar sight – my old green tool case, which I made in 1970. This was in constant daily use until I retired in 2006. It survived 36 years of not-very-gentle handling and needed no repairs. The rabbet-jointed corners were glued and pinned, then reinforced with small corner plates; I think it's down to these that it held together for so long. Corner blocks were used for added strength; the wood is birch ply throughout and the handle a genuine leather one. The hinged partition is essential, which I later discovered, as without it all the very small items keep falling out of place. It also needs to be opened standing upright, not laying flat – like a book standing on its spine. It all works very well once you get used to it! The green, which matched the bodywork of my car at the time, was chosen due to the fact I had a fair bit of paint leftover after doing some spray work on it, so the case got sprayed as well! I was working in electronics at that time and the contents reflect the work scenario. I've enclosed a few photos of the toolbox in its current state – I wonder what will be next?
Best regards, **Ron Brindle**

Hello Ron, it's great to hear that even more projects are resounding with you; we really are on a roll here! I wonder if the design of your toolbox was also modelled on Paul Sellers'? I'm expecting so as they all look to be following a certain style. Yours has clearly lasted the test of time, and despite a few scratches to the paint job, it looks to be in perfect working order, nearly 50 years later! How funny that you also chose racing green! I wonder which project will trigger your next memory – do keep us posted!
Best wishes, **Tegan**

The inner compartments hold various tools in place

Bernard's chess set is made entirely from recycled timber

RECYCLED LOCKDOWN CHESS SET

Hello Tegan,
My grandson's birthday is later this month and as he's keen on chess, I thought I'd make him a set he can enjoy playing with. Please find attached photo of the chess set I made, mostly during lockdown.

The whole set uses recycled timber – oak for the pieces, which came from an old beam and the box/board squares from barrel staves, which were rejected due to knots, etc. I live near Burton upon Trent – the home of beer – and they still make wooden barrels. The mahogany is left over from a window frame I'd used for a previous project. I had to buy the MDF backing for the board, some stick-on felt for the undersides of the pieces and some hinges, but the clasp came off an old case. Half of the pieces are stained with boot polish – dissolved in meths – then finished with yacht varnish.
Best wishes, **Bernard Greatrix**

Hi Bernard, thank you so much for sharing this wonderful chess set with us. You'd never guess it was made using just recycled materials – not that this would in any way affect its quality or appearance. I'm sure your grandson was incredibly happy with his present and hopefully he's already beaten a few opponents using his birthday set! Thanks again and hopefully the Veritas plane you recently won came in handy during the project's construction!
Best wishes, **Tegan**

A HORSE FOR SAWING

Tony's sawhorse was designed and made to be used in the large allotment garden of a North London school for autistic children

Hi Tegan,
Recently, I've been doing bits and pieces for a North London school for autistic kids. Some of it has been devising and making straightforward kits for bird houses and bug hotels, so that the children can assemble them with minimal tools, then sell them through the school shop as hand-made by pupils.

More interesting, however, was the attached sawhorse, designed to be used in the school's large allotment garden. Cutting the angles for the splayed and raked front legs, and chiselling out matching notches for the top to make a durable non-racking joint, took a fair bit of time and thinking, but the rest was all fun. The horse's ears help to hold logs and beams steady for sawing; the face and tail – J-cloth strips stained with tea – make it more fun for the children. It's a little lower than standard, allowing it to double up as a seat, and three legs rather than four ensures that it remains stable regardless of how uneven the ground is.
Regards, **Tony 'Bodger' Scott**

Hi Tony, I really like your fun sawhorse design – one can't help but smile! I'm sure the children absolutely love it too, and even better that it has a variety of functional uses! Once again, a great use of offcuts and recycled materials, which seems to be the theme of this month's letters! We'd love to see any other projects you make with children at the school. Thanks again!
Best wishes, **Tegan**

ROUTER SAFETY

A collet brush set containing four wire brushes is available to buy online for under £5

Hi Tegan,
I thought you might like to warn readers about a danger I discovered when using my router table. Using a straight cutter, I was alarmed and annoyed to see the cutter emerging through the surface of the timber. Luckily I keep my fingers well away from the cutter area, so suffered no harm, but the workpiece was of course ruined.

The wire brushes can be used to effectively remove deposits of resin, dust and corrosion from inside collets

On investigation, I found that the collet was still in position and appeared tight, but the cutter was protruding much further than I'd set it. I contacted the router manufacturer who suggested that the likely cause was a build-up of fine dust inside the collet, thus compromising grip, and advised that I clean it with a wire brush. I found a set of dedicated brushes on the Trend Direct UK website – **www.trenddirectuk.com** – by searching for CB/KIT Collet brush kit – 4 brush sizes. The existence of this kit means that the issue was clearly known about – and I should have been aware – but I doubt I'm the only router user to have been ignorant of this.
Kindest regards, **Michael Forster**

Hi Michael, thanks so much for sharing this safety tip. As you rightly say, perhaps router manufacturers should ensure a safety warning is placed on relevant packaging, so users are aware of the collet clogging issue and resulting safety concerns. Hopefully your letter will raise awareness among router users and thus prevent any potential accidents. Thanks again.
Best wishes, **Tegan**

READERS' HINTS & TIPS

veritas innovation in tools

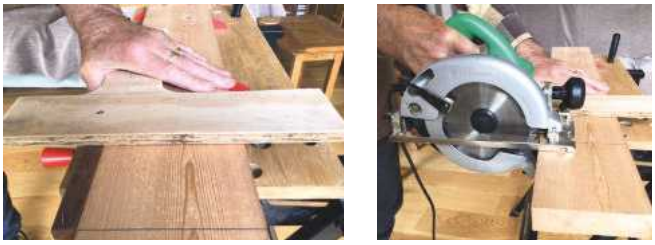
For the next eight issues, in conjunction with Veritas and BriMarc Tools & Machinery, we're giving one lucky reader per month the chance to get their hands on a fantastic **Veritas apron plane with PM-V11 blade**. Ideal for trim carpentry and featuring a ductile cast-iron body, its unique side wings allow for a comfortable, firm grip. To be in with a chance of winning this great piece of kit, just send your top workshop hints, tips or pointers – indeed anything that other readers may find useful in their woodworking journeys – to **tegan.foley@mytimemedia.com**, along with a photo(s) illustrating your tip in action. To find out more about Veritas tools, see **www.brimarc.com**

PLY SAW GUIDE

In the early 1950s, when power tools became more available on site, I made the guide shown here for use with my Skil saw. It always cut square and to the line. Also, moving the distance piece allowed angles to be cut, which is useful for plumb cuts on common rafters, etc. Now that cordless saws are quite common, I'm sure that others would also find this useful. Please note that all measurements are approximate.
Ron Parker

1 For the handle and guide, you'll need a piece of 12mm ply, measuring 40 × 40cm; and for the ruler, a piece measuring 50cm × 20mm ×12mm

2 Cut the ply with the handle and guide at right angles – arms about 60mm. Screw the ruler to the handle, so that it projects more than the width of the saw base



4 You can now cut square and accurately every time. Altering the position of the ruler, angles can be sawn and then repeated

WRITE & WIN!

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

Bespoke IS BETTER

Rather than settling for a ready-made solution that may not tick all the boxes, **Geoff Ryan** chose to build his own bespoke six-drawer storage unit, which fit the bill perfectly

For some time, I've wanted to build a drawer unit to go on the landing, for storing towels and bedding, with bookcases above. The thought of making up a large flat panel for the top was a sticking point, but after building several desks using laminated wood kitchen worktops, I decided to explore the availability of thinner laminated panels. After searching online, I eventually found what I wanted – a solid oak finger-jointed board, 2.4m × 1.21m × 18mm, for just under £200. The panel is A/B grade, which means the B side has some filled voids or minor defects, but this didn't pose a problem as only one side would be on show in this particular build. As I only wanted to buy one panel, the dimensions for the unit were largely dictated by the size of this, but my sketches and measurements indicated I could make a unit measuring 1,890mm long × 710mm high × 500mm deep.

To ensure the unit would be strong enough to eventually take the weight of bookcases sitting on top, I opted to build the carcass using a good quality 18mm birch plywood and use the oak panel as a 'cladding' over the main structure. I'm prepared to admit that I do tend to over-engineer some of the things I build – I blame it on my background as a high voltage engineer, where everything in substations was built like the proverbial brick public convenience, and ¼in-thick steel was considered a bit flimsy!

I wanted to build the drawer units as separate boxes, which would make it easy to get the unit upstairs, so this therefore increased the quantity of ply required. I bought three sheets, but only ended up using two and a half. I already had some 6mm birch ply for drawer bottoms, some 3mm cheap ply for the back panels, and some 'free' 19mm cheap ply for the plinth, which had been rescued from the skip by a friend. The hardware requirements were six pairs of soft-close drawer slides and six-drawer handles.

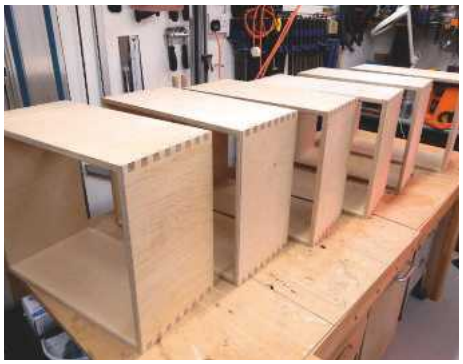
1 The Makita plunge cut saw and guide rails are one of my best purchases, and I've lost count of how many sheets of plywood, MDF, OSB and melamine-faced chipboard I've cut up. Although I have a table saw, I'd never use it to cut up large sheets as it's just too awkward to handle them safely. I put a sheet of sacrificial MDF on top of my workbench, under the panel to be cut, which protects the surface and also helps reduce tear-out on the bottom of the panel. In the photo, you'll see my home-made parallel guide rail system, which allows me to make repeat cuts of consistent width. I have several lengths of 'T' slot bar rather than just one set of long ones and this makes the system less cumbersome when it comes to narrower cuts

2 After cutting to width, I cut the drawer sides to length on the table saw using a home-made cross-cut jig to ensure square corners. I also set up a length stop to keep sides and fronts the same size

3 Each set of drawer components were labelled and the top corners marked, which helped to keep track of which ends went together

4 I chose to build the drawers using box joints, which involve a lot of work but produce a very strong joint and are more practical for plywood than dovetails. I could have used pocket-hole screws, or even a drawer lock mitre router bit, but the box joints look good and are in keeping with my heavy engineering format!

5 Once the glue was dry, the box joint fingers were trimmed flush using a router fitted with a bearing-guided straight bit. I placed a piece of thin scrap ply under the router to ensure it cleared the fingers pointing upwards



6 Once the drawer boxes were finished, I fitted the bottoms. An oversize piece of 6mm ply was glued and screwed to the bottom and then trimmed flush, again using the router. While this is a fairly crude way of adding the bottoms, it's plenty strong enough and, as the whole structure is ply, there's no need to worry about wood movement. The top edges of the drawer boxes were rounded over on the router table and, after a light sanding, two coats of water-based satin varnish applied

7 The drawer cases were made using 18mm birch ply. The sides sit on top of the bottom panel but the top rails fit between the sides. The tops would have been solid panels, but as there were some long strips of ply left over from cutting up the full sheets, I used these. The benefit of making the top panel fit inside the sides is that it can be used as a spacer when fixing the sides to the base, as well as keeping the two sides parallel. The structure is held together with pocket-hole screws and glue. Note the pocket-holes are all on the outside, which ensures the screws have plenty to bite into

8 The three drawer units would be joined together using some knock down fittings, which I recycled from some old wardrobes. Note the 3mm plywood rear panels, which help to keep the unit square – these were glued and pinned to the back

MATERIAL SOURCES

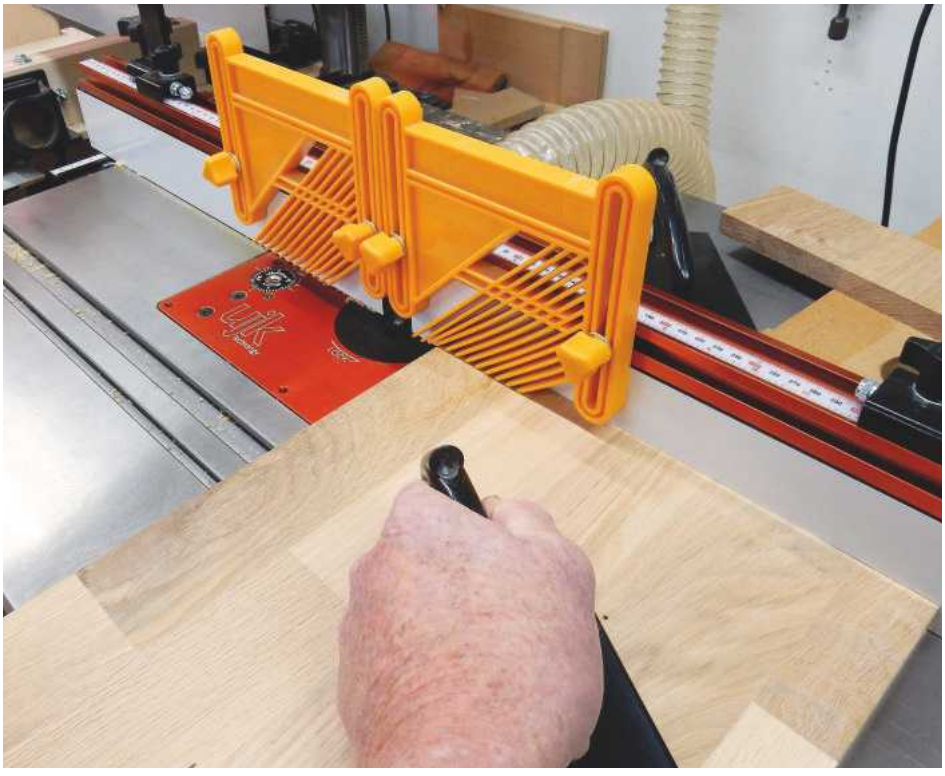
- **Solid oak finger-jointed board** – 2.4m × 1.21m × 18mm – £199.50 from Atlantic Timber, Manchester – **www.atlantictimber.co.uk**. Note that this is not a stock item and must therefore be ordered
- **Latvian birch ply Bb/Bb grade** – 18mm – £65.89 from Beers, Bootle, Liverpool – **www.beersltd.co.uk**. I've since found another supplier selling at a cheaper price per sheet, so it's worth shopping around
- **Soft-close full extension 450mm drawer slides** – £9.99 a pair from Amazon
- **Brass-effect bow furniture handle** – pack of 6 – £12.30 from B&Q

9 The soft-close drawer runners were installed using a piece of plywood to space them out from the top and bottom. The drawers were then inserted with a piece of 3mm ply underneath to provide the necessary clearance and screws inserted through holes in the runners. When both drawers are in place, there's a 10mm gap between them which provides some space for the oak drawer fronts to slightly overhang the drawer boxes. There were nine countersunk holes in the two end panels, which allowed for fixing the oak side panels in place. There would also be holes in the bottom panels for screwing down into the plinth, and in the top panels for screwing up into the oak top panel

10 The plinth was constructed using some offcuts of 19mm cheap ply. I think I went a bit over the top with the pocket-holes! The plinth would be screwed down to the floorboards once the carpet underneath had been cut away. Once in place, I clad the front and sides of the plinth with some 6mm oak-veneered MDF, which I had left over from another project

11 After fixing the three drawer units in place, the top and side oak panels were temporarily fixed to allow the oak drawer fronts to be lined up with the plywood drawers. To align the bottom ones, a length of ply was clamped under the front of the unit, which these could then rest on. Spacers helped to ensure that the fronts were equally distanced

12 This photo was taken looking through the glass panels around the stairway, hence the reflection. Once the oak drawer fronts were securely clamped in place, screws were inserted from behind through holes drilled in the plywood drawer front. All drawers and drawer fronts were clearly labelled to ensure there was no mix-up when it came to refitting them



13 All oak drawer fronts and panels were removed and taken back to the workshop so that all edges could be rounded over and everything sanded down to 320 grit. Occasionally, when cutting up these laminated panels, small voids in the joints can be exposed but these are easily dealt with using an appropriate shade of filler

14 Countersunk holes were then drilled in the drawer fronts to accept the handle fixing screws

15 The side panels had the front edges rounded over on both sides and three coats of satin varnish applied

16 I wanted to round over the front corners of the top for safety reasons – someone was bound to walk into an edge in the dark! I drew a curve using a paint tin and cut away most of the waste with a small square, as a reference to keep the saw vertical

17 My trusty old Black+Decker belt sander was then used to refine the curve. It's a vicious old thing and needs some care. I was once using it on my workbench with the power button locked in, when it suddenly pulled out of my hands and ran across the bench – luckily the power cord went tight and the plug came out before it did any serious damage!

18 The top and bottom edges were then rounded over and the whole structure varnished on all of its surfaces

Build conclusions

The total cost was just under £500, which might seem a lot, but for a piece of bespoke furniture that fits our requirements, I think it's good value. We'd been looking at buying a unit to fill this space for some time, but never came across anything that suited our needs at a price we were prepared to pay. The next phase is to add bookcases on top of the drawer unit, and now that lockdown has been lifted, I can finally head to the timber merchants and choose some oak boards.

19 The unit has been a great success and the 280mm deep drawers swallow up a lot of towels and bedding. I really like the soft-close drawer slides – they add a touch of class to my brick-bunker construction!

AROUND THE HOUSE WITH PHIL DAVY

Many of us will probably have been watching more than our fair share of woodworking video clips during recent lockdowns. There's no shortage of material out there, but what amazed me recently is just how dangerous some of the techniques shown actually are. Most of these videos originate from the USA, where safety regulations differ from those in Britain. Prime offender is the circular or table saw, but perhaps less obvious is the lack of dust extraction when using a hand-held router. Once, it was rare to see a router hooked up to an extractor, though these days most woodworkers here in Blighty would consider it almost mandatory.

Without getting into the whole debate about guards on machinery, it does make me wonder how woodworking newbies could easily develop a casual, even dangerous, attitude to saw blades, cutters, dust and other hazards. Whatever your views, stay safe!

Q&A
COMBI CHOICE

Q: I'm looking to buy a new drill with hammer action, which will be used for drilling into brickwork and possibly even concrete. However, I'm uncertain whether to choose a mains-powered or cordless version. I'd prefer the convenience of cordless, but am worried it won't have the necessary guts to carry out these heavier tasks. Any help would be appreciated.
Tim Carter, Coventry

If choosing cordless, make sure it's a combi tool, with hammer action, such as the Makita model shown here

A: Cordless tools these days are comparable with 240V versions in terms of performance, particularly if you go for a decent 18V model. Most major brands such as Bosch, Ryobi, Makita or DeWalt have their own battery system, so the same power pack can be used across their own individual cordless tool ranges. Cordless drills are far more convenient and safer than mains-powered versions, especially for outdoor work. You don't really want to be using a 240V tool up a ladder or trailing an extension cable across wet ground.

If choosing cordless make sure it's a combi tool, with hammer action. You'll need at least two batteries, which can get quite pricey if you go for a professional tool. I'd recommend at least one 4Ah Li-ion battery if you're regularly drilling into concrete, though a smaller capacity – 2.0Ah, say – power pack will be OK as a spare and keep costs down. A fast charger is handy, and most brands will recharge in about an hour or less. Industrial tools tend to be faster, though this is reflected in their cost.

Mains power

Of course, you'll never run out of juice with a 240V drill, unless there's a power cut. Performance is consistent and they tend to be cheaper than their cordless cousins – after factoring in battery/charger costs. Although less convenient, they do offer a significant advantage. Most 240V drills have a 43mm diameter collar behind the chuck, enabling them to be fitted into a bench-mounted drillstand. This means they can then be used for precision drilling work.

A vertical drum sander inserted in the chuck is another bonus, allowing both hands to guide the workpiece. Whatever format you choose, however, make sure the tool has hammer action and don't forget you'll need TCT masonry bits for drilling into masonry. A frequent problem when drilling this material is that the tool can catch and twist, so a detachable side handle will help

Q&A
SKIRTING MITRES

Traditional skirting tends to be much deeper than contemporary patterns

Q: I need to replace the skirting around a couple of rooms in an old property and would be glad of any tips, please. Can you explain how to fit skirting that varies in thickness along adjacent walls? And what's the neatest method of cutting the mitres?
S Webb, Derby

A: Traditional skirting tends to be much deeper than contemporary patterns, which can make it trickier to get perfect mitres, especially if timber is slightly bowed. Where possible, fit skirting to the longest wall first. Nailing is the quickest method – depending on wall structure – though you may need to insert plastic plugs and screw timber to dense masonry. Adjacent internal corners should then be scribed and external corners mitred. When scribing, first mitre the relevant end at 45°, then follow the inside line with a hand saw or jigsaw. Use a coping saw to cut the upper shaped profile, then check this fits against the previous skirting section. Trim joints with chisels or files where necessary.

Don't assume that corners are exactly 90° – they rarely are in old properties. Use a sliding bevel to get an exact angle and make sure you have enough skirting left over to do a couple of test joints, if necessary. A powered mitre saw is the easiest method of cutting, though a hand mitre saw – such as a Nobex – may be easier for less common or acute angles.

Regarding skirting thickness, I had a similar problem with my porch, built some years ago from stone. The plasterer covered the inside blockwork with thick, insulated plasterboard. For efficiency this made sense, except it reduced door opening width next to the exterior frame. As a result, I had to machine two thicknesses of oak skirting, then bisect the outside mitres to get a neat joint. Finally, hardwood skirting should be counterbored. After screwing to the walls, glue in plugs of matching timber and trim flush

SUNDOWNER TABLE

SUMMER PROJECT: FOLDING OUTDOOR TABLE

Phil Davy anticipates the golden evenings of late summer with this folding table made from softwood

Takes:
One weekend

Tools you'll need:
Mitre saw, biscuit jointer, jigsaw, sander, router, drillstand

After what's been a fairly cold and blustery year so far, with summer seeming to be a long time coming, hopefully that means we have lots of good weather to look forward to, before autumn arrives once more. There's nothing nicer than sitting outside with a drink on a summer's evening after a day's work. This little table should make such a decision easier to make, whether it's used indoors or out. Ideally it should be screwed to a wall for stability, though the structure is fairly steady as it is.

When not needed, you just lift off the top and fold the legs together. Originally I'd intended to have the top hinged as well, though this was tricky to combine with folding legs. At the end of the season, the table won't take up too much space stored indoors. If keeping it outdoors for some time, however, it'd advise covering over to ensure it withstands the elements.

Simple softwood

The table is made from standard 75 × 25mm and 50 × 25mm PAR softwood, though I ripped the wider stuff down to finish at 60mm. You may need to adjust overall measurements slightly depending on final dimensions of your timber. You could reduce the thickness of the top slats and support battens to reduce weight slightly, though check screw lengths if you do this. For accuracy, use 15mm spacers when fitting the slats together, rather than relying on measuring the gaps.

If you don't have a biscuit jointer, you could just as easily use pocket-hole screws for the frame joints. A router is only used for adding small chamfers and roundovers, so this tool isn't essential either. To prevent the top from tipping, it's secured to the front leg frame by a short piece of 6.5mm dowel. This is inserted through a block glued to one of the support battens and couldn't be simpler. You could do the same along the underside of the rear slat for increased stability.

To enable the frames to fold I used 50mm backflap hinges, which need painting adequately to prevent the steel from rusting. Finish off the table with two coats of a suitable weatherproof paint, such as Cuprinol Shades, or a clear exterior varnish. Then it's simply a case of hoping the sun stays out that bit longer...

1 Legs are splayed at 85°, so set a sliding bevel against a protractor and mark out the timber

2 Cut legs and rails to length, locking the mitre saw table at 5° for appropriate joints

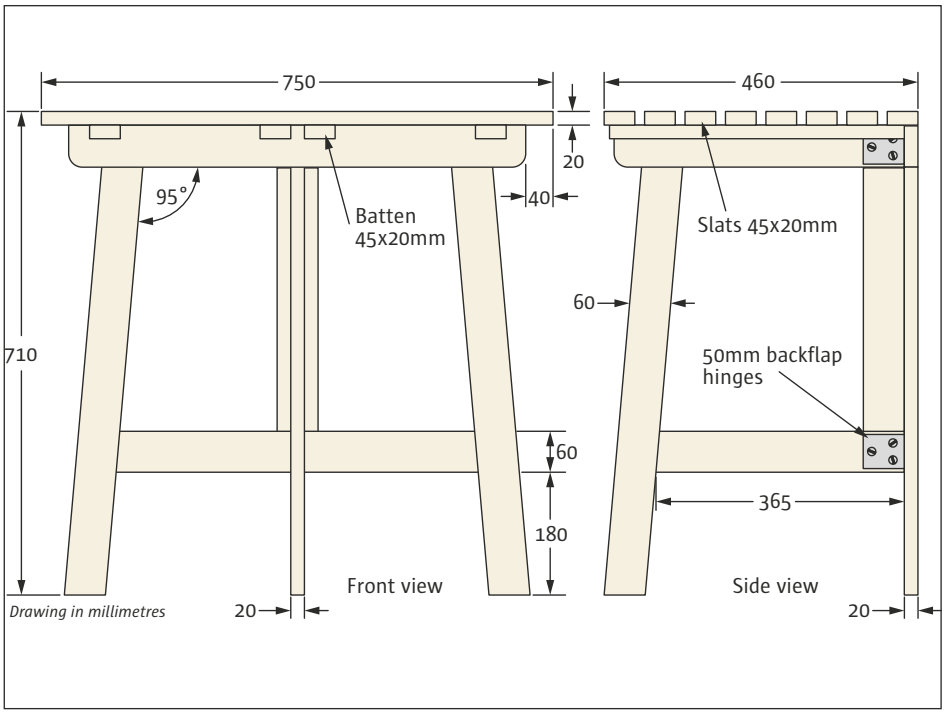
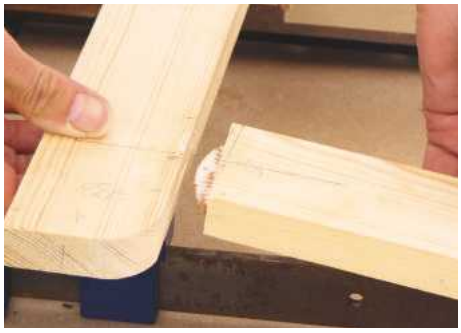


Fig.1 Table front and side elevations

3 Check rails and legs butt together neatly; mark centres of joints for aligning the biscuit jointer

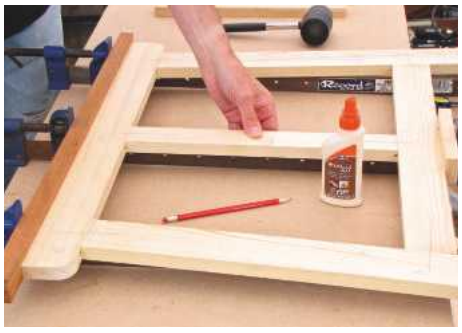
4 Cut biscuit slots with a jointer; you need two sizes of biscuits to suit different timber sections

5 Mark and cut the radius on lower corners of top rails with a jigsaw; finish off with a sanding drum



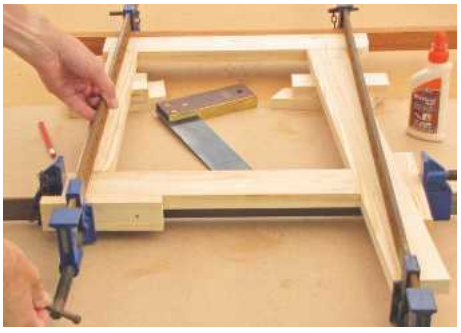
6 Use No.10 biscuits when gluing up 60mm timber and No.0 size for 45mm legs and rails

7 When assembling legs and the bottom rail, cut tapered wedges to prevent cramps slipping



8 Use exterior PVA glue when cramping up frames, with packing pieces to prevent damage

9 When the glue has dried, clean up the frame with a finely-set bench plane; check with a straightedge



10 Assemble the front frame, checking for square and twist when tightening the cramps

11 Align both frames carefully and position the backflap hinges; mark screw centres with an awl

12 Fix hinges to rails with 20mm screws; check the frames fold together and lay flat

13 Cut slats for the tabletop overlength; lay out to determine spacing and centre for the radius

14 Cramp frames to slats and cut the support batten; screw across slats, checking for square

15 Make a template for the curved top from card; mark the 375mm radius and cut out with a knife

16 Lay the template on slats and check the arc won't foul the battens; turn over and draw across the top

17 Cut two shorter battens to support ends of the slats; mitre the ends and screw into position

18 Fit a new blade and carefully cut around radius with a jigsaw, keeping to the waste side of the line

19 Clean up sawn, curved ends of the top slats with a finely-set block plane or spokeshave

20 Using a roundover bit in a router, soften the ends of support battens underneath, or simply chamfer

21 Fill any holes or defects and sand all surfaces with 120 grit abrasive, removing arrises

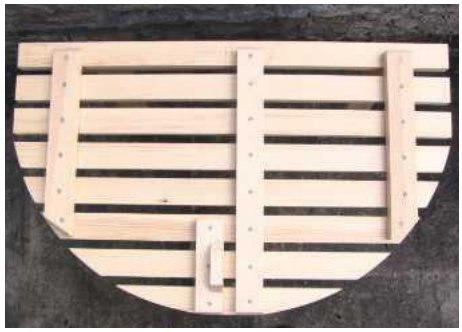
22 Saw the block to size and drill a 7mm clearance hole for the locating dowel; glue to the batten

23 Remove the hinges and spray with primer to prevent the steel rusting, followed by exterior paint

24 Reassemble frames and check that the top fits snugly in position, secured by a dowel

27 You don't have to paint the table if you prefer to go for a more natural effect. In the version here, I've just finished it using a few coats of clear exterior varnish – the choice is yours

25 To store the table, remove the front dowel pin, lift off the top and fold leg frames together



26 Battens screwed and glued under the top slats; shortest at the front with dowel block

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Excavation of the *Oseberg* ship, 1904/5

Adventures in wood

Wood has been used in the construction of various modes of transport from the year 1000, be it on land, water or in the air, owing to its lightness, strength and durability, as **Paul Greer** discusses here

Until fairly recently, in historic terms, its combined advantages of lightness, strength and durability made wood the optimum material for fabricating transport, be it for use on land, water, or in the air. Confidence in it is well-illustrated by the ambitious journeys undertaken by early explorers, the Vikings among them.

Once in the ground, wood usually begins to perish, but occasionally conditions favour survival. This has enabled us to learn a good deal about Viking longships, though their heyday was around 1,000 years ago. One known as the *Oseberg* ship, discovered in Norway in 1904, and dating from about the year 800, is on display at the Museum of National Antiquities, in Oslo.

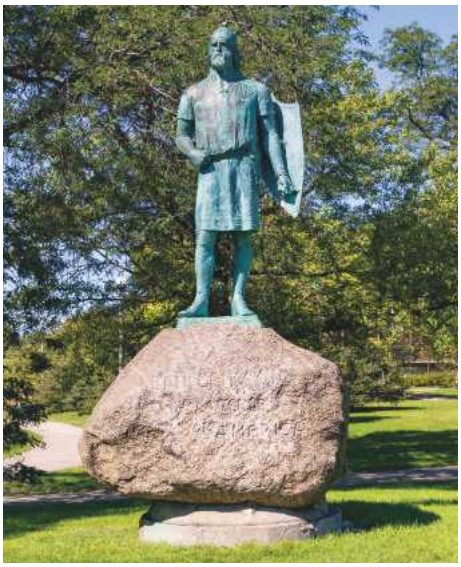
Vikings

Viking longships were clinker-built – with overlapping planks facing downward – and usually between 45 and 75ft long. They had to be strong enough to permit ocean-going sailing, but with a shallow draught to let them penetrate far inland on rivers, making them a frequent threat to English communities, particularly during the 8th and 9th centuries. The Viking Leif Eriksson is credited with being the first European to reach North America, where he landed in a longship in the year 1000.

Viking master boatbuilders were called 'stem-smiths' – after the front, or bow,

The Viking ship *Oseberg* on display at the Viking Museum in Oslo, Norway
Photograph courtesy of **Mark Edward Harris/Photolibrary/Getty Images Plus**

Five unique carved animal heads were found in the Oseberg grave. Four of them are exhibited in the Viking Ship Museum, but unfortunately the fifth is in very poor condition and the remains are kept in the Museum's depository
Photographs courtesy of **Museum of Cultural History, University of Oslo/Kirsten Helgeland**



A 2.9m tall bronze statue depicting Leif Erikson resides in Humboldt Park, Chicago, Illinois, USA
Photograph courtesy of **Paul R. Burley**

of the ship. They had no plans to guide them, so needed great skill to judge the best line for the hull planks to take. Oak was the preferred wood for key features such as the keel – which ran the boat's length – the tiller – for steering – and usually the planks, though pine did offer an alternative.

Wood used 'green' – unseasoned – was easier to work, especially when cutting the more complex shapes. Planks were made by splitting it along the grain, to impart more strength, and an oak tree typically yielded more of them than a pine. The finished craft was water-proofed with pitch. Figureheads fixed at bow and stern typically depicted a dragon or snake, and were there to frighten the spirits of the land being invaded. They exhibit the skills of talented woodcarvers.

The Kon-Tiki Expedition

A sea adventure much nearer our own time was the Kon-Tiki Expedition, led by the Norwegian anthropologist, Thor Heyerdahl,

Balsa wood is the lightest and softest commercial hardwood timber

in 1947. In an effort to give credibility to his theory that Polynesia had once been populated by inhabitants of Peru, in South America, he and five companions resolved to cross 4,000 miles of the Pacific Ocean – from east to west – on a raft. To faithfully duplicate the characteristics of those believed used long ago, the raft was assembled using nine huge logs of balsa wood, freshly-cut, and secured with hemp ropes.

Experts on land were vocal in their fears that the logs would in time become impregnated with sea-water, and the raft break up in mid-ocean, far from any hope of rescue. Had the balsa been dried, this would indeed have occurred; however, sap in the new logs inhibited the water, which penetrated the wood only a little. The raft duly stayed afloat, and, after three months at sea, reached Polynesia.

Canoe rest along a portage trail

Portaging a tandem prospector in Algonquin Provincial Park, southeastern Ontario, Canada

Canoes & rafts

The opening up of North America by Europeans during the 16th and 17th centuries was thanks mainly to the efforts of three nations: England, Spain and France. French efforts were concentrated on the Mississippi Valley, a vast area explored by Sieur de la Salle. His party's wanderings included long stretches using canoes made of very light wood, which let them progress by alternately paddling on water and carrying the canoes on land, a practice known as 'portage'. Even when faced with frozen rivers, they remained undaunted, simply placing the boats on wooden sledges, and carrying on.

Wooden sledges were also vital to the early Polar explorers at the beginning of last century. Captain Robert Falcon Scott resorted to them when the motorised sleds his party was using broke down, and they proved ideal

The Kon-Tiki raft at the Kon-Tiki Museum, Oslo
Photograph courtesy of **Bahnfrend**

South Pole expedition members: Edward A. Wilson, Robert F. Scott, Edgar Evans, Lawrence Oates, and Henry Robertson Bowers

A conservator surveys an 11ft wooden sled used on Anglo-Irish explorer Ernest Shackleton's British Antarctic Expedition, at Prince Philip Maritime Collections Centre, London
Photograph courtesy of **James Brooks/ Associated Press**

for transporting their supplies long distances. Despite this, Scott and his four companions were not only narrowly beaten to the South Pole by the Norwegian, Amundsen, but also sadly died on the return journey. Today, a well-preserved wooden sledge, used on the slightly earlier expedition of Ernest Shackleton in 1909, shows us how even a laden one could skim over the snow on its slim runners.

Planes & trains

Flight was first achieved by man in a hot-air balloon, pioneered in France by the Montgolfier brothers. During the year 1783, they initiated three flights, the last in Paris, before a distinguished audience, including the King. The balloon lifted two male passengers over the city on a trip lasting 20 minutes. Its envelope was of cotton lined with paper, highly decorated, and enthralled the populace below. The passengers were in a basket – or gondola – made of wicker, for which willow is among the most suitable woods. It remains popular, though gondolas of more substantial timbers have since been developed.

The world had to wait more than a further century to see the first aeroplane

Montgolfier Brothers Statue

Model of the Montgolfier brothers' balloon in the London Science Museum

Charles Lindbergh with his purpose-built, single-engine Ryan monoplane, the *Spirit of St. Louis*

Seconds into the first airplane flight, by the *Wright Flyer*, near Kitty Hawk, North Carolina; December 17, 1903

The Wright brothers' plane used spruce wood for its propellers and frame

Passengers gather in a hot air balloon's wicker basket, ready to ascend

flight. This was achieved by the American Wright brothers at Kittyhawk, North Carolina, in 1903, in a wooden bi-plane – having two sets of wings. It covered only a few hundred yards, yet so rapid were developments in powered flight that in 1909, Louis Bleriot, a Frenchman, traversed the English Channel – a distance of over 20 miles – in a monoplane, and in 1927, another American, Charles Lindbergh, flew the Atlantic Ocean.

Both men accomplished these feats in wooden planes, Lindbergh's being of his own construction. The Wrights employed muslin for their wing coverings, and ash laminates for the wing ribs, but their plane's propellers and frame were of spruce wood, chosen for being lightweight but strong. Though less common these days, most wooden planes are still made of spruce.

Adventures, however, needn't be just for bold individuals plunging into the unknown – they can be within reach of ordinary mortals, too. In the 1830s, the first passenger railways in Britain offered large numbers the chance to expand their experience in ways previously impossible. Countless employment and social opportunities presented themselves, and visiting towns and cities once only names, became reality. In 1862, when passenger services were still less than 30-years-old, the majority of the six million people – then a third of the British population who attended the Great Exhibition at the Crystal Palace, London – came by rail.

The early railway carriages were of wood, some with covered seating, and other – cheaper – ones open to the elements. This reflected the time-honoured practice of the stagecoach companies, which, in addition to their horse-drawn vehicles, built railway carriages. Many trains approached town and city stations via their poorer quarters, offering the wealthier passengers an education in the living conditions of large segments of society.

The Oregon Trail

Before the railway – or 'railroad' – linked the east and west coasts of the United States in 1869, the only land route was in a covered wagon, and became known as the Oregon Trail. Its popularity was attributable partly to the 'Gold Rush' mania of the late 1840s, but more due to ordinary families just seeking a better life. The vehicle deemed best suited to this formidable journey was a wooden farm wagon, sturdy yet light enough to be pulled by oxen or mules, with high axles, and caulked to be watertight when fording the streams and rivers unavoidable over some 2,000 miles.

Assuming a maximum per wagon of five passengers, and only essential supplies, averaging 15 miles a day could be expected on level ground, but progressively less as the terrain grew uneven and steeper. For many, the journey proved too much, not on account of wagons failing, but because they had calculated too optimistically the ratio of their weight to the strength of their draught animals. The route of the Trail was soon all too clearly marked by abandoned wagons and superfluous contents, and – not infrequently – the bodies of their occupants.

The sobering realities of the Oregon Trail remind us that not all adventures end in success. However, where intrepid people have come to grief, even this brief survey shows this to have been due much more to ill-fortune, ignorance, or miscalculation than to shortcomings of the wooden vehicles to which they had entrusted themselves. Though today largely replaced by materials like steel or plastic, wood is often still preferred, especially where looks matter too, boats being a case in point.

Covered wagon and pioneer on the Oregon Trail

Replica of a first class coach from the Liverpool and Manchester Railway

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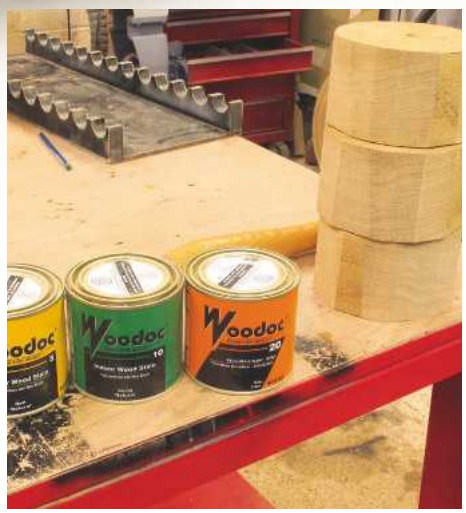
A TALE OF THREE BOWLS

Feeling experimental, **Les Thorne** takes three identical bowl blanks, then turns three different shapes, to each applying a different base and finish – he shares the results with us here

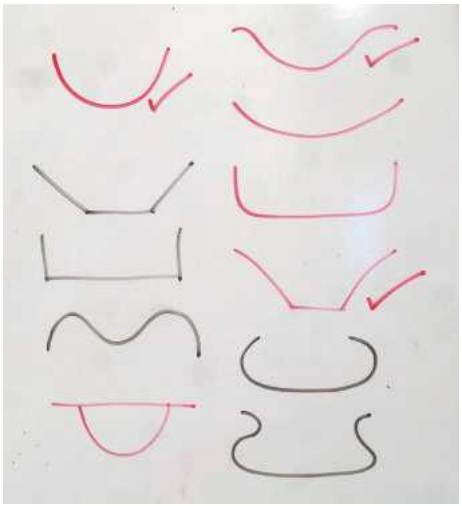
The subject of this month's article has been in my head for a while, but until now, I've not had the opportunity to put it into practice. Here, I'm going to take three identical oak bowl blanks and from these, turn three different shapes, each with a different base. To cap it off, I'm then going to apply a different finish to each one. Doing something like this is a great experiment, as it allows you to assess which shape, base and finish best suits a particular timber.

In the USA, you hear of a lot of turners using 'wipe-on poly' to get a good high-end finish on their work. After carrying out some research, I came across a polyurethane product called Woodoc – **www.woodoc.biz** – which is available over here. I happened to be working next to their stand while demonstrating in Ireland a few years ago. After going over and finding out more about these stains and sealers, I was then given some to try. Very few products like this are available to hobbyists, so this is an ideal project to try them on. I thought long and hard about which timber to use, but ended up choosing oak, as this particular finish is specifically aimed at this type of timber.

The shapes I decided to use are a couple of stalwarts, plus one I've wanted to try for ages, just to see if it worked well. Read on and the results will be revealed...



1 For this project, I used blanks of European oak, left over from a production job. Dimensions for these need to be around 150 × 75mm-thick. The Woodoc stains and sealers used are gloss, satin and matt varieties



2 The first step is to draw some shapes on a whiteboard. I've probably turned all these in the past; the good ones by design and the bad ones by accident. Having them on the wall will give me a good discussion point when I'm next teaching

3 Once mounted on a screw chuck, the blank's faces need to be trued up with a bowl gouge. Use a pair of dividers to mark out the diameter of your chucking spigot; this needs to be as small as you can feasibly get away with

4 Each one of the bowls will be remounted and the chucking re-turned, partly because it finishes the bowl nicely, and partly because the point where the chuck comes into contact with the oak can turn black due to a reaction with oak's tannin

5 Form the spigot with a parting tool and clean up the area around it with a light pull cut, using the gouge. This first bowl will be round-bottomed so the spigot will be totally removed in this instance

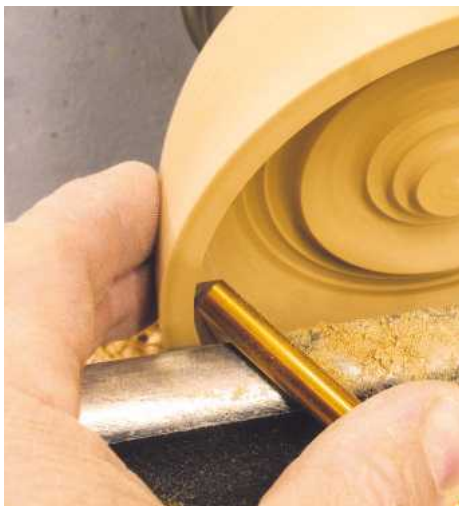
6 A 10mm bowl gouge is perfect for removing the majority of waste from the bowl. As you can see, the wings of the tool have been ground back, allowing the timber to be removed, using a pull cut

7 The finishing cuts are made using a 6mm bowl gouge. This tool, unlike its bigger brother, has a more traditional straight-across grind, therefore making it suitable for the push cut

8 As you can see here, the push cut with bevel rubbing will give a superior finish; this is partly due to the bevel rubbing but also the fact you're taking much lighter cuts

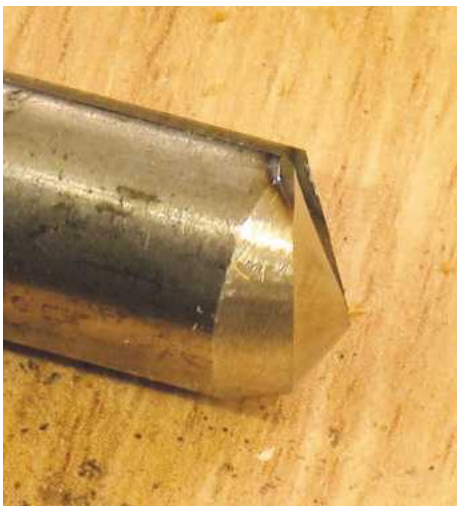
9 I thought it'd be fun to also use three different sanding techniques, in keeping with the experiment's theme. Using the Simon Hope rotary sander, the rotation of the bowl turns the sanding head, leading to very few scratches developing on the surface

10 Once the outside is turned, grip the spigot in the chuck and turn out the inside. I like to turn this down in a series of steps, which keeps the bulk of the material in the centre for stability purposes



11 The thickness of the bowl is going to be about 8mm, but as it gets thinner, vibration will become an issue. If you're confident enough, supporting the outside of the bowl with your fingers while cutting will solve this problem

12 You can use your fingers as a guide to determine evenness of the bowl's wall thickness, but when you get deeper, switch to figure-of-eight callipers. The reading off the inside can then be transferred to the opposite end

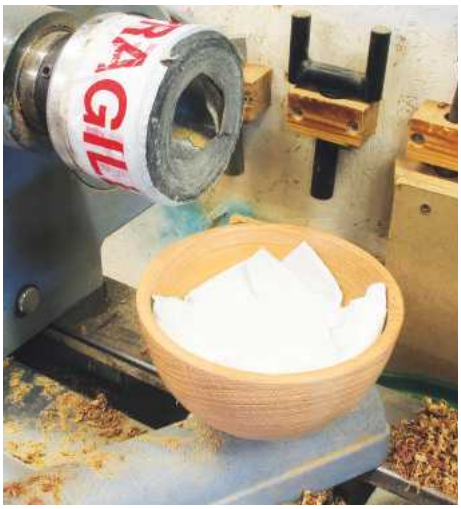


13 When you get deeper into the bowl, you may find that you begin to lose tool control; this is normally because rubbing the bevel of a tool with a standard 45-50° angle is almost impossible. Try grinding to 60° just for the finishing cuts

14 Here you can see how the tool is used: the flute is more upright than usual and enters the bowl in an almost horizontal fashion. You won't be able to cut huge amounts at a time, but you are guaranteed a good degree of control

15 After I'd finished the bowl, I decided the rim ought to be rounded over; this would be almost impossible using a tool as the vibration could break the bowl, so I chose to sand it using a piece of 100 grit abrasive. This isn't cheating, just the best technique to use

16 Now to remove the spigot off the bottom of the bowl. If you have a lathe with a swivel head, you must ensure that the centres line up; the best method is to mount a piece in the chuck, turn a dimple on the end, then align the centre to this



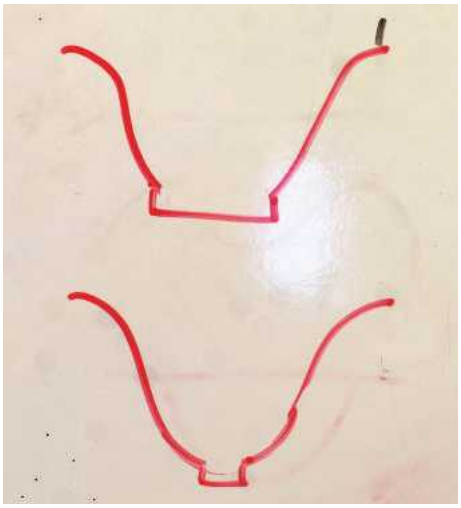
17 Here I have a drum chuck on the headstock. The paper in the bowl will prevent the rubber from marking it. Too much protection, however, could cause the bowl to bounce during cutting

18 Turn away the foot and try to carry the shape of the bowl all the way round. Taking off as much as you dare, remove the last bit by hand, then sand the bottom down to 400 grit. You now have your round-bottomed bowl

19 The completed round-bottomed bowl

OGEE BOWL

1 The second blank is going to be turned into an ogee bowl. This is a curve shaped somewhat like an 'S'. The first step is to roughly mark where the concave part will be



2 The size of spigot is all important to this piece. Here you can see that too big a foot will create far less of a curve on the finished shape. Try experimenting with shapes as I've done here; it's a great exercise in developing technique

3 Once again, a 10mm bowl gouge is used for the majority of shaping. As you're working, look at the top profile of the bowl; this way you'll be able to see the desired shape appear as you turn it

4 Due to the tightness of curve at the top of the bowl, I recommend using a micro bevel tool as it will fit nicely into the shape. It's a small tool, but as the toolrest is close to the work, the cutting edge is therefore well supported

5 I decided to hand sand the bowl by holding the abrasive onto the revolving work. The end-grain on oak can be a bit problematic, as you can see here – just give the problem areas a sand with the lathe switched off and you should achieve a pleasing result

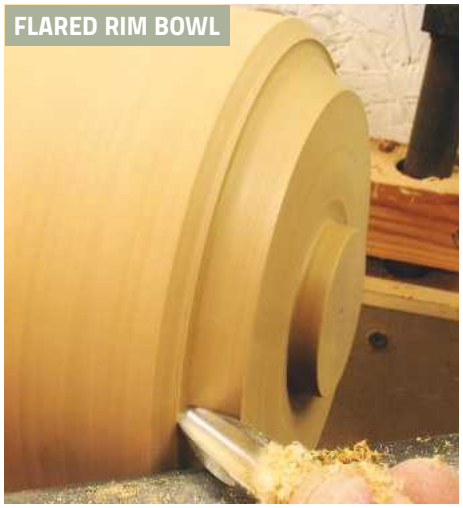
6 The shape on the bowl's interior will follow the outside. The curve is best worked down in stages. I like to finish the tooling on each section before moving on to the next part

7 The safest place to hand sand is in the 6 o'clock to 9 o'clock area. Start with a coarse enough grit to remove any tool marks before moving on to finer grits. Each bowl will be sanded to 400 grit

8 The ogee bowl is going to have a decorative foot, so remount it and cut away all the marks left by the chuck. This is how I finish the majority of my bowls

9 The completed ogee bowl

FLARED RIM BOWL



1 Blank number three can now be mounted on the lathe. Here I'm push cutting the whole of the shape as it's the best cut for this particular shape. Swivelling the headstock will afford you better access

2 The last bowl is a bit of an experimental one; you see this shape a lot in glass and ceramics but not so much in wood. I think I might add it to my demonstration repertoire as I really like it, although I'm not sure anybody else will!

3 The last sanding method is the one I use most when turning bowls. Power sanding is favoured by the majority of production bowl turners when it comes to finishing their work

4 Here I decided to put a flat on the bottom of the bowl. This was quite a leap of faith for me as I spend a lot of my life trying to get my students to achieve nice flowing curves with their bowls. Using the 13mm skew chisel as a scraper here works perfectly

5 The punctuation point between side walls and bottom is all important here. Personally, I think this implies that it's meant to have a flat bottom rather than bad workmanship!

6 The bowl is remounted as before. On this one, I decided to remove the foot to leave a flat bottom, which is completed using the signature gouge. Make sure that the base is slightly concave

7 After removing the last piece of waste with a chisel, sand the bottom. I'm using the sanding pad in a power drill, but you'd achieve a greater degree of control using a pad on the pillar drill, then offering the bowl up to it

8 The completed flared rim bowl

1 I made sure I had three brushes, three stirring sticks and three pairs of gloves all prepared, as I didn't want to contaminate any of the finishes. An important thing to note is that you want to stir these finishes rather than shake the cans

2 You need to apply three coats to each of the three bowls. Cut back between first and second with a Nyweb pad as wire wool could get into the oak's grain. As the finish was so good, I didn't cut back between second and third

3 The completed trio of bowls

Conclusion

I learnt a lot from this project. I found that a rotary sander works best on a bowl's exterior, and power sanding works best on the interior. You can end up with such a diversity of bowls, even when starting with identical blanks. In my eyes, matt and satin surfaces look better on the oak as opposed to gloss, but that's just a personal preference.

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THE HOUNDSTOOTH DOVETAIL

WW TECHNIQUE

The dovetail is one of the most instantly recognisable of all woodworking joints. Not only does it look good; it's also an incredibly strong and efficient construction. Here, **Andy Standing** looks at a particularly attractive variation on the theme

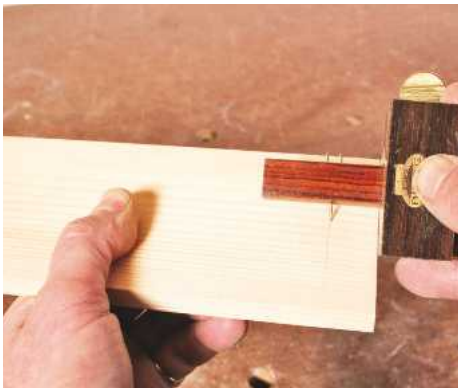
The design of the dovetail joint gives it considerable mechanical strength, requiring little adhesive to hold it. The joint is also seen as the epitome of the woodworker's art, and a well-proportioned and properly executed joint can add greatly to the overall impression of a piece of work.

There's a variety of dovetail designs, from fairly coarse carcass dovetails through to needle-fine drawer dovetails. Although there are many standard dovetail layouts, it's perfectly acceptable to vary the spacing and regularity of the pins to suit your particular taste, so long as the strength is not compromised.

Here are instructions for making a houndstooth dovetail, which incorporates different pin sizes. It can be made both as a through or lapped joint; I've described making the through variety here.

Before you begin, it's vital that your timber is accurately planed and thicknessed. The width of both components must be identical, but their thicknesses can be different. The ends to be jointed must be perfectly square.

1 Start by setting your marking gauge to the thickness of the pin member



2 Use the gauge to mark this dimension across the end of the tail member

3 Because this joint uses pins of two different lengths, mark a second gauged line across the tail member about a third narrower than the first

4 Set the tail member vertically in a vice and use a combination square or ruler to mark a line 6mm in from both edges

5 Divide the space between the two marks into three using dividers. Place one point on the first line, walk them across the end, and on the third step, the point should land on the second marked line. If it doesn't, re-adjust the spacing and try again

6 Once you've divided the top into three, use the dividers again to mark each section in half

7 Now you can mark out the dovetails. Use a sliding bevel set to the correct slope – 1:8 for hardwood; 1:6 for softwood. Mark the long and short tails alternately. Remember to mark down from the outer marks as well

8 Set the tail piece in the vice and angle it so that one set of lines is vertical. Use a fine-toothed saw to cut down to the gauged lines. Loosen the vice, tilt the board in the other direction, and repeat the process

9 Cut across the gauged lines with a coping saw to remove the waste. Clean up the resulting cuts with a narrow chisel

10 Once the tails are cleaned up, take the pin member and cramp it vertically in the vice. Lay the tail piece in position on top of it and mark the pin positions using a scalpel or fine-bladed knife

11 You can, if you wish, pick out the marked lines with a pencil, which makes them easier to see

12 Now mark the thickness of the tail piece on the pin member using a marking gauge

13 Use a fine-toothed saw to cut down to the gauged line. Be careful to keep to the waste side

14 Remove the waste wood as before using the coping saw

15 Clean up the pins with a chisel. Support the rear of the work with a sacrificial board to prevent breakout. Test the fit of the joint and make any necessary adjustments

16 The joint should be fully assembled only once. Apply a small amount of glue to the mating surfaces and tap the components together with a mallet and protective block of scrap wood

Coming up in the next issue...

The Woodworker & Good Woodworking
August issue –
on sale 23 July

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MARK DOOLITTLE: PROFILE & CARVING MASTERCLASS

CARVING WITH MARK DOOLITTLE
Fine woodworking artist Mark Doolittle shares the tips and techniques he uses to create his signature intricate carvings. According to Mark, the secret to success is "continuous refinement"

BIOLOGY MEETS ART
Celebrating biology through the medium of wood, Mark Doolittle's pieces serve to express the dynamic form of growth and symmetry encountered in cells and tissues, as well as those found in whole organisms throughout the natural world

AS TIME GOES BY

In this complex two-parter, wishing to make his version of a German Laterndluhr-style wall clock, Peter Skilton opts for octagons rather than squares as he embarks on this impressive build

GIFTS FOR GARDENERS
Whether or not you're green fingered, Les Thorne's handy turned garden aids make great gifts as well as offering the perfect opportunity to practise tool skills

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

Triton TRB001 2,000W precision router with fence, circle centre & instructions – ½in with ¼in sleeve; £150 – collection only **0121 382 6095** (Sutton Coldfield)

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

Axminster AJEZ2JJ dust extractor – heavy duty, single-phase dust extractor with 4in suction hose; well used but in good running order; £75 **07803 507 079** (N. Derbyshire)

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

Hammer C3 31 Comfort combination machine with outrigger; purchased in August 2008 from Felder UK. Extras include rolling carriage and lifting bar; factory-fitted scoring blade; trimming shoe; digital wheel for planer; eccentric clamp; dado cutting set; sanding attachment; sanding paper and top; Euro curve moulding fence and workpiece feed guide; three new sets of planing blades; extension with workpiece roller for the outrigger; Record Power universal cutter head; 10 unused sets of cutters, plus rip saw blade. All light use; spindle turner not used at all. Manual and instructions included. Retired seller downsizing; £3,300 – original pallet available for fork lift **07836 585 984** (Derbyshire)

Jet/Axminster mortiser – in good condition, spare chisel included. Buyer collects; £70 **07803 818 957** (Carmarthen)

Startrite saw bench with tungsten-tipped 300mm blade; light use and in good condition – buyer collects; £200 **07957 304 087** (Faversham)

Sharpenset whetstone horizontal irrigated tool grinder with jig for chisel/plane irons. Coarse and fine wheels; 240V; 1,480rpm motor – offers **07311 215 885** (Selby)

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

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We have some absolutely stunning pieces for you this month, all of which are fantastic examples of how wood can be used to create not only functional pieces, but also works of art – from exquisite cabinetmaking to precision woodturning

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2 Stunning ornamental balloon-shaped turning with tall stem and finial by Martin Saban Smith – **@msabansmith** – spalted sycamore (coloured) and blackwood – 390mm tall × 110mm wide – finial and stem in blackwood

3 'The Blanket is Frozen but the Winter is Over' sculptural carving by Willy Verginer – **@verginerwilly** – 2018, lindenwood and acryl colour, 720 × 1,200 × 500mm

4 '#0050 – Shelf of Drawers' by Kamiya Furniture – **@furnitureisart** – 1,524mm wide × 406mm deep × 914mm high – solid superior grade walnut with figured birdseye walnut drawer front, custom brass pulls, ziricote wood and brass accents throughout. Made using mortise & tenon joinery, constructed in a purist style

5 Completed Peacock chairs by Mark Langston – **@siamesevishnu**

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