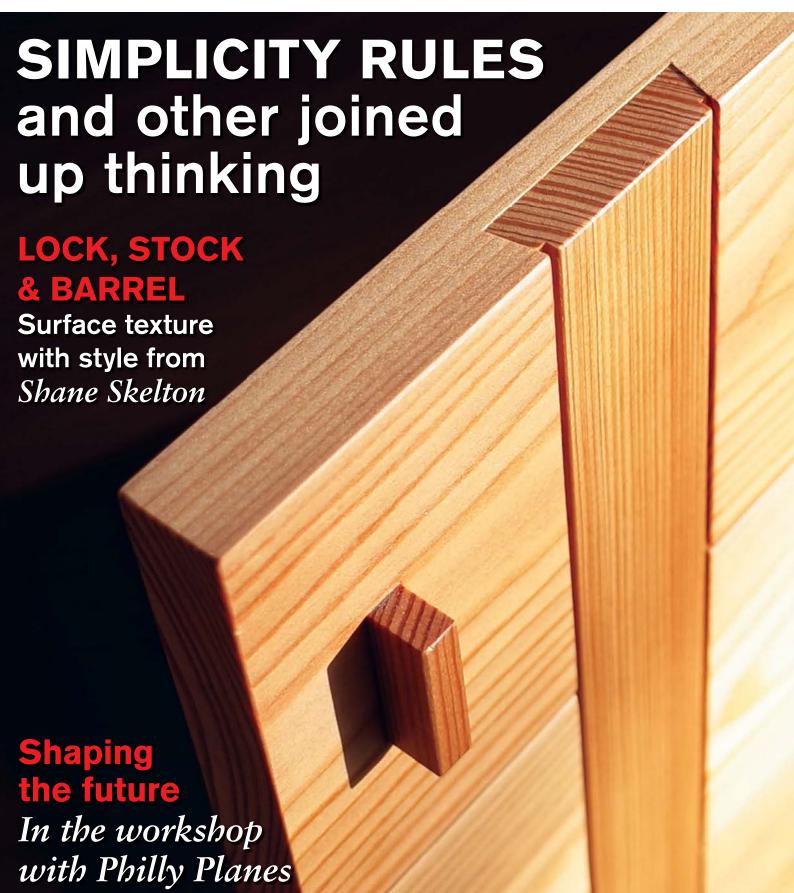
Furniture 8 Cabinetmaking DESIGN - INSPIRATION - PROJECTS - TECHNIQUES - TESTS - NEWS - EXCELLENCE





Panel Saws



K4 perform



K3 winner comfort

A3 41

Combination machines



A3 31



A3 41 A

Saw Spindle Moulder



B3 perform B3 winner

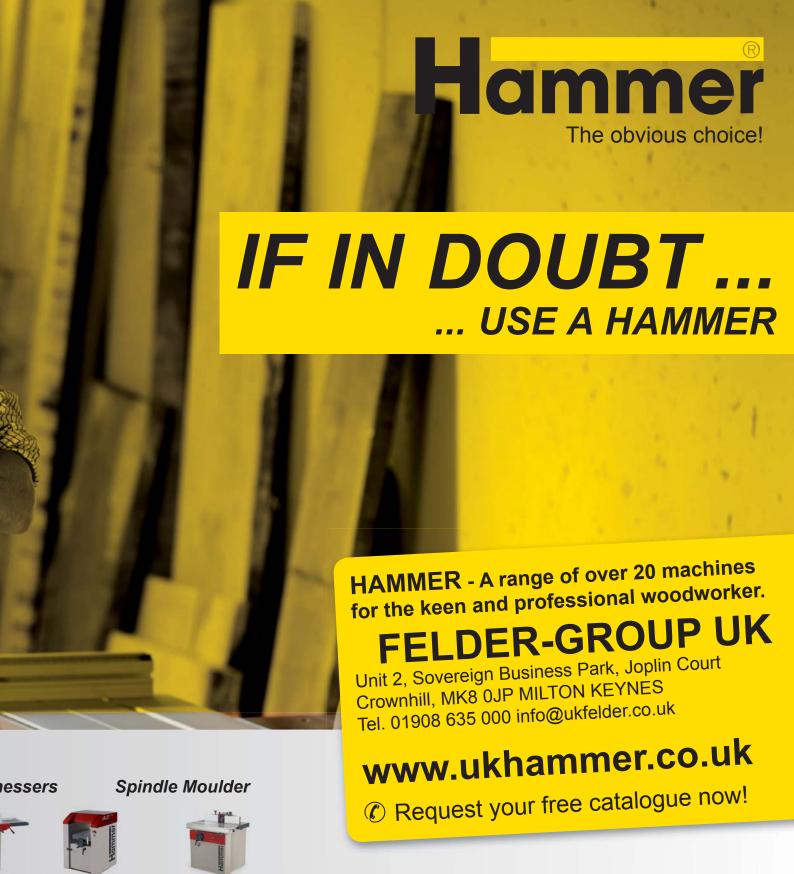
C3 31 perform



C3 31

Bandsaw





Horizontal Mortiser

A3 41 D

N 3800

Mobile Dust Extractor



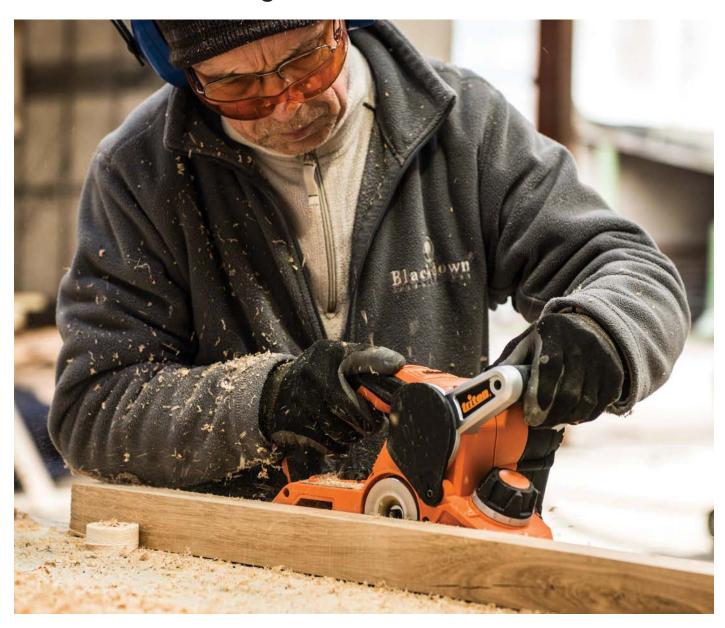


F3





Engineered Precision



Plane & Simple

TRP UL

The TRPUL's patented triple-blade drum delivers an impressive 45,000 cuts per minute for fast material removal and a superior finish to every project.

Traditionally the rebate depth for any planer is restricted by body design, however the TRPUL is designed with the blade drum positioned to the outermost edge, allowing unrestricted depth rebates right to the edge of the workpiece.

In addition, the removable blade drum system allows fitment of the sanding drum (both included) to convert the planer into a highly efficient sander.







Welcome to... ...Woodworking books

f you're anything like me, then each year sees a growing number of books added to your workshop library. The build-up is gradual and the thinking behind every acquisition is along the lines of 'that'll come in handy one day'. Just like that pile of precious offcuts in the rack, they have a habit of multiplying if you leave them alone long enough. I guess they're also not dissimilar to tools in that respect! Every so often I'll reassess the situation and 'share' my book surplus with friends or pass them down the line to other woodworkers for when their 'one day' comes around. As it happens, there's no shortage of texts about woodworking to restock the shelves these days and, although not all of them are truly contemporaneous, they do, on occasion, offer a new spin on an old technique. Recent releases like Norwegian Wood and The Man Who Made Things Out Of Trees (see page 72) are even making the bestseller lists. It's reached such a peak now that woodworkers often refer to the writings of old masters in a way that would once have been reserved for their most cherished possessions - hand tools.

I was handed a book recently that was indeed written by an expert; John Davenport, a true master of his craft. It happens now and then, but for someone like me who's always on the lookout for good material, it was genuinely uplifting. It wasn't the book, however, that led me to the conclusion I had found a master craftsman. It was coming face to face with an item of his work; something that left me speechless and excited, but also a little sad. How many more super talented craftsmen have passed into obscurity, virtually undocumented, while we've been focusing on those with whom we're already familiar?

Without wishing to complicate things even more, I think it's time we put things into context when reading woodworking texts. Some of the finest tools ever made, for instance, are now available on the high street for a modest fee meaning that we woodworkers have never had it so good. Granted, it might not always feel like it when we tackle a new joint or technique, but at least the tools aren't fighting us quite as much. Spare a thought, then, this month for the craftsmen who triumphed against all the odds just before this particular hand-tool renaissance. The talent and immense skill of craftsmen like John Davenport might not be repeated in quite the same way ever again.

Derek Jones dereki@theamcaroup.com

www.woodworkersinstitute.com



John Davenport's unfinished symphony, a 1/4 scale replica of a double-domed bureau bookcase

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PHOTOGRAPH BY DEREK JONES/GMCPUBLICATIONS

Furniture & cabinet making

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Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.

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Front cover image courtesy of Neal Crampton



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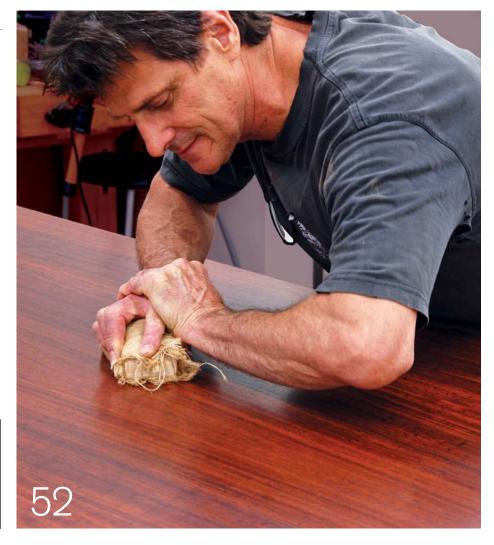
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Don't forget there are plenty more articles and discussions to be found on the Woodworkers Institute www.woodworkersinstitute.com



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Contribute to these pages by telling us about matters of interest to furniture makers. Call Derek Jones on 01273 402 843 or email derekj@ thegmcgroup.com. Please accompany information with relevant, hi-res images wherever it is possible

News& Events

New partnership and more awards for the Rycotewood Furniture Centre

new educational Apartnership is set to continue a rich heritage of preparing furniture designers and makers for their future careers. The Rycotewood Furniture Centre has partnered with Oxford Brookes University to deliver the Furniture: Design and Make Foundation Degree and BA (Hons). Rycotewood's programmes have been validated by Oxford Brookes and will be delivered at City of Oxford College, which is part of Activate Learning.

Joe Bray, higher education programme co-ordinator at Activate Learning, said: "The Rycotewood name has a rich heritage in furniture design and making. The centre has been training students in the design and craft of fine furniture since the 1930s. In recent years this has included university-level programmes which prepare graduates for careers with some of the biggest names in industry. Our students have gone on to work for companies such as Benchmark, Matthew

Burt, Philip Koomen and Halstock Cabinetmakers as well as building enviable reputations as bespoke designers and makers. Students also achieve success in national competitions on an annual basis. In 2015 these included winners of the prestigious Alan Peters' Award, The Mixology Student Furniture Designer of the Year, New Forest Trust Fine Furniture Competition, Worshipful Company of Furniture Makers Bespoke Student Awards and Art in Action Student Art and Design Competition. This new partnership with Oxford Brookes University will strengthen our programmes even further and we look forward to working with colleagues in the faculty of technology, design and environment to equip students with the creative skills demanded by industry. The commitment to the future of furniture design and craft degree programmes is particularly encouraging at a time when programmes have closed elsewhere. The overwhelming support and enthusiasm from the Oxford Brookes team bodes well for the future of Rycotewood and the wider industry."

The announcement follows a report published by the Quality Assurance Agency for Higher Education (QAA) in December, which highlighted student employability as



Jan Waterson's award-winning Velo chair

a key strength of Activate Learning's higher education programmes. It means that all Activate Learning foundation degrees and BA Hons programmes are now delivered in partnership with Oxford Brookes University. These include programmes in business, motorsport engineering, creative arts, health and social care and policing.

The Furniture: Design and Make Foundation Degree is a full-time two year course. On completion, students can choose to take a further top-up year to achieve the BA (Hons) qualification. The courses are now open for applicants wishing to start in September 2016. To find out more visit www.activatelearning.ac.uk/universitylevel or email he@activatelearning.ac.uk

Rycotewood student Jan Waterson recently won the Best in Show prize for his Velo chair at The Furniture Makers' Company's Young Furniture Makers (YFM) exhibition. Jan won an all expenses paid trip to Blum's state-of-theart factory in Austria. His chair also took second prize in the YFM Bespoke category.

DETAILS:

Contact: The Rycotewood Furniture Centre Web: www.cityofoxford.ac.uk

Passions come together in shotgun restoration

A young British woodworker studying at the Chippendale International School of Furniture in Scotland has completed the restoration of a dilapidated shotgun. The meticulous restoration of the gun's mechanism and its wooden stock and fore end took 18-year-old Adam Bragg over 50 hours to complete. "Since I was very young, I have always had two main passions – country sports and woodwork. So after leaving school in 2015, I wanted to make something before moving to Scotland to study at the Chippendale school," he said.

He decided to restore an old Baikal over-and-under 12-gauge shotgun, whose mechanism had rusted solid and whose woodwork was entirely rotted. First, he stripped, cleaned and polished all the metalwork back to working condition, then started on the wooden components. He managed to locally source a beautiful piece of figured English walnut (*Juglans regia*), the preferred wood for gun stocks and, using one of his other guns as a

template, transferred the dimensions to the walnut blank.

Adam did an extensive amount of research, including speaking to professional gunsmiths on how to marry the metalwork of the gun to its new wooden stock. Once the stock and fore end were fitted, he carefully shaped and sanded them. All of the woodwork was then French polished to a beautiful gloss finish, and the chequering on the grips were then all hand cut.

"I learned a huge amount from completing this project, and it has inspired me to pursue it further as a possible career option. It unites my two passions in life, and the skills I'm learning at the Chippendale school are providing additional expertise," said Adam. "Not only do we learn modern woodworking techniques, but also the intricacies of furniture restoration – an important part of learning how to make bespoke gun stocks for individual customers or simply restoring their old shotguns or rifles."



18-year-old Adam Bragg spent 50 hours restoring this shotgun

DETAILS:

Contact: Chippendale International School of Furniture

Web: www.chippendaleschool.com

Furniture Makers 'putts' charity golf day back on the map

ne of the furnishing industry's favourite charity days is being relaunched at an exciting new venue for 2016. The National Golf Charity Day, first held more than 60 years ago, will be held on Wednesday 28 September at Oxfordshire Golf Club. There will be up to 100 places available to men and women golfers of all abilities from across the industry. Said Jonny Westbrooke, CEO of The Worshipful Company of Furniture Makers: "The national golf day has traditionally been among the highlights of our calendar of fundraising events and we're delighted to be taking it to Oxfordshire Golf Club. It was chosen for its excellent championship course, its central location and the fact it has a hotel on site for anyone wishing to stay the night before."

The day tees off with bacon rolls and coffee followed by an 18-hole Stableford competition with shotgun start. At the end of play, competitors can sit down to a two-course lunch, prize giving ceremony and charity raffle. An array of trophies and prizes will be on offer, including awards for the longest drive and nearest the pin.

The cost per person is £99 (including lunch and VAT) or £396 for a team of four. There will also be a number of sponsorship opportunities available for companies wishing to support what is set to be one of the industry's most high profile events of the year.

Said Peter Mallinson, merchandise director (home) for AIS who is helping to organise the event: "As well as raising money for the industry's only dedicated charity, the golf day has always been a terrific event and first class networking opportunity for people working right across the furnishings sector."

For more information or to book a place, contact events manager Sally Kent on 020 7256 5558 or email events@furnituremakers.org.uk

DETAILS:

Contact: The Furniture Makers' Company Web: www.furnituremakers.org.uk



This popular charity event returns in September

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The Furniture Makers' Company names first four Royal Charter Scholars

The Worshipful Company of Furniture Makers has named the first four beneficiaries of its new Royal Charter Scholarship Fund. They are James Batstone and Charles Richards, graduates of the Royal College of Art; and Oliver Goldie and Abigail Butler of The Cass (London Metropolitan University). The fund was set up in October 2015 to celebrate the livery company's Royal Charter status, awarded in 2013. Thanks to support from industry donors, more than £20,000 was raised at last year's annual Royal Charter commemorative dinner, enabling the Company to commit to supporting four scholarships a year. The aim is to prepare promising graduates to become future leaders, craftspeople and innovators within the furnishing industry. Said Charles Vernon, chairman of the livery company's education and training committee: "A scholarship can make a huge difference and in many cases enables a student who might otherwise not have the chance, to continue their education.'

For Oliver Goldie, currently studying for his MA Furniture degree at the Cass Faculty of Art, the bursary will enable him to buy the tools and materials needed to complete pieces to a professional standard and quality. Said Oliver: "I'm extremely grateful for this opportunity. I feel I will hugely benefit from this bursary both in my learning through this course and later in my career, especially with the chance of being part of a mentoring scheme." Abigail Butler, also studying for her MA at The Cass said: "I am very grateful to the Worshipful Company of Furniture Makers and to London Metropolitan University for all their support and will be, far into the future. I hope that one day I will be in the position to support younger designers and furniture makers in the way that I have been supported." Charles Richards, studying for his MA at the RCA said: "The financial help will be of huge assistance to my time here and used solely for material costs. It will also be a great opportunity to take up the offer for mentorship."

Scholarship candidates are identified through the livery company's extensive links with universities and academies across the UK. In addition to a scholarship bursary, Furniture Makers' Royal Charter scholars will enjoy membership of the Young Furniture Makers and the inherent networking opportunities; automatic long listing for the annual Young Furniture Makers' exhibition; priority booking on the Young Professional Industry Experience scheme; and dedicated career support and mentoring from a matched professional within the industry.

The Company's 'education champions' – donors and sponsors who made the new scholarship initiative possible – are Blue Crush Communications, B&Q, NIC EIC, Furniture Village, iKBBI, KI Furnishing Knowledge, Community Playthings, Ercol, Panaz and Parker Knoll.

DETAILS:

Contact: The Furniture Makers' Company Web: www.furnituremakers.org.uk

Latest projects from members of Northern Contemporary Furniture Makers

Philip Dobbins has recently finished a stunning and original walnut (*Juglans regia*) and sycamore (*Acer pseudoplatanus*) marquetry six-seater table supplied to a client in Gloucestershire. The commission began in spring 2015 with a design based on the client's family coat of arms. The butterflies are Common Blue and Yellow Brimstone, and were executed by www.heritageinlay.com.

Computer-aided design has transformed the furniture making industry and one of the latest products from design house Dovetailors showcases the possibilities it offers. Creative director David Wilson designed a burr oak (Quercus robur) console table as a statement piece for a customer's hallway. "We always design first and worry about construction later," said David, who gained a PhD in engineering before launching Dovetailors more than a decade ago. "When we have the look and functionality worked out, we enjoy the challenge involved in converting that into a fully working piece of furniture." The console table was made in oak and burr oak with ebony (Diospyros spp.) stringing. David said: "As with all our work, function is prime and design evolves around that practicality. Design without function is either useless, or art." The table features graceful curves, a lift lid for quick access and pivot drawers that are



Andrew Lawton's keepsake box

cleverly concealed when shut. "The table was designed to be a focal point but if you look beyond that beautiful exterior there's a hardworking piece of furniture that's ready and waiting to store keys, gloves, pens, books, etc.," added David.

Andrew Lawton's most recent piece is a keepsake box made of English walnut and sycamore. Andrew's client commissioned the box as a deeply personal gift to his mother. The marquetry, which depicts her house and garden, was carried out by Quentin Smit: www.qjsmarquetry.co.uk.

DETAILS:

Contact: Northern Contemporary Furniture Makers

Web: www.northernfurniture.org.uk

Courses



Short courses with John Lloyd

Firmly focussed on enabling the complete beginner, the enthusiastic amateur and the aspiring professional to develop the exacting standards of the cabinet maker, John Lloyd's exciting range of 2016 short courses, as always, have solid hand-skills at their heart and are carefully designed to embrace the vast range of cunning new kit, techniques and materials that are now available to make a woodworker's life easier and more productive.

John offers the perfect balance of traditional and modern woodworking techniques, the 'Skills Week' is a great introduction for the complete beginner, or

an opportunity to brush up on vital basic, and not so basic techniques, covering everything from sharpening to simple dovetails and even the chance to get sticky with some vital gluing strategies. The woodworker's ability is so often judged by the accuracy of their dovetails. The 'Dovetailing' course simplifies the process while looking at some of the more impressive versions of this timeless joint. 'Making a Child's Chair' is a brand-new course for 2016 and is a great introduction to the wonderful world of combining angled joints and curved components on a small scale. Courses in 'Veneering & Inlays' and 'French Polishing & Modern Hand Finishing' demystify these fundamental processes. John's ever popular two-day 'Wood Machining' course, with health and safety at its core, is designed to allay any fears and introduce students to the benefits of mastering the big machines.

John draws on more than 20 years of teaching experience to present these intensive courses in a relaxed and approachable style. All the courses are held at John's own workshops in the Sussex countryside and are taught by him. Teaching hours are 8.30am–6pm, allowing each student to achieve the very most from their time in the workshops.

Course dates: Dates throughout 2016 Contact: www.johnlloydfinefurniture.co.uk



Master the art of French polishing

Learn French polishing with Derek Jones

Despite the fact that we've all heard of the term French polish and shellac it's amazing to think that very few of us actually know what it is and how to do it. It has a reputation for being difficult to master, time consuming and not nearly as robust as some other finishes. Here's the bottom line. None of the above is true. To see what all the fuss is about and add this skill to your finishing repertoire, join Derek Jones at Robinson House Studio this April and October to get acquainted with the King of Finishes.

Course dates: 23–24 April and 22–23 October

Contact: derek@lowfatroubo.co.uk

Events

Yandles Spring Woodworking Show

At this year's Spring show, visitors will be able to attend free Masterclasses held by big manufacturers, such as Record Power and Robert Sorby. Nick Agar, Dave Appleby, Gianni Deidda (new to Yandles), Paul Hannaby and Bryan Milham (new to Yandles) along with Les Thorne (sponsored by Chestnut) and Mark Sanger (sponsored by Crown) will be amongst the woodturning demonstrators.

Along with this there will be demonstrations in carving, chain saw carving, willow making and blacksmithing/knifemaking to name a few. Add hobby demonstrations and taster sessions to the equation plus free entry and parking, and you can appreciate that it's a show not to be missed. The Yandles show is now one of Britain's longest running



A demonstration at Yandles Woodworking Show

woodworking shows and attracts thousands of visitors from all over the UK and Europe. It takes place in the traditional sawmill, which was founded over 150 years ago and helps make the Show unique.

Manufacturers including Record Power, Charnwood, Draper, Triton, Ashley Iles, Robert Sorby and Mirka to name a few, will be launching new products and offering special show deals. On top of this the very large selection of timber from the selfselection centre will be discounted along with discounts in the Woodworking Centre and a sale in the Hobby Shop.

When: 8–9 April, 2016 Where: Hurst Works, Hurst, Martock, Somerset, UK Web: www.yandles.co.uk

Art in Action early bird tickets on sale

Early bird tickets are now on sale for Art in Action, an annual event where up to 400 artists, crafters, performers and musicians gather to demonstrate their skills and show their work. You can watch the potter pot, the painter paint and the sculptor sculpt. You can ask the masters of the arts of jewellery, textiles, woodwork and glassblowing about the secrets of their craft, and in the popular Practical Classes section, you will be able to have a go yourself at the art or craft of your choice with the guidance of an expert teacher. Tickets can be purchased online and if

you order before 12th June, you can take advantage of the early bird offer and get 10% off.

When: 14-17 July, 2016

Where: 4 St Oswald's Studios, Sedlescombe

Road, London SW16 1RH Web: www.artinaction.org.uk

Spring events at West Dean Gardens

West Dean Gardens are now open for 2016. Take a stroll round the Spring Gardens, explore the Arboretum or check out the latest short courses available to learn a new craft. The Annual House Opening at the end of April offers a fantastic opportunity to see the historic state rooms and learn about the rich history of West Dean House. Alongside the fine art collection, there will be installations from the Visual Arts & Conservation students at West Dean College.

When: 30 April–1 May, 2016 Where: West Dean College & Gardens, West Dean, Nr Chichester, West Sussex PO18 0RX Web: www.westdean.org.uk

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Oxford Furniture School inspiring the next generation



Award-winning pieces made by the students

ertain commonalities bind wood ✓ workshops the world over. There are the ever-present workbenches, of course; a range of familiar tools, an array of raw materials in various stages of development perhaps and the unmistakable smell of timber. Go into the workshops of The Ryecotewood Centre at the National School of Furniture in Oxford and you'll find something that isn't quite as universal and that's the tangible buzz of men and women making, creating, honing and learning.

The focus of the school, which runs both City & Guilds and degree courses, is to create the master craftsmen and women of the future, ready for work in either a commercial or design environment.

City & Guilds course leader Phil Gullam is clear in the skills he wants to equip his students with: "The furniture industry is desperate for young people to have certain core skills and if they want to pursue a career in commercial furniture making, we want to ensure they are at the head

of the queue. We place great emphasis on establishing good hand skills in every single one of our students along with teaching other skills such as timber selection and budgets. We are the only furniture centre to be taking students from Level 1 City & Guilds all the way to BA degree level. We get students not just from the UK but also from across the world, such is the reputation of Rycotewood and because of our dual emphasis on craft and making."



Simon Bulley's award-winning sycamore and walnut table

Among the degree students is 27-yearold Simon Bulley. After leaving school at 16, Simon went into carpentry but a desire for increased accuracy and detail led him to the degree course via the City & Guilds Level 3. He has already been hugely successful, producing an award-winning



The lack of 'tells' on the joint is a mark of Simon's skill

table of sycamore (*Acer pseudoplatanus*) and walnut (*Juglans regia*), which Phil delights in dissecting. "What we are always looking for are 'tells'," he explains, "these are the giveaways that a mistake in technique has been made." He picks out the lapped dovetail joint in one of the table drawers that



Simon Bulley, one of the talented degree students studying at the Oxford Furniture School

Simon has made and runs his finger over the work approvingly, "He's a done a great job." 80 hours of craftsmanship went into the design and construction of the piece, a testament to Simon's skills and just one of the reasons he was recently awarded a City & Guilds Medal of Excellence.

Fiendishly difficult

Among the projects students must tackle is producing a small game box. Walking over to a bench where a completed item sits, Phil picks it up to point out the mitred dovetail joints and with a grin explains: "These joints are fiendishly difficult to do and this game box project is possibly the least favourite task that our students have to tackle all year as it takes you through so many painful processes. It's all about precision but you see a student grow through this process and gain through the knowledge they accrue. To deliver a piece that we find acceptable, they really have to dig deep."

The correct and apt use of power tools is essential, and another of the bedrock skills students are equipped with. Bosch is an ardent supporter of the Oxford Furniture School, supplying a complete portfolio of both professional woodworking tools and extraction accessories. "Precision at this level is a skill in itself," continues Phil "It's harder than it looks, but it's essential to have the best tools at your disposal. The support of our sponsors, especially Bosch, SIA and Axminster means that we can continue to offer the students a great experience, with the best tools, in a safe environment."



Students work on a variety of challenging projects



Students are taught in a hands-on manner

Dust extraction

Alongside hand skills, Phil prioritises safety and is passionate about extraction, indeed everywhere you look in the workshop Bosch mobile dust extractors sit squat on the floor, removing wood dust as efficiently as a toad on a lily pad catches bugs. "If there's one thing I want to send our students away with, it's an awareness of dust extraction and how precious their health is. It used to be when you walked into a wood workshop, you'd see a fine film of dust everywhere and it would only take a minute or two before you felt it in your mouth. That should be a thing of the past now.

Bosch is a generous supporter of our school and their extractors are efficient and easy to use. The fact that they are easy to wheel around a workshop is a huge boon. SIA has been very supportive too and we have the benefit of its dust-free sanding discs. As a department we are committed to creating the very best practices with our students; we have a simple rule in our workshop, if the power tool can't be extracted we don't use it."

If you're a member of a collective and would like to raise your profile then submit a story to dereki@thegmcgroup.com

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Editor's round-up...

Having trouble sourcing the right tool for the job? Derek Jones sets about identifying the essential tools and equipment on offer this month

All sterling prices include VAT, correct at time of going to press

K, so you've got your pattern maker's vice on the front of your bench, a tail vice on the end and supplementary Moxon for dovetailing and transfer, so what's missing? For the majority of tasks the aforementioned clamping and holding devices have surely got it covered. But what about that odd component that's difficult to hold at the height that makes working on it easy and accessible? For that you'll have to go a long way to find anything quite as versatile as the Ad-vice. Douglas Coates, who as it happens is no stranger to the pages of F&C, has been developing his version of this vice for more than a year and is just about ready to launch into small scale production. Versions of the vice have been in the 'field' for long enough now to iron out the wrinkles and find a range of uses that best suit its design. A growing number of tool makers such as Oliver Sparks have taken a shine to it and even contributed to the development of the tool including an option to have removable soft or shaped jaw inserts for specific tasks.

The mechanism for clamping the device to your existing workbench, or kitchen table for that matter, is pure genius and harks back to Douglas' time as an engineer. Suffice to say once in place it's rock solid until you need to move it. Being able to vary your working height to suit the application is the easiest way to simplify any number of tasks not to mention alleviating fatigue and back strain. Apart from the build quality, which is superb, there's not much more to say other than place your orders early or risk a long wait.

Apart from a break in routine perhaps what makes setting up camp on site a pleasure is having a range of tools and equipment suited to the task. Festool's CTL-SYS fits the bill nicely and may even appeal to the small shop with limited space. We've got the details over the page but will be back with more in a couple of months when we've had a chance to put it to the test. For now though let's have a look at some of the other things that passed through the F&C 'shop this month.

Ad-vice

Add-on vices raise your work up to a far more convenient height for a lot of the work we do, such as cutting joints and sizing smaller components. Any bench height is a compromise and they are generally made fairly low to suit more physical work (prepping boards, general stock sizing, etc.).



From

£280

As a project progresses, however, being able to work higher and closer is an advantage. The Ad-vice by Douglas Coates (see inset photo) raises work around 200mm – enough to make a real difference. Based on the old European carver's vices, it is a mini leg vice with a screw-adjust lower guide. So it works exactly like a small leg vice, or like a Jorgenstyle clamp turned vertically. The main screw tightens against the lower screw so the lower screw must be adjusted roughly to the jaw opening. In practice one setting

of the lower screw will cover a decent range of jaw openings (around 25mm) – this is just the same as with leg vices.

A decent vice has to be rock solid. The clamping mechanism is unique and was developed by Douglas Coates. It replaces the old-style screws clamps (a sort of G-cramp made of wood joinery, used on the carver's vices of old). The clamping on the Ad-vice was designed to create a very solid three-point contact with the bench top (for

absolute stability) and the clamp block pulls the vice down and into the bench front edge, hence the clamp force most closely opposes the forces the vice sees in use.

The Ad-vice is ideal for work on smaller components such as drawers, runners, etc., but is easily powerful enough to handle carcass components, much cabinet-making work and larger billets. The Ad-vice is made from premium beech (Fagus sylvatica) with selected hardwoods. The vice faces are

easily replaced and one has a leather facing. There is normally a choice of feature wood for the main boss – recent vices have been made using yew (*Taxus baccata*), holm oak (*Quercus ilex*), box (*Buxus sempervirens*) and olive (*Olea europaea*). The pegs and wedges are made from ebony (*Diospyros* spp.). It will fit a slab top bench (no apron) of thickness 40–110mm (thicker still on request). Vices are made to order and take around two to four weeks.

CTL SYS mobile dust extractor

Approved for dust category L, the CTL SYS is a very small, lightweight and compact extractor, in a SYSTAINER format for maximum mobility. Transporting it is easy, whether using the handle or the shoulder strap. The integrated hose, cable and nozzle store mean everything is always easily available, and it can be quickly and securely re-stowed.

It is compatible with T-LOC in a SYSTAINER system for optimum workplace organisation. The extractor works extremely quietly thanks to the low sound pressure level of 67 dB. As well as mobile use in fitting and servicing work, it is ideally suited to smaller-scale grinding, sawing and drilling jobs. It is only suitable for dry extraction.



From £12.03

Gold Max abrasives

Mirka UK is launching its new Gold Max abrasive line-up specifically for long, narrow and wide belt sanders designed for paint and lacquer sanding. Its stearate coating minimises clogging and pill forming when the abrasive is in use, leading to increased durability of the product and less downtime for the machine.

The abrasive's blue fired aluminium oxide grains enable it to achieve a high cut rate even on harder paints. Its innovative anti-static E-paper provides the abrasive with added strength and stability to offer efficient sanding and a smooth surface finish while the semi-open coating minimises the dust loading on the abrasive so that it can be used on a variety of intermediate and fine sanding applications. Gold Max is available in rolls, narrow and wide belts and has a grit range of P320-P800.

Thirlwell Tools marking gauge set

The Thirlwell Tools marking gauge set is a multi-tool designed and handmade in Australia to fulfil a number of common woodworking functions. The tool is made from a combination of stainless steel, brass and Australian blackwood (Acacia melanoxylon). It is a marking gauge, a trammel with both hardened steel points and a pencil fixture combined, the set is also supplied with an extension rod, which extends the radius of the trammel from 65-400mm. One of the trammel points, which is normally secured in the end of the marking gauge rod, can be removed and reversed in the end of the rod and used either as a scriber or a marking awl. The head of the marking gauge is made of brass and inlaid with wood and designed to fit the natural curve of the fingers. There are no protruding locking screws on the sides of the tool as the locking of the head to the shaft is accomplished by the application of a single locking nut at the rear of the headstock. The locking mechanism is a collet-based system similar to a router or milling machine.



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New dust extractors from Makita

Makita is adding two new, M-Class approved dust extraction vacuum units to its already extensive range as the campaign for improved dust management takes construction industry priority. In addition Makita has introduced a dual power extractor that can be powered by mains or battery and will be a very useful cleaner for maintenance teams.

The new Makita VC2201MXI/VC2211MX1 M-class dust extractors bristle with innovative features. These extractors feature a new automatic self-cleaning filter system achieved by two triple function filter units. These are composed of a powder filter, damper and pre-filter, which use a valve system to redirect airflow through each of the filters in turn to release the collected dust into the retainer.

Compact router sub-base with handles

Woodworkers who like the easy handling of a compact router but miss the control and stability of a handled base now can enjoy the benefits of both with a new sub-base from Rockler Woodworking and Hardware. The Compact Router Sub-Base with Handles has a 150mm diameter plate that provides a larger surface area for increased stability and ergonomic handles that enhance control by allowing two-handed routing. Made from 6mm-thick clear acrylic, the plate also offers excellent visibility of the cutting area. The plate's stepped centre opening fits standard guide bushing inserts for easy template or pattern routing, and the plate is predrilled for quick mounting to the fixed bases of the most popular Bosch, DeWalt and Porter-Cable compact routers.



4592 double-sided tape

Tesa's 4592 double-sided tapes provide high-strength and immediate bonding of mirrors to furniture. Mirrors are increasingly being used as integral elements in furniture design as a way to reflect light and open up space. 4952 is the ideal tape to meet this demand as it offers a rapid, reliable and efficient application. At just 1.15mm thick and made of a medium strength PE foam, the recommendation is for 61cm² of tape to be applied vertically per 1kg of glass. Whether on wardrobes, occasional furniture, dressing and vanity units or bathroom cabinets, the product will give high instant bonding strength and durability over time. This is true across a variety of substrates used in furniture manufacture, including wood, MDF, acrylics, glass and many plastics. 4952 also allows furniture manufacturers to provide the best aesthetic results, with the hidden bond offering clean, uncluttered lines free from any mechanical fixings.



MINI TEST: Dremel 8200



the tool in a
vice makes it the
perfect grinder for this
delicate job. Of course you
can and maybe should clamp
the iron in the vice instead but as
far as I can make out there are no rules

far as I can make out there are no rules here. The variable speed on the 8200 means you can work with great control and make very fine adjustments. The grinding tools supplied with this model are more than adequate for the job and you won't risk overheating the iron. A range of polishing tools are included so you can effectively hone the edge as well.

If you're in the habit of making models before you commit to the full-size version then a Dremel could be a complete machine shop in miniature especially if you invest in the router bit accessory kit. With two batteries in the pack you'll have to be caning it some to find yourself without power. The caveat here is don't ask too much of the tool. For short bursts the cordless is fine but for anything else go corded and stock up on accessories, you'll get through them like nobody's business.

Contacts

4592 double-sided tape

Contact: Tesa Tel: 01908 500 333 Web: www.tesa.co.uk

Ad-vice

HOTOGRAPHS BY GMC/DEREK JONES

From

£139.9!

Contact: Douglas Coates
Web: www.coatesengland.co.uk/vices

Compact router sub-base with handles

Contact: Rockler Woodworking and

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Web: www.rockler.com

CTL SYS mobile dust extractor

Contact: Festool Tel: 01284 760 791 Web: www.festool.co.uk

Dremel 8200

Contact: Dremel Europe Tel: 0344 736 0109

Web: www.dremeleurope.com

Gold Max abrasives

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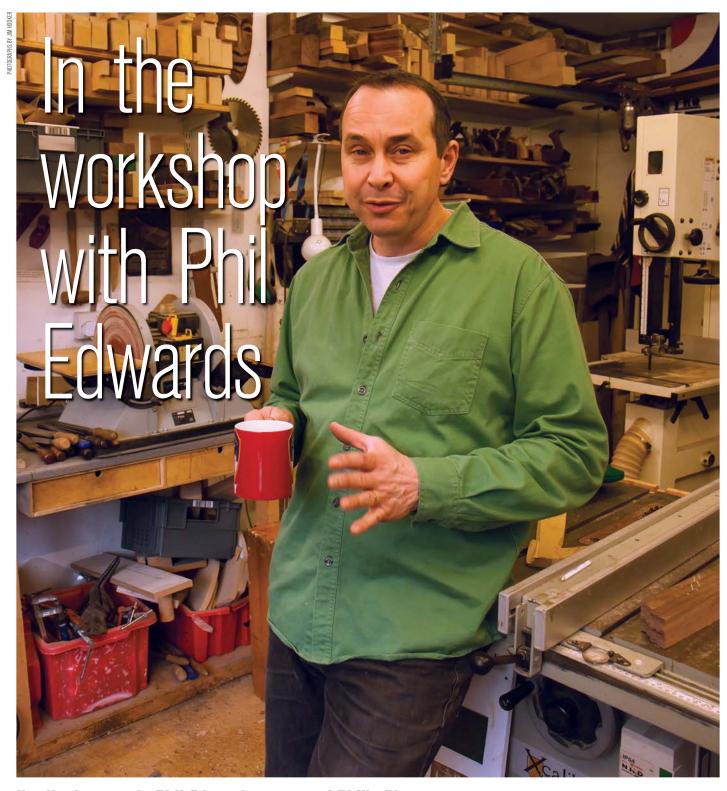
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Jim Hooker meets Phil Edwards, owner of Philly Planes

hil Edwards is the man behind Britain's only commercial maker of traditional wooden planes – Philly Planes – but his route into plane making has the elements of misfortune, serendipity, marketing nouse and, above all, hard work and skill, typical of many successful small businesses. I recently spent a thoroughly enjoyable morning in his Dorset workshop, seeing some of his beautiful planes and hearing his story.

Finding the right career

Originally trained as a chef, Phil first took up

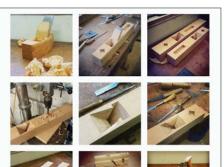
woodworking as a hobby and then decided to make a career change to work as a site carpenter, hanging doors and fitting kitchens. Alongside his new career, Phil continued developing his furniture-making skills and started writing about his projects for woodworking magazines.

After a while, an editor looking for something a bit different asked him if he fancied having a go at making a plane that could be used as the basis for a series of magazine articles. There followed an intense period of book buying – Phil reckons he has

just about all the books there are on aspects of plane making – and research. The nine resulting articles on a variety of aspects of plane making led to two things; a realisation that plane making was something for which he could develop a serious passion and numerous requests by readers for him to make planes for them. The fact that this coincided with being made redundant from his carpentry job added a considerable incentive to consider whether these various strands of fate might be pointing to another new career, in making planes.

"Hard though
making such a
life changing and
financially risky
decision was,
actually putting the
idea into practice
and turning it into
a living proved a
whole lot harder"









Phil has found social media sites, such as Facebook and Instagram, useful for reaching a younger audience

Building a business

And so it was that Philly Planes was launched with a website in 2007, but hard though making such a life changing and financially risky decision was, actually putting the idea into practice and turning it into a living proved a whole lot harder. As Phil explained to me, he had first to find his own distinctive plane making 'voice'. At first he made anything asked of him and even surveyed prospective customers about what they were looking for; the resulting 'customer committee' plane proved not to be very

popular – a valuable lesson in the value of inexpert market research.

A re-evaluation of his fledgling business' direction led to the conclusion that if he concentrated on the types of planes

with which he most personally connected – those made by the best English makers of the 18th and 19th centuries such as Robert Wooding and William Madox (early and mid-

18th century respectively) – there might be enough woodworkers who shared his passion to make a successful business.

That there was no one in the UK and almost no one in North America doing this at the time was proof that either there was a gap in the market or that there was no market! Happily, the success of Philly Planes clearly demonstrates that there is a market.

However, finding your plane-making niche is only part of the story. Phil had also to find ways of making his products cost-effectively, source materials, solve the problem of metal components – more about these later – and also work out a marketing strategy. In the 21st century a website is vital to building a market presence but it is only a starting point. In the first year Phil attended just about every

show he could find to gain awareness among as many woodworkers as possible; now he is much more selective.

However, a
website and show
appearances are
not enough, you
need to persuade
people to visit your
site, and here Phil

views an active presence on social media such as Facebook, YouTube and especially Instagram as vitally important. I asked him whether he had noticed a new interest among younger, social media savvy, people in the use of hand tools and, if so, to what he attributes it. He believes this revival in interest is indeed real and attributes it to a world which, for so many, is highly virtual in both social and work terms, but fails to meet a fundamental human need for a creative

Beautifully made planes soon to go off to eager customers. From left to right: small coffin smoother in Pau rosa, coffin smoother in beech and rebate plane in beech

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 outlet involving the use of hands, brain and real tactile materials in a rewarding way.
 Social media is uniquely capable of reaching out to this group to demonstrate that there are accessible ways to meet this need.

Making the planes

Philly planes are, with few exceptions, made from the traditional British planemaking wood - quartersawn beech (Fagus sylvatica). Given the relatively plentiful supply of beech you might be forgiven for thinking that you could simply ring one of the major timber merchants and order quartersawn beech, just as you can quartersawn oak (Quercus robur), but you can't. It seems that these suppliers reserve all their quartersawn boards for the major furniture makers, so it is a question of touring all the timber yards in a 50 mile radius in the hope that they have a recently sawn butt or two from which the centre boards can be pulled and purchased; a time-consuming business.

Plane makers through the ages have developed their own methods of making, not least when it comes to the tricky matter of forming the throat and mouth. Many devised ingenious machines for this process, which they kept well away from the eyes of competitors and did not record for the same reason. So, today's plane maker is still on his own and Phil uses the decidedly low-tech combination of a pillar drill and hand tools. For this he has a wide selection of floats, some made by Lie-Nielsen and some smaller homemade versions for places where access



One of the planes that inspired Phil, an exquisite No. 1 hollow by William Madox from ca. 1750

is more restricted. Floats are an underrated woodworking tool, working like a row of scrapers accurately aligned in one plane to enable a flat surface to be formed in places that cannot be reached with other hand tools or routers.

Recesses such as those for the metal work on a moving fillister are formed using a small milling machine which, while not really up to the job of working accurately in metal, is perfectly capable of producing neat, accurate recesses in wood. Having never previously done any metal working, this is another skill that Phil has taught himself and for it he uses a somewhat larger mill that is well up to the job of working mostly in brass. All metal components for the planes, apart from screws and T nuts, are made in house.



Phil's collection of floats, used for forming mouths and throats, plus a homemade specialised scraper



The completed wood parts for a moving fillister. The large brass block will be milled to form the adjustable depth stop

"Throughout the ages craftsmen have adopted the technologies available to them in order to earn a better living and make a better product"

This includes blades that are made from O1 tool steel. Phil does his own heat treatment and has found that the cleanest and quickest way is to use a gas blow torch for heating and an oil bath for quenching, using a combination of changing steel colour with rising temperature and the fact that steel ceases to be magnetic at the required temperature – determined with 'a magnet on a stick'. Low tech, but it works.

Despite catering for hand tool enthusiasts and enjoying hand work himself, Phil cannot afford the luxury of performing every operation by hand and uses machinery where this will cut the making time or improve quality. He is baffled by the antipathy the use of machines seems to generate in some enthusiasts on the basis that a plane which has had machines used in its making somehow lacks purity. As he says, "Throughout the ages craftsmen have adopted the technologies available to them in order to earn a better living and make a better product, whether that be the pit saw or a CNC router, and it is only in relatively recent times that anyone has thought any the worse of them or their products for it." I could only agree with him. Perhaps it is a legacy of the Arts and Crafts movement, which romanticised the idea of hand work as some kind of higher calling.



The small milling machine used for forming recesses in Philly planes. Being lightweight it is more suited to working in wood than metal



The larger mill used for metalwork

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Like many woodworkers, Phil couldn't resist the temptation to make this piece of workshop furniture look nice. Despite appearances, this tool cabinet is at least 90% MDF

Workshop

The Philly Planes workshop is a converted double garage and, as will be apparent from the photographs shown here, it is not the surgically clean and tidy workplace sometimes seen in F&C profiles. It is itself a hard-working tool with plane blanks lined up on its upper shelves but everything needed is there, from the pillar drill and mills already mentioned to a middling sized table saw, a jointer, router table, and wood and metal working lathes, not forgetting a well-worn workbench with front and tail vices and a small wood burning stove to keep warm.

The future

There can be little doubt that Philly Planes has a bright future. Phil Edwards is an affable and engaging promoter of his excellent planes and clearly has the skills, inventiveness and adaptability needed to solve any problems he encounters. When asked if Philly Planes could ever be more than a one-man business his response was an emphatic 'Yes'. He has a nine month waiting list, 60% of his output goes to North America, he is expanding his range to include more specialist models and the hand tool revival is running in his favour.

The three years he reckons it takes for a business like his to become viable has been weathered and he is now making a living. The biggest obstacle to expansion is finding a young person with the right combination of application and aptitude to learn the trade.

Finally, if you were in any doubt as to how multi-dimensional Phil Edwards is, many of his weekends are taken up with playing guitar and singing in mod-revival band The Lambrettas!

Contact: Philly Planes
Web: www.phillyplanes.co.uk



Phil's well-used metal working lathe



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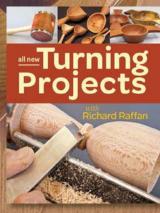


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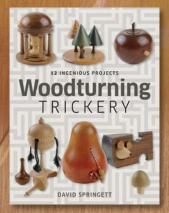


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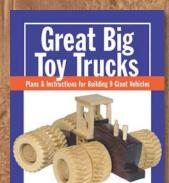
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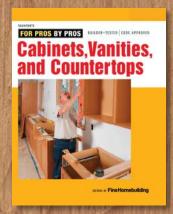


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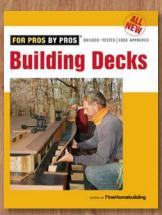
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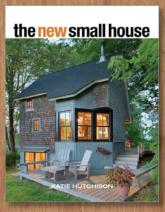
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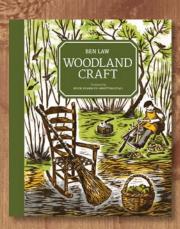
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Testing the Holtey Purfling cutter

Kieran Binnie reviews the Holtey Purfling cutter and puts it to work on a Roubo bookstand

orner decoration is a distinctive element of many stringed musical instruments including those of the violin and guitar families. Although at first it may seem purely decorative, corner decoration performs the important structural function of protecting delicate corners and preventing knocks or cracks spreading across an instrument's thin acoustic plates.

There are two principle types of corner decoration – purfling and corner binding, and although these terms are often used interchangeably they are in fact very different. For corner binding a ledge is cut into the joint between the side and the soundboard, removing the corner of that joint which is then replaced with a hardwood strip. Purfling on the other hand leaves the corner of the soundboard intact, but inlays a

hardwood strip close to the edge of the instrument, and therefore has much in common with string inlay techniques used by period furniture makers.

There are a number of methods for cutting the channels for purfling, and corner binding ledges, including routers mounted in 'lazy Jane' jigs into which you push the instrument (always a nerve-racking experience) or blades mounted in handles which are used to score the edges before excavating material with chisel or router plane. Regardless of what method is used, what is essential is that the channels cut are of a consistent depth and width, and for purfling that they are a consistent distance from the edge of the instrument. Recently I've been testing the most impressive, and over-specified, purfling cutter I've ever encountered.

This mid-19th-century violin has lovely purfling and matching inlay on the back

Rosewood and maple corner binding on one of my guitar builds

Review - Holtey Purfling cutter







Using the two blades together cuts a channel 2.5mm wide, which can be expanded up to 4.8 mm wide using shims

Features

The product of a long standing friendship between plane maker Karl Holtey and Robin Lee of Veritas, this purfling cutter has been designed by Holtey and manufactured by Veritas/Lee Valley. According to the Lee Valley website a limited run of 100 units has been made, and the handles for each tool were turned by Holtey himself.

First impressions are exceedingly favourable, and indicative of the level of quality you would expect from the drawing board of Karl Holtey. The 90mm long rosewood (*Dalbergia latifolia*) handle is comfortable in the hand and a small raised ledge near the top adds a pleasing visual detail. A 58mm-long stem gives plenty of surface area to register against the side of an instrument when cutting. The front of the otherwise cylindrical stem has a

generous 8.5mm wide flat, and the cutter bar can be orientated so that the blades are either on the curved or the flat side of the stem, depending on whether you are cutting curved or straight work. The blades themselves are held in a 48mm-long bar that passes through the main stem at 90°. Knurled brass thumbscrews allow the blades to be released, and to adjust the travel of the short bar through the main stem, which determines how far from the edge of the workpiece the cut is made. The range of travel on the short bar allows the blades to be set from 0.5mm to 30mm from the main stem, which should cover all eventualities. Two blades are included, each 1.15mm thick, and these can be used simultaneously to cut both edges of the purfling channels in one go, or individually for corner binding ledges.

Using both cutters simultaneously, with the cutters placed bevel-to-bevel, results in a channel 2.5mm wide, and user made shims can be used to increase the channel width up to a maximum 4.8mm.

So far so good, but here is the clever part; most other hand-powered purfling cutters are mounted in a knife-style handle, which dictates the angle at which the tool can be held. Not so here. The elbow between the handle and the stem articulates through 180°; a twist of the handle to loosen the locking mechanism is required, rotate the stem to the desired angle and twist the handle clockwise to lock. This makes for a comfortable experience and Holtey tells me that the ergonomic benefits of this design mean that his purfling cutter is very popular with makers who have injured or weak wrists.

In use

This all sounds good on paper, but how does the purfling cutter perform at the workbench? As should be no surprise given that Karl Holtey designed the cutter, this is a Rolls Royce quality tool. The handle is comfortable even for long periods of use, and slips into the palm of the hand. The high level of adjustment in blade depth, and position of the cutters in relation to the main stem, means that the tool is easily configured to the requirements of the workpiece at hand. Both thumbscrews lock authoritatively and I had no concerns that they would come undone in use. Similarly, the articulated elbow locks solidly and stays in position throughout use. While the articulated elbow might at first look like a gimmick, being able to adjust the handle angle really does improve the comfort and versatility of the cutter, and is a very welcome feature.

The blades are sharp out of the box and slice with, and across, the grain, with ease. Some purfling cutters suffer from a tendency to follow grain patterns rather than the edge of the workpiece, which results in an inconsistent (and unsightly) distance between the purfling and the edge of the work. However, I never found this to be an issue with the Holtey designed cutter, thanks to the generous fence and the articulated handle. This combination allows



maximum pressure to be maintained against the reference edge. The result is a cutter that tracks to the line without any risk of wandering.

The choice of curved and flat faces to the fence means that curves are as easy to cut as straight edged work, and it is simple to switch between the two faces of the fence for different sections of a work piece. The cutter works just as well for defining the edges of corner binding as it does for purfling channels.



The rosewood handle is turned by Karl Holtey himself

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Conclusion

Although this is the most expensive (\$329.00) purfling cutter I've yet to find, it is also without any shadow of doubt the most versatile. The features devised by Karl Holtey mean that the purfling cutter would be as useful to a furniture maker as a luthier, and it is an easy matter to set the tool up for a wide variety of purfling widths and distances from the edge of the work.

If I had one criticism it would be that

the minimum channel width of 2.5mm when using both cutters simultaneously is a little wide, and it would be good to see alternative cutters sizes on sale to allow for purfling channels of narrower widths to be cut in a single pass. However, this is a small complaint, and it is always possible to cut narrower channels by using a single cutter and doubling the number of passes. In short, this is one review tool that I don't want to leave my tool chest.

Purfling the Ruobo bookstand

Having lived with the Holtey designed purfling cutter for a while I was itching to use it on a real project. My current guitar build is not yet ready for any corner decoration, so instead I decided to add some holly (*Ilex aquifolium*) inlay to the edges of a Roubo bookstand I built last summer. In some respects this is the perfect test piece for the purfling cutter as it features both concave and convex curved edges, in addition to straight sections. This necessitates cutting both across and with the grain, and puts both faces of the fence to use, as well as testing the ability of the cutters to slice through dense mahogany (*Khaya* spp.).

First, I set the depth of each blade to a hair less than the depth of the purfling material to be installed. The easiest way to do this is to hold the blades against the purfling material and retract them through the stem until the correct depth of cut is achieved. Next the distance between the blades and the main stem was set so that the purfling channel is cut the correct distance from the edge of the workpiece (I opted for a distance of 6mm for the bookstand). Finally, I secured the workpiece to the edge of the bench so that the main stem could ride along the edge of the work

without being caught on the bench below – a holdfast is perfect for this task, although any decent clamp would work.

When a project requires purfling to be installed on both straight and curved sections I divide cutting the channel into stages. With the Holtey designed cutter this approach also minimises the number of times the orientation of the fence, between curved and flat face, needs to be changed. I cut the straight sections of the purfling channel first, taking several light passes until the blades were at full depth. Taking light passes makes keeping the fence hard against the edge of the work significantly easier as most of your focus can be on pulling the fence into the work instead of pressing down on the blades. In contrast, trying to sink the full length of the blades into the work in one go can encourage the blades to follow the grain pattern and allow the fence to drift away from the edge of the work. Often the cut will he shallower at each end of the channel so once the full length of the channel has been defined it is worth working each end from the middle until the full depth of cut has been achieved consistently along the length.

With the straight channels marked out, I moved the blades to the curved side of the



Set the depth of cut by referencing the blades against the purfling material

fence and traced around the curved sections of the bookstand, again using several light passes until I was at full depth. A fine chisel cleared the waste from the channel, and a small router plane can also be useful if the channel is wide enough to accommodate the router plane blade. Again, working from the middle out towards each edge can help to ensure that a consistent depth is achieved throughout. I also use a fine marking knife to refine any corners between curved and straight sections.



A holdfast is perfect for securing the work, while a fine chisel removes the waste



The purfling channels have been cut and cleaned out

Review - Holtey Purfling cutter



A fine bladed marking knife and a mini chisel are useful for cleaning up the transitions between sections of the purfling channel

With the channel cut and cleaned up I gently chamfered the two bottom edges of the purfling stock with a cabinet scraper – this makes for an easier fit during glue-up and ensures that the purfling does not bruise the show edges of the channel. The purfling was then cut to length, again starting with the straight sections. I find that using a wide chisel gives a cleaner end to fine purfling, thanks to the extra mass and also not needing to balance a narrow blade on small stock – although it looks like overkill to use a 25mm-wide chisel on 2.5mm-wide purfling this technique is definitely beneficial!

bending iron while they were over length, and then trimmed to fit.

I prefer hide glue for purfling installation, and standing the bottle of glue in a mug of hot water for a few minutes gives a less viscous consistency, which is easier to brush into the fine purfling channel. After brushing the glue into the channel I fitted the curved sections first, followed by the straight sections. A couple of gentle taps with a small hammer seats everything nicely, and the work is set aside until the glue cures. Once the glue had cured I brought the excess purfling down flush with the surface of the bookstand using a cabinet scraper.



Bending purfling on a hot iron is a two-handed job - unless you also need to take pictures!



Gentle taps with a small hammer will seat the purfling within the channel



The completed Roubo bookstand

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Face values

Neal Crampton shows how solid wood can be used beyond the conventional frame and panel on his intriguing facet cabinet

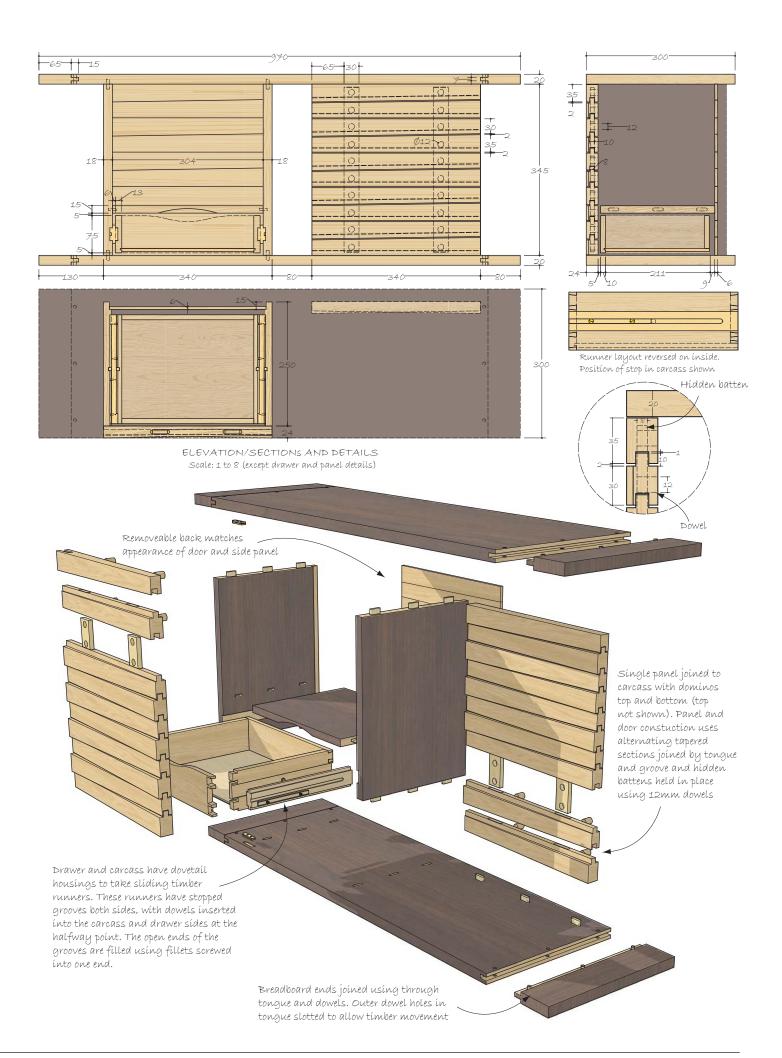


he facet cabinet came about as a speculative exhibition piece. I wanted to design a piece to highlight the warmth and strong grain of oak (*Quercus robur*). To this end I decided the piece should be starkly simple with strong linear elements, giving an almost architectural feel. But most of all I was certain that the piece should be made from solid wood. I don't believe you can truly celebrate the grain of a wood when that grain only runs a fraction of

a millimetre deep. Solid wood must be used sympathetically such that the grain of the wood, including its end grain, enhances the structure of the piece.

In this case I wanted to dispense with the conventional framing elements in a frame and panel construction, and have the grain running in a single (horizontal) direction. Instead the door was stabilised by concealed batons running through the door. The constructional necessities of this method, such as the narrow staves and expansion gaps become the prominent features of the design. The staves were tapered and faceted to introduce interesting effects in light and shadow. The carcass, visible only as two horizontals when viewed in profile, was fumed and ebonised to emphasise the natural oak. As a final nod towards the versatility of solid wood the hand-dovetailed drawer runs on full extension wooden runners, purposefully left visible.

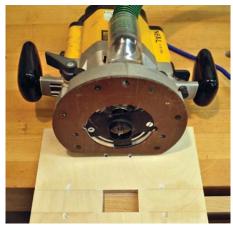
DTOGRAPHS BY JOHN GARON



Door components



The door is made up of 10 individually tapered staves, which are threaded onto concealed batons



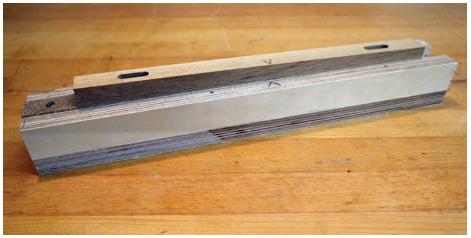
The concealed batons run in mortises routed with a bushing guided cutter running around an aperture



The underside of the jig contains a number of stops to accurately locate the stave



The stave is shaped in its width using a sled jig



The jig holds the stave at the appropriate angle for the taper



First the taper is roughly cut on the bandsaw

The door and neighbouring panel were to be the main focus of the cabinet. The choice of grain was essential – wild, swirly grain patterns can look sensational in large areas, but for smaller linear components straight, tight grain is needed. To this end I used carefully selected quartersawn oak for the staves that make up the door and panel.

Laying out the door can be confusing, and a full-scale drawing is recommended! To calculate the initial dimensions of the staves allowances must be made for the tongues and grooves and the expansion gaps either side of them, as well as any tapering. The position of the concealed baton within the door must also be carefully considered; it must run wholly within the tongue of the stave and the tongue must also be suitably placed to allow any shaping on the front of the stave.

Accuracy is paramount when making these doors. Each door is made up of 10 individual staves so any small errors are soon multiplied. It is essential to start out with accurately machined stock and to maintain this accuracy throughout the machining processes. I would recommend making plenty of spare staves to be used in the setup of each machining process.

The first task is to cut the mortises for the concealed batons before any shaping of the staves takes place. This is done using a router with an appropriately sized bushing guide and cutter, used in conjunction with a jig. The jig consists of an aperture around which guide bushing is run. The exact dimension of the mortise is not too important as the batons will be machined to an exact fit afterwards. Beneath this aperture a number of stops hold each stave securely to ensure the mortises are consistently accurate. The mortise is cut to the full width of the stave in a number of small passes to prevent any disasters.

The concealed batons are made of maple (Acer campestre) for its stability and strength and have previously been machined oversize and left in stick. The straightest batons are chosen (there is little chance of making a flat door with warped batons) and these are machined to an exact fit.

The staves are tapered along both their width and thickness. This involves constructing a pair of sled jigs that hold the stave at the required angle for cutting each taper. The width taper is cut first. The sled jig consists of a cradle and a shim that holds the stave in place. The bulk of the waste is cut off on the bandsaw by holding the reference face of the jig against the fence of the bandsaw. To finish the taper the jig was carefully fed through the thicknesser with the reference face of the jig against the thicknesser bed. This leaves a surface

requiring only a fine skiff with a hand plane to finish. Great care needs to be taken to ensure the stave is firmly held in the jig, especially when thicknessing. In this case the stave is held in the jig by two screws into the edge of the stave. These screw holes lie in what will become the groove and are removed later.

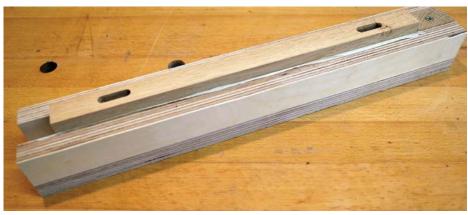
The tongues (and the corresponding grooves) are now cut on the freshly tapered edge of the stave. This must be done prior to cutting the taper in the thicknesser as both front and back faces are required to cut the tongues. The tongues and grooves are gauged from either face and cut on the router table using a grooving cutter. It is important that the top of the tongue does not 'bottom out' on the base of the groove so the staves have room to expand as well as contract.

Finally, the staves can be tapered along their thickness using a second sled jig, in exactly the same way as for the width taper. In this case the securing screw-holes are later removed as they coincide with the position of the dowels that fix the concealed batons. The final width profile and thickness profiles are shown. The through mortises are contained within the tongue-and-groove channel and the shaping doesn't impinge on this channel either, as planned.

>



The rough cut is cleaned up using the thicknesser



The finished taper



Cutting the tongues and grooves on the router table



The stave is then shaped in its thickness using a second sled jig



The finished width profile of the stave...



... and the thickness profile

Door glue-up

Prior to assembly all the surfaces must be finished. The finished look of the door relies on sharp, crisp surfaces and edges, so if ever there is a time for heavy sanding, this is not it. All the faces are hand planed, I use a number 5 plane for the faces, a block plane for the edges and a low angle block plane for the end grain.

The door can now be assembled. To ensure everything remains square and flat the door is assembled in a frame that is exactly square, which is in turn clamped to the bench (which is of course flat – right?). The staves are threaded onto the batons without glue and the whole assembly is placed in the frame. Packing pieces ensure that the expansion gaps between the staves are even. With everything in place the door is clamped along the length of the batons.

The door is held together by dowels that pin each stave to the

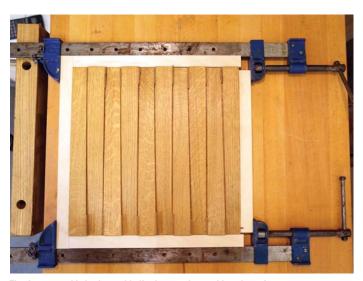
batons. These dowel holes are routed in the back of the door while it is in the frame. To do this the door assembly is flipped in the frame and the dowel holes routed using a template and a router fitted with a guide bushing. The dowels can now be glued with the door assembly still in the clamps without any rush or stress about the glue going off. Cleaning up the doors is similarly easy, the dowels and any excess glue is flushed off with a plane. The finished doors can then be fitted for height with a few strokes of the plane and hinged using Brusso pivot hinges. The finished door can't really be fitted to an opening in the conventional manner, as planing the sides of the door is liable to lead to breakout across the back edges of each stave. Therefore extreme care is needed to make both the door and the carcass perfectly square.



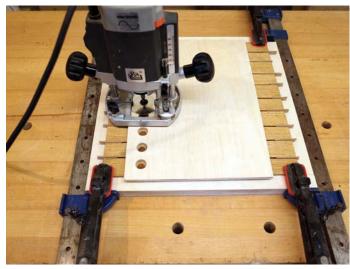
Prior to glue-up the stave ends are finished



The door is glued up in a frame made exactly square



The door assembly is clamped in the frame using packing pieces to ensure even expansion gaps



Dowel holes are routed in the back of the door. The door is clamped to the bench to ensure flatness

Full extension wooden drawer runners

While the practicality of metal full extension runners is undeniable, I have never really felt them suitable for fine furniture. On this piece I decided to head into proper wood engineering and make a set out of wood. The runners run in two dovetail housings, one in the drawer side, one in the carcass. Stops running in grooves prevent the runner extending more than halfway out of each housing, i.e. when the drawer is fully open.

The dovetail housings in the carcass are routed before the carcass is glued up. The drawer front is fitted tightly to the opening, but with a packing piece on each side to allow for the runner. The drawer is then made traditionally with through dovetails and a cedar (Cedrus spp.) base, although the sides are thicker to accept the runner housing. The dovetail layout is altered such that the runner housing is contained within the central tail at the front and rear. The assembled drawer is then planed down to a slightly looser fit in the packed opening. The dovetail housing is then carefully routed into the sides of the assembled drawer, a harrowing experience! Great care should be taken to ensure these housings are identical

to the carcass housing, ideally by using the same height setting on the router table.

The drawer runners were made from well-seasoned maple, again plenty of spares were machined up and the straightest chosen. I found fitting the runners to be not at all easy. While it is pretty straightforward to get a single side running freely, to get both sides running together is altogether harder. What follows is the best method I could come up with, but is still reliant on a fair amount of trial and error.

The thickness of the runner is the crucial measurement that determines the fit, this was carefully measured as twice the housing depth, plus the thickness of the packing piece used in the drawer fitting above. The dovetailed shoulders are then cut on the router table using the same cutter height as for the housings, and adjusting the fence so that each runner runs freely in its housing. Provided everything has gone right, the flange between the two sliding dovetails should now be precisely the width of the packing piece used in the original drawer fitting. This should lead to a perfectly fitting drawer, just as it did in the drawer

fitting above. If the drawer does bind there really is no way to adjust this other than starting again with a slightly thinner set of runners, hence the spares!

Stops are necessary to stop the runner falling out of the housings. Dowel stops are placed halfway along both the drawer and carcass housings. These dowel stops run in stopped grooves in both sides of the runner. The groove is routed with one end open, which is subsequently stopped by placing a fillet in the groove. The photos shown on the following page illustrate how the stopped end of the groove limits how far the drawer can extend, and how the fillet stops the drawer being pushed into the carcass. There is an analogous arrangement on the carcass side. The drawer is installed by screwing in the fillets in situ, so ensure the screws are accessible with the drawer installed.

Finally, remember that the drawer is installed from the back, so make sure any back panel is removable! In this case I chose a back panel that mirrored the design of the door, in solid wood of course.



Full extension drawer runners run in dovetail housings in the drawer side and carcass



Dovetail layout to accommodate runner housing in drawer side

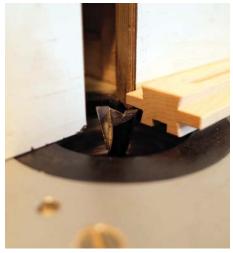


The drawer is fitted to the opening with packer pieces to allow for the runners



The housing is routed into the drawer side

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Routing the dovetail shoulders on the runners



The spacer and the flange should be exactly the same width



The stops prevent the drawer overextending ...



... and disappearing into the carcass



The drawer is installed by screwing in the fillets

Conclusion

I really enjoyed the challenges this piece brought and hopefully I have explained my motivation for exploring the slightly unusual construction methods. I hope I have also hinted at some further ways in which these methods can be exploited. Neither of the

methods I have described are particularly advanced in any single stage and with sufficient forethought, methodical working and a constant eye on accuracy you should be able to achieve similar results.

Beyond the frame and panel

Frame and panel construction, whereby a floating solid panel is constrained by a frame, is the traditional method of stabilising panels of solid wood. The purpose of the frame is two-fold; it allows the panel to expand and contract while maintaining the outer dimension (i.e. preventing a door from binding in its opening), and it prevents the panel from warping. In the pursuit of a more contemporary look, manmade boards are often used to remove the

unwanted movement of solid wood.

Alternatively, the movement of solid wood can be embraced; with imagination and a bit of thought, stability can be brought to solid wood in myriad ways beyond the frame and panel. Furthermore, the constructional necessities of these designs can be emphasised as a hallmark of contemporary craftsmanship, for example as visible dovetail batons. This approach is not new and was exemplified by Franz Karg, a German

woodworker active in in the 1970s and 80s. As my work continues I am learning to appreciate the beauty of solid wood and how this can be enhanced by complementary design. As you can see in the photos here, wide staves enhance a beautiful single board of ash (Fraxinus excelsior), whereas narrow staves showcase the exceptionally tight grain of larch (Larix decidua) grown at alpine altitudes, set against ebonised oak (Quercus robur).



Detail of visible dovetailed baton in larch and Formica cabinet



Doors constructed from a single board of native ash

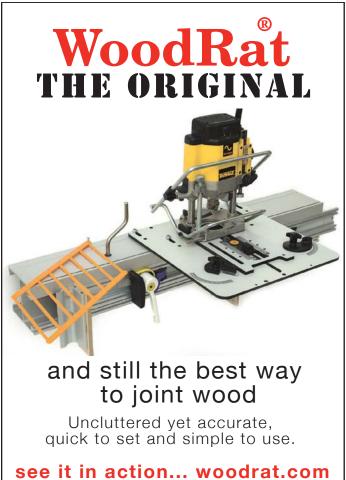


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Beneath the surface

Neil Erasmus explains why the secret to a perfect oil finish is plenty of elbow grease



Il too often, woodworkers have a fairly vague understanding of the various types of wood coatings and their particular methods of preparation and application. What should be clear to the maker is fitness of purpose for the furniture type, and based on this, a decision is made as to the type of finish and the gloss level required. It may even be that the piece, or pieces, are finished in more than one finish type. A dining table and matching chairs, for example, may all be oiled, with the exception of the table top, which the maker may choose to finish in a harder wearing, two-part spray finish. This article covers my particular method of oiling, and its preparation and finishing.

Why oil?

Over a long career designing and making, I have used most finishes, but have settled with an oil finish for almost all my work. The exceptions to this rule are cabinets and chests of drawers, where I apply a nitro-cellulose finish to all concealed parts to avoid the months-long off-gassing that oil finishes tend to do. The exposed surfaces are then oiled as usual. I mostly spray all

internal parts of carcasses several days prior to assembly, masking off all joinery beforehand to allow the glue to do its job later upon assembly.

Providing you choose an oil type that is formulated without any toxic drying agents, the task of applying an oil finish can be done without the need for cumbersome and sometimes costly gear. There are now a small number of manufacturers who produce oils that are mainly based on natural linseed oil, but which also contain only plant, or organic drying agents, rather than toxic chemical ones. We find that we are able to work with the natural finishes for extended periods of time without any discomfort, such as skin irritation, headaches or nausea. The Germans, in particular, produce excellent finishing oils for all woodwork, for both interior and exterior applications. Some are even specifically formulated as floor finishes for homes occupied by people with severe allergies.

Natural finishes such as oil and shellac are best applied to hand-planed or finely sanded wood surfaces, unlike their modern lacquer counterparts that require a coarser surface to 'key' properly to. I prefer a surface that is so smooth that light is absorbed well below the surface, allowing all the wood's natural, vibrant colour and figure to be reflected back to the viewer. Due to the rougher surfaces that are required on furniture that is sprayed, these beautiful, natural features in wood are mostly obscured.

Lastly, oil finishes are so forgiving, both from the maker's perspective and from the owner's point of view, in that repairs to the finish, or even a complete rejuvenating oil finish, are dead easy years later.

Preparation

In a nutshell what you wish to achieve, ideally, with a wood surface prior to the first application of oil, is one that has all the attributes of a hand-planed surface. This is true irrespective of the nature of the surface, whether it be flat, or shaped. So, if your hand-skills are up to it, a finish straight off a well-honed cutting tool is, I believe, impossible to beat. If your preference is abrading, you would need to sand to about 600 grit, or finer. I generally sand through the grades 180/240/320 and 600, checking the surface regularly with raking light, which exposes scratches that show up as shadow lines. Imagine a scratch as a valley in an

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otherwise flat terrain, and the 'sun' (your light source) rising over the horizon.

The flat areas become bathed in light, while the valleys, or scratches, which may be nothing other than miniscule marks left by a coarser sandpaper, stand out as a shadow. This is the most efficient way to know when you've done enough, and neither too much nor too little sanding! The 'feel' test, I'm afraid, does nothing to inform you how you are progressing. I sand flat surfaces such as table tops with a random orbital sander, but always finish by hand, sanding with the grain in long, even strokes, before vacuuming out any dust residue from the grain. This last point is a very important one, as dust residue gives the wood an ill-defined, muddy appearance, rather than leaving it looking crisp and clean, with welldefined texture. I like edges, corners and fine detail to be sharp and crisply chamfered, so I always sand these areas entirely by hand to maintain definition, or use a sharp block plane or spokeshave.

I feel that it is prudent at this stage to point out that I do not subscribe to the practice of wetting wood regularly to raise the grain, then sanding it flat. In fact, I feel this method, rather than achieving a nice smooth surface, actually creates one that is dimpled with tiny 'divots' that reflect less light, making the surface look and feel rougher. These little hollows in the surface are the spaces that were occupied by the tiny 'splinters' of raised grain caused by the drying out of the wood surface after it has been wetted with water. I find that with careful preparation of the surface of wood, it should never be necessary to de-nib the first, or any other, coat of oil. Of course, spray lacquers are different in that the first spray coat will raise the grain somewhat.

I never use steel wool to prepare wood for a finish. Aside from the obvious problems caused by metal residue in sometimes tannin-rich woods, steel wool-rubbed wood loses crispness in its texture.



Working with a raking light helps to expose scratches



Hand sand to finish, working with the grain using long, even strokes

Applying the oil

Depending on the nature of the item and its surface, I use several methods to apply oil. For complex pieces like chairs I use a paintbrush, while a roller is used on big, flat table surfaces, and a rag is employed for small, simple items. Once a wet coat of oil is applied, the excess is always rubbed off, but the amount of oil that is applied, and the time between application and wiping off varies depending on a number of factors.

The first coat

Once the wood is properly planed and/ or sanded, and the dust removed from its pores, it is ready for its first coat. Polishing, needless to say, should always be done in a fairly clinical environment. Too much dust will invariably put paid to all your efforts, so a clean place with fresh, clean materials is a must. For the purpose of this article, I am oiling a jarrah (Eucalyptus marginata) dining table top. The four, subtly figured old-growth boards are consecutively quartersawn, with rich pink to burgundy tones. I opted to apply the oil with a simple paint roller, as this is the quickest way to apply the first, liberal wet



Use a paint roller to apply the first coat quickly and heavily

coat. Remember that much of the first coat will be absorbed into the wood, so it needs to be the heaviest of all. Within several minutes you can see a patchwork of little dry spots where the oil has been absorbed into the wood. There is no harm in keeping it wet by going over the surface again with the roller for a little while, but don't add any more finish.

Once applied, I try to 'read' the situation as carefully as I can in terms of how much time I have before the oil begins to thicken. Ideally, I wait as long as possible before I rub this coat out, but this 'window' can be anywhere between 10 and 40 minutes, depending on the ambient temperature. Rubbing out a coat that has partially polymerised (the surface goes sticky) is hard work, and in such a case I would recommend re-wetting the surface with more oil to help dissolve it. The warmer the day, the quicker the oil thickens. A scrap piece of the same material, sanded to the same standard, is always a good option on which to test the surface, before rubbing any excess oil off. I simply rub a 50mm diameter ring on the surface with a rag-covered fingertip.



Dry spots will appear where the oil has been absorbed into the wood

You want to feel a dryish oil covering that readily rubs down to the wood surface, leaving no residue. Too much pressure and rubbing means that it has been left too long!

It is vitally important to remember that natural wood oils generate a lot of heat as they polymerise and can ignite, so place all rags and oil-contaminated materials in an air-sealed container to starve them of oxygen, if they need to be reused.

Alternatively, place them in water and discard them after several days.



The first coat of oil can be applied after planing, sanding and dust removal



The time it takes the oil to thicken varies depending on ambient temperature

Finishing tech – oiling

Rubbing

Any old, but clean, rag will do to rub off the excess first coat of oil. I gently rub across the grain to 'fold' some of the excess oil into the open pores to somewhat fill them, before rubbing along the grain in narrow figure of eights. I finish by rubbing, this time more vigorously, straight along the grain. There is a little secret to this last point: the rag gets folded into the hand a little like a large shellac rubber, and firmly held. Ideally, you want to rub in long continuous strokes from one end of the table top to the other, imagining your hand as an aircraft coming in to land early on the runway, and running well beyond the end, then 'landing' at the other end, and so on, overlapping each stroke a little. This way you avoid smudging the surface. Once the surface looks and feels smooth, it needs to be left for 12 hours or so to cure properly.



Rub across the grain first, then rub along the grain in a figure of eight



Hand sand to finish, working with the grain using long, even strokes



The wood should be left for 12 hours to cure

Burnishing

The first coat has now cured, and the next stage begins. Run your hand across the surface. It should feel as smooth as the raw, finely sanded wood. If it feels a little rough, it probably means that the oils, rags or atmosphere are contaminated with dust. In this case you are forced to sand this coat to de-nib it. If it is only very slightly rough, I rub it back with the back of a

piece of #600 sandpaper, rather than the sandpaper itself.

I now burnish the surface with a wad of natural hessian, rubbing hard and quite vigorously along the grain. You can wrap the hessian around a cork sanding block if you prefer. You should notice a distinct glossing of the surface. Be prepared for a workout, as this is pretty physical, but the results are astounding.



The hessian wad can be wrapped around a sanding block



You need to rub hard and vigorously along the grain



Burnishing is hard work but produces excellent results

Second coat

Now that the first coat has sealed the wood and it has been burnished, all subsequent coats can be more sparingly applied, so an application rag and a wipe-off rag are all you need. Again, fold the rag into a neat rubber, charge it with oil, and wipe a wet coat across the grain, before wiping with the grain. This coat, and all coats that follow it, will go tacky much sooner, so be vigilant! I tend to be cautious, so I will begin to wipe off all excess oil with the dry rag immediately, and then rub it with the hessian cloth to an even glossier shine. This time you'll notice that the hessian gets dragged back by the curing oil, but keep it moving!

The third coat and any further coats are all applied in exactly the same way as the second. If a satin finish is required after the last coat has dried, there are two ways I do it. 0000 steel wool can be used, or a special buffing pad fitted to a random orbital sander. The latter, especially, gives a beautiful,

consistent finish. The steel wool method requires a little care to get right. Use only top quality steel wool, and tear off a decent wad of it, then wrap it around a cork sanding block and rub the surface only along the grain in continuous, straight sweeps. The aircraft landing technique should yield good results. A word of caution, however, is due: never use steel wool anywhere near opengrained woods such as wenge (Millettia laurentii) and especially oak (Quercus robur).



For the second coat, wipe across the grain first, then wipe with the grain

Oil recipes

I am often complimented on the finishes on my furniture, and asked whether I have any special recipe. Mostly, I use the oil just as it comes from the manufacturer, but if I'm after a heavier build, and/or a more water-resistant finish, I often add marine varnish and orange oil. The ratios will vary depending on the product used, but as a rule of thumb I mix propriety wood oil, marine varnish and natural orange oil in the ratio of 3:2:1, respectively. The varnish is a better sealer, while the orange oil helps to extend the mix's open time, but also lubricates the rag when rubbing off. This system is particularly good for high-use table tops. F&C

Details

Neil Erasmus is a third-generation, full-time designer, maker, writer and teacher living in Perth, Australia.

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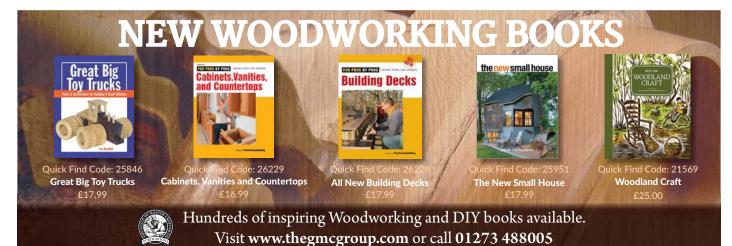
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Diamonds are forever

Jacqueline and Shane Skelton of Skelton Saws introduce you to the art of chequering



Ithough the art of chequering has been around for many hundreds of years, it was first seen used in England in the late 18th century. British gunsmiths realised that by producing a sturdy chequered grip one could eliminate the problem of guns slipping from a shooter's hand in damp conditions.

So what is chequering? Well basically it is the intersecting of a series of V-troughed parallel lines to produce a diamond pattern. The human eye being naturally drawn to straight lines, makes chequering not only functional, but also decorative and aesthetically pleasing. While this technique is synonymous with gunstocks, it can also be found as an accent feature on tools, furniture and small decorative objects such as jewellery boxes.

Providing a grip to any surface, chequering can be employed in both wood and metalwork. Traditionally done by hand, this skill has largely been lost due to industrialisation and the introduction of machines, stamps and lasers to speed up manufacture. However, it must be noted that chequering of superior quality can still only be achieved by hand and is only done

so by the world's best gunsmiths and artisans, those who are able to create the crispness of corners that a machine could never reproduce.

There are lots of different styles of chequering including: Pointed, Flat Top, Semi-Flat Top and Skip Line (also known as Scottish Chequering because of the tartan-like effect that is created). In this article, however, Shane, who re-chequered many gunstocks during his employment as a gunsmith, is demonstrating the basic technique of Pointed Chequering. Although the patterns and borders can be taken to extremes, with an equal amount of patience and practice the basic art of chequering can be accomplished.

Tools for the job

Back in the day there used to be an array of chequering tools available from a number of different makers, for those who didn't produce their own tools by hand. Today, however, these tools are less accessible and unless you come across a good vintage find your best bet is a Dem-Bart tool. They still produce a variety of cutters, handles and marking out gauges. Effectively mini saws, the teeth

on chequering tools range from 16–32tpi, additionally specialist tool heads are also available. It's good to bear in mind that the finer the tooth of your tool, the harder it is to work, therefore we would suggest not going any finer than 20tpi to begin with. In fact all the tools shown here can be purchased rather inexpensively from Peter Dyson & Son Ltd of Holmfirth, Yorkshire. Additionally you will require a sharp pencil, a ruler and a toothbrush for cleaning and applying a finish.

The most common wood on which to apply chequering and the main timber used in gunstock production is walnut (*Juglans regia*). However, any tight grained hardwood, for example beech (*Fraxinus exelsior*), maple (*Acer campestre*) or rosewood (*Dalbergia spp.*), can be chequered. The raised crisp diamonds that are being cut in need a certain amount of strength which some open-grained hardwoods such as oak (*Quercus robur*) and elm (*Ulmus procera*) couldn't offer. Always practice first and build up your confidence and muscle memory using some scrap wood before setting out onto finer projects.

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The basic tools required to get you started



A vintage Swiss-made chequering tool and a Dem-Bart handle fitted with a two row cutter 20tpi

Marking out

To illustrate the Pointed Chequering technique, Shane has decided to show you how to create a traditional diamond shape. To begin with, using a sharp pencil and a ruler first draw out a diamond shape on your piece of wood.

If you are not using a marking gauge one must remember that a diamond is always between three and three and a half times longer than its width, the diamond point equates to around 33° with the flats being parallel to one another.



Using the chequering gauge, mark out the angles for your diamond



Fully marked out diamond ready for cutting

Forming the border

Using a two-row cutter chequering tool, place the tips of the outer row of teeth on the pencil line of your diamond border. Lightly push the tool forward along the line, engaging only one row of teeth by slightly canting the tool from vertical. This will start to form a trough along the marked edge. Be aware that you don't require a great amount of force as you don't need to cut deep at this stage. Repeat this process around all of the sides of the diamond.

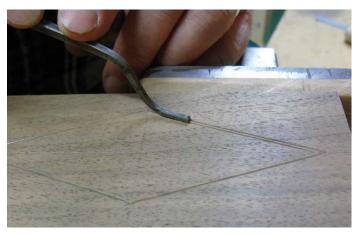
Now place the tool in the single trough that has been formed. Again lightly push the tool forward and slightly roll it vertical to form the second trough. Continue with this procedure all the way around the border, taking care not to overshoot.



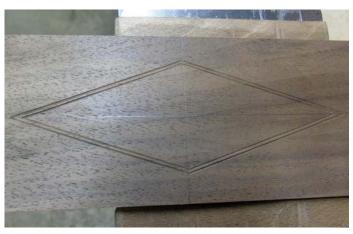
Placing the inside edge row of teeth against the marked line



Forming a straight line outer border trough



Gently rolling the cutting tool to vertical to form a second trough



Outer border complete

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Finishing tech - chequering wood

Forming the diamond

Follow the procedure as before to create a third trough, a fourth, fifth and so on until around eight lines from the border are complete. Then, placing the tool on the opposite border of the diamond, use the same technique. Working your way in you will begin to see the lines intersecting and a diamond pattern will begin to form.

This process is repeated, working from either side until the whole of the diamond is covered. As you are always pushing outwards towards the border, care is needed so as not to cut into it in error. Following this, your diamonds should all now be fully formed.



Using the inner border to form the third trough



Eight rows in from either side the diamonds within the diamond are beginning to form

Deepening the cuts

Using the same cutting tool, you are now going to re-cut all of the rows as before until the tool bottoms out and it won't cut anymore. Making the troughs deeper will raise the diamonds to a point. Note that the deeper you cut the more fragile the diamonds are becoming, therefore take care not to use the nose of the cutter at this stage so as to prevent the diamonds from chipping. You must always use the teeth behind the nose to cut.

As you work, clear the waste away from the troughs using a toothbrush, this will eliminate the chances of the chequering tool skipping.



Deepening the rows up to the border edge



Removing debris using a toothbrush

Smoothing out

Change the two-row cutter you have been using to a single-row one. As illustrated in the photograph we have used an F1.

Holding the chequering tool vertical, re-cut each individual row to the inner edges of the border, this will produce a fine-edged diamond. Ensure that all troughs are of an equal depth and that all of the diamonds are now fully formed up to the border. The border can now be cut using this tool to form a really crisp line around the edge.

Using fine wire wool, lightly rub over the chequering to remove any surface burring and to polish the sides of the diamonds. Again, use your trusty toothbrush to remove any remaining debris.



A single row cutter smoothing out each row



Using wire wool to deburr and polish

Finishing

Chequering should always be oil finished for the best seal. Again, using a toothbrush work the oil (we've used boiled linseed) into all the nooks and crannies, leave for 20 minutes and then mop up the excess and pat dry with some paper towel. And there you have it – your diamond that's forever!

Chequering facts

- Chequering was first seen in England on flint-lock rifles back in 1777.
- Chequering or checkering? Well both are correct, but the latter spelling is favoured more in the USA.
- Chequering originated on the continent of Europe.



Working linseed oil into the completed diamond pattern

References

The Checkering and Carving of Gunstocks by Monty Kennedy, Stackpole Books, 1981



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Over the years, F&C has acquired readers from all four points on the compass and since going digital in 2013, that trend has increased. You can find us anywhere in the world with a link to the web. As the content of the magazine is a true reflection of our readership, we like to take you on a workshop tour of the globe. We're back on home turf this month with John Lloyd in a precursor to a more detailed account of what you can do to ensure a perfect glue-up.



Gluing up in manageable chunks could result in a simpler cramping solution

DESIGN & INSPIRATION

Our correspondent

ave you noticed how glue, or even just the thought of glue can turn an otherwise poised, confident woodworker into a hopeless, disorganised shambles? A piece of furniture is calmly and thoughtfully designed, timber is chosen with care, components are shaped with great precision, everything is a picture of considered composure until the glue bottle is liberated from the cupboard when, ironically, everything starts to fall apart.

Getting organised

Recently I asked a student who was about to embark on a glue-up if he was completely organised. He said 'yes'! but there was something in his eyes that said, 'no, not really but I just want to get it over with so I'm going to go for it anyway'! All too often the gluing part of the woodworking process follows a pretty standard pattern - the word 'glue' is mentioned and a grey mist of confusion starts to swirl around the previously self-assured woodworker who blunders into the gluing process without giving it much more than a fleeting thought. Inevitably the end result of all this is a lot of panicked running around the workshop looking for cramps, plaintive cries for help, and ultimately a sticky and disconsolate mess sobbing uncontrollably in the corner.

So, why do so many people turn into gibbering wrecks at the very thought of a glue bottle and a pile of cramps? Well, when you pick up a glue bottle you are dramatically raising the stakes, up to this point the process has been controllable, a huge amount of time and energy has been invested in the bits of wood that are about to be joined together, things might have gone wrong along the way but they can be resolved in a calm, considered way. When glue is added to the equation you are usually buying a one-way ticket, the first dab of glue goes on, the clock starts ticking and the adrenaline starts to pump. Now, if things go wrong you only have a limited time to put

them right or they might just stay wrong, all of the work that went before might be ruined, suddenly there is a huge amount to lose.

Spontaneity can be a wonderfully exciting thing, but excitement is just what you don't want when you're gluing bits of wood together, what we need here is calm, calculated precision – in short, we need a plan. We have strategies in place for machining components safely and for shaping and accurately cutting joints. What we need are some strategies for the gluing process, including a contingency plan for any minor snarl-ups.

Contrary to popular belief, you can 'have', or more accurately, 'use', too many cramps, keeping the cramp set-up as simple as possible is usually a good thing. Covering your workshop walls with row upon row of cramps might impress someone visiting your workshop, but it won't, in itself, be the solution to your gluing challenges!

Mark every joint clearly using whatever system works for you – triangles, letters, numbers, strange hieroglyphics, it doesn't matter what you use, it just has to be blindingly obvious to you which bit goes where, and leave no room for misinterpretation in the heat of the moment. A rail that ends up with a rebate facing in the wrong direction is never going to be good for morale.

Take the time to do a full dry run, lay all the components out carefully, choose which cramps will work best and, very important, check that they are applying pressure in the right direction, generally at right angles to the joint line. If it seems impossible to get positive pressure in the right place to successfully close a joint tight, don't just press on, and don't forget that it is often possible to solve this problem by attaching, perhaps gluing on, some temporary angled cramping blocks. Bear in mind that glue will add a slippery dimension to the proceedings, so the dry run doesn't tell you everything. Consider making some cauls, nice straight battens about 40 x 40mm covered in nonstick parcel tape, and adding them in pairs to keep everything in line. Remember, apply the cauls first then apply the cramping pressure across the joint.

If it's feasible, split the gluing process up into manageable chunks. It's just bravado, bordering on lunacy, to glue something like a chair, which might have 20 components, (probably upwards of 40 joints), in one go. Selecting an appropriate glue is vital, consider things like strength, moisture resistance, set times and open time, there are several 'PVA' glues that have extended open times; Epoxy, although quite an unpleasant glue to use, has a really useful, long open time and is incredibly strong. And don't dismiss the animal glues as being irrelevant for today's woodworkers, particularly the 'cold-set' ones like liquid hide or fish glue, these are strong, give you loads of time, can be reversed, are waterwashable/soluble and don't affect finishes (not great for boat-building though).

Always work quickly and try to keep the application of glue under control. Even with a glue that has a reasonably relaxed open time, try to execute the glue -up with speed and efficiency, that way if things don't go quite according to plan you might still have a vital few minutes in hand to sort things out.

We all know that tea drinking is a vital part of the woodworking process and gluing is no exception. Having a cup of tea before you start your glue-up will give you a few minutes to get yourself into a calm Zen-like state, consider whether you've forgotten anything, and then confidently and purposefully get the glue-up done, you might even end up enjoying gluing, especially if there are some chocolate cookies in the biscuit tin. Ref

John Lloyd runs a range of long and short furniture making courses at his workshops in Sussex. For details, visit his website at www.johnlloydfinefurniture.co.uk



A well-thought-out former design will make for stress-free laminating



Lamello have some cunning solutions that can do away with cramps altogether



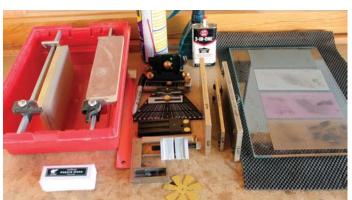
How to sharpen your joinery plane irons

Joinery planes can pose unique sharpening challenges even to those familiar with honing plane blades and chisels. Here's how Charles Mak keeps his joinery planes keen and sharp

he cutters or blades of my favourite joinery planes, namely, the router plane, shoulder plane, skew rabbet plane and plough plane, need different sharpening techniques because of their smaller size, odd shape or compound angle on the edge. Besides freehand sharpening, here is how I can also produce the finest edges.

Sharpening systems

Waterstones are my go-to sharpening media, but I also use diamond stones to flatten stones and to remove nicks or change the bevel angle. In the wintertime and in my unheated shop in Calgary where the temperature can often drop below -20°C, I often resort to diamond lapping films to avoid any contact with water. Regardless of the system used, I prefer to resharpen the tools often (instead of restoring an edge after it has become totally blunt), and always treat them with a rust preventative afterwards.



I can choose the sharpening media according to the iigs and techniques used

Workshop & jigs tech - plane blades

Router plane

A router plane blade has a 90° turn at the base of the shaft. To get around the shaft, one approach – as advocated by the American woodworker Garrett Hack – is to bring the stone to the blade. Under this method, one hand is used to hold the blade bevel face down on the stone, and the other hand is used to stroke the stone to hone the bevel. I find this method more suitable for quick honing of the microbevel, for instance, as the stones can be tiring to the hand.

In a sitting position and with my elbow resting on the bench, I move my arms back and forth to hone the bevel face

An opposite approach is to set a 1,000 grit stone on a bench and press the bevel face against the stone, with the shaft off the stone. Stroke the blade back and forth on the stone until a burr is formed on the flat side. Then polish the flat side on the same stone. Finally, repeat the same sharpening steps with a 4,000 grit stone to complete the primary bevel. In my usual work, I have not found a need for honing the edge beyond 4,000 grit or for adding a micro-bevel.



Polish the flat side to remove the wire edge

"I find this method more suitable for quick honing of the micro-bevel, for instance, as the stones can be tiring to the hand"

Shoulder plane

With its blade the shape of a paddle, the main challenge of a shoulder plane blade is to keep the cutting edge at 90° to both sides when honing. Besides the option of using a commercial jig, I have made a bevel honing jig – a hardwood block with a 30° bevel face matching the blade's angle. The neck is cradled between two strips and is screwed down in position for accurate honing.

After honing the primary bevel through the 1,000, 4,000 and 8,000 grit stones, I put a micro-bevel on the blade with the last polishing stone, by raising the back of the honing block slightly as I make the last few strokes. In resharpening, I freehand hone the micro-bevel only and remove the burr on the finest stone.



The strips and screw keep the blade in the proper honing position



Hold the jig in both hands and keep your index fingers near the front as you push with even pressure

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Skew rabbet plane

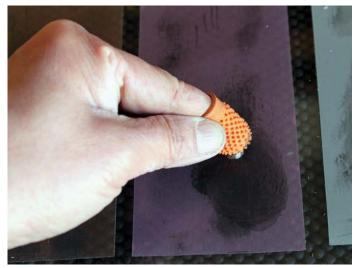
My rebate plane blade has a 22° skew, ground with a 30° bevel. When sharpening, it is critical to maintain the bevel angle as well as the skew angle of the blade, which allows the plane to cut right into the corner of a rabbet. I have two options: Use my commercial honing jig which also allows me to add a micro-bevel on the blade with ease, or go for a shop-made solution. The American author and teacher Christopher Schwarz uses a block with a skew channel and a bevel face to create the compound-angle setup for the blade. Lastly, when the nicker needs honing, simply lap its flat face on a fine stone.



With the blade mounted on the jig and the jig clamped in a vice, stroke a diamond stone on the bevel face



The registration accessory sets the blade at the precise bevel and skew angles in the honing jig



The rubber finger gives more grip on the nicker or other wheel cutters, and prevents finger burns

Plough plane

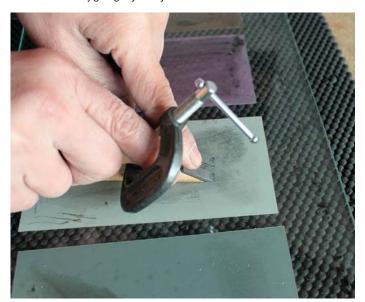
My plough plane can cut grooves and, when used with a conversion kit, tongues, too. The widths or sides of these blades must not be altered when sharpening to ensure the tongues and grooves will match. Again, we can use a commercial honing jig to sharpen the groove and tongue blades. Or, we can make what the late American author Aldren Watson called a grinding palm to hone those kinds of



The design of the c-clamp jig can be adapted for honing different types of blades

blades (details of his jig are given in his book on hand tools).

When I am not using a commercial jig, I turn to my simple c-clamp jig to hone the groove or tongue blade. It is a block with a 35° bevel face and a hole drilled on the side, allowing the blade to be clamped on the bevel face. If I ever want to add a micro-bevel, I simply raise the back of the jig slightly in my final strokes on the finest stone.



Lock the jig with both hands, pressing the index finger over the front and stroke

Further reading

Schwarz, Chris. Correct the Skew on a Plane Blade or Chisel. Popular Woodworking. 2012.

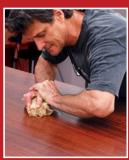
As retrieved from www.popularwoodworking.com/woodworking-blogs/chris-schwarz-blog/correct-the-skew-on-a-plane-blade-or-chisel.

Watson, Aldren. Hand Tools: Their Ways and Workings. W. W. Norton & Co. New York. 2002: 387.









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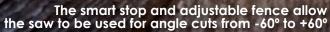
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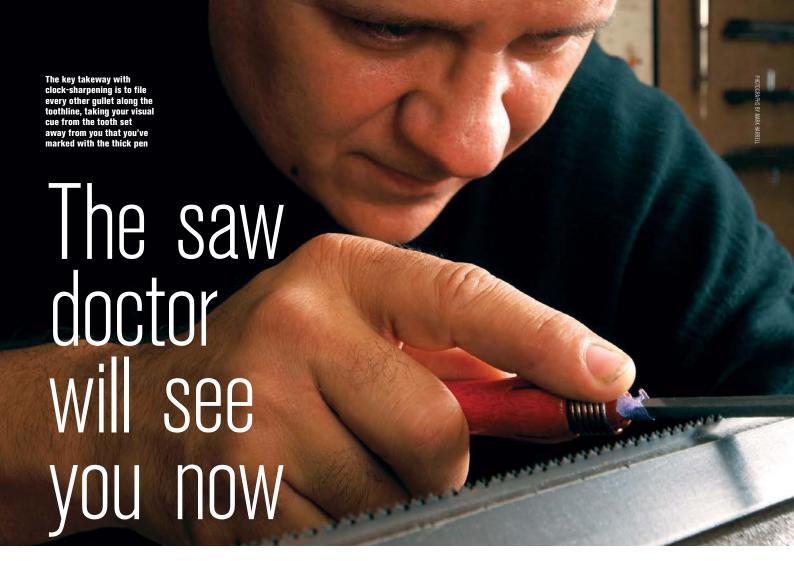






Model	Crosscut at 90°	Cutting depth at 90°	Cutting depth at 45°	Angle cuts	Available in Cordless
KSS300	300mm	40mm	27mm	-45° to +60°	Yes (18v)
KSS400	400mm	49.5mm	38mm	-60° to +60°	Yes (36v)
KSS60	408mm	61mm	47mm	-60° to +60°	Yes (36v)
KSS80	370mm	82mm	55.5mm	-60° to +50°	No





Mark Harrell continues his tutorial on clocksharpening your saw

n the previous issue we looked at the principles of clock-sharpening and the equipment you need to get started. Now it's time to get down to the practicalities. Any paratrooper will tell you that half the game is to leap out of the aircraft door with assertive vigour, keep a sharp lookout for other chutes while descending and then land in a tuck-and-roll fashion to avoid breaking a leg. The same holds true with how you hold and push a saw file. Here are some tips that will enable you to push a file consistently, and at the proper angle, every time.

Mark your teeth

Remember how we dotted each tooth during the hammer-setting process? Now is a good time to re-dot the teeth; again, dot the teeth set away from you only. Flip the saw around, and repeat by dotting the teeth set away from you. Now mount your sawplate into the vice.

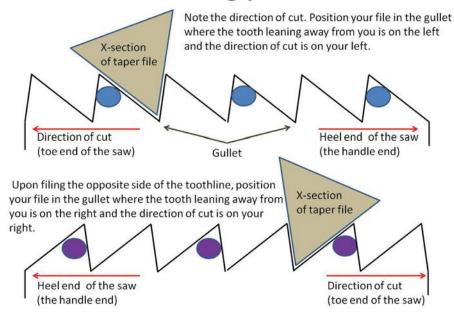
Orientation

Note the graphic direction. See how the toothline presents the toe (leading end of the toothline/direction of cut) on the left, and that the heel of the saw (handle end) is on the right? Lock your file in the first gullet with the tip pointing towards two o'clock for a crosscut filing (or one o'clock for hybrid, or 12 o'clock for rip).

Observe

If you're right-handed, then you're holding the file with your right hand, and standing offset well to the left of the work. Examine the relationship of the file to the gullet and the pair of teeth that gullet shares. In this orientation, the dotted tooth set away from you is to the left of your file, and the tooth set towards you is on the right of your file. Now let your eyes travel over two gullets to the next location where you will land your file – again, the tooth on the left of your file is set away from you, and the tooth to the right of your file is set towards you.

Positioning your File



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Stance

Plant your feet about shoulder-width apart, and stand well offset to the left of your file. Keep your core tight to the action. If you're left-handed, the same applies, only you'll be standing to the right of your file, and will be holding the file with your left hand.

Dry run

Any successful combat unit conducts a rehearsal before commencing with actions on the objective for real, so before actually sharpening metal at this point, it's a very good idea to spend about 30 minutes making a dry run to condition yourself to maintain a consistent sight picture and file placement. Practise picking up your file and placing it into every other gullet, without actually grinding metal. Keep your wrist locked, and when lifting to jump, just barely clear the tips of the teeth, so you don't wipe out the momentary muscle memory that comes with this sequence. Now, some pointers that will keep you from getting lost in the fog of war...

Anticipate gullets

The idea here is to get used to looking ahead after each file placement and repositioning your file while maintaining proper rake and bevel orientation. See the emerging pattern? Every time you move your file and reposition it, you are landing in a gullet where the dotted tooth – the tooth set away from you – is on the left, and the tooth set towards you is on the file's right. Start marching your file down the entire toothline, getting used to the motion, and eyeballing the next targeted gullet before hopping over to it.

Locking in your file for consistent rake

Each time you land the tip of your file into a gullet, rock the handle slightly in a clockwise/anti-clockwise fashion until you feel the tip of the file lock in place. Remember that the file's cross section constitutes a 60° angle and that the gullet you're locking the file into is again a 60° angle. Get used to locking the tip of the file into the gullet every time you jump a gullet.

Sight picture

Get used to looking at the teeth from the side by crouching until you're almost at eyelevel with the teeth. Lock your file into the next gullet. If you can see the teeth from the side, you'll maintain proper rake orientation; this is critical. Pop up occasionally and accustom yourself to looking at file placement from above as this is where you can more easily see jointing flats. This will pay dividends when you start sharpening.

Baby steps

Keep your filing hand's elbow close to your torso and take a baby step after ever three or four file-to-gullet placements. In short, keep your core tight to the work. Again, we're articulated beings, so think about it: if you find yourself reaching out with your arms as you



Check your stance is correct before you begin sharpening

reposition your file further down the toothline, without taking baby steps to ensure your torso catches up to your arms, you will completely throw off your rake and bevel angles. This will result in an inconsistently filed toothline.

Finish your first dry run

With each file placement, let your eyes seek out the next targeted gullet, then move to it. Do this again and again. Take a baby step. Move the file. Seek out the next foxhole. Move out. Repeat until you are at the end of the toothline.

Flip the plate

Once you have completed the dry run down the toothline, flip your plate around in the saw vise. Now everything completely changes: sight picture, core positioning, file-placement, everything. Don't let it wig you out. In military jargon, it's time to 'embrace the suck'. Here's where the quitters of the world do what they do best: quit. Don't worry, you'll adapt.

Reorientation

Now the toe of your saw is on the right and the heel end is on your left. Starting at the toe, position your file in the first gullet. This time, the dotted tooth set away from you is on the file's right, while the tooth set towards you is on the file's left. Orient the tip towards 10 o'clock. Your body's core is now roughly centred on the work, since you are still holding the file with your right hand.

Conduct another dry run

Now you're getting used to using a completely different set of muscles and a very different stance. Keep it up. The dry run on which you've spent the past 10–15 minutes practising will pay off enormous dividends when you actually begin sharpening.

Flip the plate (again), and repeat

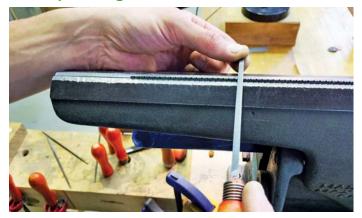
Yes, do it again, from the original posture and positioning. When the Sergeant Major is in front of your formation, you snap-to and do the hard stuff because we're not made of sugar candy, right? March down the toothline again. Look at the toothline primarily from the side. Flip the plate and repeat.

By now, you should be getting pretty used to file placement on both sides of the sawplate. Now our bird is approaching the drop zone and it's time to jump.



Crouch until you're almost at eye-level with saw teeth, viewing them from side-on

Sharpening



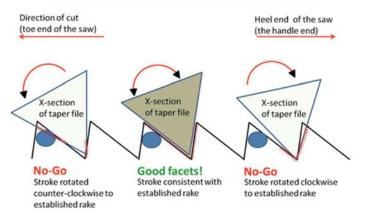
Use light, fluid strokes to file for rip

Let's start off by filing for rip. You've oriented your file perpendicular to the toothline at 12 o'clock, and you've found the manufacturer's rake by wiggling the tip of your file and locking it into place. In one stroke, lightly pass about half the file's length through the gullet, in one light push. Do NOT grind the file through the gullet. The key here is one swift, tip-half brush stroke through the gullet. You'll find that you have carved a facet inside the gullet without actually grinding metal across the entire thickness of the sawtooth. As the narrower tip end of the file passed through the gullet, the broader rear of the file encountered more resistance as it ground metal away from both teeth. What you have done is sharpened both the tooth set away from you (on the left) and the tooth set towards you (on the right).

Take a moment to look at what you've just done. Take your visual cue from the dotted tooth set away from you. Of the two teeth you are sharpening, the tooth set away from you is the one you can actually see and assess the result of your stroke. It is practically impossible to see what you're doing to the tooth set towards you, but rest assured that you are achieving the same result.

If you remained true to the manufacturer's rake, you have created a gleaming facet on that tooth from tooth tip to the gullet. If you rocked your file too far clockwise, you have carved a facet along the upper part of the tooth. If you rocked your file too far anticlockwise, you have carved a facet along the lower half of the tooth. What you want is a facet that matches the entire length of the tooth, from gullet to tip. Once you've established a consistent facet, you've simultaneously established a few seconds of visual and muscle memory; now push the file through the gullet in one, smooth, assertive stroke. Don't grind down hard - let the teeth of the file do the work. What you're looking for now is whether you've managed to file off about half the flat you jointed on the tip of the tooth leaning away from you. Don't overdo it. If it takes another stroke to affect the flat, then push the file through the gullet again with another light stroke. Take note, and don't try to get it 100% right during the first pass - you can always take away, but you can't put back. Move on to the next pen-marked tooth and gullet and repeat.

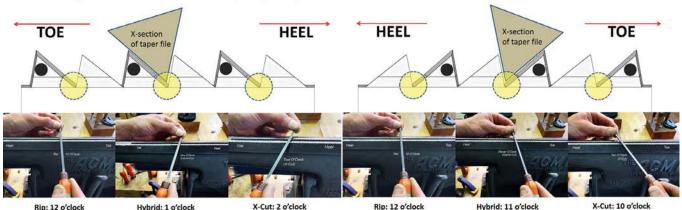
Carve Facet in Accordance with Manufacturer's Established Rake



Use the clock method to establish bevel

Using the Clock Method (1st pass)

Using the Clock Method (2nd pass)



Let's practise hybrid and crosscut filing by adding bevel to the equation and using the clock method for positioning the angle of your file. Again, note that the tip of the file follows the heel when the toe of the saw is on your left. Rest the first inch of your file in the gullet and wiggle it slightly in a clockwise and anticlockwise motion to find the manufacturer's rake. Make a very light stroke to establish your facet. Eyeball your gullet and, once again, see whether your facet has ground the entire length of the tooth. If your facet is good, then follow through with a more assertive sharpening stroke; look to see how it affects

the flat at the tip of the tooth leaning away from you. If necessary, make another light brush stroke with the upper half of your file to dress up your facet; then skip over a gullet to your next sharpie-marked tooth and gullet; and repeat.

When you have completed your first run down the toothline, release your vice and your plate/back assembly. Cinch it back up. Now sharpen the gullets on the other side. This time, you're going to reverse the positioning of your file, since the toe end of the saw is now pointing to the right. Now, the tooth set away from you should be to the right of your file and the tooth set towards you will be on the left. The tip of your file will once again be pointing in the direction of the saw handle. Again, use the clock method for reference, only this time you're filing high noon for rip, 11 o'clock for hybrid and 10 o'clock for an x-cut filing.

despair. The Sergeant Major will remind you ready to abrade metal yet, then go back into dry run mode. Re-familiarise yourself with positioning and movement. Then put the file to metal and jump out of the door.

Keep at it. It's only natural for you to feel hesitant and unsure of yourself, but don't to keep doing the hard stuff. If you're not

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Stoning

Something you don't hear much about when it comes to saw filing is stoning the toothline. Stoning evens out any discrepancies that exist in the set, evening out the kerf as precise as the Sergeant Major's salute.

It's a simple procedure: once you're done sharpening, break out your callipers and measure the brand-new kerf width your toothline of bayonets now presents. Chances are it's a little proud of what you want and there may be some burrs in the way. Lay down some painter's tape (low tack and smooth surface, as opposed to masking tape, which has a corrugated surface), to avoid stoning scratches on your sawplate, and to 'float' the stone about 3mm above the surface of the plate.

Now run a medium-grit Arkansas stone (any knife-sharpening oilstone will do) up and down the toothline. Just the weight of the stone will suffice. Do not lean the stone into the teeth, but rather keep it flat on the sawplate. Now take another measurement with your callipers. You're shooting for a combined set about .005 to .007 in addition to the gauge of the plate. For instance, a .02-gauge plate is best served with between .024 and .026



Stoning evens out the toothline

combined set for knifing through hardwoods, and around .025-.027 for softwoods. For a .025-gauge plate, somewhere between .03 and .032 is best for hardwoods, and a .0315-gauge plate's combined set should be around .037-.038. Just consider your own woodworking style, and the prevalence of



Measure with callipers

wood species you work more often than not. The interesting thing about stoning is that once applied, you can get a nicely finished cut, even when using a rip filing in cross-cut mode. You'll be amazed at the result, and the Sergeant Major will undoubtedly put you in for promotion for exercising good initiative.

A quick recap

Let's review the filing sequence per tooth:

- Sight picture: crouch with the first two passes on the plate so you are eyeballing your file placement from the side, not above.
- Light brush stroke: look for the facet, which should run from tooth tip to gullet.
- Sharpening stroke: this is where you take advantage of the muscle memory from your initiating light stroke to file at least half the jointing flat away from the tip of the tooth.
- Follow-up brush stroke: this is another light stroke to finish up any imperfections from the sharpening stroke, and to set up your visual and muscle memory for the next gullet you're going to sharpen.
- File from tip to tang: you should be pushing the file through gullets all the way from tip to tang on the second sharpening stroke. This will give you the ideal action for abrading metal consistently and cleanly.
- Lock your wrist: it's very easy as you're pushing the file through the gullet to rotate your wrist. This will deform your teeth.
- Creep up on it: your first pass should remove about half the flat. Upon flipping your plate, the second pass should remove much of the remaining flat. Don't attempt to finish sharpening your saw with just two passes flip it around again and repeat. I've been doing this for years, and it still takes me at least four flips and frequently six to complete a saw. Better to creep up on filing off all the flats than pedantically and mindlessly grinding away until you are forced to completely retooth the entire toothline. Remember, each tooth is a little different. Sharpen to joint, not to count.
- Buy a saw vice: while the angle iron is a fun, inexpensive and readily available method to clamp your plate/back assembly, you may

- opt either to buy a vintage saw vice found at flea markets and on eBay (Tools for Working Wood and Texas Heritage Woodworks have great vices for sale), or you can make a wooden vice based on plans available in the woodworking forums.
- Good lighting really helps: buy a good lamp, but remember you'll still need to move your head around frequently during the sharpening process to see the flats you're sharpening off the toothline. You can never move your lamp frequently enough while sharpening to locate any errant flat that remains towards the end of your session.
- Keep a vacuum cleaner handy: filing abrades a fine, metal dust that rises above your work in a dangerous little cloud before settling back down on your toothline and bench. It reflects light, and will obscure your sight as you file. Keep your toothline clean of this stuff, and for heaven's sake don't breathe any of it in, or get it in your eyes!

Conclusion

Don't psych yourself out. If you can sharpen a plane iron, you can sharpen a sawtooth. And that's all you're really doing - you're jointing, hammer-setting and sharpening a pair of saw teeth, one gullet at a time. Conduct a dry run. Use the brush, stroke, brush sequence when filing, and look for a nice, clean tip-to-gullet facet as you go. You'll find that muscle memory and knowing where to look really helps. Start learning how to sharpen saws on an old beater with which you won't mind working out your mistakes. And listen to what your inner Sergeant Major says: it's OK to make mistakes, but train hard and train well. Then bring Sheffield Steel to the battlefield, where you will prevail. F&C



Sawfiling safety

Filing dust is dangerous. Wear a dust mask and safety goggles unless you want this fine, micro-shrapnel abrading your corneas or digging in – for good-deep within the alveoli of your lungs.



About the author

Colonel (Ret.) Mark Harrell is the owner of Bad Axe Tool Works, and works on saws every day. He used to be a serving Army officer, and realised when he finally retired after 28 years that what he didn't want to do was go to work for the man. So, casting his eye on his own basement woodshop, he realised that he wasn't the only middle-aged guy buying low and selling high on eBay to support his hand tool habit. And thus, Bad Axe (and eventually this article) was born. Web: www.badaxetoolworks.com.



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Against the clock

Franciszek de Sage turns back time on a clock that belonged to Marie Antoinette

eorge Pyke's pedestal organ clock is part of the large art collection at Temple Newsam House, a Tudor-Jacobean house on the eastern outskirts of Leeds, West Yorkshire, and part of the Leeds Museums and Galleries Group. The collection of decorative arts, especially furniture, ceramics, silver, textiles and wallpapers has been built up in the decades since 1938 when the house became a museum. Philip Hendy, the curator of Leeds City Art Gallery in the 1930s, first saw Temple Newsam's potential as the natural context for an art collection. Hendy's vision has been continued and the collection has expanded to become the 'V&A of the north'.

The Pyke pedestal organ clock was a generous gift to the museum from Mrs Ina Kitson Clark in 1954. According to the information supplied by the donor the clock had once belonged to Marie Antoinette, but it is not only the provenance that makes this object special.

Music clocks

The clock from Temple Newsam is a great example of early 18th-century attempts to

mechanically reproduce music. By 1720 Italian opera was established in London by leading members of the nobility, under the auspices of the Royal Academy of Music. One of the patrons of London's musical scene was Frederick, Prince of Wales. Opera was now in fashion and people wanted to take it home with them from the theatres. To meet their expectations clockmakers came up with musical clocks.

In 1730 George Frideric Handel transcribed some of his most popular compositions for Charles Clay's musical clocks. Clay was appointed in 1723 as a Clockmaker to His Majesty's Board of Work, a post he held for the remainder of his life and his greatest work was undoubtedly organ clocks. The most spectacular of these is known as The Temple of the Four Great Monarchies and circa 1743 it was acquired by Augusta, the widow of Frederick, Prince of Wales. Unfortunately, Clay died before finishing it and in November 1743 John Pyke, appointed clockmaker to Frederick, finished the clock. John was the father of George Pyke, who carried out his work in the same workshop and held the Royal Warrant as

Organ-Builder to his Majesty. It is the same George Pyke whose name is engraved on the tune selection dial of the clock from Temple Newsam House: George Pyke / Bedford Row / London. Another inscription -March 1765 - found on the sound board, is assumed to be the date of the execution.

How does it work?

When the spring-driven clockwork movement is fully functional it periodically activates the weight-driven barrel organ, which has a manual choice of eight different tunes. In essence a barrel organ works in the same way as a typical pipe organ except for having keys for a human hand to play. As the barrel rotates, the pins on the outer surface lift a key to play the note. The audience was not only to be impressed by the sound but also by the visual 'performance' of the machine. As the organ plays, different layers of automata on the dial move in time with the music within a painted scene. Ships sail on a rolling sea, figures and cattle cross a bridge, water flows and drives a mill, a dog chases a duck and, in the foreground, people go about their everyday business.

Condition before treatment

The conservation project was a collaboration between five departments at West Dean College led by Malcolm Archer, who, together with Jonathon Kelly, was responsible for the treatment of the clock movement, automaton dial and barrel organ mechanism. Sophie Harris carried out conservation of the metal decorative components. Musical instrument students worked on the musicology of the organ and the ceramics department worked on the clock's dial face. My responsibility was the wooden ebonised case.



The areas of damage on the base

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The construction of the base and the hood was structurally sound. The main issues were substrate losses around the plinth and the top moulding of the base caused by furniture beetle (woodworm), lifting veneers and multiple varnish losses of the black surface and of the finish of the peninsular carved corners. There was evidence of mould spores inside the base suggesting inadequate ventilation coupled with dampness from the stone floor. The peninsular carved corners had a light surface dust and the black surface had deeper bonded dirt.



Substrate losses caused by furniture beetle

Treatment

After finishing the condition report I tried to work out the treatment procedure. I knew that the final stages of colouring would have to take place in an especially ventilated room as some toxic chemicals would be needed. In this case the main issue for planning the work was the size and weight of the object (it is 7ft tall), so I wanted to keep the movements down to a minimum. Finally, I divided my work into two stages: phase one, which could be carried out in the general workshop – consolidation and rebuilding – and phase two, which needed the ventilated chamber – cleaning, colouring and rebuilding the surface.

Phase one

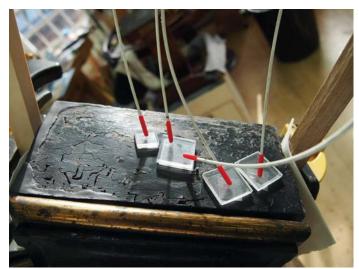
I started the treatment by cleaning the mould spores inside the base using IMS (denatured alcohol) and water. Because the surface inside had been finished with black pigment bonded with animal glue



Lifting the veneers



The veneer was clamped with a batten



Flaking ebonised surface clamped with shimbari sticks

the cleaning had to be carried out without using a rubbing motion to avoid wiping off the finish.

The main challenge with glueing the lifting veneers was to find the appropriate way of clamping. It was again problematic because of the size of the base, which made it impossible to use conventional clamps. I chose the solution of using long pine battens stretched between the ceilings and the surface of the base. I used hot animal glue – an adhesive used in the past that still meets current conservation standards of reversibility.

In multiple areas, the painted surface was flaking. Using a syringe, I applied an acrylic dispersion, Medium for Consolidation, to re-adhere the flaky finish. A clamping system called shimbari was used, which involved the use of flexible fibreglass sticks with Perspex and Melinex clamping pads. The sticks were braced against a temporary wooden frame pushing down lifting bits of the finish.



The battens were stretched between the ceiling and the surface to push down lifting veneers

Once all the loose bits were sound I could move on to rebuilding any missing parts or poor repairs. The areas of loss on the top moulding of the base had previously been repaired with two kinds of fillers: sawdust bonded with animal glue and another one based on shellac. The first one had been used to rebuild areas of loss and the second one was used as a consolidator and meant to fill furniture beetle canals. Both fillers were commonly used in the past but today there are much more appropriate substitutes. The shrinkage rate of the sawdust filler and animal glue is high due to the properties of the glue. It can cause problems with a finished surface being uneven. The shellac-based filler, because of its high viscosity, cannot penetrate areas of furniture beetle damage deeply enough and is very brittle. As a result the filler can create a hard shell over fragile substrate and being stronger than the substrate it could cause damage to the undamaged areas.

I removed the fillers mechanically by delicate scraping trying to lose as little as possible of the fragile damaged wood. For rebuilding these areas I chose a more stable and conservation-appropriate consolidator. Before filling the areas of loss the degraded substrate was consolidated with the acrylic resin Paraloid B-72 dissolved in

Restoration tech - Pyke clock

acetone. To omit the mistakes made in the previous repairs – creating a hard shell over vulnerable substrate – the first solution of the consolidator was applied in low concentration (5% v/w), followed by stronger solutions. It enabled better penetration and prevented the phenomenon called reverse migration, whereby a fast evaporating solvent drags out the resin, which then sets around the surface. The solution of consolidator was slowly increased until the moment when the substrate was fully saturated and therefore well consolidated.

After a series of tests I chose an epoxy resin bulked with china clay

– Milliput – to rebuild the areas of loss. As epoxy is a thermosetting resin (it cures irreversibly through a chemical reaction) it would not dissolve in any solvent. To ensure that these new infills would be possible to remove in the future, I built up a two-part barrier layer – Japanese tissue, followed by a thick paste made of Paraloid B-72 bulked with microballoons (microscopic spheres of glass). This method will prevent the crosslinked epoxy from physically interlocking with the original substrate and will enable removing the infills with the appropriate solvents.



Areas rebuilt with shellac filler and sawdust with animal glue





The damaged wood was consolidated and Japanese tissue was applied



A thick paste was added as the second part of the barrier layer



The areas of loss were rebuilt and shaped



The fillers were coloured in and the finish was rebuilt

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Phase two

As planned, the piece was now ready to be to moved to an adequately ventilated room. I was going to have to use a lot of Xylene (or dimethylbenzene), which is a toxic aromatic hydrocarbon. For extra safety I wore PVA (polyvinyl alcohol) gloves, a mask respirator and eye protection.

First I had to carry on with cleaning procedures. The black ebonised surface was covered in greasy and well-bonded dirt. For cleaning I used non-ionic surfactant (contraction of the phrase surface acting agent, which is a material that lowers the surface tension of the liquid, wetting into dirt more effectively) Synperonic A7 in a 0.3% v/w solution in de-ionised water. After cleaning with a surfactant I proceeded with a rinse that would match the properties of the surfactant used and the characteristic of the cleaning surface. It is crucial to remove residues from a surface because it is hard to predict how they will react in the future. In this case non-polar hydrocarbon solvent rinse was required so white spirit was used.



The surface before and after cleaning



The cotton cloth showing the dirt removed during cleaning



Cleaning procedure

The areas of loss that were earlier rebuilt and shaped could now be coloured in and the final layers of the finish could be built up. For colouring I used black Gamblin conservation colour in Xylene and the gloss surface was built up with layers of Paraloid B-72 in Xylene. The solution varied from 5–10% v/w depending on the degree of shine required. Many varnishes change colour as time passes and go yellow, but both the Gamblin (base resin Laropal A81) and B-72 offer an excellent long-term light stability.

The last stage of the conservation was the treatment of the

carved peninsular corners, which imitate rosewood: the strong wood pattern is achieved by a technique of graining, where on the plain carved wood the rosewood figure is painted. The thick layer of varnish had multiple areas of losses and due to the thickness of the varnish I used a shellac retouching medium, tinted with Orasol (metal complex) stains. That method allowed for a quicker rebuilding process. Finally, to unify the whole surface and get the right degree of shine I coated it with a hydrocarbon resin Regalrez 1126 5% v/w in white spirit.



The areas of loss varnish on the peninsular corners before treatment \dots

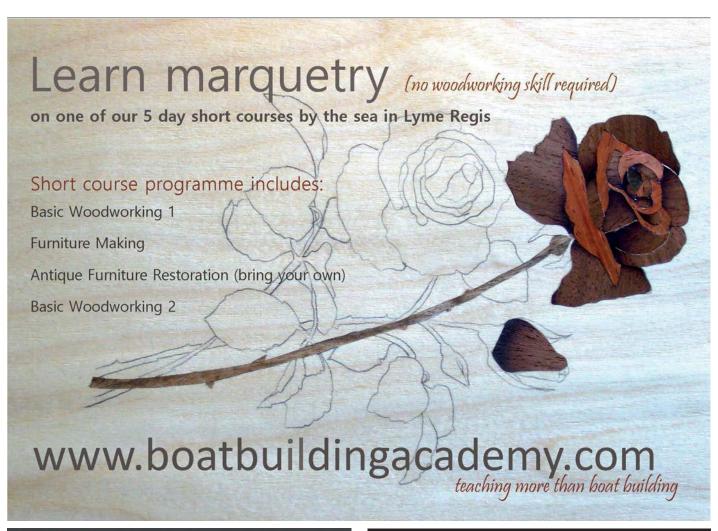


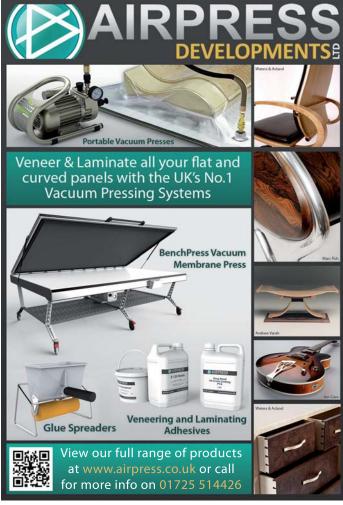
... and after

Following a comprehensive programme of conservation treatment at West Dean College, the pedestal organ clock has now been reassembled and put back on display at Temple Newsam House in its former splendour. After 15 years of silence it can now once again play its tunes and bring us back to the Georgian times.

In making this project possible, the assistance of The Pilgrim Trust, the Raymond Burton Charitable Trust, the Friends of Leeds Museum, the Leeds Art Fund and Leeds City Council is gratefully acknowledged. F&F

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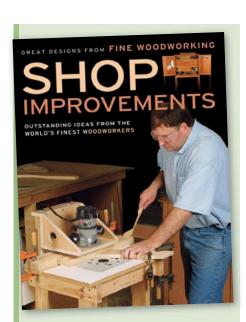
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Three essential bandsaw jigs

In an abridged extract taken from *Shop Improvements*, Michael Fortune looks at making three bandsaw jigs

he wall next to my bandsaw is festooned with jigs that expand the versatility of the basic machine. Though simple to build, each jig quickly and safely delivers the precise results I depend on. Here I'll present [three] of my favorites.

Build these jigs from Baltic birch plywood or medium-density fiberboard (MDF), and adjust dimensions to fit your bandsaw. For the jigs to work correctly, the bandsaw's blade must cut parallel to the fence. To achieve this, I check that the bandsaw's tires are in good shape (no grooves or ridges), then set the fence parallel to the miter-gauge slots. Next, I adjust the angle of the upper wheel. If the blade's centerline aligns with the centerline of the upper wheel, it will cut parallel to the fence. Check by ripping some scrap. You'll know it's right when the back of the blade is centered in its kerf.



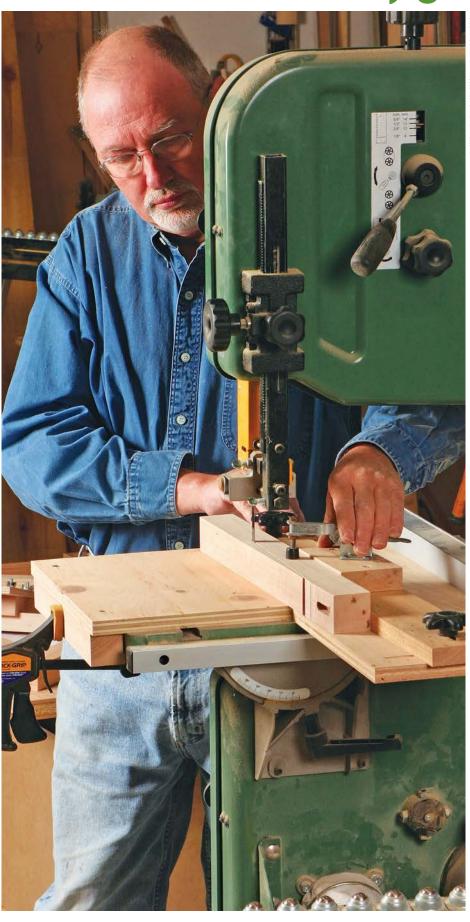
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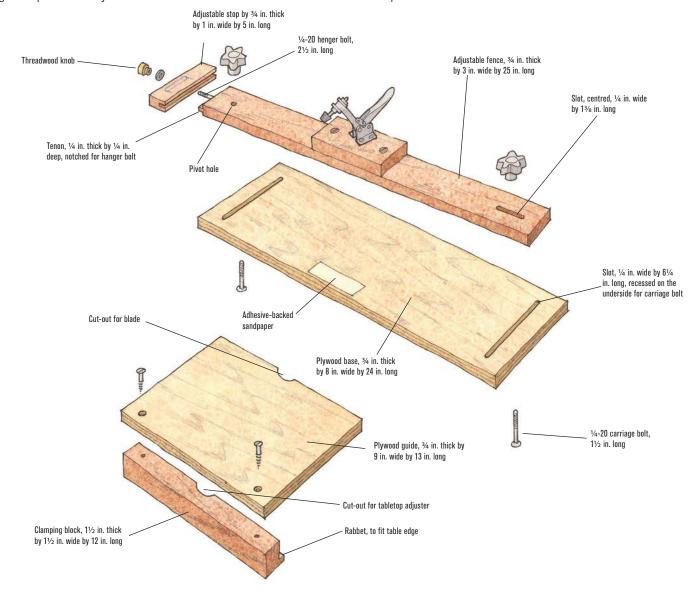


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1. Adjustable taper jig - rip tapers at any angle

A lot of woodworkers cut tapers on a tablesaw, but I think it's safer and just as fast on the bandsaw. And unlike a tablesaw, a bandsaw allows for stopped tapered cuts. My adjustable jig slides between the bandsaw's fence and a plywood guide, which is attached to the table and prevents the jig from wandering into the blade. Two similar jigs, one 24 in. long and one 48 in. long, accommodate different-size workpieces. Toggle clamps can be used to hold any length go workpiece securely.

When tapering four sides, of say, a table leg, always rotate the stock so that the newly tapered side faces up. This way, for the first two cuts, the workpiece's flat sides bear on the jig and its fence. Rotating the leg for the third cut places a taper against the fence, but an offcut between the two will keep the leg straight. For the fourth cut, an offcut at the fence and another placed between the leg and the bed of the jig will support the leg. The offcuts are taped into position slightly forward of the stop to accommodate the wood lost to the bandsaw kerf.





Jig setup. Adjust the rip fence so that the jig is almost touching the blade. Then clamp down the plywood guide, which should just allow the jig to slide.



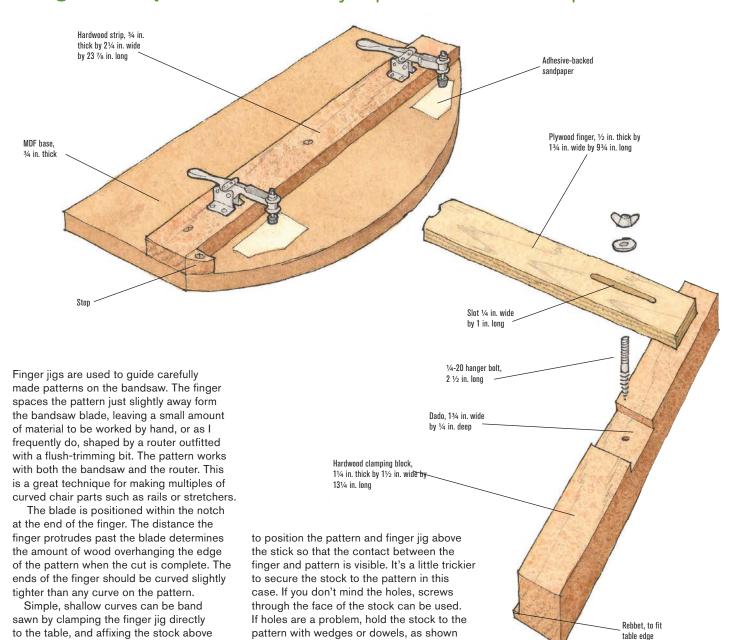
Locate the taper's end. Marks on the stock align with the edge of the jig, which is the cut line. After fixing the outfeed knob, adjust the stop to clear the base.



Locate the taper's start. Align the beginning of the taper with the edge of the jig and tighten the infeed knob.

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2. Jig for simple curves - safely reproduce curved shapes



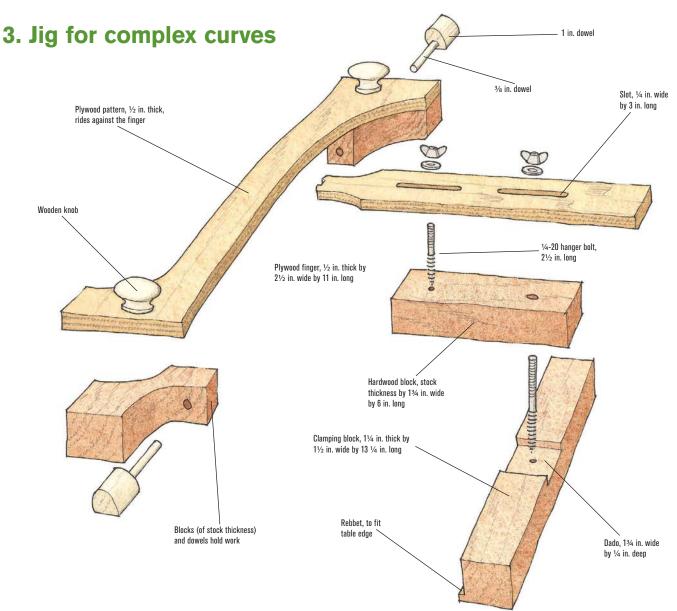


the pattern. For complex curves, it is better

The notched finger jig surrounds the blade. For simple curves, the finger rests on the tables and a short bolt holds it in the dado of the clamping block.



on the facing page.





Toggle clamps secure the work. The pattern rides along the finger jig to guide the cut. The notch in the finger jig accommodates the blade and protects the pattern from damage. The finished cut overhangs the pattern (above). The distance from the end of the finger to the teeth determines the width of the overhand.



Raise the finger to cut complex curves. Adding a block to raise the finger jig and placing the pattern atop the workpiece make it easier to keep on track.

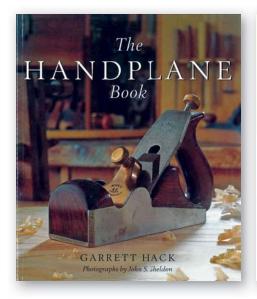


Quickly clean up the bandsawn edges. A pattern-routing bit rides along the pattern, trimming the workpiece to its final shape.

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Workshop library

We review three books for you: *The Handplane Book, The Man Who Made Things Out of Trees* and *Working Wood 3*, and also take a tour of The Quiet Workshop





The Handplane Book

by Garrett Hack

The hand plane is one of the most iconic talismans of woodworking. It has come to symbolise careful craftsmanship and skill and it is surely no coincidence that it has been used as a logo for centuries by companies and furniture makers keen to imbue some of this mystique and kudos into their work. Aside from the romance of hand planes, they remain relevant and practical today when even the most ardent power tool woodworker is likely to have the ubiquitous block plane in their arsenal. It is quite fitting then that there should be a weighty book devoted to them, which Garrett Hack has certainly delivered.

The author is a professional furniture maker

and hand tool collector and the depth and breadth of his knowledge is communicated in an entertaining and informative way. This is a beautifully photographed book and the information is clearly presented, with a high level of detail in the text and drawings.

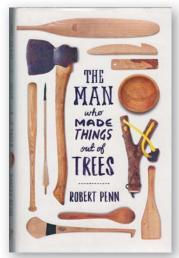
The first few chapters focus on the practicalities of plane mechanics, tuning a plane and how to plane. The later chapters provide an excellent guide to the myriad variety of planes and their uses, including chapters on tools for truing and sizing stock, joinery, surfacing and speciality planes. Garrett Hack has written an exhaustive reference book for anyone who appreciates the beauty and

utility of these wonderful hand tools.

The Handplane Book is a workshop classic that encompasses the beauty of a coffee-table tome with the usefulness of a how-to manual. It would happily find itself in the library of anyone who collects, uses or appreciates these wonderful tools. Be warned though – if you have any sort of tendency to magpie tool collecting this book could inspire you to embark on some long quests to track down a Howkins model C plough plane or a Stanley number 1!

Susan Chillcott

Published by Taunton Press ISBN: 9781561587124 272 pages £19.99



The Man Who Made Things out of Trees

by Robert Penn

It seemed that everyone around me last Thristmas either had their noses buried in or were getting around to reading a book about the art of Norwegian log stacking. By all accounts it's a good read and I may borrow a copy one day and make up my own mind. Out at the same time and a slightly less generic account, although the title doesn't suggest it, was The Man Who Made Things Out of Trees by Robert Penn. On the surface it hinted at even more tree hugging, hippy dippy, lentil shoes and knitted yoghurt content that tends to leave me a bit cold. How wrong was I. The Man Who... was rarely out of my hands over the holiday period. Without giving too much away and in order to set the scene, Robert Penn goes through the emotions of selecting a tree,

a native ash (*Fraxinus excelsior*) to be more precise, with a personal, almost irrational commitment to make sure every single stick of it went to good use. That ought to be it in a nutshell but Penn is so compelling about our relationship with this species that the last few pages gave me goosebumps, and not the good ones.

I can't be sure but my impression is that Penn is not a furniture maker or perhaps not even a serious woodworker but he is brilliantly committed to a cause that recognises our wants and needs and values that being in the thick of it sometimes means we often miss what's under our noses. I liked Penn's style; it's entertaining and thought provoking in a laidback sort of way that makes for good company. If nothing else *The*

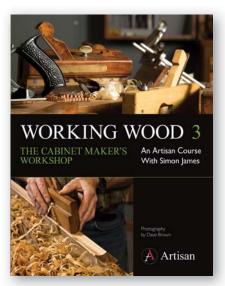
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Man Who Made Things Out of Trees will acquaint you with a customer's perspective on wooden made goods and you can never have too much inside information.

There's plenty to be learned on the practical side of things as well although I suspect if you're in any way connected to the timber trade this might cover a lot of old ground. For the rest of us it's just enough information to put things in context and make the story fascinating. This may not turn out to be the best-seller but it will be one of the best books you read this year.

Derek Jones

Published by Particular Books ISBN: 9781846148422 240 pages £16.99



Working Wood 3

by Simon James

This Artisan Media book is an addition to the 'Artisan Course' of woodworking books, which started with parts 1 and 2 by Paul Sellers. These focused upon introducing the founding principles of sharp tools, good marking out and basic joinery.

Simon James is clearly preparing the reader to step up to the next skill level. The book's raison d'etre is preparing the reader for this, with practical skills as well as a knowledge of traditional hand tools and workshop practices. Simon's enthusiasm for woodworking is infectious and he provides a number of very detailed guides to many traditional hand tool groups, making this a really weighty book. This is all to the good, as it is full of great insight about the care and use of wooden planes, rebate planes, hollows, rounds, moulding and grooving planes to mention only a few.

I'd wholeheartedly recommend this book. The photography is high quality and throughout the 400 pages it clearly illustrates all the techniques Simon describes in such detail. A must for any hand tool woodworker's library.

Matthew Pearson

Published by Artisan Media ISBN: 9780956967312 414 pages £29.95

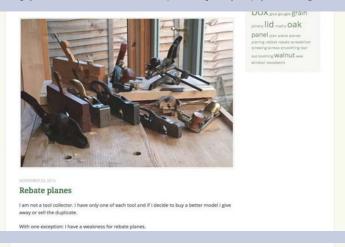
Website of the month

The Quiet Workshop



In keeping with its title, The Quiet Workshop blog has a simple, clean design featuring clear photography and short to medium-length articles. The blog's author doesn't include much personal information – the 'About' page simply lists the OED

definition of 'quiet' – so the focus is purely on his work. The posts vary in content, some focus on tools and techniques, some on works-in-progress and others on finished items. It's well worth a read to pick up a few new tips or just to quietly enjoy the images.



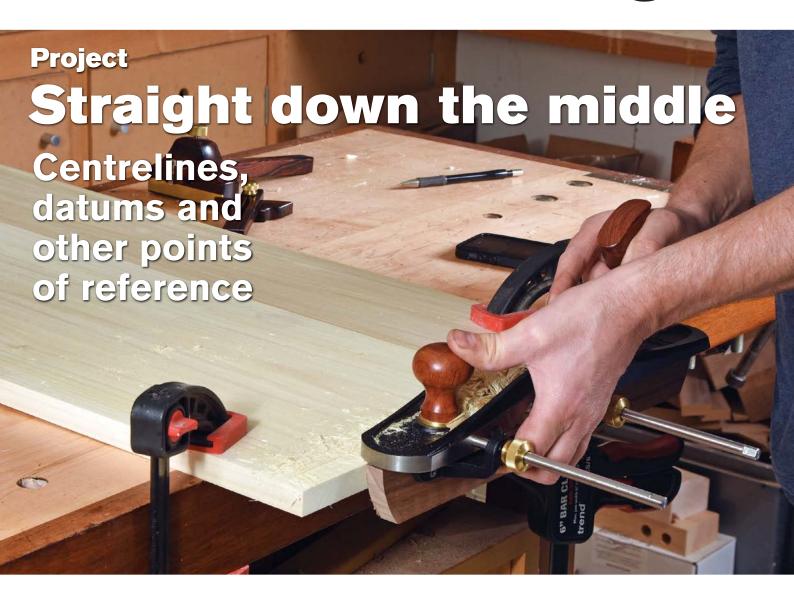


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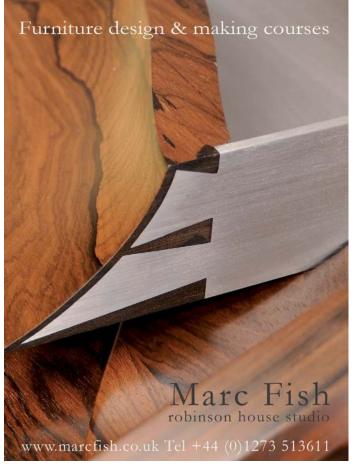




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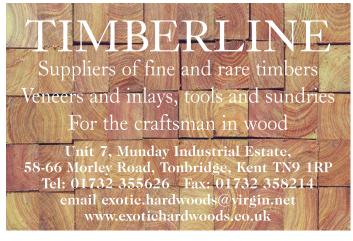












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UNDER THE HAMMER: Games/sofa table

We take a look at a key lot from Bonhams' recent 'Gentleman's Library' sale



19th-century Chinese export games/sofa table

spp.) and satinwood (Lagerstroemia spp.) banded games/ sofa table featured in February's 'Gentleman's Library' sale at Bonhams, London. Inlaid with ebony (Diospyros spp.) lines, the rounded rectangular hinged top has a reeded edge and a central reversible cleated top enclosing an ebony-and-ivory chequerboard and a backgammon board. The top sits above a simulated drawer and a single frieze drawer, on standard end supports, downswept with leaf cast cappings and castors. The table is 112cm wide, 55cm deep and 76cm high.

Card and games tables first became popular in the 18th century and are still highly collectible due to their versatility and usefulness. This particular one caught our eye as it poses some very real challenges to prevent the top section from warping and becoming stuck in place. A project on this scale is perfect for the smaller workshop and open to all manner of contemporary interpretations if period design isn't your sort of thing. If it is, then all the major techniques are there such as hand veneering, inlay, cabinet and drawer construction and even a little curved work.



Detail of the games boards

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In this third edition of the Woodworker's Directory you will find a valuable resource to help you find that perfect piece of timber, a local retailer, or if you are in the market for a specific piece of equipment or accessories, a manufacturer or retailer that can help with your enquiries or purchases.

This Directory is set out like a reference book for woodworkers and lists over 40 pages of products and services, all displayed in an easy-to-find format. Each section is colour coded for ease of use, and where applicable, sections are broken down by either woodworking discipline or area.

We hope you'll keep the Woodworker's Directory in your workshop at all times, and we're sure it'll provide you with a readily accessible resource of contact details that will enable you to get on with the job in hand and be the best woodworker you can be.









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brasives are fundamental to the work we do and since we are experimenting ever more with new materials and finishes, it should come as no surprise that manufacturers continue to develop abrasives to meet our needs. So put aside the thoughts of the sandpaper of old and welcome to an age where you can find abrasives to refine the surfaces of wood, metals, man-made materials, surface finishes and so much more. The developments make our lives easier and whether we are hand or power sanding there is a products to help us work quicker and smarter. Check out the various websites for information to help you select the right product for the job you are working on and remember to check the helpful hints and tips they provide too to help create the perfect surface.

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ADHESIVES

dhesives are essential to what we do as makers. Working with a variety of timbers and materials used in an ever more diverse amount of situations, it is essential we have products that allow us to bond and secure items easily and properly with the minimum of fuss. But, which ones do we need? I am very glad that information is now more readily available and the list of stockists and manufacturers mentioned are only too willing to provide the information and helpful hints and tips you need, to ensure you can easily find what you are looking for with the minimum of hassle.



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oodcarving is a wonderful aspect of woodworking where you can scratch that creative itch and have a lot of fun. You do not need a lot of space to carve – unlike many other types of woodworking and you can start exploring carving easily and quickly. You don't need a lot of tools - some carving can be done with a knife. Whether you fancy trying to carve spoons, caricatures, carved panels or sculptural work, you will find plenty of styles of carving to try and have fun with.

To help get you started, there are plenty of good courses available in local colleges and from specialist tutors. You can also consider joining a woodcarving club if there is one near you. These clubs are great and you will meet people to help and encourage you in your journey that is woodcarving. It is also worth visiting woodworking and craft shows as well as shops who have special show events for inspiration, can provide advice and the chance to try out new tools before you buy.

Mark Raker

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CLAMPING

he one thing you are bound to run out of when it really matters won't be wood or glue, it will be clamps. Any job, from a small box to dining table needs clamps and the bigger the job gets the more you need.

Everyone now seems to be using 'quick clamps', which are brilliant but need to be bought by the dozen as many jobs have a voracious appetite for good, even clamping. Let us not forget the older patterns such as 'G' clamps and sash clamps. These apply pressure more slowly by winding the law or pad inwards, but they can apply more pressure evenly to the job. If you make large panels or table tops then the heftier 'T' bar clamps are perfect. At the other end of the scale there are 'F' clamps which have both a guick action and threaded clamping; 'guitar' clamps made from hornbeam with cork facings that apply gentle but even pressure and my favourite, springs clamps for narrow sections. The answer is that you need a variety of clamping solutions for all tasks. Anthony Bailey



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COURSES

hatever your level of skill and ability with woodworking you can always learn more, gain confidence and apply new knowledge in your work if you choose to do a woodworking course. You might want to learn how to do woodturning properly, or overcome worries with routers. then there is woodcarving or maybe fine cabinetry? Increasingly, there are more privately run courses as state education of crafts has been cut back. In fact these are generally better value for money anyway, because they can be quite intensive learning, perhaps for guite a short period. Bona fida tutors have a high level of training and expertise and are able to deliver good teaching in a well equipped workshop, complete with full insurances and a chance to relax and chat with fellow students. You will be surprised at how much extra knowledge and skill you can acquire in a short period of time in a good learning.

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here are a number of occupations or interests where dust presents a real hazard to health and woodworking is one of those. Invisible dust smaller than one micron (1/10 millimetre) in size can penetrate human tissue i.e. lungs and skin. Visible dust or chippings are less hazardous to health but need to be removed quickly and efficiently. The answer to these problems in a wood work shop could be number of things. One, you need an appropriate extraction setup to remove dust and chipping at source from your machines. There are a variety of types of extractor for this. You can buy extraction piping and blastgates for a permanent setup. An air cleaner unit will remove a large percentage of very fine particles but you should not ignore PPE (Personal Protection Equipment) use appropriate masks, with goggles and ear defenders or an air-fed helmet. Powertools eiect dust faster than machinery so an auto-switching HPLV (High Pressure Low Volume) extractor is needed to deal with that nuisance. There are plenty of means for safe working available to buy.

Anthony Bailey





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FINISHES

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e all want to use the perfect finish on our work. That said, there are a lot of things to be considered in order to pick the perfect finish to use. A few things to consider are: are you making a toy? Is it a piece of furniture? If it is, is the project to be subject to getting wet or damp – like in a kitchen or bathroom, is the made item to be used or left outside in the garden? Are you making a decorative item thats sole function is to look wonderful? Do we need to see the wood through the final finish? Can the project be dyed, stained or painted? Finishes are developing at an amazing rate and we can now access finishes that are easier to use, suitable for a wider range of materials and conditions with which work will be placed and used, but you need to ask the right questions in order to pick the right finish. But rest assured, there is something to help you show off your latest creation to the fullest potential.

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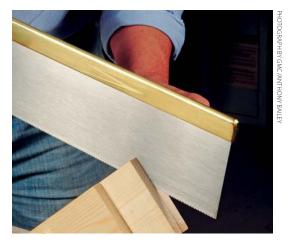
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here are almost as many hand tools available as there are opinions on how to use them, but there is one thing that I think we are all agreed on: you can never have too many tools. There are many among us who could extend this list to planes and chisels as well because, although we like to use our tools, we are sometimes just as happy to admire them for what they are. A wise purchase will last you, and the next couple of owners, a lifetime. There are some outstanding hand tools on offer these days, every bit as good as the old ones, and in some instances even better. Don't associate age with accuracy, or price with performance. Do, however, support your independent retailer. In most cases, these are owned and run by tool enthusiasts who will be only too pleased to pass on their words of wisdom to kindred spirits.



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IRONMONGERY FIXTURES & FITTINGS

or furniture makers, some of the finest details on a classic piece can be the ironmongery. fixtures and fittings used.

This is just as relevant to furniture makers today, whether you're fitting kitchens, or hanging new doors to the workshop. There are traditionalists who shudder at

the thought of using metal runners for drawers and concealed hinges on their cabinets. But horses for courses. I say. There are some applications that won't work any other way and, for this reason alone. I think a good understanding of modern hardware is essential for all woodworkers

With everything you could ever wish for now seemingly available online, it would be remiss of me not to mention the trade counter. Although they could never replace the hardware store on the corner. they're growing in numbers and offer a good place to seek advice. Derek Jones



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MACHINERY

hen it comes to selecting machinery, perhaps the most important question you will have to ask is: "What do I intend to use it for?" The old adage of having the right tool for the job could never be more appropriate. Money invested wisely at this stage is indeed money well spent. So, consider your current working methods and ask if they can be improved or tailored to meet new requirements. Think in realistic terms about your growing needs.

A few extra pounds spent on a function that will go largely unused may not be worth the extra spend. For commercial buyers, outsourcing some processes can be very cost effective. For the home woodworker, consider the power supply for your machines as these can add a significant load to your existing electrical supply. Derek Jones



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MANUFACTURERS



here hasn't been a month in the last year that I haven't visited a manufacturer either here in the UK, or further afield. Almost to a man every one of them admits to buying-in some components from the other side of the world. It's common knowledge that some are closer to being importers of machines rather than manufacturers. but who can blame them? In our quest to get more bang for our buck, the manufacturers respond accordingly with products that are becoming increasingly lower in price. But cheap isn't always synonymous with nasty. Manufacturers are trying hard to maintain a competitive edge as much by innovation as they are by marketing stealth. It may be reassuring to know that I have yet to be confronted by a machine that was not fit for its intended purpose. To me this suggests that the manufacturers are designing for specific groups and getting it right most of the time. The question still remains: in which group do I belona?

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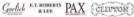
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ower carving is the term used to describe a piece of equipment that has a battery or is connected to a mains supply onto, or into which, is fitted carving blades, burrs or cutting discs that allow someone to shape wood and other materials. In truth, rotary carving tools, reciprocating tools and angle grinders are the most commonly used items to hold the numerous blades and cutters available, and as one would suspect, the tools and accessories come in all shapes and sizes and grades to rough shape work through to final finishing more quickly than working things using hand tools. So whether one is shaping large sculptures for the house or outdoors, or creating small scale work like netsuke, there is something for everyone.

Remember, unlike handcarving, power carving generates a large amount of waste guickly and in the case of rotary carving tools, it can eject that waste and dust a long way, so remember to protect your face and lungs from the debris and dust when power carving.

Mark Baker



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POWER TOOLS

ower tools rule... or so it seems. There is plenty of choice but beware of buying cheap or unknown brands as they can be disappointing in terms of build and reliability. It is worth spending the money at the beginning to ensure you have the best tool for the job and one that will last you many years.

It is easy to become a power tool junkie; you only need one of each tool category. be it belt sander, random orbital, detail, etc. Make sure you can obtain consumables easily for sanding, biscuit jointing and so on. For drilling and screw driving, more than one tool is useful, for example an 18V combi drill for drilling that includes masonry fixing, but a light 14V or 12V drill only tool can be lighter and easier to use for screw driving. However, if you do a lot of DIY, the good old mains corded drill will still have more welly for the biggest tasks. You should, of course, ensure all power tools are in safe condition and regularly inspect leads and plugs. The latter should never be the bakelite type as they are prone to breaking if dropped. Also, ensure your power tools are correctly stored.

Anthony Bailey





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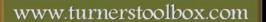




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Michelle Robertson

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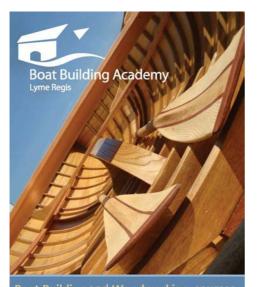
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nouting is an 'evergreen' subject, it never goes out of fashion such is the versatility of these machines. You can pay as much or as little as you want to buy a router but do take care, a cheap router may vibrate a lot when machining, the plunge action may be a bit sloppy and it won't have an extendible range of accessories, guide bushes in particular. These are an essential way to control your router because they give more accuracy than using the straight fence alone. You need to learn how to make various jigs and templates for different jobs. Even the small routers today have a lot of power and electronic speed control. They also usually come with 1/4in and 8mm collets meaning you can tackle quite large work that previously was the preserve of big 1/2in collet machines. You should not skimp on cutter quality, a cheap starter is just that, cheap and not terribly well made. If you pay more for a respected brand you will get better, safer cutters that will last and serve you well.

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owadays most of us visit a DIY superstore and buy softwood sections and part boards of ply or MDF. In fact this isn't always a good idea because the softwood is just that - soft and may be bowed and resinous too. Ply and MDF in small pieces comes expensive, you only need to buy a couple of pieces and it might equate to an entire board at a timberyard! Gone are the days when timberyards were just for trade users, all prospective customers are welcome. Take along a note of what you need and the sizes and the staff will be able to help you decide what you actually need to buy with price comparisons between material types. You can also ask for a quote so you can go away and work out the specifics of what you need when you get back home so there is no pressure to buy - oh, don't forget the VAT and delivery charge too.

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ood quality tooling repays the investment whether it is for the router, spindle moulder or circular saw. There is plenty to choose from and so long as you buy recognised brands, it will be made to the correct safety standards. For a circular saw table, for example, you will need a rip blade and a crosscut blade and possibly one for faced boards, such as veneer or melamine. However, once bought they will give good service, with the occasional sharpening required at the saw doctors. If you are feeling adventurous enough to acquire a spindle moulder, the tooling can be pricey so choose tooling that can be multi-functional, a rebate block, or the vari-angle doughnut ring type bevel cutter.

If you buy a moulding block, ensure there are plenty of extra cutter profiles available should you want to add them. Specialist cutters such as these should of course be sharpened professionally to ensure safe, accurate edges are maintained.

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oodturning is the fastest growing aspect of woodworking today. With a few choice tools and a lathe one can start to explore what can be made on the lathe. But as with all hobbies, there is information one needs to know and to help with this, there is a thriving community of clubs and associations around the world and not only does this put you amongst people who love turning, but is also a great place to share and swap experiences.

The AWGB (Association of Woodturners of Great Britain) has a website which contains lots of useful information as well as a list of turning clubs so you can check whether there is one in your locality. There is also a range of websites with discussion forums for you to explore too. Ours is the Woodworkers Institute forum (www. woodworkersinstitute.com) but there are others. too. These provide you with access to articles, information and a body of like-minded people who are more than willing to help. In addition to the clubs, there is also a host of superb manufacturers and retail outlets available to give advice. Lastly, don't forget about woodworking shows, store open days and other such events where you can go and see things – these allow you to see and try items before you part with your hard-earned cash. Mark Baker



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WORKSHOP STORAGE

his is always a nightmare, however much you tidy a workshop it gets in a mess again! I like to fit out proper shelves made from ply on softwood frames fixed to the wall, but there are also shelving kits with a lightweight industrial look to them that are easy enough to assemble. Space under the bench or overhead if you have enough head height, should not be ignored either. I have two large wheeled drawer units I made some time ago using drawer 'easy runners' and they hold a large amount of stuff. That 'stuff' is almost exclusively carefully sorted into compartment boxes of which there are plenty to choose from in DIY and tool shops. Toolboxes have got a lot more versatile and come in different sizes and types including multi-stage ones with detachable or slide-out sections and wheels and handle so the whole things can be moved like a trolley.



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