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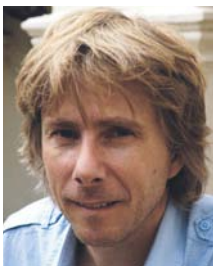

Welcome to...

Rethinking green woodworking

PHOTOGRAPH COURTESY OF PETER WOOD

It's hard avoiding stereotypes sometimes when you tackle certain aspects of woodworking. Through the prism of a largely unimaginative public perception, green woodworking is something that rustic folk do to pass the time when they're not down the allotment, Morris dancing or listening to folk music. That could all be about to change, however, as more and more of us discover the attraction of making things from scratch from natural materials using the most basic of hand tools.

At a well-known tool auction recently, I noticed a chap bidding almost exclusively for draw knives, axes and other green woodworking tools. We were first acquainted more than 20 years ago so I already knew him as a dealer. After the obligatory exchange of pleasantries, I quizzed him over his purchases. "Can't get enough of them," he said "really popular with the office lot who love playing around in the woods at the weekend." By this, I think he meant that his customers were not collectors and by the sounds of it, not professional woodworkers, either, but recent converts to the craft.

Peter Follansbee

I've heard it said that the increase in green woodworking is in part down to the rise in interest in survival techniques. If that sounds a little extreme, you can take it down a notch to the more genteel activity of bushcraft – the kind popularised by Bear Grylls and Ray Mears. Refine things even further and inevitably you'll come face-to-face with Peter Follansbee as we did this month. Peter told us a while back that, over a period of a couple of decades, he practically researched himself into a corner from which the only escape was to teach his way out.In the process, he's built up an army of followers eager to master these skills and understand the simplicity of their function to create beautiful, practical objects.

Skills to learn

It doesn't matter which route you take to get into woodwork – eventually we all end up in the same place, just not all at the same time. As long as there is a skill to learn, we'll remain interested and if you're not into 16th-century joinery today, then you will be tomorrow – or maybe even by the time you're through with this issue.

I've yet to succumb to the Windsor experience myself. That day will come and when it does, no doubt I'll be better for it. For now, though, my contribution this month is part of a team effort that makes the most of the resources you have on your doorstep to tackle projects that wouldn't usually get through the door – quite literally, in some cases. Throw in a little Japanese joinery and a quick visit to the saw doctor, and you should be prepared for anything.

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Furniture &cabinetmaking

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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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Create hybrid joints using Japanese methods – see page 28 for the full article. Front cover image by John Bullar

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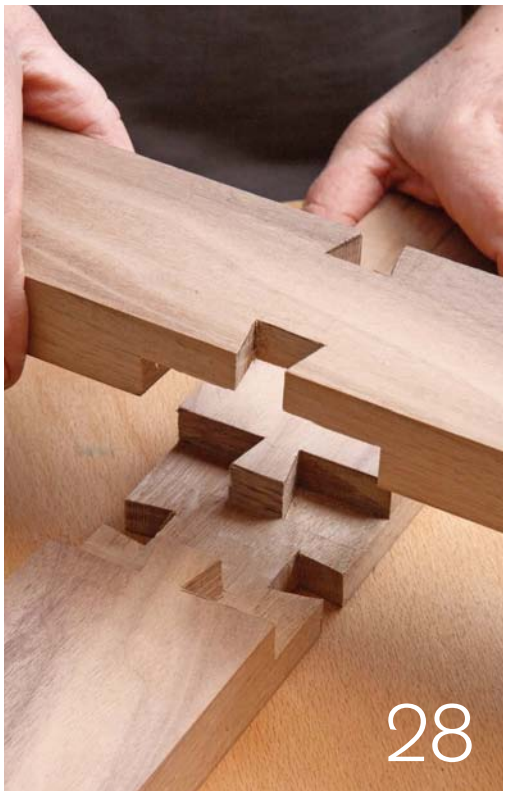


Contribute to these pages by telling us about matters of interest to furniture makers. Call Tegan Foley on 01273 402 839 or email teganf@thegmcgroup.com. Please accompany information with relevant, hi-res images wherever it is possible

News&Events

The Wood Awards:

Excellence in Architecture and Product Design – 2015 call for entries

The Wood Awards: Excellence in Architecture and Product Design launches its 2015 call for entries with exciting new categories and a high-calibre panel of judges who will evaluate and recognise projects made out of the only naturally sustainable material in the world. Architects and designers from around the UK are invited to enter their wood-based projects into The Wood Awards and have until 26 May to submit their entries. There is no fee to enter.

The Wood Awards was established in 1971 and recognises, encourages and promotes outstanding design, craftsmanship and installation using wood in projects throughout the UK. With permission from the owner, anyone associated with an eligible building or furniture project completed in the last two years can enter. The judges travel to visit each of the short-listed projects and view the short-listed products to ensure a thorough, final evaluation. 2015 sees exciting changes within the Wood Awards, including new judges, revised categories and a new website. As the original and leading competition focused on the material in use, the elite judging panel of independent professional experts and specialists not only judge the entries but also visit the shortlisted projects in person, making The Wood Awards as meaningful and rigorous a competition as possible.

The Wood Awards is made possible by the major sponsorship from American Hardwood Export Council, Carpenters' Company, Wood for Good and TRADA.

See www.woodawards.com.

Ditchling Museum of Art + Craft – Arnold Laver Gold Award and Existing Building Winner 2014

PHOTOGRAPHS COURTESY OF FRENCH & CO

Endless Stair – Judges' Special Award Winner 2014

Makita UK celebrates 100 years of global business

Makita UK is celebrating 100 years of global business and marking this benchmark occasion with a portfolio of 100 different cordless power tools that all use the same 18V Lithium-Ion battery. This means that if a Makita power tool owner has only one 18V Makita Lithium-Ion battery, they could still power 100 different products with that single battery. This is confidently believed to be the largest inventory of power tools ever manufactured by one company that fits one single battery format.

The '100 professional cordless power tool range' includes just about every type of power tool available, anywhere, from entry level drill drivers and impact tools, to screwdrivers, radios, torches, vacuum cleaners and even a coffee maker.

For more information, see www.makitauk.com.

News from Northern Contemporary Furniture Makers: chairs fit for queens

Dovetailors was recently commissioned to make a new seat for the Queen ahead of her visit to the county last month. The company, which is based in Farsley near Leeds, worked on the project with architects Thomas Moor and Sheffield Cathedral, where the Queen attended this year's Maundy Thursday service.

Creative director David Wilson said the chair was being manufactured using English oak *(Quercus spp.)* and Sheffield stainless steel. Three ceremonial chairs were made in the same style, one of which will be used by the Queen.

Furniture maker and teacher, Chris Tribe, has just completed his chair, based on an iconic design by the Swedish designer/maker, Vidar Malmsten. The chair, which is made in ash (*Fraxinus spp.*) with a soap finish and a Danish cord seat, blends Scandinavian minimalism with the grace of Chippendale. Its construction is complex, with many compound angled joints, some meeting curved surfaces. It is completely hand-made, depending entirely on the hand/eye coordination of the maker. The flowing curved back gives very good lumbar support, making the chair extremely comfortable.

The chair has been made as a prototype for an advanced seminar-based course in chairmaking, but is also available for sale on Chris' website. For more information, see www.dovetailors.co.uk and www.christribefurniturecourses.com.

PHOTOGRAPH COURTESY OF DOVETAILORS

Three ceremonial chairs made by Dovetailors

PHOTOGRAPH COURTESY OF CHRIS TRIBE

Chris Tribe's chair in ash

The Cotswold Show and Food Festival

PHOTOGRAPH COURTESY OF PHILLIPA STAGG PR

The Cotswold Show will have all hobbies covered in 2015

Plans are well underway for this event to be held in Cirencester Park on 4 and 5 July, 2015 with more attractions and trade stands than ever.

Two pavilions on the 100 acre site will be showcasing the very best Cotswolds, UK and international crafts, including ceramics, jewellery, art and fabrics. Many of the traders will also be demonstrating how they work and offering useful hints and tips.

Outside the pavilions, some 200 trade stands will feature shopping for inside and out with garden features, tools, kitchens and log burners.

The traditional rural skills area plays host to a range of artisans, including blacksmiths, beekeepers, fish smokers, saddlers, thatchers and woodcarvers – and perhaps a chance to try your hand at some of these ancient skills for yourself.

Children's entertainments are plentiful with free circus skills lessons as well as a fun fair, donkey rides, a climbing wall, bouncy castles and lots more.

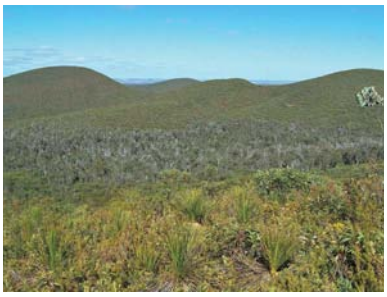
Tickets for the show are on sale via the new website – www.cotswoldshow.co.uk – which is constantly being updated with attractions as they are confirmed.

TIMBER TRADE NEWS

Phytophthora cinnamomi

PHOTOGRAPH COURTESY OF WWW.ANDREWMCCULLAGH.COM

This serious pathogen caused the destruction of over 282,000 hectares of *Eucalyptus marginata* in Western Australia in the 1970s



PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

A heath landscape in the Stirling Range, Western Australia, with a dieback-infested valley in the mid ground

Several *Phytophthora* species have been featured in this column and they have been characterised by a narrow host range: *P. alni*, for example, only infects alders. By contrast, *P. cinnamomi* affects a very wide range of plants including many trees; over 950 species had been recorded as susceptible by 1980. It has caused major destruction of *eucalypts* in Australia. It was originally described from cinnamon trees in Sumatra, but has now been found in many countries.

Like other *Phytophthoras*, it produces infective spores, which swim in water and infect principally roots, occasionally above-ground parts if conditions are suitable. The roots die and the foliage then discolours. In northern Europe, it is principally a problem in nurseries, where it causes extensive damage. Since early stages are undetectable, there is a risk that moving infected plants will spread the disease. Lawson's cypress (*Chamaecyparis lawsoniana*) and yew (*Taxus baccata*) are susceptible, Leyland cypress (*Cupressus × leylandii*) and oak (*Quercus spp.*) are resistant. Several systemic fungicides are available to professional users and give good control: they are usually sold as mixtures with protectant compounds to minimise the danger of fungicide resistance. Copper is available to amateur users and gives good protection but is not systemic and of limited value for treating root infection.

Chris Prior

‘The Invisible Store of Happiness’ at Clerkenwell Design Week

PHOTOGRAPH BY JON CARDWELL

Sculptor Laura Ellen Bacon with designer/maker Sebastian Cox

‘The Invisible Store of Happiness’ is a celebration of wood and craftsmanship and brings together two of the UK’s brightest talents: furniture designer/maker Sebastian Cox and artist Laura Ellen Bacon, who will fuse their ideas and skills to create an installation for the Clerkenwell Design Week – CDW – out of American hardwood.

This 3m high wooden sculpture – made out of American maple *(Acer saccharum)* and cherry *(Prunus serotina)*, consists of a mighty steam-bent frame that gives way to thinner, weave-able strips manipulated to twist and flow into a whirlpool of texture and shape – will be showcased in the dramatic archway in front of the historic Museum of the Order of St John in London’s Clerkenwell neighbourhood from 19–21 May, 2015.

The American Hardwood Export Council (AHEC) is sponsoring this project because: “The core of what we do is to celebrate the potential of our timbers. By supporting installations for events like CDW we can be experimental and do unusual things with our timbers through exploration of design and craftsmanship. Sebastian Cox, as one of the UK’s foremost makers, challenges the way wood works in a way nobody else does,” says David Venables, Director of AHEC Europe. “Laura Ellen Bacon, with her artistic sensibility coupled with her wonderful sculptural work in willow *(Salix spp.)* wood, is the perfect complement to Sebastian’s approach. We want to ignite new thinking and excite designers about new ways to use wood.” For more information, see www.clerkenwelldesignweek.com

The European Woodworking Show 2015 – woodworking in action

PHOTOGRAPHS COURTESY OF CLASSIC HAND TOOLS

You can expect to see a wide selection of wood-related demonstrations at this popular event

After a one year break, the European Woodworking Show returns to the show calendar with its usual mix of top class demonstrators and exhibitors across a wide range of woodworking disciplines. The show will be held at the historic Cressing Temple Barns near Braintree in Essex over the weekend of 12 and 13 September, 2015.

Demonstrators who have already confirmed include woodturners Joey Richardson, Nick Agar and Mark Hancock, pyrographer extraordinaire Bob Neill, timber hewer Steve Woodley, woodcarvers Peter Berry, Tim Atkins, Dave Johnson and Gerald Adams and marionette maker Lenka Pavlickova. In addition, scrollsaw expert Fiona Kingdon will be present, as well as spoon carver Anna Casserley and Sophie Heron with her converted VW camper van, which was featured on Channel 4’s *Amazing Spaces*. You can also expect to see Japanese joint maker Brian Walsh, plus furniture makers David Charlesworth, Dylan Pym, David Barron, Treeincarnated and many more besides. The British Woodcarvers Association will be hosting their popular public vote competition.

There will also be many familiar tool suppliers including Turners Retreat, Trend Tools & Machinery, Lie-Nielsen Toolworks, Jet Tools & Machinery, Gransfors Bruks axes, Pfeil, Auriou and Flexcut carving tools, Classic Hand Tools, Lincolnshire Woodcraft, Chestnut Products, David Barron Furniture and a host of other retailers. The masterclasses are being presented by Simon James. For full details, visit www.ews2015.com.

Events

PHOTOGRAPH COURTESY OF WWW.SOUTHWALESARGUS.CO.UK

The South Wales stickmakers' display at last year's Wood Show

PHOTOGRAPH COURTESY OF WWW.DESIGNROOM.COM

A view from the 2013 May Design Series event, at ExCeL London

PHOTOGRAPH COURTESY OF WWW.BRYNMUGHEL.CO.UK

Centre for Alternative Technology

Isca Woodcrafts' 10th anniversary Wood Show

Isca Woodcafts is once again hosting its popular woodworking show on 16 May, 2015 at Newport's magnificent Tredegar House. The business is also celebrating its 10th anniversary, thus making it a very special year. The Wood Show takes place in the 17th-century stable block and courtyard, which is minutes away from the shop and will run from 10am-4pm. Entry is free but car parking charges will apply within the grounds.

For 2015, the company intend to keep the same ethos, putting emphasis on showcasing woodworking techniques and skills to encourage more people into woodcrafts. Local clubs will be on hand to offer valuable help and advice to all.

As always, the show will be supported by The British Woodcarvers – South Wales Branch – and Crow Valley Woodturners will be representing the AWGB. The South Wales Stick Makers Association will also be carving and answering questions.

In among that you can also expect to see fretsaw work, pyrography, furniture making, knife handles, lovespoons and musical instrument craftsmen and women.

Isca Woodcrafts will have a large selection of wood in both board and blank form, plus a range of exotic hardwoods. The shop will open all day and the General Tool Store of Abergavenny and Ross will once again be selling their interesting array of wares.

When: 16 May, 2015
Where: Tredegar House, Newport, Monmouthshire NP10 8YW
Web: www.iscawoodcrafts.co.uk

May Design Series

May Design Series is the most commercially focused interiors trade show in the calendar, showcasing a comprehensive range of products from the best British and international talent from over 20 countries across furniture, lighting, kitchens, bedrooms and bathrooms, decor and DX. Organised by UBM, one of the world's leading event organisers and experts in bringing business together.

When: 17–19 May, 2015
Where: ExCeL London, Royal Victoria Dock, 1 Western Gateway, London E16 1XL
Web: www.maydesignseries.com

Clerkenwell Design Week

Clerkenwell is home to more creative businesses and architects per square mile than anywhere else on the planet, making it truly one of the most important design hubs in the world. To celebrate this rich and diverse community, CDW has created a showcase of leading UK and international brands and companies presented in a series of showroom events, pop-up exhibitions and special installations that take place across the area.

2015 marks its sixth year and the award-winning event has firmly established itself as the UK's leading independent design festival and annually attracts the international design community to this small area of London for three days of exciting events.

When: 19–21 May, 2015
Where: The festival is in many venues around Clerkenwell. See the website for all locations and events
Web: www.clerkenwelldesignweek.com

PHOTOGRAPH COURTESY OF WWW.D-TALKS.COM

Jaguar and RCA students for Clerkenwell Design Week 2013

Traditional timber frame joints short course

Learn how to measure, mark out and cut perfect joints used in traditional timber framing with this short course at the Centre for Alternative Technology in Powys, Wales, which covers an overview of the tools and techniques used in marking and cutting joints.

Using a hands-on workshop, you will be taken through the initial stages of constructing a timber frame and the course uses buildings on site as a reference to the joints you will make, employing the 'one we made earlier' method. The course is suitable for anyone who is considering building their own timber frame project, including individuals and community groups. The cost of the course is £80.

When: 30 May, 2015
Where: Centre for Alternative Technology, Machynlleth, Powys, Wales SY20 9AZ
Web: www.courses.cat.org.uk

Get hands-on with Japanese saws and sanding plates

Taking place at Axminster Tools & Machinery's Nuneaton branch, join tutor Lee Stokes as he gets hands-on with a range of high quality and easy to use Japanese woodworking hand saws and sanding plates. The event will involve some demonstrations and explanation regarding these tools, plus the opportunity to try them for yourself and get a feel for the precision and quality of Japanese products.

Whether a beginner or more experienced woodworker, Lee will be happy to answer questions and offer advice. Find out how these tools can be used to simplify and improve your work.

When: 6 June, 2015
Where: Axminster Tools & Machinery, Bermuda Trade Park, Nuneaton, Warwickshire CV10 7RA
Web: www.axminster.co.uk

F&C UK

An open invitation for furniture makers to let us know what you're up to...

■ CHIPPENDALE INTERNATIONAL SCHOOL OF FURNITURE

Government minister visits Chippendale School

Annabelle Ewing MSP, Minister for Youth and Women's Employment in the Scottish government, visited the Chippendale International School of Furniture recently to see for herself how young people can forge successful careers as furniture designers, makers and restorers.

The minister, who represents Mid Scotland and Fife, met Alice Holttum, Janie Morris and Jo Meyer, all from Edinburgh, and Fiona Thorburn from Balerno. All four are planning woodworking careers after graduation in June.

Annabelle Ewing MSP said: "It is wonderful to see such talented students keeping traditional skills alive and carrying on the well-earned reputation of the school. There is such a beauty to the work of these designers, woodworkers and restorers and it is clear that this is a career where the methods that have been honed over decades and centuries can be combined with modern influences. I am delighted to be here and would hope that the success of the students I have met today will inspire more young people to follow this path," she said.

PHOTOGRAPH COURTESY OF THE CHIPPENDALE INTERNATIONAL SCHOOL OF FURNITURE

Fiona Thorburn – left – with Annabelle Ewing MSP

Anselm Fraser, principal of the Chippendale International School of Furniture said: "It was a pleasure to welcome the minister and to raise the profile of woodworking as a career option. Many young people and their career advisors are unaware that a nine-month course at the Chippendale school will provide all the skills they need to set up in business – and we also have incubation space where graduating students can immediately begin their own careers," he said.

This year for the first time, furniture designed and made by graduating students will be exhibited at the Scottish parliament in June. For more information on furniture courses at the school, see www.chippendaleschool.com

■ RYCOTEWOOD FURNITURE CENTRE

Award winning students at Rycotewood Furniture Centre

A lot has been going on at the Rycotewood Furniture Centre lately, including students from the second year of the Furniture Design and Make degree course, taking part in the Centre's third annual exhibition at Pitt Rivers Museum. Their work, following the theme of 'containing', was displayed in the Didcot case until the middle of March.

The Centre are also very pleased to announce that former student Stuart Evans has now been awarded the City and Guilds Medal of Excellence for his side table, which was completed in June, 2014.

In terms of student commissions, the furniture department were asked to design and make a pair of tables as a gift for two retiring governors. The commission was completed with great success by Avian Evans-White, who is taking the Year 1 FdA Furniture Design and Make.

In other exhibition news, the Centre's appearance at the OFS gallery in the city of Oxford came to an end at the beginning of 2015. Gallery manager Sarah Mossop reported that she was very pleased with the quality of the work produced by the students and practically all work was sold. The shop will continue to stock Rycotewood-made items and they are already looking forward to the larger scale month-long exhibition in July of this year. For more information, see www.cityofoxford.ac.uk.

PHOTOGRAPHS COURTESY OF RYCOTEWOOD FURNITURE CENTRE

Stuart Evans' award-winning side table

One of Avian Evans-White's side tables

■ COLEG CEREDIGION

Furniture students learn the craft of harp-making at Coleg Ceredigion

PHOTOGRAPH COURTESY OF COLEG CEREDIGION

Coleg Ceredigion furniture students touring the Telynau Teifi workshops

Last year, Coleg Ceredigion furniture students paid a visit to one of the country's leading harp makers. Telynau Teifi, in Llandysul, manufacture bespoke Celtic and Lever harps sought after by harpists worldwide.

As the only college in Wales to provide studies in furniture-making and restoration, students were given the opportunity to see first hand the techniques and expertise employed by professional craftsmen in a working environment. Students were given a guided tour of each of the departments within Telynau Teifi, from the start of the harp-making process in the woodworking workshop where they learnt about the different woods used in harp production.

"The students were enthralled at the machinery and innovation used in our metal workshop to produce our levers, bridge pins and tuning pins, and impressed at the spray room capabilities," said Justine Dodd at Telynau Teifi. "The students were also shown our assembly room where the finished harps are strung, tuned and regulated. They were also very lucky to see an original Wurlizter harp dated 1910 that has come in to the Centre for restoration."

The visit was arranged between the college and Telynau Teifi by Kay Davies, a student on the furniture course who is also a gifted harp tutor in her own right. Kay performed on one of the magnificent harps in the showroom for the other students, where they got to see each of the examples of harps ready to be distributed to customers all over the world.

Richard Evans, furniture tutor at Coleg Ceredigion, said: "This tour was a fantastic opportunity for students to observe at first hand the techniques and craftsmanship used by experts in this unique industry." For more information, see www.ceredigion.ac.uk or www.welsh-harps.com.

■ BUCKS NEW UNIVERSITY

Bucks New University gears up for art and design show

Buckinghamshire New University's art and design show takes place from 12–18 June, 2015. The show features a range of work from undergraduate and postgraduate students on the University's art and design, creative and furniture courses at its campus in Queen Alexandra Road, High Wycombe. This year's show will also for the first time make use of exhibition space in the University's newly-refurbished South Wing. Creative Advertising, Fine Art, Foundation Studies: Art, Design and Media, Furniture, Graphic Arts, Product Design, Spatial Design, Fashion Design, and Textiles and Surface Design.

Andreas Fabian, co-curator for the show, said: "This should be another great show and we are looking forward to welcoming as many people as possible over the four days. Our talented students are working hard on the pieces and we would like plenty of members of the public to visit and see the eye-catching fruits of their labour."

The show is part of Bucks Open Studios, where over 500 artists and makers, in over 200 different venues across Buckinghamshire, open their studios and run exhibitions and events for the public to visit.

Textiles and Surface Design students will also be showing work at New Designers Part 1 from 24–27 June; Premiere Vision Designs in Paris from 15–17 September; and also TENT London for London Design Week from 24-27 September. Advertising Creative students will be exhibiting their work at D&AD New Blood from 30 June–2 July. The Furniture courses will be at New Designers Part 2 which runs from 1–4 July.

In previous years, furniture work displayed has included a crafted traditional cabinet made from yew (*Taxus baccata*) and maple (*Acer campestre*) and a contemporary-style shelf unit made of a glue-less construction method.

Makita UK also presents the Makita Award for Excellence of Design combined with Excellence of Craft to a winner and runner-up studying Furniture courses.

For more information, see www.bucks.ac.uk.

PHOTOGRAPH COURTESY OF BUCKS NEW UNIVERSITY

Example of a piece of work from the Bucks New University art and design show 2014

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

Editor's round-up...

PHOTOGRAPH BY GMC/DEREK JONES

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

Once mastered, spokeshaves have got to be the most rewarding tool to use to shape wood beyond the straight lines that it often arrives in. The key word here is mastered, as I don't think they are the easiest tools to get the most out of when starting out. I've been using the new Woodjoy 'shave this month to shape up the walnut *(Juglans spp.)* legs on the main project on page 51. There's a mini review of it over the page as well. Also through the doors this month was a reasonably priced 250mm planer/thicknesser from Warco. For around £695 inc VAT, it definitely punches above its price tag considering the distance it's travelled to get here! Twice the price isn't always twice the quality and although this machine is a little rough around the edges, it performs as it should. The faults are few: a rather flimsy guard, a slower than expected feed rate while thicknessing and a less than substantial fence. On the plus side, however, the built-in extraction hood works like a dream and disengaging the feed rollers reduces the noise on a machine that's already pretty quiet in the first place. There are dearer machines out there that don't have a rising table lock but do feature three knives in the block – that's a possible trade off, I guess. For a good entry-level machine, suitable for home use that you could trade up from, I'd give the Warco a second look.

Mafell Erika 70EC pull-push precision saw system

This pull-push precision saw system is the lightest, most stable and most universal machine with the most comprehensive range of optional accessories of 70mm pull-push saws on the market. The built-in 'Quickstand' sets the Erika on four stable aluminium legs within seconds and protective rubber stoppers on the feet also prevent slipping or knocking.

The unique suction channel concentrates the sawdust and extracts it to the rear and, thanks to this new development, your vacuum unit is used even more effectively. The result is clean work on a clean construction site. The Erika features clearly designed operating elements, which are all logically arranged on the front of the machine. With the E-control electronic system and the corresponding Mafell original saw blade, it is possible to process other materials in addition to wood, such as plastics or aluminium profiles.

This saw system also features an extremely stable table profile, a tilt range from -3 to 48 and a riving knife, which can be lowered in use.

Axminster Trade Clamps

There is an old woodworking saying, or some might say cliché, that 'you can never have enough clamps'. If you are just starting out on your woodworking journey or have come to the point when you need to throw out the old and bring in the new, then the timing of the introduction of the new Axminster Trade Clamps range could not be better.

These clamps are high quality yet affordable and the range includes all the standard types of clamp, including G clamps, F clamps, bar spreaders, parallel bar clamps, sash clamps and T bars. Most clamps are made from steel of one form or another or ductile iron. The bars of sash and F clamps tend to be made from cold drawn steel, which has greater tensile and yield strength than hot rolled steel bar. Other clamps will be made from forged steel or ductile iron depending on their usage. The strength and reliability of a forged steel clamp gives it the ability to exert the maximum clamping pressure time after time, with no misalignment of the frame. Ductile iron is a better choice where a casting is used. It possesses high strength and resistance to breakage from physical load or if accidentally dropped onto the workshop floor.

These clamps come with a lifetime guarantee and many of them offer the benefit of bulk discounts. Prices valid until 31 December, 2015.

Proxxon GE20 engraving device

The Proxxon GE20 is a small engraving pantograph, suitable for nameplates, jewellery and other valuable objects. It can also be used with self-made stencils or commercially made templates such as plants, animals or coats of arms.

A maximum of 14 characters can be fastened in the guide bar or template holder. Template contours can be precisely followed by using the ball-handled guide marker.

During transfer, the lettering to be milled is scaled down to either a ratio of 2:1, 3:1, 4:1 or 5:1 by simply adjusting two screws. The workpiece is aligned and fixed on the movable guide block by means of clamping jaws – not supplied – or a vice.

The engraver is supplied with two sets of letters from A to Z, hyphen, full stop and dash – a total of 52 pieces – three Allen keys – 1.5, 3.0 and 5.0mm – as well as a 2.5mm HEX – ball-head – screwdriver. A detailed instruction manual is also included. Price valid until 31 December, 2015.

Makita DTD148 18v brushless impact driver

The new Makita DTD148 18v brushless impact driver is even more compact than its predecessor, the DTD147, while generating a massive 175Nm of impact torque. The 10mm reduction in overall motor body length aids confined space access while the 5Nm increase in driving torque makes this the most powerful 18V impact driver on the market.

The DTD148 has an electronic switch system that enables you to select the rotation speed and corresponding impacts per minute performance. The maximum power selection will see the DTD148 run up to 3,600rpm and deliver up to 3,800 impact blows per minute. The medium setting gives up to 2,100rpm and 2,600ipm while in soft setting the rpm maximum is 1,100 with parallel 1,100 impacts per minute – IPM.

Its 290W brushless motor will drive an M14 high tensile bolt and, in addition to the three-stage impact settings, there is a T-mode selection for tightening self-drilling screws. Speed control is by the variable position trigger with the forward, locked and reverse selector conveniently positioned at the top of the grip handle. An electric motor brake stops the shaft rotation immediately the trigger is released. The battery fuel gauge is clearly and concisely displayed on the tool's battery mount and an LED job light illuminates the 1.4in hex drive bits and the fixing in operation. It also features the Makita Extreme Protection Technology – XPT – which provides weather and dust ingress protection for long life and rugged reliability.

Weighing just 1.5kg and with an ergonomically designed soft grip handle, the new Makita DTD148 impact driver is available with two 4.0Ah 18V Lithium-Ion batteries, complete with a DC18RC charger and MakPac case.

Hilti launches new 12V cordless range

Hilti has launched its smallest and lightest range of cordless tools to date to help customers reach new levels of productivity, control and accessibility in everyday light-duty drilling and screwdriving work.

Operating on a new 12V battery platform and only weighing around 1kg each, the SF 2-A, SFD 2-A and SID 2-A have been designed for working in tight spaces, dark corners or overhead for prolonged periods.

Each tool in the range is well-balanced and ergonomically designed for excellent handling and working comfort. They are also designed with two LEDs in the foot of the tool to illuminate the task in hand.

The 12V range is fitted with Hilti's Lithium Cordless Power Care – CPC – system, which features electronic battery management for extra-long lifetime and a rubberised, impact-resistant battery casing meaning they are built to last.

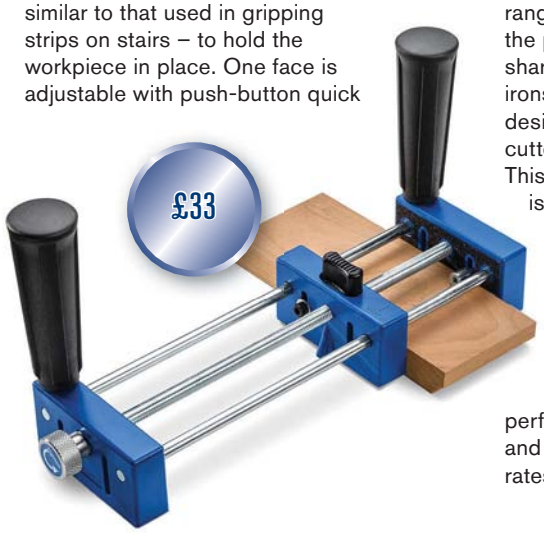
As with all Hilti battery platforms – including the 22V and 36V – one battery can operate all tools on the same voltage while an LED indicator enables the charge to be checked at the press of a button. In addition, an adaptor is available so that each tool can fit user's existing Hilti chargers.

All 12V tools can be purchased through Hilti's Fleet Management programme whereby a fixed monthly charge covers all tool, battery, charger, service and repair costs over three years. For customers who prefer to own their tools outright, Hilti's Lifetime Service gives a complete no-cost period of two years.

Rockler Small Piece Holder

Rockler Woodworking and Hardware has introduced the Small Piece Holder, a clamping device designed to confidently hold small project pieces when machining on a router table. Projects such as toys, plaques and birdhouses often involve small pieces that require edge treatment. The Small Piece Holder features abrasive faces that sandwich small pieces to secure them while they are machined. Large handles provide control and stability, allowing the user to create smoothy routed edges while keeping their hands a safe distance away from the sharp cutters of the router bit.

This product features opposing clamp faces with abrasive anti-slip material – similar to that used in gripping strips on stairs – to hold the workpiece in place. One face is adjustable with push-button quick release to instantly set the desired width. Two adjustable pins hold the workpiece down against the table when they are tightened in place flush against the top of the workpiece. Large handles extending vertically on either end of the product make it easy to control while holding workpieces up to 220mm wide.



Trend Diamond Cross Sharpening range

Trend are excited to announce a very special new product range, which will leave Trade professional tools super sharp and back to their best. The Diamond Cross Sharpening range is now available from Trend and the products can be used to sharpen chisels and plane irons and are specially designed for router cutter sharpening. This sharpening range is ideal for shaped router cutters, chisels and woodturning as well as for sharpening larger bladed gardening tools. Diamond Cross Technology provides the perfect balance between diamond and recess, maximising abrasion rates and clearance of debris. The range includes a Credit Card Stone, Router Cutter Stone, 125mm File, Twin Handle File, 200mm Workshop Stone and bench holder.

Trend has also just launched its 2015 Routing and Woodworking Catalogue, which is packed with Trend products, including router cutter ranges, power tools and tables, routing jigs and accessories, saw blades, the Trend Snappy Drill System as well as sharpening and clamping products.

To get your hands on the brand-new catalogue, visit your local Trend Routing Centre or download/request a copy online at www.trend-uk.com. Alternatively, call 01923 249 911 to request your copy.

Festool's 'Unplugged' range

Manufacturing power tools since 1925, Festool plans to showcase its latest 'Unplugged' range of precision-engineered products at UK Construction Week, which takes place from 6–8 October, 2015 at the Birmingham NEC. This new range works for 25% longer between charges, thanks to their new 5.2Ah batteries. Incorporating Festool's tried and tested brushless EC-TEC motor technology, this new offering from Festool offers tradesmen a reliable and flexible investment, as its universal battery compatibility means that older NiCd and NiMH battery packs can be used with the new machines. Festool unplugged frees you from the constraints of electrical sockets and guarantees the best results every time with the combination of 5.2Ah high-performance battery packs and brushless EC-TEC motor. New tools in the range include the CARVEX PSC 420 and PSBC 420 cordless pendulum jigsaws, the QUADRIVE DRC cordless drills and QUADRIVE PDC cordless percussion drills, the T18+3 cordless drill, the TSC 55 cordless plunge saw, the BHC 18 cordless hammer drill.

MINI TEST: Woodjoy flat-soled spokeshave

I've got metal ones, wooden ones made from beech (*Fagus spp.*) and boxwood (*Buxus sempervirens*) and one made from stainless steel, but none compare to the maple *(Acer saccharum)* flat-soled spokeshave from Woodjoy for unadulterated simplicity. Firstly, I don't have a great need for a spokeshave in my work, although I can't imagine a life without them. Either I've found a series of effective work-a-rounds, or their capabilities have just gone unnoticed. Maybe it's the blade-holding mechanism on the Woodjoy 'shaves that make them so user-friendly. A small hex nut arrangement clamps the blade in place so that minute adjustments can be made and, more importantly, maintained. There's no backlash and a sloping projection can be obtained. Made from wood and therefore light, when the blade becomes dull, you notice a drop-off in performance immediately. With very little sole referencing the workpiece, I find the more feedback I have from the tool, the better. In some circumstances, extra mass can have you struggling on for longer than is good for you. And when it's time to sharpen, there are no posts to get in the way. A great tool to have and one that might open up a few new opportunities. F&C

Contacts

Axminster Trade Clamps
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Festool's 'Unplugged' range
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Hilti launches new 12V cordless range
Contact: Hilti
Tel: 0800 886 100
Web: www.hilti.co.uk

Mafell Erika 70EC pull-push precision saw system
Contact: NMA Agencies
Tel: 01484 400 488
Web: www.nmatools.co.uk

Makita DTD148 18V brushless impact driver
Contact: Makita
Tel: 01908 211 678
Web: www.makitauk.com

Proxxon GE20 engraving device
Contact: BriMarc Tools & Machinery
Tel: 03332 406 967
Web: www.brimarc.com

Rockler Small Piece Holder
Contact: Rockler Woodworking and Hardware
Tel: (001) 800 279 4441
Web: www.rockler.com

Trend Diamond Cross Sharpening range
Contact: Trend
Tel: 01923 249 911
Web: www.trend-uk.com

Woodjoy flat-soled spokeshave
Contact: Classic Hand Tools
Tel: 01473 784 983
Web: www.classichandtools.com

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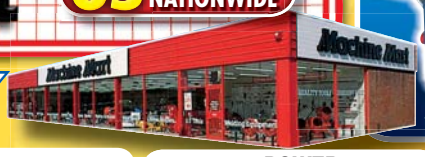

Clarke 4" BELT/ 6" DISC SANDER

CS4-6D
£84.99 EX.VAT
£101.99 INC.VAT

- Dust extraction facility
- 4" x 36" belt tilts & locks 0-90°
- 225mm x 160mm table, tilts 0-90°
- 370w, 230v motor

Clarke 6" BELT/ 9" DISC SANDER

- Includes stand
- 1 Hp/ 230v/ 1ph motor

CS6-9C
£199.00 EX.VAT
£238.80 INC.VAT

Clarke TABLE SAWS

LEG STANDS AVAILABLE FOR CTS11 & CTS10D £22.99 EX VAT £27.59 INC VAT

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

CTS10D

INCLUDES LEFT & RIGHT TABLE EXTENSION

*Moulded base

MODEL	MOTOR	BLADE	EX VAT	INC VAT
CTS800B	600w	200mm	£69.98	£83.98
CTS11*	1500w	254mm	£139.98	£167.98
CTS10D	1500w	254mm	£149.98	£179.98

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

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

£34.99 EX.VAT
£41.99 INC.VAT

CMFT250

Clarke BANDSAWS

£109.98 EX.VAT
£131.98 INC.VAT

HUGE RANGE IN CATALOGUE & ONLINE

CBS250 INCLUDES STAND

MODEL	MOUNT	MOTOR	THROAT	EX VAT	INC VAT
CL CBS190	Bench	350w	190mm	£109.98	£131.98
CL CBS250	Floor	370w	245mm	£179.98	£215.98

Clarke POWER PLANERS

BLACK & DECKER

FROM ONLY £21.99 EX.VAT £26.39 INC.VAT

- 82mm cutting width

CEP1

MODEL	INPUT POWER	DEPTH OF CUT	EX.VAT	INC.VAT
Clarke CEP1	650W	2mm	£21.99	£26.39
Einhell RT - PL82 ‡	850W	3mm	£49.98	£59.98
B&D KW750K - GB	750W	2mm	£57.99	£69.59

‡ was £65.99 inc.VAT

VAC KING WET & DRY VACUUM CLEANERS

FROM ONLY £47.99 EX.VAT £57.59 INC.VAT

- A range of compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

MODEL	MOTOR	CAPACITY WET/DRY	EX. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£47.99	£57.59
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC25SS*	1400W	19/17ltr	£64.99	£77.99
CVAC30SSR*	1400W	24/21ltr	£86.99	£104.39

* SS = Stainless Steel

Clarke 1" BELT & 5" DISC SANDER

- Inc. 2 tilt/lock tables and mitre gauge
- 300w motor

CBS1-5

£59.98 EX.VAT
£71.98 INC.VAT

Clarke ELECTRIC POWER FILE

CPF13

- Variable belt speed
- Tilting head

*Black & Decker

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

MODEL	MOTOR	EXC.VAT	INC.VAT
CPF13	400w/230v	£44.99	£53.99
KA900E*‡	350w/230v	£49.98	£59.98

‡ was £63.59 inc.VAT

Clarke INDUSTRIAL ELECTRIC FAN HEATERS

DEVIL 6003

- Rugged fan heaters for small to medium sized premises
- Tough steel cabinets
- Adjustable heat output with thermostat

FROM ONLY £37.99 EX.VAT £45.59 INC.VAT

MODEL	HEAT OUTPUT	EX VAT	NOW INC VAT
Devil 6002	0.7-2kW	£37.99	£45.59
Devil 6003‡	1.5-3kW	£49.98	£59.95
Devil 6005	2.5-5kW	£74.99	£89.99
Devil 6009	4.5-9kW	£129.98	£155.98
Devil 6015	5-10-15kW	£189.98	£227.87

‡ was £71.98 inc.VAT

Clarke DISC SANDER (305MM)

- Powerful, bench mounted disc sander
- 900W
- No load disc speed: 1490rpm
- 305mm Disc Diameter (1 x 60 grit sanding disc included)
- Dimensions (LWH): 440x437x386mm
- Weight: 28kg

£119.98 EX.VAT
£143.98 INC.VAT

CDS300B

Clarke STATIC PHASE CONVERTERS

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

ROTARY PHASE CONVERTERS ALSO AVAILABLE

CONVERT 230V 1PH TO 400V 3PH

PC60

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

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

Clarke JIGSAWS

BOSCH Power Tools

CJS380

FROM ONLY £12.99 EX.VAT £15.59 INC.VAT

*DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EX VAT	INC VAT
Clarke CJS380*	420w	55/6mm	£12.99	£15.59
Clarke CON750#	750w	80/10mm	£24.99	£29.99
B & D KS600*	450w	60/5mm	£29.98	£35.98
Bosch PST700*	500w	70/4mm	£49.98	£59.98

Clarke QUICK RELEASE ALUMINIUM SASH CRAMPS

LIGHTWEIGHT ALUMINIUM

FROM ONLY £6.99 EX.VAT £8.39 INC.VAT

MODEL	SIZE	EX. VAT	INC. VAT
CHT374	600mm	£6.99	£8.39
CHT375	900mm	£7.99	£9.59
CHT376	1200mm	£9.98	£11.98

Clarke CORDLESS DRILL/ DRIVERS

BOSCH Power Tools

PSR18

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

HUGE CHOICE IN-STORE & ONLINE

MODEL	VOLTS	BATTS	EXC. VAT	INC.VAT
CCD180	18v	1	£34.99	£41.99
CCD240	24v	1	£39.98	£47.98
Bosch PSR18	18v	1	£49.98	£59.98

Clarke CONTRACTOR 18V PRO CORDLESS DRILL/DRIVERS

- 10mm chuck size
- 2 Speed, Variable control - 0-350/0-1250rpm
- 21 torque settings

FROM ONLY £64.99 EX.VAT £77.99 INC.VAT

2 Batteries

INCLUDES 12 PIECE BIT SET

MODEL	BATTERIES	EXC. VAT	INC. VAT
CON18Ni	2 x Ni-Cd	£64.99	£77.99
CON18Li	2 x Li-Ion	£84.99	£101.99

Clarke TABLE SAW

- Powerful 1800W Motor
- 5700rpm No Load Speed
- Laser Guide for accurate cutting
- With folding legs and wheels - Large 930 x 640mm Table

CTS13L

PRICE CUT £229.98 EX.VAT £275.98 INC.VAT WAS £287.98 INC.VAT

Clarke ENGINEER'S DRILL PRESS

- Tables tilt 0-45° left & right
- Depth gauge
- Chuck guards

FROM ONLY £59.98 EX.VAT £71.98 INC.VAT

MODEL	WATTS/ SPEEDS	EXC. VAT	INC.VAT
CDP5EB	350/5	£59.98	£71.98
CDP101B	245/5	£79.98	£95.98
CDP151B	300/5	£106.99	£128.39
CDP10B	370/12	£169.98	£203.98
CDP301B	510/12	£199.98	£239.98
CDP451F	510/16	£239.98	£287.98
CDP501F	980/12	£429.00	£514.80

B=Bench mounted
F=Floor standing

Clarke CONTRACTOR BELT SANDERS

Clarke

- Ideal for surface removal, sanding and finishing

Makita

ABRASIVE SANDING BELTS IN STOCK

BS1

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

MODEL	WATT	M/MIN	EX VAT	INC VAT
Clarke BS1	900w	380	£29.98	£35.98
Clarke CBS2	1200w	480	£69.98	£83.98
Makita 9911	650w	75-270	£94.99	£113.99

Clarke SHEET SANDERS

CON300

FROM ONLY £12.99 EX.VAT £15.59 INC.VAT

*110V in stock

MODEL	SHEET SIZE	MOTOR	EX VAT	INC VAT
COS200	190X90mm	150w	£12.99	£15.59
CON300	230X115mm	330w	£29.98	£35.98
Makita BO455*	112X102mm	200w	£54.99	£65.99

Clarke CBS16 DRILL BIT SHARPENER

- Great for 3mm to 10mm HSS drill bits
- 70W motor
- Drill bit guide ensures sharpening at the correct angle
- Saves cost of new drills

£21.99 EX.VAT
£26.39 INC.VAT

Clarke RANDOM ORBITAL SANDER

£27.99 EX.VAT
£33.59 INC.VAT

CROS1

- For sanding & polishing
- 125mm diameter sanding discs
- 4000-11000 opm

INC 5 DISCS

BISCUIT JOINER

- 860W Motor
- 11000rpm Operating Speed
- 14mm Cutting Depth

BJ900

£49.98 EX.VAT
£59.98 INC.VAT

Clarke PORTABLE THICKNESSER

- Max thickness capacity 130mm
- Planing depths adjustable from 0-2.5mm
- Powerful 1250w motor
- 8000rpm no-load speed

£179.98 EX.VAT
£215.98 INC.VAT

CPT250

Clarke 1000MM VARIABLE SPEED WOOD LATHE

CWL1000V

SUPPLIED WITH ROBUST STEEL STAND

£239.00 EX.VAT
£286.80 INC.VAT

- Large 350mm turning capacity
- Variable speed
- Lockable tailstock
- High quality cast iron build

Clarke 13" MINI WOOD LATHE

£129.98 EX.VAT
£155.98 INC.VAT

CWL325V

- Ideal for enthusiasts/ hobbyists with small workshops
- 325mm distance between centres
- 200mm max. turning capacity (dia)
- 0.2Hp motor

Clarke BOLTLESS SHELVING BENCHES

- Simple fast assembly in minutes using only a hammer

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

ALSO EXTRA WIDE INDUSTRIAL UNITS AVAILABLE

SAVE 10% WHEN YOU BUY ANY MIX OF 5 FROM THIS RANGE SAVE AT LEAST £17.99 INC.VAT

CHOICE OF 5 COLOURS

RED, BLUE, BLACK, SILVER & GALVANISED STEEL

150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

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

MODEL	SHELF DIMS WxDxH(mm)	EX VAT	INC VAT
150Kg	800x300x1500	£29.98	£35.98
350Kg	900x400x1800	£49.98	£59.98

Clarke PLANERS & THICKNESSERS

CPT800

- Ideal for DIY & Hobby use
- Dual purpose, for both finishing & sizing of timber (CP-6 planer only)

FROM ONLY £139.98 EX.VAT £167.98 INC.VAT

MODEL	MOTOR	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CP-6	1100w	*	£139.98	£167.98
CPT600	1250w	120mm	£169.98	£203.98
CPT800	1250w	120mm	£189.98	£227.98
CPT1000 NEW	1500w	120mm	£269.98	£323.98

Clarke WOODWORKING LATHES

3 PCE CHISEL SET INCLUDED WITH CWL1000

CWL1000

SEE CATALOGUE FOR ACCESSORIES

MODEL	CENTRE TO CENTRE (mm)	TURNING CAP.	TURNING SPEEDS	EX VAT	INC VAT
CWL1000	1016	350mm	4	£114.99	£137.99
CWL12D	940	305mm	5	£189.98	£227.98

FROM ONLY £114.99 EX.VAT £137.99 INC.VAT

Clarke MORTISING MACHINE CBM1B

£144.99 EXC.VAT £173.99 INC.VAT

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

"It is fast and accurate with a good solid feel...Excellent value for money, I'm really pleased with it." See www.machinemart.co.uk

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Clarke WOODWORKING VICES

FROM ONLY £13.49 EX.VAT £16.19 INC.VAT

Record WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£13.49	£16.19
Stanley Multi Angle	Clamped	72/60/40	£16.99	£20.39
Record V75B	Clamped	75/50/32	£18.99	£22.79
Clarke WV7	Bolted	180/205/78	£24.99	£29.99

Clarke WHETSTONE SHARPENER CWS200

- Produces accurate razor sharp cutting edges on chisels, scissors, tools etc
- 120w motor
- Grinding disc 200mm
- Wet bath
- Leather honing wheel

£109.98 EXC.VAT £131.98 INC.VAT

airmaster TURBO AIR COMPRESSORS

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

HUGE RANGE OF AIR TOOLS IN STOCK

CLARKE 8MM AIR HOSE FROM ONLY £5.99 EX VAT £7.19 INC VAT

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

8/250

MODEL	MOTOR	CFM	TANK	EX VAT	INC VAT
Tiger 8/250	2Hp	7.5	24ltr	£79.98	£95.98
Tiger 7/250	2 Hp	7	24ltr	£89.98	£107.98
Tiger 8/36	1.5 Hp	6.3	24ltr	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	24ltr	£119.98	£143.98
Tiger 8/510	2Hp	7.5	50ltr	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	50ltr	£149.98	£179.98
Tiger 16/510	3 Hp	14.5	50ltr	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	100ltr	£269.98	£323.98

Clarke TABLE SAW WITH EXTENSION TABLES (250mm) CTS14

- Ideal for cross cutting, ripping, angle and mitre cutting
- Easy release / locking mechanism for table extensions
- 0-45° tilting blade
- Cutting depth: 72mm at 90° / 65mm at 45°
- 230V/50Hz, Motor: 1800W, No load speed: 4700rpm

NEW

£119.98 EXC.VAT £143.98 INC.VAT

Shown with optional leg kit CLK5 £22.99 exc.VAT £27.59 inc.VAT

Clarke 10" SLIDING MITRE SAW CMS10S2

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

£129.98 EXC.VAT £155.98 INC.VAT

Clarke MITRE SAW STAND CFMSS1

£64.99 EXC.VAT £77.99 INC.VAT

- Suitable for most sizes/makes of saw
- Inc. outriggers & rollers

Clarke DOVETAIL JIG CDTJ12

- Simple, easy to set up & use for producing a variety of joints
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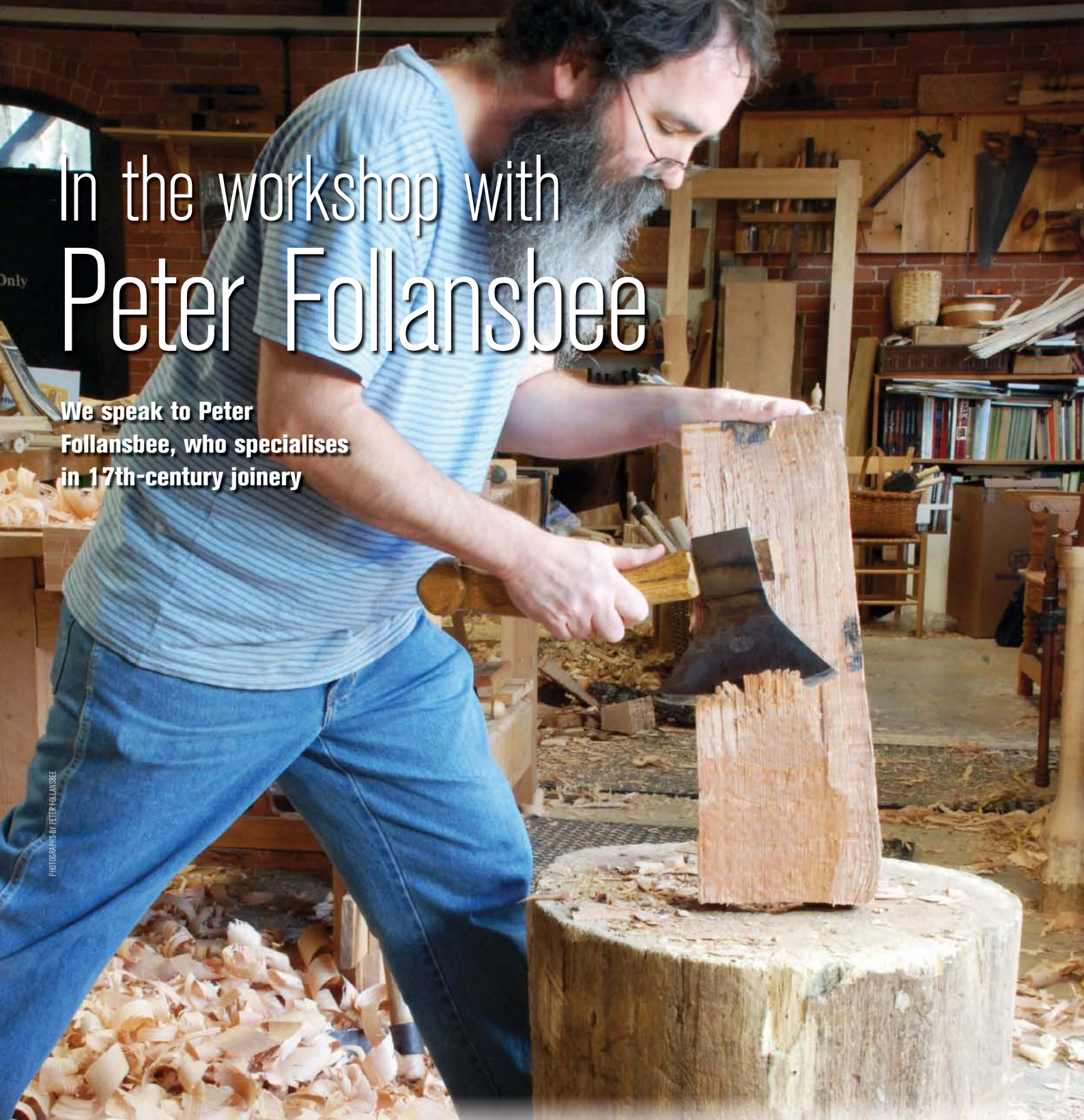
In the workshop with Peter Follansbee

We speak to Peter Follansbee, who specialises in 17th-century joinery



PHOTOGRAPHS BY PETER FOLLANSBEE

I wouldn't mind betting that for a lot of woodworkers, the route into furniture making starts with a casual foray into the world of green woodworking, though I doubt they really have much of an inkling as to what the genre has to offer. Just as we either love or loathe Arts & Crafts or Victorian Gothic revival, green woodworking is similarly divisive. At first glance, the uninitiated may perceive the raw simplicity of this style as just plain rustic or even crude. If appearances were everything by modern standards, you'd be right. However, I also wouldn't mind betting that the single most important lessons to learn to make sound pieces of furniture can be learned from working in the green style. No other process gets you closer to the material in all its glory, faults and all. Like your times tables, learn these and you have a solid foundation for every other woodworking discipline.

In its most refined state it is an understanding of joinery from which all strains of cabinetry are based. Although pegs, wedges and draw-bored tenons have been found on ancient artefacts, it wasn't until the 16th century that a clear line of demarcation evolved between the carpenter, joiner and cabinetmaker. It's possible that demand rather than any notion of seniority had more effect on the defining of the trades. A craftsman capable of making doors and windows but more adept at building casework would be better off playing to his strengths. And we know what comes from doing one thing repeatedly: refinement and perfection. This is precisely where we find the subject of our profile this month, Peter Follansbee.

Peter lives in Kingston, Massachusetts where he makes reproductions of 17th-century joined furniture using the techniques from the period and working exclusively with hand tools. He writes a blog about 17th-century joinery, green wood and hand tools called Joiner's Notes – pfollansbee.wordpress.com. Personally, I'm not at all happy with the term 'reproduction', far too many negative connotations from a part of our industry that has systematically diluted every known style of furniture into lukewarm approximations. At Peter's bench we can take the word at its true meaning and comfortably add the prefix 'authentic'.

Joined chest with brackets, 2010

Carved oak box

Eighths of red oak panel stock

Background in woodworking

Peter told us that he got into woodworking 'by accident' after inheriting several electric tools. He was 17 years old when he was given the 1960s-era tools, which included a tablesaw, drill press, jointer and lathe and figured he should learn how to use them. A couple of years later, in 1978, he read two books about green woodworking, *Make a Chair From a Tree* by John – now Jennie – Alexander and *Country Woodcraft* by Drew Langsner. "I met both of these craftspeople in 1980 when I was a student in Alexander's chair-making class at Drew's Country Workshops school. That led me to hand tools, riving stock from logs and beyond," Peter explains. At the Country Workshops Peter learned the fundamentals of ladder back and Windsor chair-making, as well as timber framing, cooperage, basketry and spoon and bowl carving. Together with Jennie Alexander, Peter visited several museums to study the furniture in their collections, rediscovering the craft of the joiner by examining the artefacts, documents and tool collections. They also conducted many practical experiments in their own workshops based on this research. The inevitable outcome of this work was to write *Make a Joint Stool from a Tree* in 2012, published by Lost Art Press. We've obtained an extract for you this month on page 21.

Design ethos and inspiration

The main inspiration behind Peter's work is historical furniture: "My work is based on, and closely follows, period furniture. Specifically 17th-century joiners' work – oak *(Quercus spp.)* furniture, lots of carving, mortise and tenon joinery, chests, chairs, stools and benches, cupboards, boxes – all the household stuff of that period." Several people have influenced his work, including Drew Langsner and Jennie Alexander, as well as other mentors that he met through the Country Workshops school. "I spend a lot of time making woodenware that I learned there from Jogge and Wille Sundqvist," he tells us.

17th-century joinery

Nowadays Peter specialises in reproducing 17th-century oak furniture, a subject he has researched extensively. "Over the past 25 or more years, I have totally immersed myself in ➤


Book stand


Lincoln chair


Hand-carving panel detail


An example of Peter's hand-carved additions

understanding joined furniture of this period. To the point where I feel like my approach to building a piece is perhaps pretty close to that of the period joiner. When I start with an oak log, I rive, hew and plane all the stock by hand, then proceed to layout the joinery and carve the decorations. These patterns are ones I have done so often that I feel I have a pretty good command of the 'vocabulary', which then allows me the freedom to just proceed with the work. It's more fun than I can stand!"

Peter put all this experience to good use when he worked as a joiner at Plimoth Plantation, a living history museum in Plymouth, Massachusetts. While working in the Crafts Center, he would explain his working methods to members of the public.

Favourite pieces

His joinery studies are rooted in the early New England works of the 1630s-80s, although as he points out, these works themselves are, of course, rooted in 'Old England'. "I have had the chance to study furniture and related joinery in three research trips to the UK, but this summer will be my first trip there in 10 years. I hope to see some oak work while between classes," he comments.

When asked he confessed it would be hard to pick out any particular items of his own furniture as favourites, preferring to focus on current work: "My favourites are often the ones on the bench now!" he said. Romanticism and an attachment to objects I guess aren't high on his agenda. At the top of the list is an unwavering respect for the process in which he is working.

Future projects

As well as his trip to the UK, Peter's future plans include expanding his woodworking range: "I'm exploring woodenware more and more these days, when time permits. I've made it almost as long as I have done joinery, but never in much quantity. I hope to continue to expand this aspect of my woodworking, although timing is tricky."

You can find out more about Peter and his work by seeing details below. F&C

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LIGHT & SHADE

– 17th-century style

In this extract from *Make A Joint Stool from a Tree*, Jennie Alexander and Peter Follansbee demonstrate two brilliantly simple techniques to recreate authentic 17th century mouldings

Two methods of moulding

One method of decorating the rails of joint stools features mouldings cut either in the face of the rail – 'crease' mouldings in the period – or at the bottom edge of the rails. For either of these mouldings we prefer a 'scratch stock' to a moulding plane. The scratch stock is a shop-made tool used to scrape the moulding's profile in the stock. Both methods were known and used in the 17th century. We don't know what period scratch stocks looked like, nor what they were called, but some period joined work has short runs of mouldings that fade in and out at the ends, something that usually cannot be done with a plane.

We use two different configurations of scratch stocks, depending on whether the moulding is a crease moulding or an edge moulding. For the crease mouldings, make a scratch stock that works like a marking gauge: simply use a profiled cutter instead of a pin. Secure the blade in a saw kerf in the beam. Close this kerf with a screw.

Blades are made from saw steel – the thicker the better. Shaping the profile on the scratch stock calls for careful work. A saw-sharpening vice is a nice tool to secure the stock for filing. Use a large, flat file to remove the bulk of the material, just outside the desired shape. Then cut the final pattern with smaller files, both round and flat. The blade's edge is square to the sides. The moulding's profile is perpendicular to the surface of the blade and will scratch from both directions. See page 22 for some suggested profiles.

The scratch stock pictured here cuts a small bead. In this case, the bead is the first step in some carved decoration. Hold the tool just as you would a marking or mortise gauge and lightly scrape the moulding. Repeated strokes will develop the shape cleanly. By now, the surface of the stock must have reached that point that we call 'workable moisture

content' – dry enough to cut cleanly, and still green enough to cut easily. Next, use a small carving gouge to chop straight into the bead shape to begin defining a simple pattern. Ideally, the scratch stock is made to match the size of your carving gouge. Hold the gouge perpendicular to the stock and strike it once with a mallet. Eyeball the spacing of these cuts. The next step is to angle the gouge behind the first cuts and chop out the chip. You will sometimes need to move the tool laterally at the end of the cut to get the chip to pop out. Avoid the urge to try to flick the chip up with the gouge.

For mouldings at the bottom edge of the rail, use a scratch stock in a pistol-shaped handle. The blade fits tightly into a saw kerf that runs down the barrel to the handle or fence. The blade's inner edge seats firmly against the end of the saw kerf and is locked in place by a bolt or screw immediately tangent to the blade's outer edge. For edge mouldings, run the saw kerf 6mm into the handle so that a matching projection on the blade can fit into it. The bottom edges of the barrel are chamfered so that shavings do not jam in front of the blade. Things go easier if you first bevel the rail's edge with a plane, then the scratch stock removes less stock to finish the moulding's profile. You can mark this profile on the end grain before you begin to see how much of a bevel to cut. Then scratch the moulding. Concentrate on keeping the handle tight against the edge of the rail.

Adjustable bevels are often small enough that you can grip the handle and blade in one hand, pinching the whole tool against the rail's top edge. However you hold the tool, be sure it has not lost its setting and keep it steady while scribing the shoulders

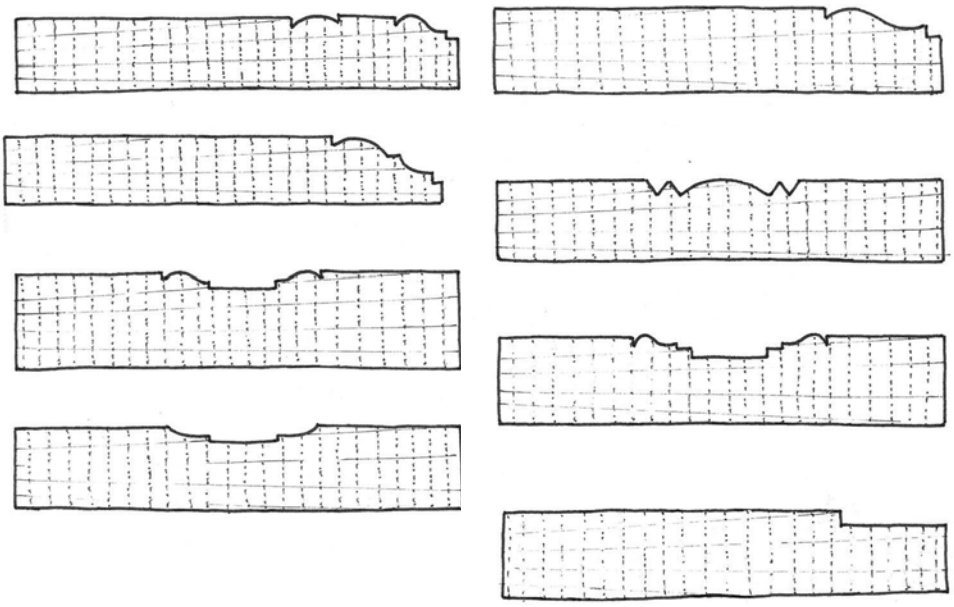
Make your scratch stocks from hardwoods. This one has a maple staff, an ash fence/head and a hickory wedge. A mixed bag to be sure, but it's worth keeping a selection of dry, straight-grained hardwoods around for just this sort of project

The most common form of scratch stock, this time it's made from an offcut of riven oak. You can cut a shape on each end of the blade, then switch it around for a different moulding. Make these as you need them. The price is right, as is its effectiveness and ease of use

Rabbets and edge moulding

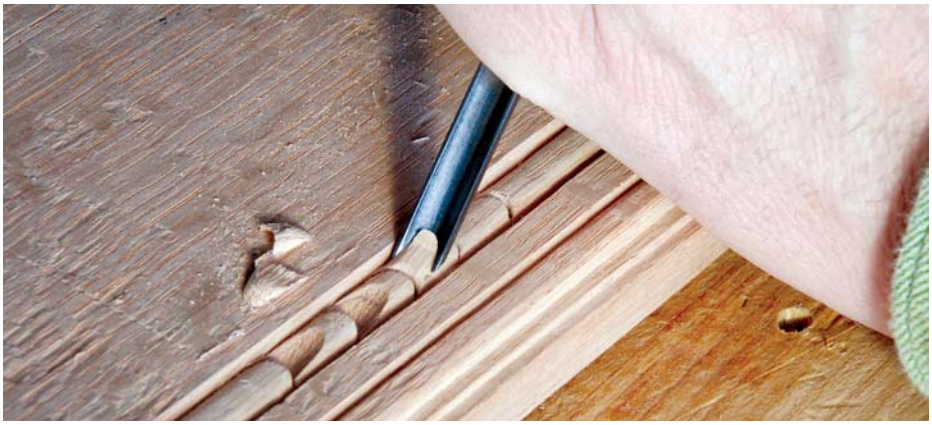
Rabbets, a special case of edge moulding, can be used to emphasise the bottom edges of rails. Make these with a rabbet plane. You can use a shoulder plane, essentially a metal-bodied variation on the rabbet plane. One nice thing about shoulder planes is that they usually have a low-angle blade, set with its bevel up. This slices the wood very cleanly. The downside is that they take a thinner shaving than we like. Thus, the wooden rabbet is still our tool of choice. If your rabbet plane has no fence, run it against a batten clamped to the stock. Make your rabbet about 12-20mm wide. You can eyeball the depth; it's just enough to throw a shadow on the rail. And don't make the rabbet so deep that it cuts into the face of the tenons. Rabbets are sometimes enhanced with gouge-cut decoration similar in technique to that described above. Others can use a zig-zag motif cut with a chisel, often then treated with a two-colour paint scheme.

Some period moulding profiles have a central flat section – a fascia – flanked by beads, ogees or other shapes. We make these mouldings with a combination of a plough plane and a scratch stock. The plough plane is a grooving plane with an adjustable fence. It has interchangeable irons, often in sets of eight. First, set the plough plane to cut a flat groove about 12mm wide down the centre of the rail's width. Now, using a scratch stock that will reach into the area just ploughed, scratch a small moulding that runs right against the edges of the ploughed groove. If you made a scratch stock that has the full-width profile, you can make this moulding with one setting of the tool; if you have just made the detailed shape that flanks the groove, then you need to scrape one side, then adjust the scratch stock and scrape the other side.



The names of moulding profiles are derived from architectural antiquities. Both Joseph Moxon and Randle Holme list a number of moulding planes by name. Both writers include the round, hollow and ogee. Moxon adds snipes-bill and rabbet planes and includes the grooving plane as a moulding plane. Holme adds the 'Belection' [bolection] and the 'back-ogee' planes. An additional unpublished note by Holme mentions the 'Phalister' plane. Names we have seen in probate inventories and other court records add 'revolving', 'cresing' and 'inboring' planes. It can be confounding to try to match these names to existing shapes, especially given the regional nature of some terminology and the mutable shapes created by blacksmiths or the joiners themselves. We'll leave it to the tool historians to work out the details

Carving is a study by itself, but this is the simplest shape to get the hang of – one tool, two moves. This form of carved work is utilised in most 17th-century carved oak



Here is the chip coming up as the gouge meets the first incised vertical cut. Learn this and any blank piece of oak becomes something more

This pattern is best used on a moulding like this; the effects of light and shadow are quite strong

This is a moving fillister plane, which is basically a rabbet plane with a movable fence attached to its sole. The best ones have skewed irons. This one has a depth stop that you needn't be concerned with for this sort of work

The zig-zag motif

The sawtooth, or zig-zag motif is a simple one to cut. Once you have planed the rabbet in the bottom edge of your rail stock, use the awl and mitre square to mark the alternating lines to form the pattern. Then holding a wide chisel perpendicular to the rail, chop down heavily into the stock.

It's best to chop all the marks that aim one way, then turn the chisel around and come back to chop the other half. This method helps you be more consistent and it's easier on your body. Now, using the chisel with hand pressure, hold it with the bevel up and pare toward the incised lines you just cut. It sometimes takes a couple of passes to reach the full depth. Again, do all the cuts heading one way, then turn around and do the others. F&C

The shop-made mitre square is taken right from Moxon's plate of joiners' tools. Sometimes we've seen this zig-zag motif done freehand, but it only takes a moment to lay it out

Make sure the rail is flat on the bench when you chop into it. It can bounce around a lot if it's unsupported underneath, making the work awkward and difficult

Use a nice sharp chisel and some raking light for these cuts. In a sense, this is like the gouge-cut carvings done on the scratched mouldings earlier. Make a vertical incised cut, then remove a chip down to that cut

Make a Joint Stool from a Tree: An Introduction To 17th-Century Joinery

This excerpt is taken from Make a Joint Stool from a Tree: An Introduction To 17th-Century Joinery *by Jennie Alexander and Peter Follansbee. To purchase a copy for yourself, see details below.*

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Construction
Japanese joints

PHOTOGRAPH BY JOHN BULLAR

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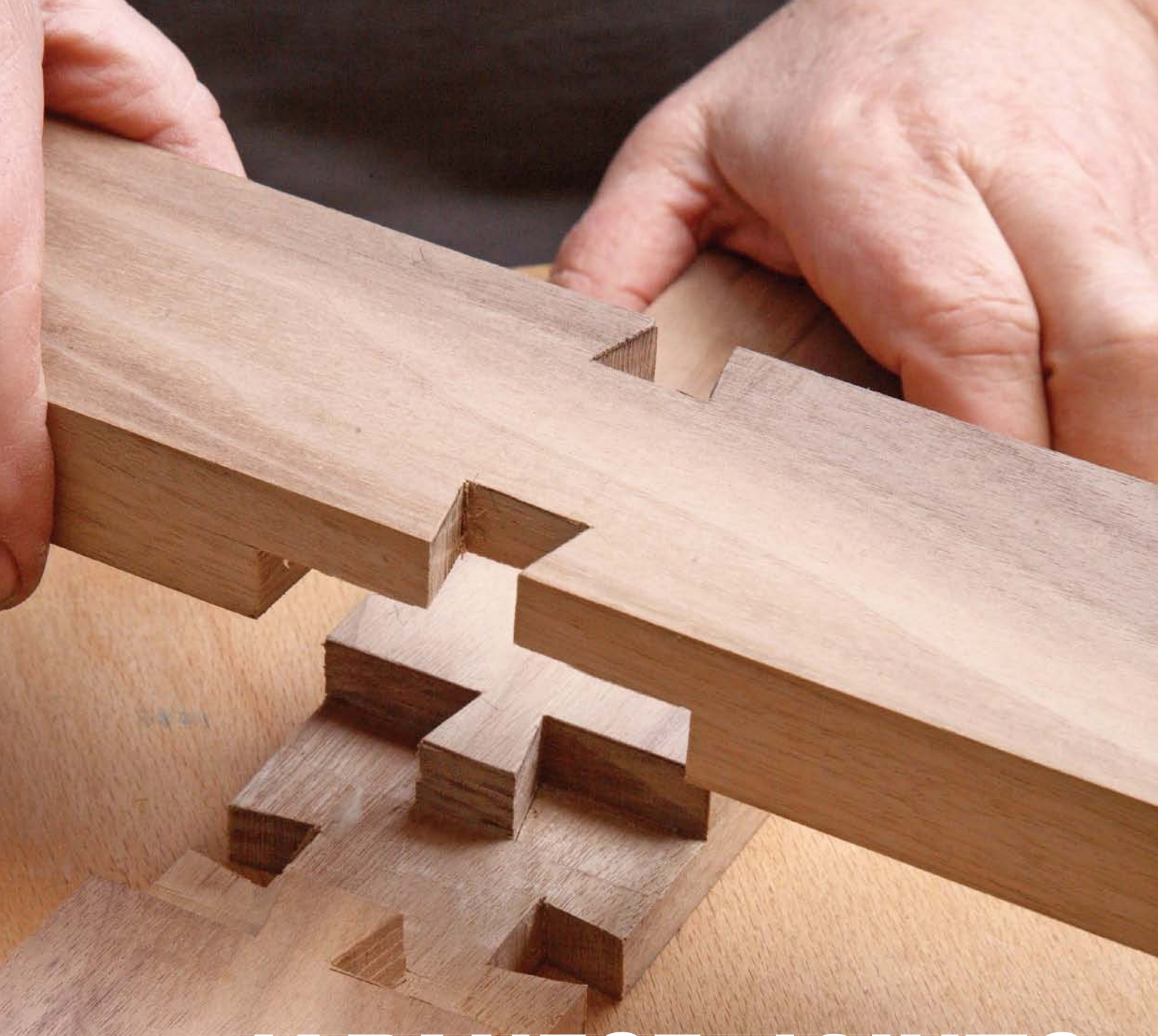


JAPANESE JOINTS – part 5

John Bullar continues with his series and this month looks at the gooseneck joint in a number of variants

In this article, we will be looking at the gooseneck joint in the form of a couple of variants, as well as some examples of the use of dovetails – Japanese style. I will discuss the particular strengths and weaknesses of each joint as well as talking through the way I would suggest to go about making them.

Goosenecks and dovetails are two groups of joint patterns, which have more in common than just being named after parts of birds – they both feature angled sides that will give a wedging effect, tightening the joint if the two halves start to separate.

PHOTOGRAPHS BY JOHN BULLAR

Gooseneck joints

Gooseneck joints always look particularly Japanese to me. Being such a versatile and sturdy joint pattern it is surprising that it does not feature more in conventional Western furniture. The gooseneck combines the length and depth of a tenon with the wedging quality of a dovetail. It has extra insertion depth compared to a conventional dovetail and a larger area suitable for pinning, as shown below.

Gooseneck corner

The 'Kiguchi-ari' or gooseneck corner joint is a half-blind or lapped joint, well suited, for example, to fixing the top rail of a framed cabinet into its corner post or leg. Joints like this need to resist sideways force, so conventionally in Western furniture a dovetail would be used. However, where the design permits, a gooseneck joint can be employed to place the wedge deeper into the end grain of the post, making it less likely to split out under excess force.

The joint illustrated here is between a relatively thin rail, such as might feature in the top of a chest of drawers and a post of the same width. Start by marking out the gooseneck shape for the 'Kiguchi-ari' in pencil and then saw it out using a combination of tenon saw for the straight cuts and use a coping saw to reach the inside corners.

After sawing out a gooseneck pattern it is used as a template to mark the outline of the corresponding socket on the end grain of the post. I would use a knife for marking this, rather than a pencil, which would not be accurate enough.

The gooseneck socket needs to be pared out in the end grain of the post, but first the edges of the socket are chopped to clearly define them with a chisel so the parings come out cleanly. Alternate between vertically chopping the edges, then paring across the grain until the socket is deep enough to take the gooseneck pin. A little water-based glue is applied to the socket as the Kiguchi-ari or gooseneck corner joint is fitted.

The gooseneck shape for the Kiguchi-ari is marked out in pencil then sawn with a combination of tenon saw and coping saw

A sawn-out gooseneck pattern is used as a template to mark the socket outline on the end grain of the post

Gooseneck socket is chiselled out in the end grain of the post

Offering up the gooseneck to its corresponding socket

The Kiguchi-ari or gooseneck corner joint is fitted

Pinned goosneck

The pinned gooseneck or 'Komisen-uchi' is a concealed form of splicing joint between two rails, meeting inside a mortise as they pass through a post. The gooseneck socket sawn in the end of the rail would not be strong enough if unconstrained because it would split open, but once inside the through-mortise it has excellent tensile strength. In the example here, I have used different woods for the two rails, but they might alternatively be two rails of the same wood with different cross-sectional dimensions or simply using shorter pieces of wood for reasons of access, cost and/or environment.

The gooseneck is marked and sawn out on the end of one rail in the same way as the 'Kiguchi-ari' then the corresponding socket on the end of the other rail using the first as a template. The two rails are trial fitted in open space to ensure there will be no slackness.

A through-mortise socket is chopped in the corner post to receive the gooseneck parts. The assembled gooseneck jointed rails are slid through the mortise socket and the pin is inserted through both sockets in post and the gooseneck, completing the Komisen-uchi joint.

The locking pin can be given a chamfered head and made from contrasting wood as shown here to make a feature of the joint, or alternatively, it could be made from matching wood and shaved off flush.

The two mating parts of the pinned gooseneck or 'Komisen-uchi' are marked out and sawn, one used as a template for the other

Gooseneck pin and socket are trial-fitted and the corner post – behind – has a mortise socket chopped through it ready to receive the gooseneck parts

Assembled gooseneck jointed rails are slid through the mortise socket and the pin is inserted through both sockets in post and the gooseneck, completing the Komisen-uchi joint

Rebated dovetails

Rebated dovetails are used to join a horizontal rail partway up a vertical post, such as you might find joining the stretcher rail of a chair or table to a leg.

Clearly the dovetail part resists movement, which tends to tighten the joint rather than weakening it as would be the case with a mortise and tenon, but it may not be so clear why the joint is rebated. The purpose of the rebate is to place the dovetail deeper into the post so it is less susceptible to vertical racking movements. Because the joint is 'half blind' or only visible on one side, it has a clean shoulder line on the other. This also gives it a large long-grain gluing area for additional strength against horizontal movement.

The 'ari-kake' or shouldered dovetail lap is a straightforward version for right-angled joints. In essence, it is the same design as the Hiuchi-ari-otoshi discussed below, but with a symmetrical dovetail on the end of the rail, which is fitted at right angles to the post.

Angled lapped dovetail

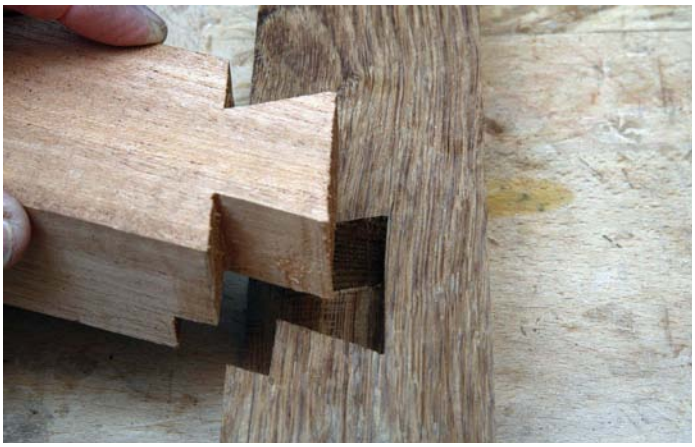
The Hiuchi-ari-otoshi or angled lapped dovetail uses the same principles as the 'ari-kake' but the dovetail is sawn on an angle, while the dovetail socket is straight. This results in a rail fixed into a post at a slight angle with a straight shoulder on the reverse side. The dovetail shaped pin is sawn to full depth then used as a template for knife-marking the outline of the socket. In this case, the tail is angled while the socket is straight to make a shallow angled Hiuchi-ari-otoshi joint. Alternatively, both tail and socket can be angled to give the joint a greater overall angle.

The socket is alternately chopped and pared out with chisels to about two-thirds of the depth of the post and then the underside of the dovetail is sawn away to one-third of its depth. The two halves of the Hiuchi-ari-otoshi are fitted together, leaving the dovetail pattern visible on one side of the joint only and the other side showing a clean vertical shoulder line.

Dovetail shaped pin is sawn to full depth, then used as a template for the socket. In this case, it is angled to make a Hiuchi-ari-otoshi joint

Socket is chopped and pared out with chisels to two thirds of the depth of the post

The underside of the dovetail is sawn away to one-third of its depth



Two halves of the Hiuchi-ari-otoshi are fitted together, leaving the dovetail pattern visible on one side of the joint only

Cross-lap dovetail

The 'Shi-ho-ari-kumi-te' or dovetailed cross-lap joint appears to be a development of the simple cross-shaped halving joint.

At first sight it may not be obvious what the dovetails are here for. Consider what happens to a conventional wide halving joint over time. Even when it was originally firmly fitted – and that is not the easiest task – any shrinkage due to drying will reduce the width of each piece of wood with little change to its length. This creates gaps each side of the joint, which allows it to rack and potentially fall apart. However, by including a small dovetail on each side of each socket, the joint will be kept tight despite any wood movement. The tails, being visible on both faces of the finished joint, are also a visual bonus.

Start by sawing full-depth dovetail pattern sockets on one rail so these can be used as a template to knife-mark the pin outlines on the other. These sockets are easy to cut so long as the saw is kept straight to ensure the socket sides do not taper through the wood.

The central section of the Shi-ho-ari-kumi-te joint is similar to a conventional halving joint and can be cut in the same way, but the regions on either side of the dovetail pins require an extra bit of attention.

A series of six saw cuts or kerfs are made across the joint ready for removing the waste for the wide socket with a chisel. The two central kerfs are made to the socket depth, which is half the wood thickness, but four kerfs to define the shoulders either side of each tail must be cut with a slanting saw blade so as not to cut into the tail itself.

Start sinking this wide socket by using a wide chisel to pare out the central channel between the two opposite tail pins. Next, chop with a vertical chisel to mark out the rebated areas on either side of the dovetail pin and then pare away the waste between the saw kerfs and the chopped chisel marks.

Both halves of the joint should be more or less identical, although any minor differences are accommodated by the fact that the second half is marked directly off the first.

Finally, confirm that the socket base is level all over to half the wood thickness then the Shi-ho-ari-kumi-te dovetailed cross lap joint can be trial fitted before gluing.

Cutting the full depth sockets for one side of the Shi-ho-ari-kumi-te dovetailed cross lap joint

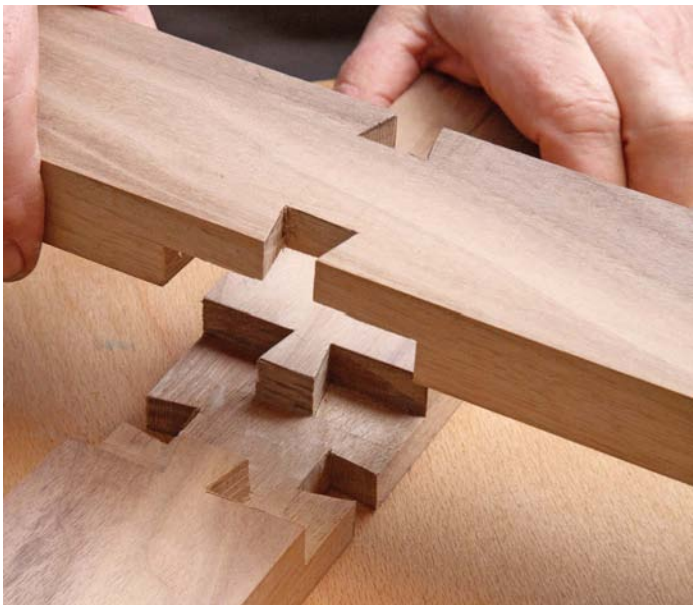
The full-depth socket pattern on one rail is used as a template to knife-mark to other rail

Sawing the shoulders of the dovetail the blade is held at an angle so it will not cut into the tail itself

Sawing the central channel between the tails the blade is held level so as to make a horizontal base to the kerf ➤

Central channel between the two opposite tail pins is pared out with a wide chisel

Rebated areas on either side of the dovetail pin are chopped with a vertical chisel



After chopping the edge maybe a couple of millimetres at a time, depending on the hardness of the wood, waste chips are pared out either side of the peg. The chop and pare cycle is repeated until the rebate is level

The Shi-ho-ari-kumi-te dovetailed cross lap joint is trial fitted ready for gluing

Conclusions

The gooseneck joint is strongly characteristic of Japanese work. It can be considered as a hybrid between the tenon and the dovetail, ideal where space permits for combining the best features of both. I have chosen two significantly different joints here, using the same gooseneck pattern. There are many other possible applications of the gooseneck principle and by varying the proportions, it can be even more widely used.

Dovetails, on the other hand, are known and used worldwide and it is the specific patterns that make these Japanese in style, particularly when the dovetails are incorporated as strengthening features in combination with larger joints as shown here.

NEXT MONTH

In next month's article, I plan to focus on applying the Japanese influence to joints intended for use in contemporary furniture design. F&C

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WOODEN BOX HINGE with hasp & staple

Pete Simpson shows how he made and fitted wooden hinges to a box

The idea of drilling holes and chopping recesses into a newly made box to fit metal hinges always made me uncomfortable. Wooden hinges, on the other hand, seem more of a continuation of the box's construction and add character and individuality. The box has a base measuring 176 × 266 × 198mm high and is made of rock maple *(Acer saccharum)* and utile *(Entandrophragma utile)*. When I began using contrasting woods, it made everything I'd made previously look a bit dull. I've always admired the makers of acoustic stringed instruments, and guitars in particular. I regard this as one of the pinnacles of woodworking, where mixing light and dark woods is standard practice – the results are undeniably striking. ➤

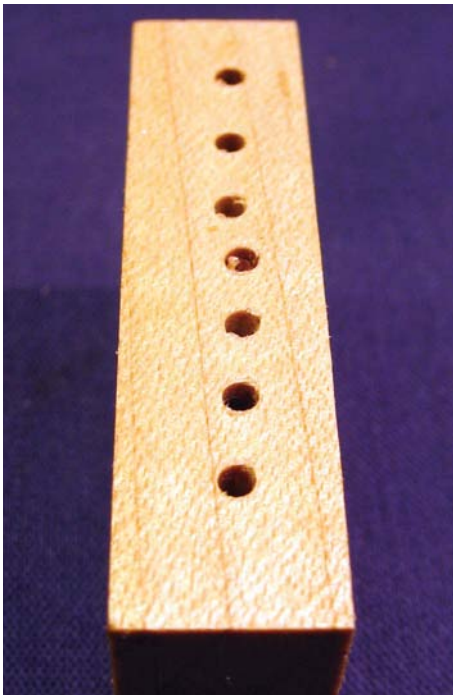
The completed box with hinges in place

PHOTOGRAPHS BY PETE SIMPSON

Don't be afraid of the drilling

For anyone considering making wooden hinges, the biggest fear is likely to be drilling the holes accurately. This is understandable, particularly with very thin, flexible drill bits. As a test piece, I drilled a series of 1.5mm holes through 30mm of maple and some drifted off line as much as 0.5mm. This doesn't sound much but for two hinges to work together, with accurately fitting pins, they need to be a lot nearer than that. The drift is no doubt mainly due to the irregular structure of wood.

Given that metal is so much stronger than wood, the pin should be proportionally much smaller than it would be in an all-metal hinge, so it's necessary to overcome this problem. By leaving the wood oversize and drilling as accurately as possible, the inevitable error can be corrected by shaping the wood to fit the hole. As drilling is a bit of a 'shot in the dark' and planing is very controllable – taking off as little as a 30 microns at a time – very accurate holes are possible.



Exit holes drilled along a dead straight line through 30mm of maple, showing how they wandered off line

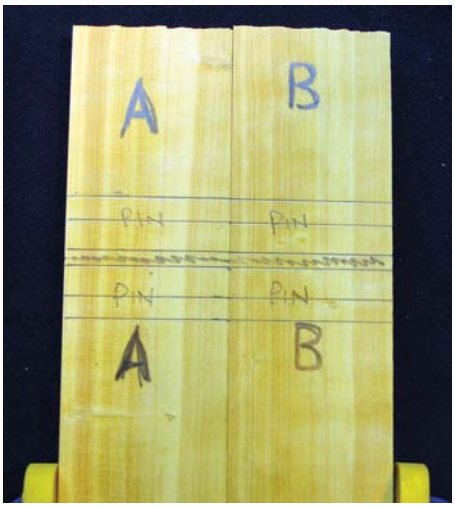
Choosing suitable wood

Each hinge was made of a single piece of boxwood (*Buxus sempervirens*). It was marked to ensure the grain match was maintained after cutting. Boxwood is a lovely wood to work with: it is very slow growing, has a tight even grain and a lovely buttery colour. It can be worked easily to very crisp edges and is very stable. Its main strength for this project is its resistance to splitting and this particular piece grew less than 20 miles from my home. Any hard, split resistant wood could be used. The pin is 2mm stainless steel and was very tight in a 2mm hole. It was reduced in diameter to an easy push fit by spinning it in a drilling machine while holding fine emery paper around it. Care should be taken when doing this because it gets very hot very quickly.

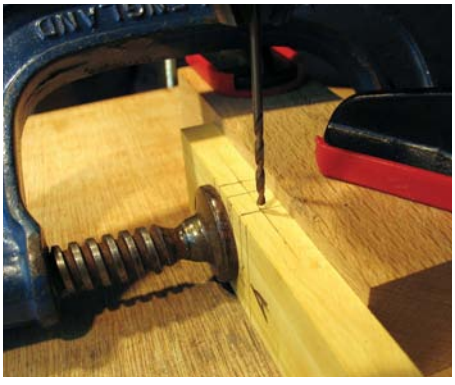
Marking out and drilling

A rough template was made from cardboard and the pin positions marked; it was then moved up the thickness of the hinge – plus a saw cut – and the second hole was marked. The two holes will come into line when the hinge is cut. The positions of the pins were transferred to the edges using an engineer's square and the centres marked with an awl prick. Each hinge was then set on its edge, cramped to a right-angle block and the 2mm holes drilled.

A rough cardboard template used to find the position of the pins



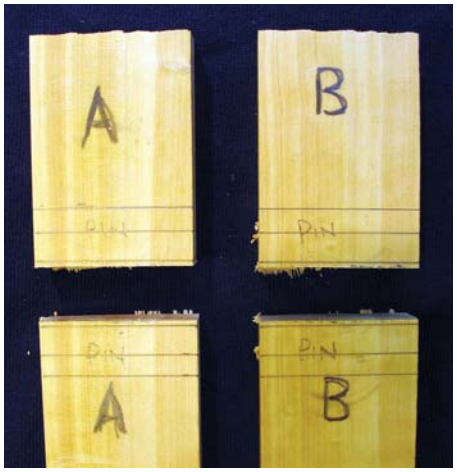
The template moved along the thickness of the hinge, plus a saw cut



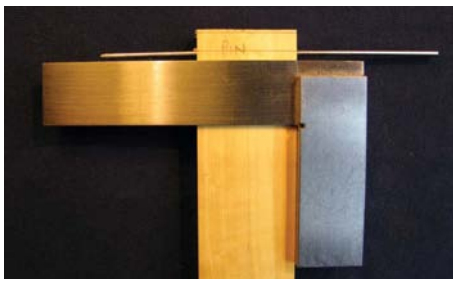
The pin holes drilled while the hinge was cramped to a right angle block. Slightly oversize wood ready to make the inevitable corrections

Separating the two halves

The hinge was then cut into its two sections and the squareness to the pin was checked and planed accordingly. Everything must be square to the pin – if not, the hinge will bind or even split. The holes had drifted to various degrees as expected, so the one closest to the edge, i.e. the one that had drifted the most, was found. A wooden spacer was made spanning the distance between the pin and the edge. With this, a series of straight lines were drawn, forming a radius around the pin. The backs, fronts and ends were then planed to this line. Each piece must also be parallel and the same width.



The hinge cut after being marked to ensure the grain match is maintained



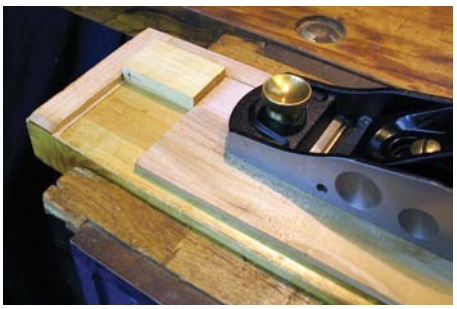
With the pin in the hole, the squareness can be checked

A spacer used to mark a radius around the pin

Now ready to be planed to a thickness and length

Planing true to the pin

Holding small pieces securely enough for planing can be a tricky procedure – I personally use a piece of maple measuring 100 × 28 × 600mm long with a 4mm strip glued on one side and one end, which I find works well for this purpose. A long 4 × 80mm piece cramped to the top prevents back movement from occurring. With a block plane set very fine, candle wax on the sole and downward thumb pressure on the toe, this becomes easy.



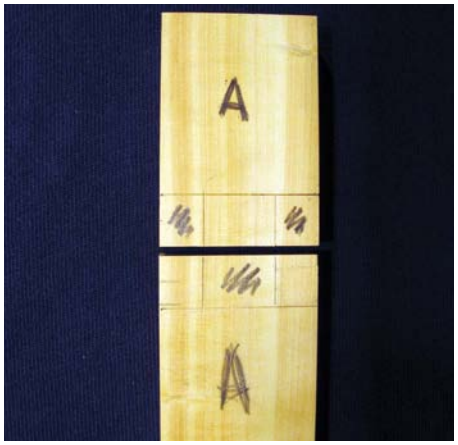
Holding small pieces can be a problem, this method works well

Planes tend to rock about on small pieces making it difficult to achieve a flat surface. This can be overcome with downward pressure on the toe, candle wax on the sole and a very fine setting on the plane

Marking the segments

The symmetrical, three segment version I've used is a little more forging with regard to the alignment than multi-segmented versions, with the single central segment being shorter than the hinge width. The segments measured 7.5, 12.5 and 7.5mm. This worked out as the two outside combined widths were 55% of the total – which looked and felt right. The marking was done with a square and mortise gauge and the cutting with dovetail and jeweller's saws. The baseline was chiselled as you would when sawing a dovetail.

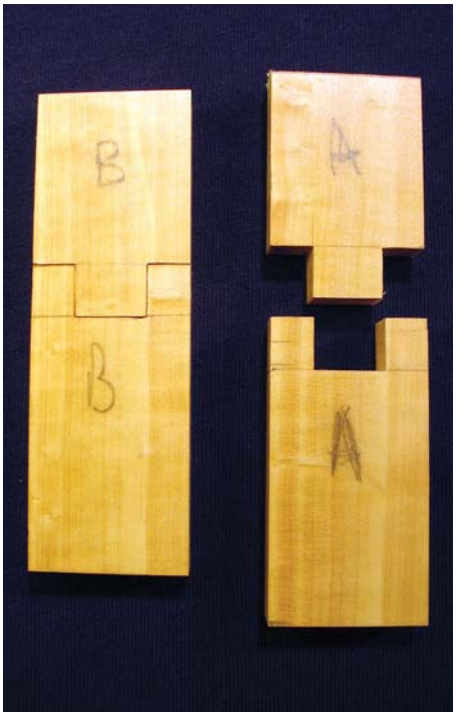
Cutting the segments is similar to cutting dovetails, they can be marked with either a gauge or square



As with dovetails, it's a good idea to mark the waste to be removed

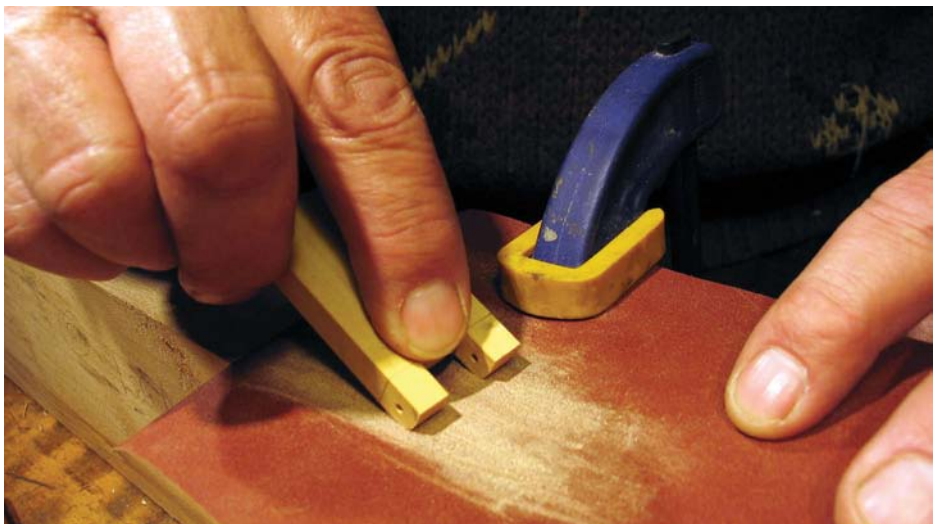
Fitting the pin: a hinge is born

The segments were cut and the pin fitted, holding the two halves together. It now starts to look like a hinge. The back, front and edges were then planed flat again, removing any error that may have crept in and checked on a granite tile. The radius around the pin was then chiselled, planed and finally sanded to a perfect round. It now works like a hinge and any points that rub can easily be spotted and removed. The full sweep should be just past 90° and both the same.



Starting to look like a hinge

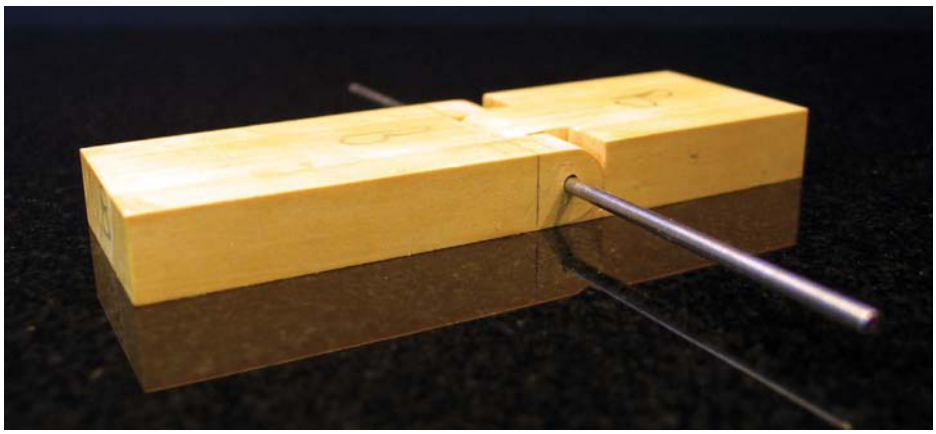
The radius around the pin can be shaped with a chisel and plane …



… and finally sanded smooth

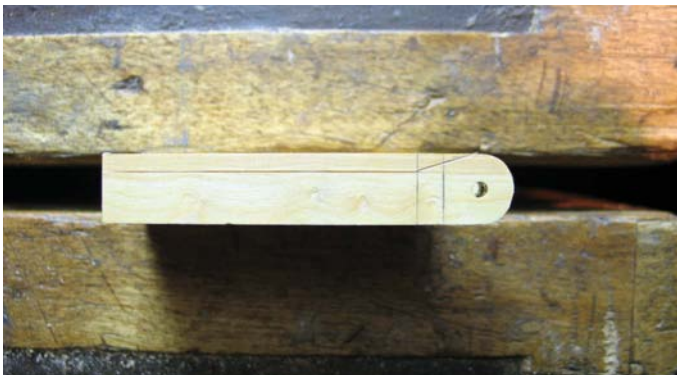
Strength without bulk

In order to retain enough mass for the hinge to be strong but not looking clumsy, I reduced the thickness of the flaps and let the knuckle into the box; this was done by marking the edges 2.5mm from the back with a marking gauge. The spacer was again positioned against the pin and a line drawn to a point 8mm from the pin on the gauge line. The waste was then sawn off and planed to the mark. To ensure the backs of the flaps were still in the same plane, two identical 3.55mm thick plane cutters were laid on the granite tile with a gap between them. The hinge was placed on top with the knuckle in the gap.



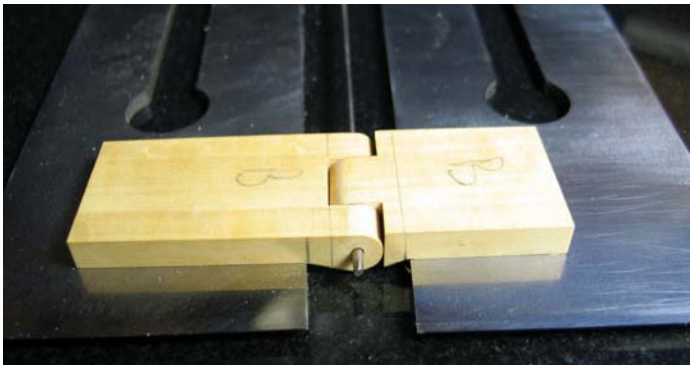
Checking for flatness on a granite tile

In order to reduce the thickness, a gauge was set to 2.5mm to mark the wood to be removed



With the pin in place, the spacer was used again to connect the gauge line to the radius, 8mm from the centre of the pin

A flat surface restored with a rebate block plane, level with the gauge lines



Two identical 3.55mm plane irons on a granite tile used to check the flatness of the hinge backs

Alignment and final checks

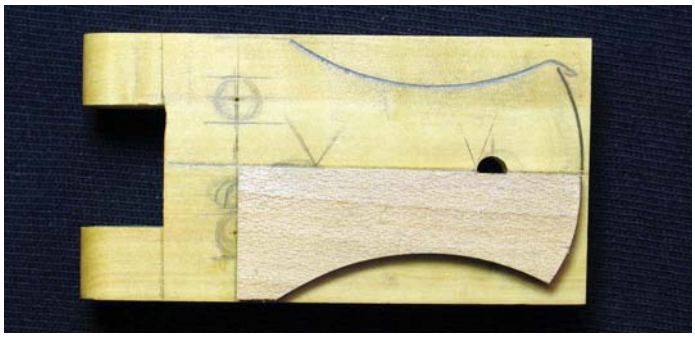
The position of the hinges were marked in from each end with a gauge. Wedge-shaped recesses were cut into the top edge of the box to accept the knuckle. The bottom parts were then lightly cramped in place. A sight line through one hole to the other reveals the accuracy of the alignment and with a few gentle taps, they lined up perfectly. The centre of the pins need to be at the same height, either level or slightly above, the box side. The cramps were tightened and the backs of the flaps were checked for a gap-free fit to the side of the box. A piece of scrap wood was planed and wedged inside the box to prevent splitting out and a 3mm hole was drilled through the bottom of the hinge and the box side on the centreline. A bamboo skewer, sanded down to 3mm in the drilling machine, was then fitted. This will be drilled out later and a peg fitted – its purpose is to hold the hinge in place while gluing. The position of the two top pegs were marked with awl pricks.

Wedge-shaped recesses cut to accept the knuckle of the hinge

Checked for alignment, cramped, drilled and pegged with a bamboo skewer

Shaping the flaps

A template was made for half of the hinge and lined up with the centreline and top peg line; this was drawn around, flipped over to the other side of the centreline and the mirror image drawn. The flaps were then cut with a jeweller's saw and shaped with gouges and 240 grit abrasive wrapped around a tube. The front edges were chamfered in the same way before a final clean up and they were then ready for gluing.



A template of half of the hinge drawn around then flipped over for the other half, ensuring symmetry

Gluing and removing glue

Because the knuckle fits into a recess and the bamboo pin positions the bottom, it's a particularly easy glue-up. Light coloured wood darkens with age and blooms of glue that were invisible when applied, can become visible. To avoid this, I use a toothbrush, dipped in clean, hot water and dabbed onto a clean cloth to scrub away any glue that squeezes out. A dry paper towel rubbed over the area immediately after prevents too much water from penetrating.

The hinge glued in place, located by the bamboo skewer and the recess in the top

Making and fitting the round head pegs

A piece of waste wood was again wedged inside the box at the back of the hinge to prevent splitting out. Three 5mm holes were then drilled: two below the pin and one in the bamboo skewer at the bottom. Several lengths of 5mm dowel were then made. There are many ways to make dowels and the smaller they are, the harder it is because they're prone to breaking, particularly the brittle utile used on this project. I used the 'pencil sharpener' type arrangement with the wood driven by a power drill. Getting everything just right takes time but when it works, it's very satisfying as a single shaving peels cleanly off, leaving the exact size dowel needed. So satisfying in fact that you may be tempted to turn every piece of wood you have into dowel. They were then cut into 12 pegs a little longer than the holes and the ends were then rounded with 240 grit abrasive while spinning in the drilling machine. Final fitting was done the same way. These should be an easy 'push fit' so the round ends are not damaged when they're tapped in.

The 'pencil sharpener' type dowel cutter

Utile pegs ready to go with one end rounded and a 'lead in' the other

The 5mm holes ready for the pegs

Tapping in the pegs

In order for the rounded ends of the pegs to stand proud by the same amount, a notch was cut in the end of a piece of 30 × 10 × 200mm oak and used as a punch. The end of the peg sits in the notch and is tapped home, giving the appearance of a rivet.

The pegs tapped in until the flat of the notched 'punch' reached the hinge, leaving them standing uniformly proud

Shaping and fitting the top halves of the hinges

A final fit between the lid and the bottom was done. With the pins in place, the lid was cramped to the bottom and 3mm holes were drilled through the hinges and box sides for bamboo skewers as before. A shorter 'half template' was made and the methods used earlier were repeated. The tops of the hinges were glued 'in situ' to ensure a perfect alignment, then the 5mm holes were drilled and the pegs taped in as before. With the pins in place, it was ready for a test opening. There was a very pleasing 'cushion' effect as the lid and bottom meet, caused by the air escaping through the closing gap.

Box with the lid cramped to the bottom, 3mm holes drilled through the hinge and box side for the bamboo skewers. Note the cramp preventing the flap from rising up the drill bit

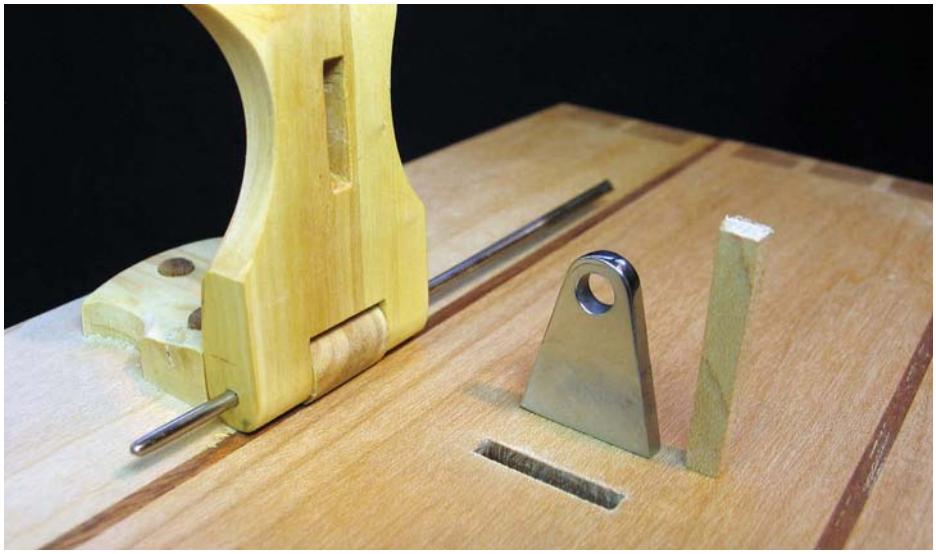
Hasp and staple

Instead of a lock, I fitted a 'hasp and staple' to match the hinges. A triangle was cut from 3mm stainless steel and a 4mm hole drilled to take a wooden pin. The base of the triangle formed a dovetail and a slot was cut the same to receive it but long enough to get the staple in. A parallel key was then glued in at the end, filling the gap and securing the staple. The pins were trimmed to length and fixed with a dab of epoxy resin and a 4mm pin was turned with a slight taper to hold the hasp in place.

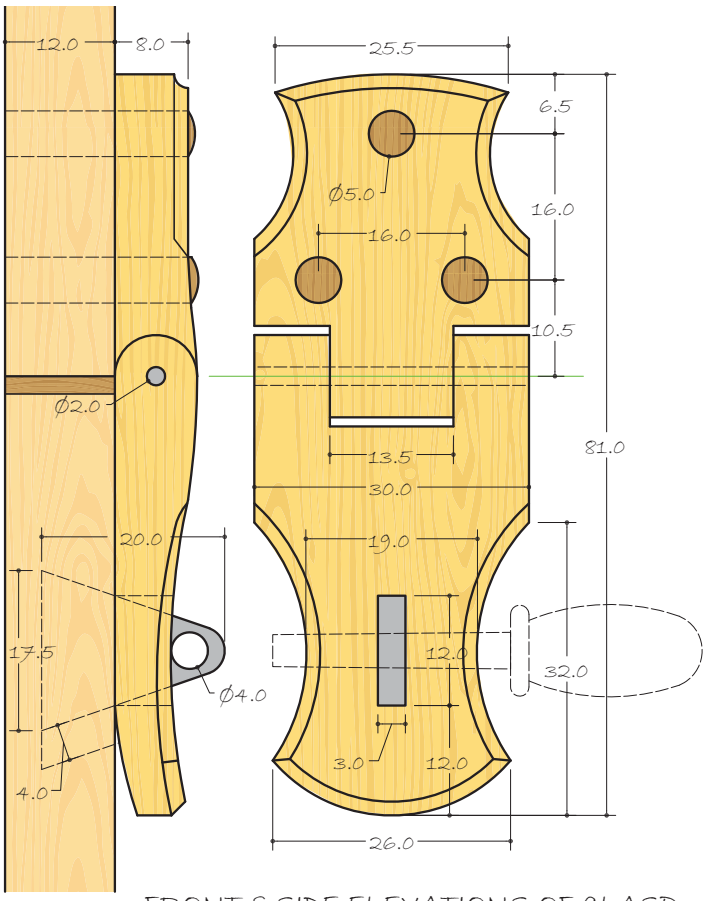
A stay was made to prevent the lid from being opened too far and potentially damaging the hinges; this was made from sailing cord and a mechanism similar to a lift in a lift shaft. A weight, cut from 3mm brass plate, pulls the cord back down the shaft when the lid is closed.

Although there are some very high-quality hinges available that work well and contrast beautifully with the wood, these were a joy to make. Their uniqueness and character make them well worth the effort. They certainly won't be the last wooden hinges I make. F&C

Glued and pegged with the pin in place, ready for a test opening

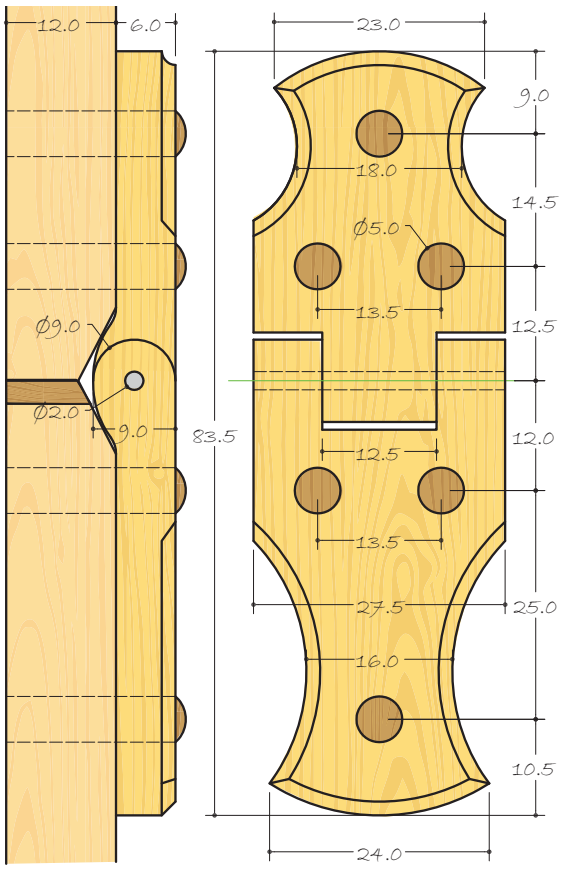


The staple, set into a slot the same dovetail shape but long enough to get it in, a tight fitting parallel key then glued in, filling the gap and securing the staple



FRONT & SIDE ELEVATIONS OF CLASP

Scale 1 to 1



FRONT & SIDE ELEVATIONS OF HINGE

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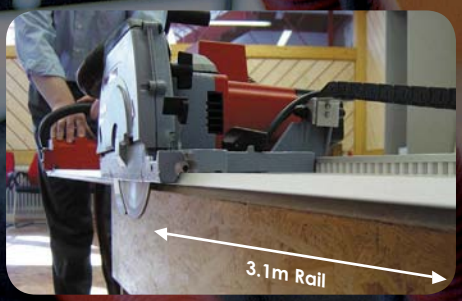

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Community is...

PHOTOGRAPHS BY KIERAN BINNIE

Jamie Ward, course leader at Warwickshire College

The solution

Kieran Binnie talks about the effect of 'community' in the woodworking crafts and its positive impact

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've decided to introduce a new style of article that will take us on a workshop tour of the globe.

Our reporter this month is luthier Kieran Binnie, who wrote for us in issue 230 on the benefit of lutherie techniques for furniture makers, as well as the importance of parallel skills back in issue 227. In this issue, he draws on that sentiment and talks about the importance and effect of 'community' on the woodworking circuit and the expanding network of global craftspeople, all of whom are helping to reinforce the sense of community even further

I am happy to report that there is an easy antidote to being too focused on the past and too isolated in our respective workshops: the international community of woodworkers. Not a cult – despite the tendency for facial hair in some members – but an expanding network of craftspeople across the globe, who in many ways have become a modern substitute for the medieval guilds and the mechanics' societies that followed. The community is not something I went in search of, but when I stumbled across it, I found woodworkers with a wealth of very different experiences, unified by a passion for the various woodworking crafts, and who were intent on sharing knowledge and preserving skills.

This willingness to share information, discuss experiences and most importantly, to encourage and inspire each other, is life affirming and so valuable. This is a community that inspires each other to build and to push the limits of our skills, that commiserates over mistakes and celebrates each others' successes, that shares knowledge, and solves those knotty problems which would otherwise keep us up half the night trying to devise ever more complicated solutions. The community doesn't just work for the transmission of knowledge, but also enables

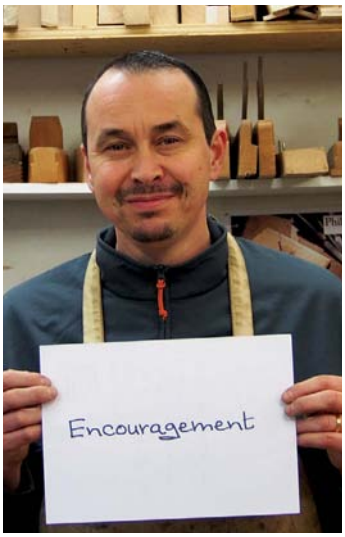
new entrants to woodworking. For instance, in 2014, Chris Schwarz announced that he would be delivering beginners' classes to young people and made a plea for old or unused tools with which to equip the 'junior anarchists' on these classes. Chris tells me that he has been overwhelmed with donations and is still cataloguing the enormous volume of tools he has received. This is community spirit in action!

Community is… where you look for it

So where do you find the international community of woodworkers? This is actually a lot easier than it sounds. Eight years ago, when I took my first steps in learning how to build musical instruments, I knew only one other luthier and no one, save for my maternal grandfather, who built furniture. Now it seems like new woodworkers are everywhere I look, in large part thanks to the internet and particularly the advent of social media. So read and comment on woodwork blogs – bloggers love nothing more than receiving comments. My own blog can be found at www.overthewireless.wordpress.com, or write a blog about your own workshop experiences. A special mention must also go to Instagram, a picture-based social network. The ability to upload a snapshot of your work, or what is happening right now in your workshop, gives an immediacy that words alone rarely offer.

If you prefer real-life contact with fellow humans, then woodwork classes are the perfect way to make connections with likeminded craftspeople – and a great opportunity to develop your parallel skills – either enrolling on a class as a student, or teaching one. Organisations such as New English Workshop – www.newenglishworkshop.co.uk – offer an excellent range of short courses, while evening classes can still be found at some educational institutions.

Blogger, writer and founder of the 'Community Tool Chest' project, Anne Briggs Bohnett



Phil Edwards of Philly Planes

Fellow luthier, Sue Johnson

Chris Kuehn of Sterling Tool Works

Community is... the future and the future starts with you

Crafts and specialist skills always engender a sense of community and I am not trying to suggest that the community of woodworkers is a new development. However, the decline of many educational woodworking programmes and woodworking trade organisations means that traditional crafts-based community structures are increasingly obsolete, while the rise of the internet has helped create a more international form of community. Equally, I am not blind to the risk of many woodworking crafts dying out, nor of the challenges in preserving traditional skills. But the more I engage with the international community of woodworkers, the more I am convinced that these risks will be overcome and the challenges will be met. Because under the stewardship of a community which cares passionately about preserving traditional crafts and does so much to foster an appreciation and enthusiasm in the crafts, the skills and work which we all care about really do have a future and are important. In my opinion, this is a truly egalitarian community where every contribution, by every craftsperson, is valuable and valued. Simply by building something, and talking to other craftspeople and aspiring makers, you can contribute to the community and ensure the preservation of the craft for the next generation. And really, if you think about it, isn't that what we are all trying to do? F&C

Chris Schwarz of Lost Art Press

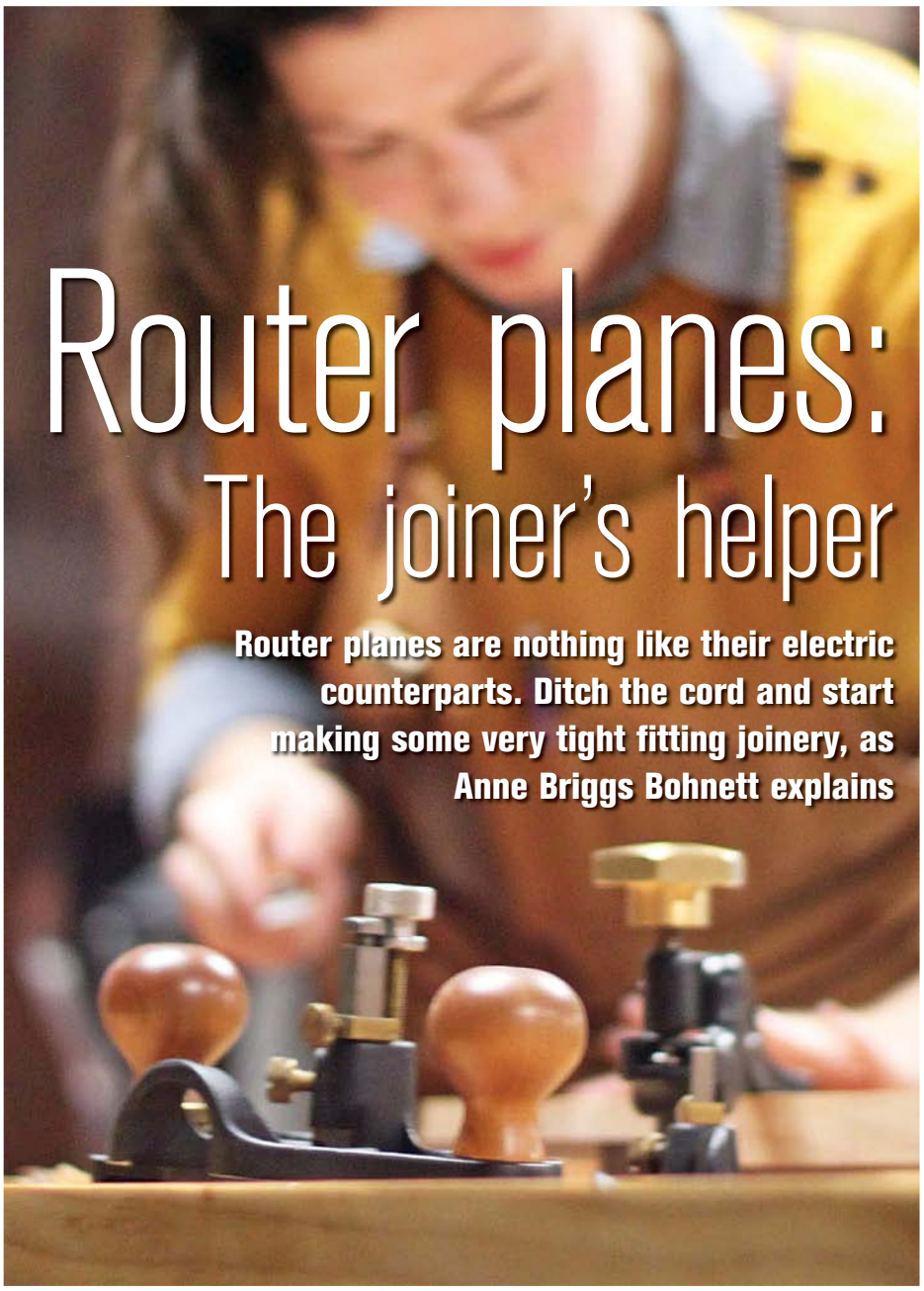
Alex Primmer of Classic Hand Tools

Mark Harrell of Bad Axe Tool Works

Jason Thigpen of Texas Heritage Woodworks

Router planes: The joiner's helper

Router planes are nothing like their electric counterparts. Ditch the cord and start making some very tight fitting joinery, as Anne Briggs Bohnett explains



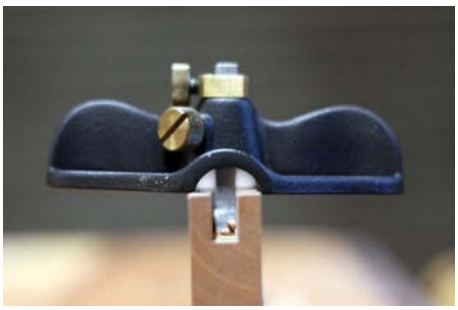
PHOTOGRAPHS BY ANNE BRIGGS BOHNETT

Router planes are absolutely essential to any hand or electrically powered workshop. While they aren't typically used to create the joinery in a project by themselves, they are the perfect accompaniment to fine-tune many joinery components. For example when trenching with a mitre saw or electric router to cut a dado, a high spot can be easily taken down by a few strokes with a router plane without the risk of widening the dado through repeated passes on a machine.

Router planes can clean up after a shoulder or fillister plane to guarantee an even depth of cut, can make stopped dadoes with a uniform depth, can level the floors of large mortises or slots, can level the cheeks of tenons, can create uniform grooves for inlay and can create recesses for patches or butterfly joints. So, as you can see, they are a very versatile tool to have.

Cutting dadoes

Finessing tenons



Adjusting grooves

Form and function

Traditional router planes were – and still can be – made of wood, which had the advantages of an easily flattened sole and being light in weight. Their less bulky cast iron successors, such as the Stanley No.71 and No.71½ were slightly more manoeuvrable and offered a blade that could be easily raised and lowered with greater accuracy. Many pattern makers modelled their own fancy versions on the basic Stanley design. Stanley still makes the No.71 in the UK, but the quality pales in comparison to the early models produced. As time went on, the japanning from the early models was replaced with nickel plating, the maple *(Acer saccharum)* and beech *(Fagus sylvatica)* turned knobs were traded for black painted knobs, and finally, for composite or plastic knobs. Buy a quality pre-war router plane and fix it up nicely or opt for a shiny new tool produced by Veritas or Lie-Nielsen. The new router planes offered by boutique makers are, in my opinion, the best yet. They brag of an accurate removable fence, a depth stop that is actually functional and their blade adjustment mechanisms are far finer than those of their vintage brothers. They are also made out of ductile iron, which won't shatter if it falls off your bench, and that is a huge plus for a plane that won't sit flat on the bench with its blade advanced. Another valuable addition to any 'shop is a small router plane. These are great little tools for getting into tight spaces and for small work like hinge mortises. Plus, they are really cute.

There are router planes with open and closed mouths. In my experience, the difference isn't earth shattering. The open mouth provides more visibility; the closed mouth provides more stability due to having a greater surface area in contact with the wood. Some newer models offer the option to purchase an attachment that closes the mouth. Choose whichever option you think will better suit your projects.

Blades

Blades of many shapes and sizes are available, but I've found I can get by really well with a 12mm spear point and a 3mm straight ground blade. If you go the vintage route like I did initially, save yourself some heartache and buy new replacement blades. It takes a lot of careful work to get vintage blades reground with a proper bevel and a flat back and since router plane blades take quite a beating, new steel wears far better and longer than the old.

Assorted blade options

Using the router plane

Cutting a dado

Start with a board that is square and true. Grab a chisel that is the exact thickness of your stock – in a pinch you can use a chisel thinner than your stock, but not thicker or your dado will end up oversized. Mark the outer edges of your dado with a combination square and a knife. Deepen your line and pare it back with a chisel to create a 'V' in which your saw can ride to ensure a perfectly straight cut.

Use the radius of your thumb to guide your saw square to the wall of the 'V'. Saw to your baseline on both sides, then chop out the waste stepping along the dado with your chisel and mallet. Be careful when chiselling to stay above your baseline; that last bit will be taken away by the router plane. If you are cutting a deep dado, take the waste in several passes with the chisel. Come in from one side with your chisel bevel up, go halfway and then come in from the other side to meet in the middle to remove the majority of your waste and, at the same time, reduce the possibilityof blowout on the front or back of your dado. Use this same 'meet in the middle' technique when you use the router plane and your dado will come out much cleaner as a result.

If you have a router with a depth gauge, advance your blade and set the depth gauge to the final depth of your dado by checking it against your baseline. Then, retract your blade so you can take away a small shaving at a time, advancing the cut after every few passes until the depth stop prevents you from advancing the blade any further, which indicates your dado is at the desired depth. Some vintage Stanleys came with a depth rod, which, in my experience, is more of a hassle than it's worth. Newer router planes, like those sold by Lee Valley and Lie-Nielsen have very accurate depth stops that make repeatability a breeze. When you've reached your baseline, test the fit within the dado. If the mating piece is too wide, its thickness near the joint can be adjusted with a few strokes of the plane. I find this far more accurate than trying to fiddle with the sides of the dado itself because your dado can go out of square very easily with one errant pare of the chisel.

Mark the thickness of the dado using chisel width

Mark the sides with a combination square and knife

Create a 'V' groove for the saw

Establish the sides of the dado with the saw

Chop out the waste

Set the depth

Don't cross the baseline

Meet in the middle to avoid blowout

Adding a butterfly key

If you've got a board with a large split, rather than scrapping it, use a series of butterfly keys to add variation in design and strength to the board. I like to use contrasting woods for my keys, but you can also make a nearly invisible key or even patch over a knot or bad spot using this method and a scrap of the same kind of wood. First, cut your key. This can be done with a router, a bandsaw, or by hand.

The size, wood selection and even shape of these keys are totally arbitrary. Use your key and a pencil or knife to mark the recess for the repair. If you are trying to stop a split, make sure your butterfly is placed with its long grain going perpendicular to the split, as wood is much stronger along the grain and thus your key will have much more holding power. Using a combination of Forstner bits and chisel work, I clean out the majority of the waste then use the router to level the bottom of the recess. Then, I add glue to the butterfly and the recess and use a hammer on a solid surface to pound the butterfly home. When it is fully seated, the sound of the hammer against the wood will change. If I'm repairing a split, I like to add a clamp before inserting the butterfly lest I accidentally drive the split even further apart. Keep the clamp on until the glue dries for good measure. Some people like to cut thick butterflies and leave them very proud of the surface to later plane down; some like thin butterflies that sit shy of the surface so they can plane the main board down to meet them. Because the grain of the butterfly is often perpendicular to the grain of the piece being repaired, it can pose some finishing challenges regardless of the method you choose. I leave mine proud, cut them flush after the glue is dry, then smooth the whole area with a very light cut using a scraper followed by a little sanding.

Adding a butterfly key

Remove the waste

Level the recess

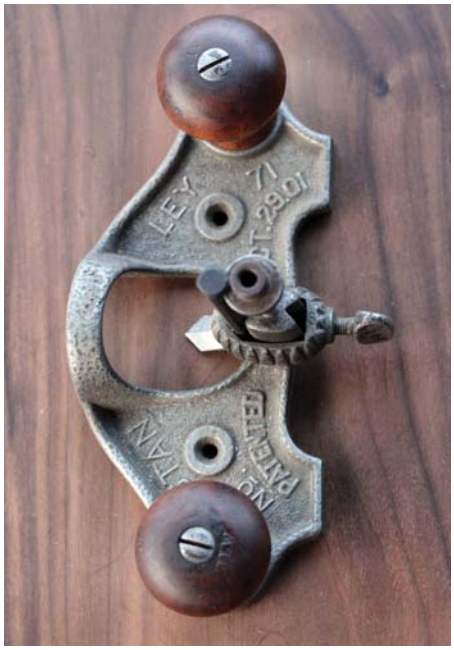
Clamp the joint tightly

Skill-building project

*If you fancy giving your new router skills a bit of practice, grab a piece of live edge timber. Plane it square and true on as many faces as possible – at least three – and find some contrasting scraps. I happened to have a piece of maple firewood for the main component, a piece of cocobolo (*Dalbergia retusa*) for the butterfly and a scrap of walnut (*Juglans spp.*) the exact width of my chisel for the feet. The entire design is arbitrary. Mark the location you'd like the feet and cut two dadoes for the feet, as described earlier. Cut your dadoes slightly skinny so you can plane the feet down to a perfect fit. Cut a recess for your butterfly, fit it in and finish however you choose*

Practise routing skills on a tea board

The components of a good router plane



A good old-fashioned Stanley No.71, ready for 100 more years of service

A router is a very simple tool, but it is a real workhorse in the 'shop. If you run across a vintage router plane, buy it and try your hand at restoration. The metal can be cleaned with dish soap, water and a sponge followed by scrubbing with a nylon brush and a citrus cleaner. If the metal is fairly rusty, an overnight soak in white vinegar should loosen that up. When you're satisfied they're clean, dry all the metal components, add a coat of paste wax and reassemble. The wooden knobs can be soaked in oil overnight, wiped clean and finished with paste wax or even mounted into bolts in your drill press, sanded down and refinished using your favourite technique. I recommend new blades, but if it comes with an old one, try your hand at sharpening it. With the whole plane reassembled, the sole can be flattened by rubbing it on a known flat surface with your choice of abrasive, until the wear is even across the whole sole. Here's what you need for a functioning router plane:

Essential features

- *A flat sole*
- *A sharp blade*

Nice to have features – available on newer planes

- *Accurate blade adjustment – not essential, if your plane doesn't have an adjuster, you can use a piece of paper under the plane to extend the blade and set it*
- *Depth stop – not essential, but very handy for accuracy and repeatability*
- *Removable fence – not essential, but handy for helping keep the plane square with little registering surface*

Community Toolchest

The Community Toolchest is a project to inspire people to make things with their hands. It is intended to get quality tools into the hands of beginner woodworkers and to provide instruction and education in an effort to preserve the traditional craft of woodworking. Tools donated outright will be given away at the end of the year on a scholarship basis to a woodworker or woodworkers in need. Woodwork doesn't have to be a solitary pursuit. Many influential people in the industry – tool makers, users and educators – are contributing tools, time and expertise in an effort to foster community and to raise up the next generation of woodworkers. If you're interested in taking part in the rich community that is forming around this project, join us on Instagram using; #woodworking #handtoolthursday #preservetradition or check out www.anneofalltrades.com or 'like' Anne of All Trades on Facebook F&C

PHOTOGRAPHS BY MARK HARRELL

The saw doctor will see you now

Carrying on from the last issue, Mark Harrell tackles the next stage of bringing your saw back to life – disassembly and cleaning

A disassembled saw will typically consist of nine items

A bench plane disassembled can easily total twent items

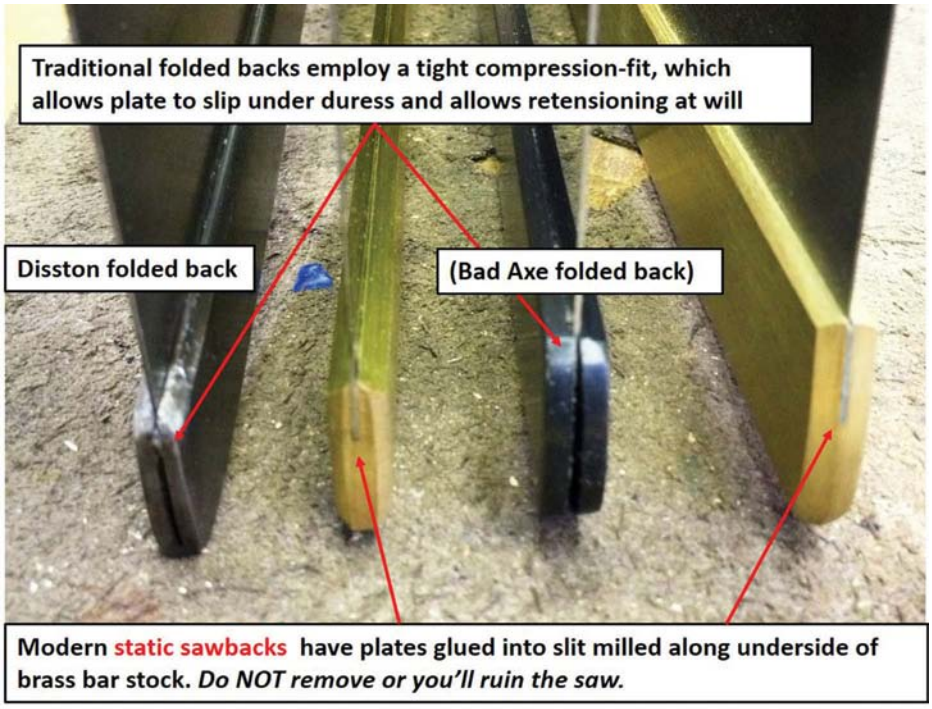
Let's put the disassembly and cleaning of a backsaw into proper perspective: who hasn't disassembled a hand plane early into one's foray down the hand tool world's proverbial slippery slope? Not that much to it, right? But, in the two images above, compare the inventory of hand plane parts on the right to the far simpler anatomy of a disassembled backsaw on the left – here you have only a handle, plate, saw back and fasteners, see? So let's stop treating saw disassembly as a mystical practice hailing from the realm of Merlin's black arts and get on with it.

Disassembly tools

- *Leather-lined wood clamp*
- *Leather-lined Angle iron*
- *305mm mill file*
- *Sharpening files*
- *Dead-blow mallet*
- *Stout screwdriver*
- *Small crowbar*
- *Ruler*
- *Felt-tip pen*
- *Brass hammer*
- *Leather patches*
- *Canning wax*
- *Whetstone*
- *Masking tape*
- *Stout vice*

To do this, you'll only need a modest array of tools

Taking care of the frozen nuts



The story of saw backs

The process explained

Step 1

Most likely, the modest array of tools you'll need are already in your workshop. The photo here on the left shows what we typically use at the Bad Axe workshop. These are common items you'll either already have, or can easily buy. You don't need a particularly large vice, such as the Wilton with the 200mm jaws from my workshop – something far more modest will suffice.

Step 2

Remove the handle first. Doing so can present a challenge, particularly if the fasteners are locked tight and your screwdriver serves only to spin them around without releasing, so let's discuss how to get our frozen nuts off – our Canadian friends in the frozen north assure me this is a common malady. Drill a 20mm hole in the upper jaw of a wooden clamp for screwdriver access, and because leather is your friend when it comes to tool maintenance, glue the inside faces of the clamp with some cheap deer hide, which is available at craft stores and on eBay. Secure the handle tightly in the clamp and ensure the business end of the saw bolt is exposed within the access hole. Now unscrew it. Easy, see? Leather and tight compression works every time.

Step 3

Now let's remove the saw back. But first, we have to understand saw back technology. Until 20 years ago, all backsaws were made with the traditional folded saw back – the thick rib of folded brass or carbon steel metal sprung tightly onto the thin plate of a backsaw. Unlike handsaws, backsaw plates are deliberately thin for making furniture-grade joinery cuts and the saw back keeps the plate rigid. When interest in hand tools renewed during the mid-90s, sawmakers adopted a more production-friendly process by milling a slit along the underside of a piece of brass bar stock and gluing the plate in place. While this is a perfectly serviceable method, one must never attempt to remove the saw back on a new saw using this method of attachment, or else you'll ruin the plate. The photo here tells the story.

Step 4

As for lifting the saw back, it's always a good idea to apply a penetrating oil along the underside of the sawback and let it work into the metal overnight; this will prevent the softer metal of the saw back from bowing when you lift it afterwards. When you're ready, cinch the plate in between leather-lined angle-irons – simple enough to make with deer hide and 3M spray adhesive – which are in turn clamped by the vice. Leave about 6mm of the plate exposed at the toe end of the plate/back assembly and rest the heel end of the saw back onto the surface of the angle iron, with your vice clamping the plate quite tightly. If you have a small vice, use C-clamps to cinch up the ends of your angle iron. Now jam the fork of your ➤

crowbar underneath the leading edge of the plate where it enters into the saw back. Again, leather is your friend at this step. Stick a small square of it inside the fork to protect the underside of the saw back. Lift the back while pushing inward with the crowbar. Do NOT lever the saw back by pushing down with the crowbar – you'll dent and mar the underside of the saw back. Rather, put your shoulder into the equation and press your crowbar upwards. See the saw back shift upward from the spine of the plate? Don't get in a rush at this point by attempting to complete this process with just one lift. Release the jaws of your vice and reposition the plate like before, then repeat the process. It usually takes about three lifts, maybe four, until you have raised the saw back sufficiently off the spine to the point where you can pull off the rest by hand. Now you have completely separated the handle, back and fasteners apart from one another – you're ready to clean.

Step 5

Note the products I have laid out around the saw, but here's the main thing: all you're doing is gently cleaning the saw. There is no school solution here – no one, true way, only common sense. Rust invites friction, so let's get rid of it. You're going to scrape away paint blotches and scaly rust with your razor – or a sharp wooden edge for a brass saw back – followed by working over the plate with a rust eraser and/or an abrasive pad. Often there will be a 'grime line' tracing the outline of the handle and underside of the back – this is where your razor comes in handy to gently scrape off the rust and hardened grime along this area. You'll use some sort of rust-dissolving agent – pick a brand, I'm partial to the Wizards products here in the US – to work through the rust. Again, adopt a coarse, medium-fine approach and eventually you will clean your way through a series of unused cotton cloths to clean your plate and saw back. Take care that you don't wipe out the etch on your plate if it still exists. Your goal is to simply clean and make your plate smooth, NOT to turn it into a mirror. Use your dental pick and gently clean and buff out your fasteners – there is no need to make them brilliant, but rather to achieve a dull gleam you'd find on a very well-protected antique. As for the wood, all that is required is to gently clean and rejuvenate. If you have a handle repair or new horns to graft onto the handle – which will be explained in the next article – then hold off on treating the wood, but simply sand and/or scrape away the grime and paint splatters.

Conclusion

And your work here is done. Remember, a clean plate – not a mirror reflection – is all that is required to achieve your goal: a smooth saw cut. Don't worry about the dark, even blackish rust stains underneath the rust once you've cleaned off the rust. There is surely no sense in grinding metal away to reveal the bright — all you'll do is waste hours doing so, which might even compromise the temper of the spring steel. All you need to do is clean your saw to achieve the very well-preserved antiqued look you're seeking to achieve at this stage.

In the next article, we'll look at the next stage in this process: restoring the handle on your vintage saw. F&C

Raising the saw back to separate the handle, back and fasteners

Apply a penetrating oil along the underside of the saw back

Cleaning tools

- *Dental pick*
- *3M abrasive pads: coarse and medium*
- *Dremel*
- *Rust eraser*
- *Kramer's wood treatment*
- *Wizards metal seal*
- *Spraybees rust shield and wood treatment*
- *Wizards metal renew*
- *Dust mask*
- *Cotton polishing cloths*
- *X-Acto knife*
- *Brass toothbrush*
- *Scraping razor*

Products needed for cleaning the saw

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PHOTOGRAPHS BY GMC/DEREK JONES

Cutting it down to size

How can you make a piece of furniture twice the size of your workshop and still get it through the door? With a little help from your friends, that's how

You'd think that we were overrun with projects to feature in the magazine and to some extent that's true – we're certainly not short of offers. But the truth is, we get to hear about most of them when they're complete. For the really unusual ones, we can sometimes reverse engineer some aspects of the build process and treat them as deconstructs. For the less than dynamic projects we, regretfully, wring our hands and have to pass. So when we got to hear of this project well in advance, my offer to help out wasn't entirely without motive.

From a technical point of view, building case furniture from sheet material is relatively straightforward. The biggest problem you're likely to encounter will be the sheer size of the raw materials and not having a workshop the size of an aircraft hanger in which to work. Add to this a level of equipment that puts you in the professional league and such projects can easily become off limits. In this article, I'm going to look at some of the steps you can take to bring this type of project under control and give it all the attention to detail you would apply to a bespoke piece of furniture on a smaller scale.

Material selection

First of all, you need to overcome the thorny issue of using sheet material – in particular, the pre-veneered variety and the notion of it being inferior to solid timber. I'm not going to argue that point as it's clearly not a like-for-like comparison. Typically, you can reconcile the situation with a horses for courses approach and by incorporating as many of the techniques that you would carry out on a traditional build, starting out with material selection. Generally speaking, the substrate for pre-veneered sheet material is MDF, which is commonly available in thicknesses ranging from 7-19mm.

In the case of pre-veneered sheet material, you tend to get boards faced with two types of veneer: typically, one side will be faced with crown cut veneers and the other with quartersawn. In some cases, you may find that both sides of the board have the same type of veneer. It's hard to be sure sometimes if this is by design so if you are unable to inspect the boards beforehand, it's worth checking with your supplier to establish whether or not they know there is a difference, as the person out in the yard picking on your behalf may not.

And before we get too hung up on terminology, I'm not entirely convinced the crown versus quartersawn description is equal with that which we use to identify solid timber. For the purpose of this exercise, we are basically looking for good, clean sheets that could pass for boards that have been constructed from solid timber. For case furniture, that means selecting the quartersawn side for all our external faces, just as you would expect to find on a solid sheet made up from separate boards edge-jointed together.

Pretty but not convincing

As these two photos demonstrate, the crown cut face may look pretty but you wouldn't necessarily want to build a carcass out of it. There's no guarantee the veneers have been laid out with a consistent book-match pattern, either. For imitating solid carcass work, however, it may turn out to be a blessing. To find a good representation of a quartersawn face, I had to go a further six or seven sheets into the rack. There's a little crown pattern on the top edge but the majority is fairly plain and lacking any real character. For quartersawn walnut *(Juglans spp.)* this is what you would hope to find if using solid material and dimensionally stable boards suitable for a carcass. If the joins in the veneer are obvious, then use the widths to imitate a solid board construction. Consider following the grain pattern through from the side of the carcass to the top if both faces are seen. Avoid thin strips on the edges of boards. Unless you've made a mistake, you wouldn't generally see this on a solid timber construction.

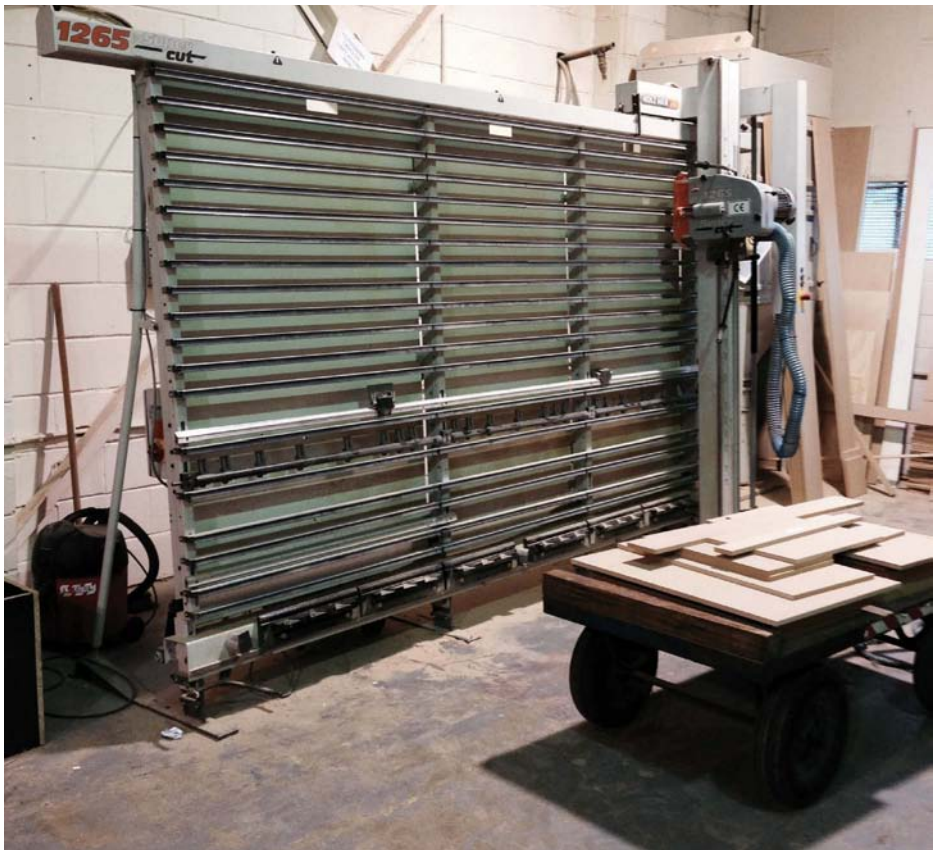
If the grain pattern on these two sheets looks a little too perfect, there's a good reason for that. Veneer companies prefer to work with the cleanest logs they can to avoid faults. In the commercial production process for sheet goods, what we see as boards with character will often be regarded as undesirable. I'll leave you to debate the rights and wrongs of this among yourselves, but as long as all the material harvested is actually used, I guess this is as much as we can expect.

A crown cut veneer face. Hardly likely to be found on a board made of solid timber

A quartersawn face. Note the slight pattern at the top of the board

Cutting lists

The most important decisions you make on a project will undoubtedly be those concerning dimensions. If you generally make things up as you go along, like cutting pieces from a sheet as you require them, perhaps a little oversize to trim later, then this next step might make you a little nervous – it's a finished dimension cutting list. There are two things to consider if this is the right approach: the first will depend on whether you have the resources to convert the pre-cut components into accurately dimensioned boards in house afterwards; the second depends on how accurately your supplier can prepare your cutting list. It's highly likely they will be using a machine way more sophisticated than yours, so the odd half a millimetre here and there will still be within your tolerance. I've found that most errors occur when a list is prepared on a wallsaw. There's nothing wrong with them but the process can fall foul of unintentional discrepancies when trying to repeat depth/length stop settings. A beamsaw will generally result in more consistent dimensions as the cuts are determined by a numerical value keyed into the machine. Think CNC. It's important to agree with your supplier a system that identifies long-grain dimensions from cross-grain ones. This will be less of a problem on long, thin components, but not when length and width dimensions are similar.



Industrial size wallsaws are capable of cutting boards to finished dimensions

Costing

I don't think I've ever heard anyone say how much they enjoyed humping a pile of 8×4 sheets around, so in my book, the extra expense to have it done for you is money well spent. There is a range of ways your supplier will pass this cost on to you, either at a single rate per board regardless of the number of cuts, or at a lower rate per cut. On average, expect to pay between £3-5 per sheet when you are factoring in the expense.

Taking care of the edges

Solid lippings are the best way to cover the edges of any sheet material and although these can be bought off the shelf, it's not the cheapest way of obtaining them. My preference, and the method used on this project, is to rip successive strips, about 6mm thick, from a matching board planed to 1mm thicker than the sheet material and apply with either tape or clamps. Passing the lippings through a thicknesser will remove the saw marks. Taking a hand plane to the edge of the sheet material will square that

MDF is very porous so apply glue right up to the edge to ensure a good join

edge and produce an almost seamless join. Use whichever tools you have to level the surface: block plane, thumb plane or cabinet scraper. Although there will be sections where the lippings appear quite obvious, a uniform thickness throughout the project is less startling than a mixture of sizes. The front face of solid lippings can also be planed, scraped or sanded to a finish, unlike veneer. I wouldn't recommend the pre-glued iron-on veneer for quality work.

Masking tape is a quick and easy way to fasten lippings in place while the glue dries

Gather a good selection of tools to trim the lippings down to the surface of the board

Pre-finish

The success of a large-scale project is as much about forward planning as it is logistics and when it comes to finishing, you can apply a little of both. Whether you spray, oil or brush varnish your work, doing so on large items that are fully assembled can be difficult. My advice is to pre-finish as many surfaces as you can before they become unwieldy. Pre-veneered boards may be considered inferior to solid timber but treating it like the real McCoy will improve the quality of the finish quite considerably. Lightly spraying the surface with water before any sanding will raise the grain just as it would on solid timber. It may seem like a waste of time, but will get you closer to a good finish much quicker. In some cases, the veneer will be less than 0.5mm-thick so the less sanding you do, the better. Raising the grain in this way will also help to swell any bumps to the surface where they can be levelled off. Attempting to remove even the slightest scratch with a scraper or sander without wetting the surface is surely tempting fate.

Wetting the surface of the veneer with water to raise the grain

Taping up

Taping over the joins before applying a finish will ensure the adhesive has the best chance of doing its job. A low-tack masking tape is preferable as it is easier to remove afterwards. Tape over slightly less area than the joint requires so that the finish runs through into the join. On 19mm thick material, aim for about 17mm

Joints for assembly

Regular biscuits are a tried and tested method for building case furniture. The only downside is that the joints need to be held in clamps until the glue has dried. Accepting that you're never going to be awarded a Guild Mark for a piece of furniture made from MDF or garner any house points from your peers, let's consider the logistics for a minute. In a typical scenario, you may need as many as eight sash clamps to assemble a single carcass. I'd put that at around £600 of reasonable quality clamps. Let's say you want to glue up more than one cabinet at a time – after all, it only takes 10 minutes to do and the next four hours are down time. For around the same investment, you could be staring down the barrel of a Lamello Zeta P2.

The Lamello Zeta P2

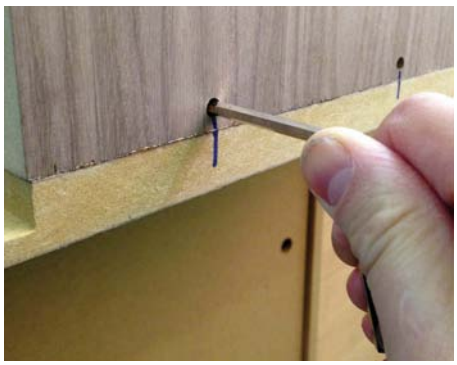
Axe head style slots for the Lamello Zeta P2

P System two-part connectors

Zeta P2 System

The P System operates like a biscuit but does not require clamps, meaning that providing the cabinets are small enough to handle, they can be moved around without the risk of having somebody's eye out and worked on if necessary. What used to take an octopus and his helper to do can now be done singlehandedly without breaking a sweat. Tackle each joint individually, slot in the connectors, apply glue where appropriate, assemble and lock in place. Brace the corners with diagonal supports if you need them and move on to the next joint. As you've pre-finished your components, cleaning up the glue is simple.

The P2 connectors slide into a slot and are prevented from falling out



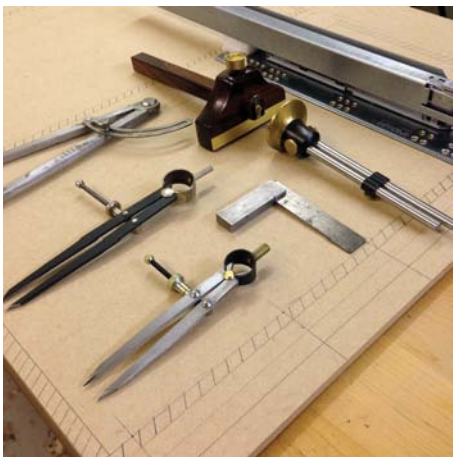
Align the components and lock into place with a hex key

Fix temporary corner bracing to support the carcass

Templates

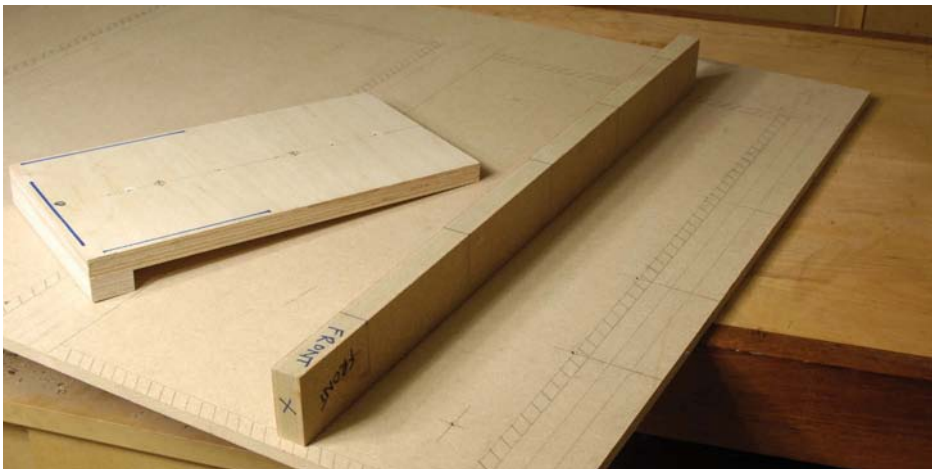
There are often lots of repeated measurements to be found when building a cabinet in this fashion. The biscuits, for example, can be laid out identically for all the carcass components. This project features drawers that are mounted on metal runners with sufficient after fitting adjustment to absorb tolerances of a couple of millimetres in any direction. By cabinetmaking standards, these are a tad crude but part of a good all rounder's repertoire. There are far too many variants on the market to give exact instructions for the fitting and assembly of these mechanisms, so my advice is to draw a full-size rod of the assembly with all the drawer components in place and locate the drilling positions for each set of runners. Use it to either drill holes before assembling the cabinets – my preferred option – or after. Either way, if you can standardize as many processes as possible it will speed things up and dial in some much needed accuracy.

Fewer decisions means fewer mistakes so for continuity chosen a common datum for all your layout templates. For this type of project I use the front edge of the carcass components and mark the templates to reference from this edge. Admittedly, I was a little late to the party when it came to using the continental method of a triangle mark to lay out components. If you think you're missing out as well, see *F&C* 225.



A full-size rod is the best way to locate fixing holes and establish the size of drawer components

Adjust a portable drill press to drill perpendicularly to the face of the board



A range of templates used to position connectors and pilot holes for drawer runners and drawer fronts

Show faces

The worktops and drawer fronts are the most visible surfaces of this piece and the areas that will receive the most wear. These were made from solid timber out of boards that were between 2.4-2.7m long. Over the years, I have built up a good relationship with my local timber yard and they are mostly happy for me to self select the boards I need. If you can, start work on a similar relationship – it can save a lot of inconvenience later.

I wouldn't advise trying to plane this amount of timber on anything less than a 4ft long jointer. But just in case you're tempted, consider the time and effort involved and the wear on your knives. To have these boards flattened on two faces to a standard overall thickness costs around £175. That may not be cheap but it's still cheaper than I could do it and I won't have to empty the extraction, dispose of the waste or rearrange the workshop in the process. Remember, you need a good 5.5m run to machine a single length at 2.7m. It also means that selecting boards for layout is easier now that I can see the grain clearly. With the grunt work done by large machines, you can now turn your attention to the more refined work, like hand jointing boards.

If you can, try and get permission to select the boards at the yard

Machined stock is easier to place in sequence and match the ends of boards as they butt up

With a good saw bench, crosscutting by hand isn't so bad

There are still plenty of opportunities to show off your planing skills

Jointing by hand is still the most accurate way of mating two edges

Attaching worktops

Fixing solid timber worktops to an engineered substrate requires the same rules to be applied as for a solid timber carcass. Seasonal movement will have less of an effect on engineered material than on solid timber, so make an allowance for the top to move across the grain and the substrate to stay put. My method for doing this is to rout slots in the tops of the cabinet with which I can pass an M5 screw into a brass threaded sleeve embedded into the worktop. The row of fixings at the front of the cabinet are plain holes so that any movement will occur at the back and therefore maintain the amount of overhang above the drawer front. The brass sleeves are a tight push fit and expand when the screw is wound home. I find it pays to carry out a dummy run beforehand so that final assembly is much easier.

The worktops are finished underneath and brought to their final dimension just prior to fitting

Rout slots in the carcass top so the bolts can move freely if so required

The brass sleeves are a tight push fit. Chamfered tops are easier to locate when it comes to assembly

Carry out a dummy run with the screws to expand the brass sleeves in their hole

Colouring filler

There are times when it's not practical to carry out repairs to some imperfections with timber in-fills. In such cases, you can either reach for the wax sticks, shellac bars or two-pack fillers. Invariably, the coloured fillers bear little resemblance to the timber you're using at the time but this needn't be a problem if you have a selection of earth pigments to hand. Mixing some brown umber with this nondescript mahogany filler before adding the hardener results in a very good match for American black walnut. Using the same pigment mixed with shellac polish helps disguise the filler even more and carry out an invisible repair

Choose a suitable combination of filler and pigment powder

Combine pigment powders with shellac

Dowel holes were drilled into the middle section of the feet before gluing up

More hand work was required to shape the feet

The base frame was a separate component

Apply the polish to the filler with a fine brush

Test with a layer of your chosen finish to check the match

More hand work

The base section for this project was also made out of solid timber and joined together mainly with dowels. This is a fast and effective method of construction and wholly in keeping with the build. The feet were laminated from three pieces of timber and shaped by hand with a spokeshave. The middle section houses dowels that are located into the frame. The outer parts clamp either side of the frame.

The finish was a hard wax oil from Osmo. I've been using the rapid version for a number of years now. Although it's unlikely you would be able to get a second coat on in the first 24 hours, third and fourth coats in one day are quite possible.

Conclusion

Fully assembled, this piece is about 2.7m long and 1.4m tall. In a commercial workshop, this might not add up to much, but for the smaller home 'shop it's verging on behemoth proportions. However, by breaking the parts down to manageable sizes and outsourcing the grunt work, it is possible to fabricate pieces that are larger than the space your workshop occupies. All of the constituent parts were ordered in what I think VW coined as 'just in time' stock control. All of the activity was completed on a single 6ft bench with just enough space to walk around. At the beginning of this article, I mentioned making the most of the resources around you, but what I didn't say is that it would cost you. All in all, the cutting and machining put an extra £200 on the cost of materials, which I think is a fair price to pay to get access to nearly 100 times that value in state-of-the-art equipment without the cost of investment and upkeep. Now I'd say that was a good return. What I didn't mention either was that by working to a rigid and well-prepared cutting list, it was possible to have a large percentage of the components prepared in a separate workshop. The first time the drawers in this chest met the carcass was the day we attempted to take the final photograph. Guess what? There wasn't enough room in the workshop so we broke it down loaded it into the owner's van and sent it on its way. F&C

Supplier details

Lamello Zeta
Contact: *Axminster Tools & Machinery*
Web: *www.axminster.com*

P15 connectors
Contact: *Scott & Sargeant*
Web: *www.scosarg.com*

P14 connectors
Contact: *Axminster Tools & Machinery*
Web: *www.axminster.com*

Metal drawer runners
Contact: *Wurth UK*
Web: *www.wurth.co.uk*

Threaded brass sleeves
Contact: *TR Fastenings Ltd*
Web: *www.trfastenings.com*

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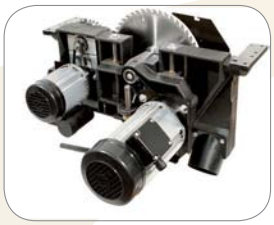

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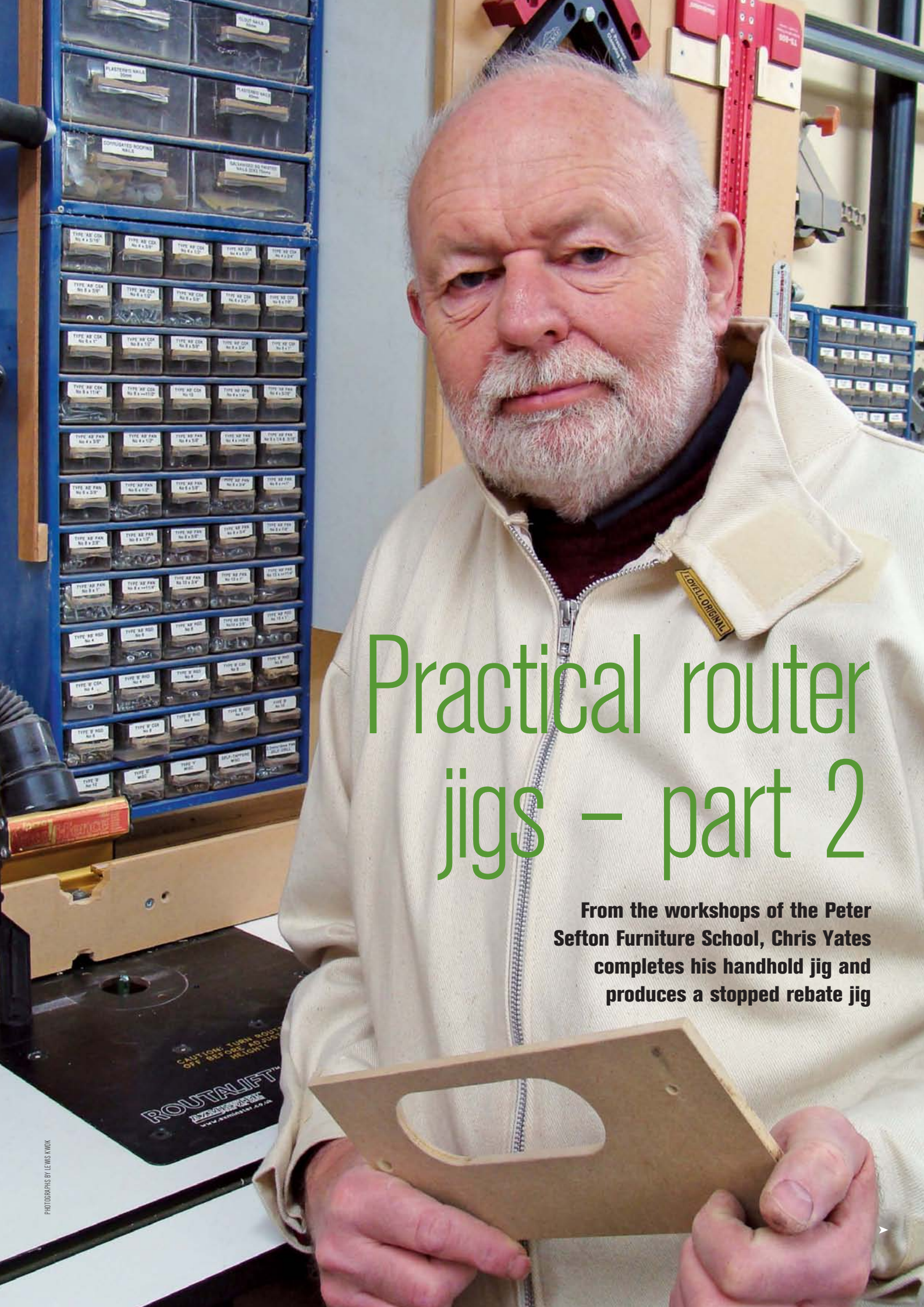
Model	Product Group Series	Specification Includes (as per quoted price)	Mc HP / Scorer / Volts	Depth of cut & length of stroke	Price Exc VAT - Plus Carriage	Price Inc VAT - Plus Carriage
Forsa 4.0 - P2	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 1.6 m	£2,995.00	£3,594.00
Forsa 4.1 - P2	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 2.1 m	£3500.00	£4,200.00
Forsa 6.0 - P2	Professional	Inc Professional STC + TWE + TLE + Scorer	5.4 / 1.0 / 415v	107 mm x 2.1 m	£3,995.00	£4,794.00
Forsa 8.0 - P3	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 2.6 m	£4650.00	£5,580.00
Forsa 9.0 - P3	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 3.2 m	£4,800.00	£5,760.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension. P3 models inc extra support table & clamp.



Practical router jigs – part 2

From the workshops of the Peter Sefton Furniture School, Chris Yates completes his handhold jig and produces a stopped rebate jig

PHOTOGRAPHS BY LEWIS KNOX

Production stage for the handhold jig

Once you have cut an acceptable working handhold jig, fit any guide battens to it and you are ready to go into production, following the same process previously described for cutting the working jig. The last step is to add information about guidebush and cutter sizes, etc. to the jig and mark on it the direction of rotation – clockwise for an internal cut with the router above the workpiece. You now have a useful jig that you can adjust to suit different projects, which will enable you to make professional-looking handhold cut-outs quickly and repeatably.

Before moving on to the second jig, let's recap some of the less obvious things to bear in mind when designing a jig. The temptation is always to start making the jig for the job immediately in hand. However, a little forethought about other applications of the jig might save a great deal of time and effort at a later date. This may not be so important when using the master jig approach as it should be relatively quick to make additional production jigs using the master, so that they can be tailored to particular projects. In other cases, however, think about the probable largest sizes of workpieces to be accommodated and any particular workpiece fixing requirements. If these can be accommodated in a single jig that is still fine to use on the immediate project, then you may have saved yourself time and effort in the future.

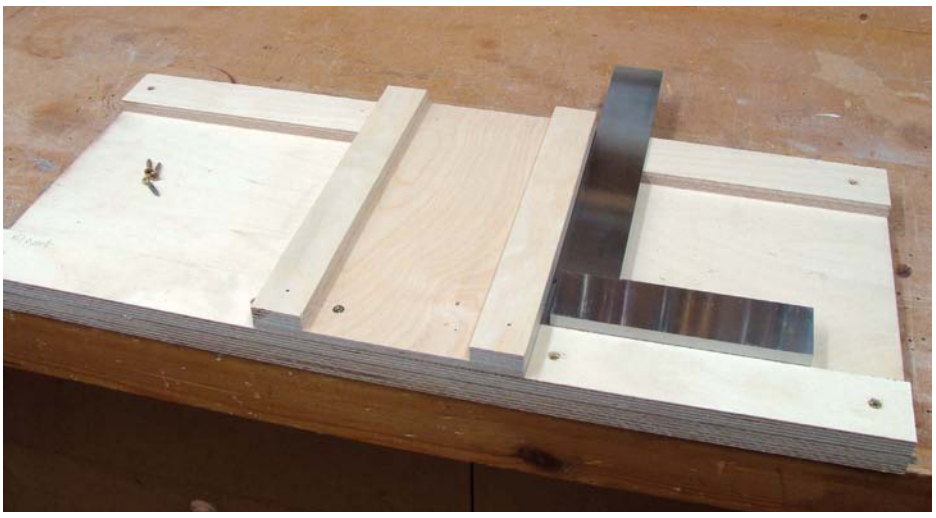
Lastly, where will you be using the jig? Will it always be used in your workshop where you have good facilities to mount it securely and to manage to navigate the router without it overbalancing? If not, think about how to address these additional challenges, perhaps by fixing additional supports to the jig base.

Stopped rebate jig

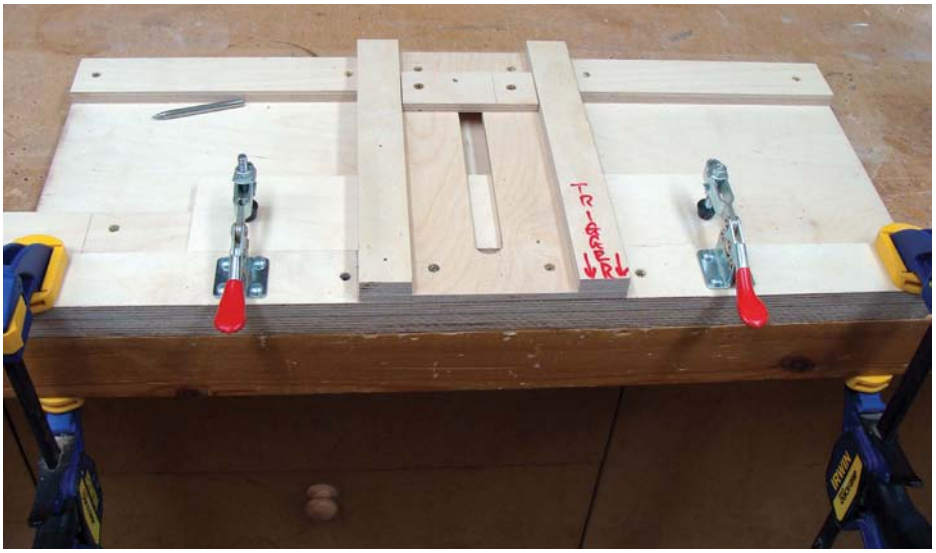
Our second example is one we use to cut stopped rebates on the routing course at Peter Sefton's Furniture School. Basically, it holds a workpiece against an end stop to position it accurately and then guides a router across it. Plunge depth and transverse stops are easily set and adjusted and it facilitates a job that would be a little tricky to do repeatedly and consistently by other means. This jig has been used repeatedly by students on our beginners/intermediate course and produces consistent results.

The transverse guide needs to be made to fit a particular model of router, but it requires only simple woodworking skills to make. Any router with a base that has parallel sides can be used; if your router is a different shape, simply fit a false base with parallel sides to the underside of the router.

As before, a little thought before we start to assemble the jig may save heartache in the future, so some consideration of key dimensions of workpieces in advance will be worthwhile. Bear in mind that you can use a big jig to cut small workpieces, but not the reverse, so I tend to err on the side of larger rather than smaller.



The rebate jig is very simple to make and the only thing requiring particular attention is that the router guide must be mounted square to the longitudinal fences. The jig took less than half an hour to make from offcuts



This photo shows the jig about to be used for the first time, with a workpiece mounted against an end stop, clamped using my favourite toggle clamps and with a stop mounted on the transverse router guide to limit the length of the rebate

… and we are in business!

This is one I prepared earlier…

The photos of the jig I made for this article show clearly how it is constructed and it is simple to make. You need to take reasonable care that the router you plan to use with the jig is a sliding fit between the transverse guiderails, and that the guiderails are at 90° to the long sides of the jig – take care when fixing the router guide to the base to ensure that they really are square to one another. The size of the slot in the router guide is just a matter of convenience to enable you to see the workpiece and to accurately locate the rebate on the router centreline. You can produce this slot as the first cut in the jig, before using it on your workpieces; it needs to be at least as wide as the largest diameter cutter you expect to use, although if things change, you can always enlarge it later. Note that the slot performs no guidance role, so you do not need to use bearing-guided cutters or guidebushes. You could use the slot with a guidebush, rather than the guiderails, but it is important that the transverse router guide does not deflect downwards when cutting, as this will affect the depth of cut. Therefore I make a virtue of necessity and fit the guiderails, which also stiffen the transverse guide. However, it is your choice….

If you are using a new router, it may be necessary to clean up the sides of the router base using a suitable abrasive paper wrapped around a wood block – this will remove any flash from the manufacturing casting process. If you find that there is any tendency for the router to stick rather than slide smoothly, make sure that the guiderails are straight and accurately located a constant distance apart. Gentle lubrication with a candle on the sides of the router base can help. After rubbing a candle along them, rub the surfaces with stiff backing paper, such as the reverse of abrasive paper; this will spread the candle wax thinly over the rubbing surfaces.

Positioning and clamping the workpiece

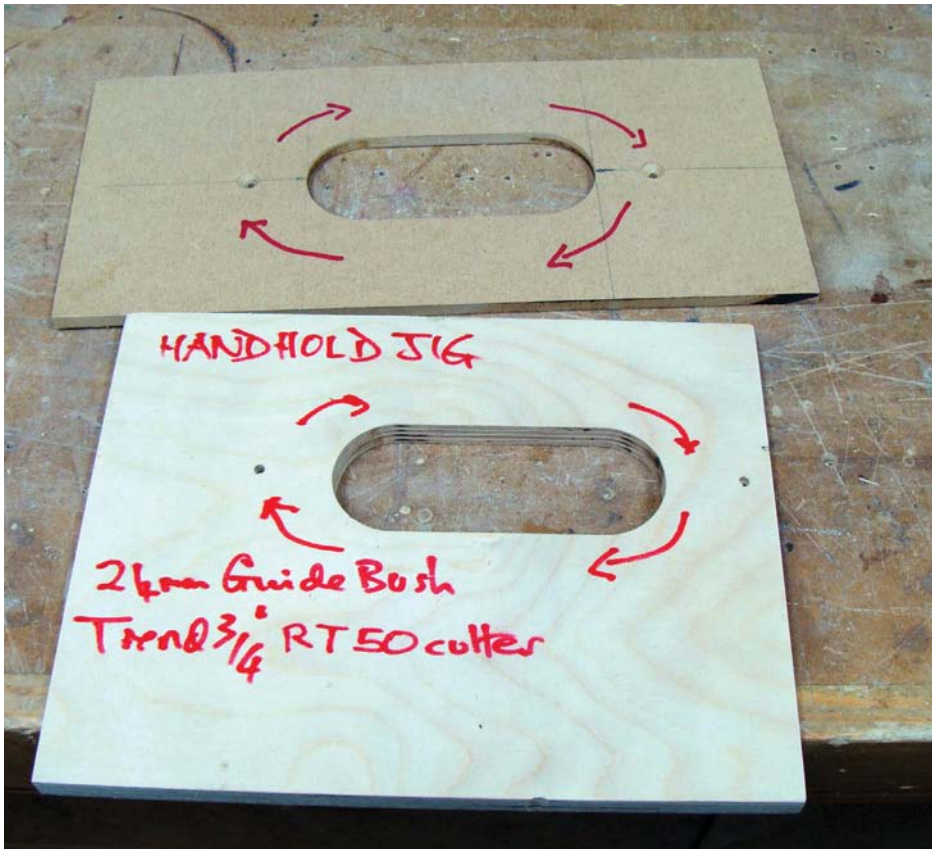
A useful aid for lots of routing setups is a pointed pin of the same diameter as the collet; this makes finding the centre of the cutter very simple and accurate and you can use it to mark the long faces on the jig to aid positioning of workpieces, as well as setting-up the end stop for the first workpiece. A friend turned mine for me and I have pointers in ¼in, 8mm and ½in and I use them all the time. Mark the centreline of the first rebate on the first workpiece and use the setup pin to accurately locate the workpiece under the router. Then decide how you are going to clamp the workpieces – they need to be fixed both longitudinally and transversely and either proprietary clamps or purpose-cut blocks and wedges or shop-made cam clamps can be used.

If you are cutting through rebates, off you go. However, if you want a stopped rebate, when everything else seems to be as it should be, use a wood block(s) screwed to the router guide to limit the transverse movement of the router; this enables either single or double stopped rebates to be made repeatedly and they can be repositioned at will.

Label the jigs

Once you are ready to use the jig, don't forget to mark on it which way round the router is intended to be used, as router bases are not often centred precisely on the collet centreline.

As always, be prepared to try the jig on some offcuts first, as this will help you to select the router cutter that gives you the best fit, as well as enabling you to adjust the depth of cut. Bear in mind that as one side of the cut will be made with the router cutter in the 'wrong' direction, you are likely to cut the rebate a tiny whisker wider than the cutter diameter. However, if you take gentle cuts and move the router steadily back and forth, this will limit the oversize cut. More on how to deal with this aspect in a future article….



Master and production jigs cut and labelled

Calculation of offsets using guidebushes

The offset of the cut edge from a guide edge is given by: offset= ½ (G-D), where G = guidebush outer diameter; D = router cutter diameter.

For example, if you use a 24mm diameter guidebush and a 16mm diameter straight router cutter, the combination will produce a cut that is 4mm from the guide edge.

See various websites for online calculators; search for 'guidebush offset and formula'

Conclusion

The jigs described are both straightforward to aid relatively simple operations, which would nevertheless be more challenging and time consuming without the use of jigs. However, both jigs can be developed for more sophisticated tasks – for example, by changing the shapes or angles of the cuts. You are limited only by your own imagination! I hope that you feel able to design and make your own jigs for all manner of routing and other tasks. Jig making can be interesting in its own right. Indeed, one of my sons has said that he thinks I don't enjoy woodworking so much as working out how to do it! F&C

It is possible to work 'right-handed' across a standard width panel and a lower workbench height than my 980mm example would make it much easier. Here the holes are located the maximum distance the side fences can be set, 110mm from the panel edge. I am wearing eye protection and hearing defenders, although you can't see them

Festool LR 32-SYS shelf pin drilling set

PHOTOGRAPHS BY GEOFFREY LAYCOCK

Geoffrey Laycock puts this specially designed shelf pin drilling set from Festool through its paces and sees whether it's worth all the fuss

Drilling a series of holes in a straight line doesn't sound too difficult, until you have a go. As a one-off project you may be satisfied with accurate marking and using a drill stand or pillar drill and good results, albeit slow and tedious, can be achieved. There are plenty of examples around of how to make a simple jig using a piece of ply or MDF where in conjunction with a router fitted with a guidebush, the process speeds up enormously but you still have the holes in the jig to cut accurately. A number of manufacturers make adjustable jigs specifically for this purpose and the Festool LR 32-SYS is versatile with easily variable settings. This is not cheap at a RRP of over £400, nor is it simple to use – or at least not at first glance – but read later. It is also a relatively well kept secret as trying to find it on the Festool website is almost impossible, but if you make cabinets, bookcases or any other items where accurate straight-line repeat hole drilling is required, this may be the tool for you.

Assessing the options

There are several versions of kit available and we are testing the complete one with everything included, except the guiderail. This is a standard guiderail as used with the TS55 plunge saw and routers but with the addition of a series of holes that form the stops for the LR 32-SYS; at £103.32 it makes the total system cost substantial. The good news is that the guiderail also functions as the others in the range so could be your addition to an existing one for longer saw cuts. The kit itself comes in a Systainer with moulded internal tray, all to the high standard we expect.

As supplied you have the main guide plate onto which the router fits and a centring mandrel to do this accurately. Three cutters are included: a 5mm flat bottom dowel drill for shelf fixings; a 5mm pointed dowel drill for fully penetrating timber with a clean entry and exit point and a 35mm hinge location cutter. As with some other Festool products, a target user for this kit is probably kitchen makers and fitters. There are two stops, one for each end of the guiderail to set first hole position, two parallel side fences that determine the distance of drilled holes from your workpiece edge and two clamps to keep the guiderail securely in place – a slight disappointment with one of these was a lack of any 'dimple' stops to prevent the moving clamp head falling off the 'L' clamp bar. I have a few of these clamps and this is the only one to fall apart in this way plus it was twisted and, overall, not the same quality as the others.

The guide plate is designed to work with two current routers in the Festool range – and older version OF 900 and OF 1000 – but the OF 1010 is the one recommended and the one that uses the plate clamps for quick fixing. Use of my bigger brother OF 1400 necessitates fixing with screws into the router baseplate so is not so convenient. I did try my Trend T5 for size and I could possibly have also fitted this but only by drilling further holes in the guide plate and that might be a risky experiment. The OF 1010 comes with an 8mm collet, which is required for the three supplied cutters. Using the included centring mandrel, the router was soon accurately in place. Either before or after this the guide plate location on the rail must be checked and adjusted by means of two screws to remove free play.

In use

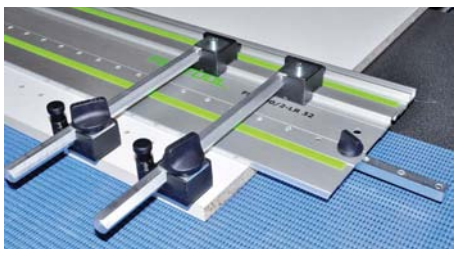
There is a further initial setting to adjust for guide plate to rail play, shown in the user manual. It is worth taking time over these adjustments as they help understanding of how everything works and of course makes it more accurate and hence gives repeatable results on multiple workpieces. Both the parallel side fences must be adjusted to 'zero' once the router is fitted to the guide plate. Once done, these two fences allow spacing away from the workpiece edge to an accuracy of 0.1mm, thanks to an in-built Vernier scale. The fences feature the one element of design I would like to see changed – the small knobs that clamp the fence to the guiderail. Because of their position they are difficult to tighten and loosen and really do need to be extended to sit outside the edge of the rail – a potential easy future update.

The OF 1010 router snugly in place on the baseplate. One of two clamps can be seen that hold it in position. It is sitting on the special guiderail and you can just see the row of locating holes

This is ready to use. The large rocker bar releases the locating pin from the guiderail so the jig can slide to the next hole. Bottom left you can see one of two adjustable blocks that remove any play between guide plate and guiderail

As an expected use would be with laminate in kitchen and similar cabinets, I decided to experiment and learn how to use the setup on a piece of not very good quality offcut. If it produced clean holes in this it should handle anything. It is important to practise and as written above, the combination of reasonable instructions, lots of parts and settings to get to grips with it appears complicated; practice and 'playing' with settings is vital. I soon realised it was far easier than I had thought and quickly understood how it all worked. More detailed instructions are available on the Festool website.

Spacing from the ends of panels is set using a bar at each end of the guiderail. This has markings which do take some effort to understand but eventually becomes clear and allows settings of 9.5mm, 16mm and 32mm spacings to the first hole. Using the latter two settings, it is easy to drill a series of holes with spacing of 16mm rather than the industry standard of 32mm if you want more flexibility of shelf positioning. I resorted to using masking tape across the guiderail so it was very obvious not to move beyond that location.



The two side fences would normally be set at either end of the workpiece and only during setup. Once the rail is clamped, these are removed. The end stop in the rail is easily installed in the three different spacer positions, which determine distance of the first hole from the workpiece end

Drilling

Drilling is straightforward and the router/guide plate is moved until the locating pin drops into the respective hole in the guiderail. Using maximum speed setting, the resultant holes were very clean in this old, poor quality laminate unless trying to rush and use too fast a feed. To move to the next position, a large rocking lever is depressed to raise the pin, slide along the guiderail and the pin drops into the next position.

I drilled quite a few 5mm shelf pin holes and just one had a small chip in the edge. This was in a series of holes where I was trying to do them as quickly as possible – taking a more reasonable approach all had clean, crisp edges. I also drilled selections of open- and closed-grain hard and softwoods, MDF and beech plywood with the same clean results

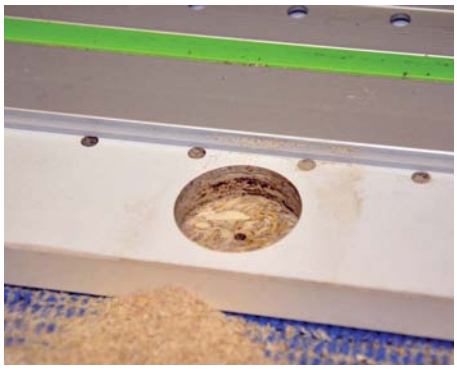
Working position

Because of the orientation of the router fitted to the guide plate, I found on wider panels and working on the MFT table – featured in *F&C* 229 – it was easiest to work left-handed but with hands crossed, so I had my left hand on the router pistol-grip handle to operate the trigger and plunge, with my right hand around the front of the combination to hold the guide plate steadying knob, plus operate the pin release – fiddly but workable. My version of the MFT has a top height of 980mm so taller than most workbenches and with a lower height working from the other side would be far easier. I did one series of holes working like this and, although a stretch, it wasn't difficult. For narrow panels and where you have more space for larger ones, working over the panel is more natural with your right hand on the router and left hand falling naturally onto the guide plate, assuming you are a right-handed user.

The one disadvantage I found working with 'crossed' hands like this was a tendency to operate the router trigger lock almost every plunge – OK, if you want the router to run during movement between locations, but not if you prefer a stationary cutter. Overall, though I found using the OF 1010 router to be a delight and with the inbuilt extraction connection, I found almost all dust removed from the workpiece drilling the 5mm holes.

To finish testing, I drilled a series of cabinet hinge location holes using the 35mm cutter. This requires the guiderail end stop to be changed to show 16mm spacing from the workpiece end and the fences to be reinstalled set at the appropriate distance. In my photo example, the distances from the edge are not correct – I was practising! The cutter can run at up to 27,000rpm and once through the hard laminate surface, cut quickly to the pre-set depth. I did one hole in two stages removing the router between, as I know I occasionally fail to plunge to full depth and wanted to see if the hole was still clean-edged. It certainly was with no evidence of having taken two bites at it, testament to the repeatability of the drilling jig. F&C

Here I am drilling a series of cabinet hinge mounting holes using the supplied 35mm cutter. Unfortunately, as part of the router extraction enclosure has to be removed to use this cutter, dust capture was not so good. I was also trying out the Festool sleeved Plug-It hose. This is recommended for sanding but not work that generates larger chips – it worked satisfactorily with the router



Every hole was crisp, clean and accurately placed, even this one I double drilled

A surprise to find one of the supplied clamps twisted and without the restraining dimple on the clamp bar; this must have escaped their normal rigorous quality checks

F&C verdict

This is a high quality and supremely accurate system for drilling rows of pin holes in cabinets and shelf units and could be used for other purposes with a little thought, such as drilling decorative or ventilation holes in cabinets. With a little practice in a short time, it becomes very easy to set up and use. It is probably only for those with a regular need as the cost is otherwise prohibitive, but if you already have the router and need a second guiderail for your plunge saw, it makes more financial sense and shopping around can result in substantial savings.

Pros

- *The usual exceptional quality standard – except for the errant clamp*
- *Extreme accuracy of setting out possible*
- *Allows drilling of fixing hole for standard kitchen cabinet hinges*
- *Detailed additional guides available on the website – see the router OF 1010 for this application example*

Cons

- *Seriously expensive compared with other available jig systems*
- *Designed for Festool routers*
- *Cutters require a 8mm router collet*

The numbers

Model: LR 32-SYS
Features: Guide plate, centring mandrel, operation tool, hinge location cutter HM Ø 35mm, dowel drill HW Ø 5mm – V-shaped tip, dowel drill HM Ø 5mm – with centring bit and pre-cutter, two parallel side fences with adjustable stop, two clamps FSZ 120 and two longitudinal stops

Prices: **LR 32-SYS hole drilling set** – £406.68; **FS 1400/2-LR 32 guiderail** – £103.32; **OF 1010 router** – £411.60; **AS-GQ GB suction hose with Plug-It** – £162.06 (prices inc VAT)

From: www.festool.co.uk

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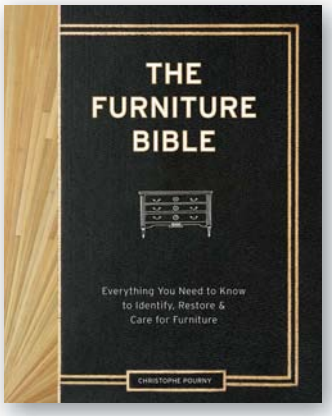
Workshop library

Mark Langston reviews *The Furniture Bible* and Derek Jones looks at a book on the great planemaker John Green as well as *Classic American Furniture*

BOOKS



The Furniture Bible

by Christophe Pourny

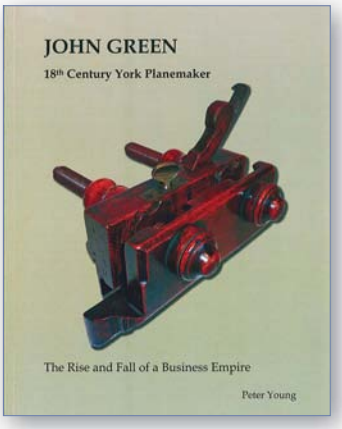
The Furniture Bible, penned by renowned furniture restorer Christophe Pourny, is definitely not one of those books destined to sit forlornly gathering dust on your bookshelf. It aims to present a comprehensive guide to restoring, transforming, fixing, preserving and learning about your favourite possessions – whether family heirlooms or funky flea-market finds – and it certainly delivers on that aim.

Christophe learned the art of furniture restoration at his father's atelier in the south of France before moving to New York where he established his own business restoring antiques. In this, his first book, he covers: an abbreviated history of furniture; where to find great pieces; an overview of traditional fine-finishing; the process of restoring and caring for furniture; a detailed explanation of techniques, rounded off with a discussion on the different tools and materials the wood finisher should have at hand, plus a number of Christophe's own recipes.

The writing style is open and relaxed with the occasional anecdote dropped in from the author's own personal experiences. The book is well laid out under a number of different headings, with the heart of the book dedicated to a detailed, but straightforward, explanation of some of the author's favoured finishing techniques including, cire rempli, ceruse and French polishing. These techniques are presented as a series of step-by-step instructions with photos outlining each key stage. Christophe's relaxed but informative writing style manages to achieve the perfect blend of detailed instruction coupled with unintimidating, straightforward explanation for each of these techniques.

This guide will appeal to a wide audience, from seasoned pros to the DIY-er looking to refresh a car boot sale purchase and should definitely be in every woodworker's library.

Published by Artisan
ISBN: 9781579655358
352 pages $35 (£23.96)



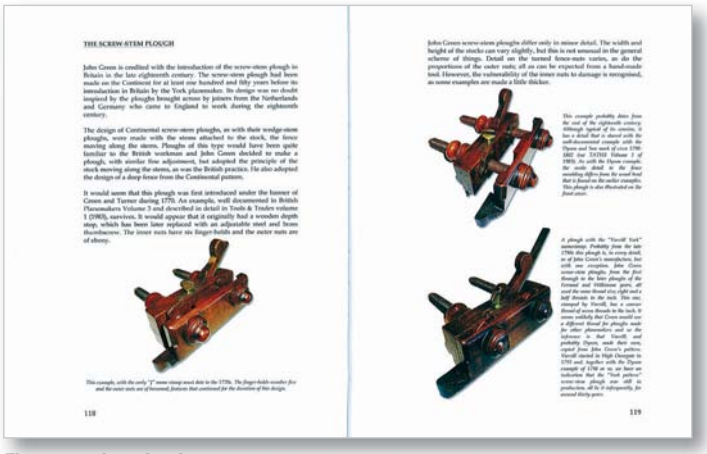
John Green – 18th Century York Planemaker – The Rise and Fall of a Business Empire

by Peter Young

There seems to be a flurry of extremely well-researched books on the subject of old woodworking tools of late. This latest one from Peter Young sits comfortably near the top of the list of good reads for books in that genre. That's not to say that some of the others aren't informative, it's just that Peter Young has an eye for a story. I had the good fortune to meet Peter briefly a few months ago at a David Stanley tool auction in Leicester. He explained that the book represents about 20 years of collecting and studying the planes of a single maker. For most of us, I guess that amounts to quite an obsession, that is until you realise that the story of this family business could have been written about any aspiring entrepreneur of the 18th century. This is a story packed to the rafters with social history and personal highs and lows, opening a window onto our not always glorious past. Aside from the technical aspects of the tools, Peter has documented his paper trail, apparently leaving no stone unturned. In itself this is a fascinating part of the book and would serve as a great source of reference to anyone thinking of tracing their personal ancestry.

When we get all nostalgic about old tools it's usually about the people who used them. In this instance, however, we are treated to a whole new experience – that of the toolmaker and his endeavours. Before reading this book, there was nothing to suggest that a plane with the name 'John Green' stamped on the heel was anything special: Matthieson, Hield and Holtzapfel are equally good marks to look out for. But afterwards, I'd go so far as to say that it's pretty remarkable

Planes for making wedges

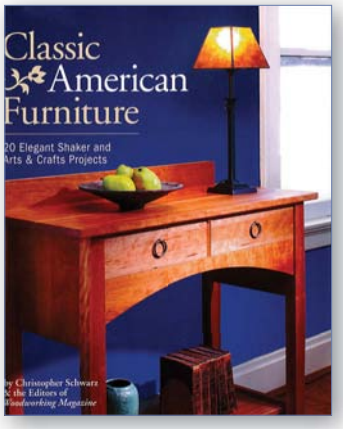


The screw-stem plough

that there are any planes with that name at all.

There are so many fascinating details captured within the text of this book that, once read, you could probably go out and produce a fairly accurate replica. If that's not a hook, then you will at least be able to spot a 'wrong-un' in the future. In short, this fantastic book by Peter Young is a valuable contribution to the history of a craft and the people who made it. And for £18, that's less than £1 a year for his time. You can buy this book direct from the author at www.johngreenbook.co.uk.

Published by Peter Young
136 pages £18



Classic American Furniture

by Chris Schwarz & the Editors of Woodworking *Magazine*

To a European eye, the title of this book might at first glance appear to be a little challenged, stylistically. However, not only is it wrong to judge a book by its cover, it's also a mistake to go by the title alone. So, what do we have here? Again, if the jacket is anything to go by that's '20 Elegant Shaker and Arts & Crafts Projects'. Usually that would be enough to make me pass this one over but there are some truly great techniques to be found when you get stuck in. For the main part, the two styles featured are based around tried and tested variations of rectilinear joinery and basic construction techniques – nothing wrong there. But my hunch is that every piece in this book could be tweaked to suit almost any style you have in mind to build.

The techniques cover everything from edge-jointing by hand to some pretty extreme tablesaw shenanigans by our standards. That said, there is plenty to keep the hand tool enthusiast entertained and some good routing tips too.

As well as full blown projects, there are some stand-alone techniques that cover the finer points of the basics to get your joinery skills up to an advanced standard. Simplistic as these projects appear, I wouldn't rate any of them as entry level. You'll need to know your way around a cutting list and tell a cheek from a shoulder and a host of other bits besides. I really liked the range of projects in this book and with 20 to choose from, there's plenty of scope to dip a toe in and build something for the weekend or jump right in and think big. Complete a few of the projects and you will have sufficient experience to build practically anything for the home out of your own 'shop. One of the best project-based 'how to' books we've seen in a long while.

Published by Popular Woodworking Books
ISBN: 9781440337437
192 pages $27.99 (£19.10)

Learn how to make a better blanket chest design

Website of the month

Woodwurm

Www.woodwurm.des homepage is packed with links to woodworking websites, from 'Chris Pye Master Carver', 'Epple' and 'In the Woodshop' to 'Peter Kramer Furniture Maker', 'Saskatchewan Woodworkers' Guild' and 'The Unplugged Woodshop'. These websites range from official makers and manufacturers' websites to the casual hobbyist blog. The links are presented in alphabetical order as soon as you visit the website, so if there is a certain website you are looking for, it will be easy to find. There is also an option to add your own website to the page, via link, with the list being updated regularly.

Website sections

The other pages within this website include, news, philosophy, wood and tools. All of the photographs used on the website are of a great quality, bright and fun, lightheartedly illustrating the author's words. The news pieces on the 'news' page are well detailed, although there are not too many postings and the text on the 'philosophy' page is boxed into subjects, which is therefore easy to read. A good number of images are available, which you can click on to enlarge by scrolling over them.

Translation problems

The 'wood' page is the most informative, packed with helpful tips, facts, figures and graphs. Now, as this website is originally in German – viewable in either German or English – when it comes to the 'tools' page, unfortunately it has yet to be translated and is still in German.

Should you wish to email the author of www.woodwurm.de, there is a small email icon at the top right-hand page. This website is certainly one to check out for links to other woodworkers, companies and tools manufacturers and is a great way to explore the woodworking world online.

Details

Web: www.woodwurm.de

PHOTOGRAPHS BY OLIVER WATERS

The Apprentice's notebook

It's a moment to savour for Waters & Acland student Jim Cooper as he produces the first shavings from a truly sharp bench plane

So, finally we've made it. It's taken blood, sweat and perhaps tears to get here but at last it's time to make some shavings. Not just rough shavings of random thickness, but controlled, super fine shavings that disappear to nothing at each edge and can be made in even the toughest timbers.

If, like many of our students, these are the first shavings that you have ever produced, you should take the time to savour the experience. A perfectly setup plane is a true joy to use. So enjoy the moment.

Jim's notes

This article describes how to set up a traditional bench plane, with a bevel-down blade and a chipbreaker, so it is ready for use, and also how to take your first shaving. Other types of bench plane, such as bevel-up planes, are set up in a similar manner; however, since they do not have a chipbreaker, the first part of the process can be ignored.

Attaching the chipbreaker

The first step is to attach the chipbreaker to the plane blade. At W&A we like to leave 1mm of blade exposed beyond the front edge of the chipbreaker. It is important to attach the chipbreaker firmly to the blade, otherwise it may move relative to the blade during use. For safety reasons, this is best carried out with both components resting on a hard surface, such as a workbench. Avoid the temptation to just hold them in your hand, as you risk injuring yourself if the screwdriver slips while tightening the screw. A screwdriver with a suitable size of blade should be used to avoid damaging the holding screw.

Rest your blade and chipbreaker on a hard surface

Align the sides of the blade with the chipbreaker

Re-assembling the plane

The bench plane should be placed on a flat surface with the front of the plane resting on a small wooden block so that the mouth of the plane is raised above the surface. The blade, with the chipbreaker attached, should then be placed into the plane, locating them on the frog and ensuring the upper hole in the chipbreaker locates into the yoke, or Y-lever. The cap iron should then be placed on top of the chipbreaker, so it locates under the cap screw and tensioned using the cap lever. The cap lever should apply sufficient pressure to ensure that the cap iron does not move during use, while still allowing the blade to be adjusted using both the depth adjustment screw and the lateral adjustment lever. It may be necessary to adjust the cap screw to achieve the correct pressure.

It's important to state here that increasing the pressure significantly can distort the sole of the plane, especially on smaller ones, and undermine all your previous efforts to establish a flat sole. Ideally the correct tension should already have been set so that only the slightest adjustment is required – no more than half a turn. Also remember that the screw thread may have some backlash so if you need to loosen the screw – counterclockwise – retighten it with an appropriate amount of clockwise turn.

The bench plane placed on a flat surface with the front of the plane resting on a small wooden block

Positioning the blade

At W&A we aim to position the cutting edge of the blade so that it takes a shaving of full thickness in the centre of the blade, with that shaving becoming progressively finer towards the edges and with no shaving at all being created at the extreme edges of the blade. The first stage in the process is to hold the plane upside down and look from front to back along the sole of the plane. Placing a sheet of white paper at the far end of the sole will allow you to see the cutting edge where it projects through the mouth of the plane. Set the blade using the lateral adjustment lever and depth adjustment screw until you see the maximum extension of the cutting edge in the central region of the blade, progressively less extension towards the edges of the blade and no cutting edge exposed at the tips of the blade.

The next stage is to fine-tune the position of the cutting edge using a small piece of thin wood; 50mm square and 2-3mm thick. Select a long grain edge on your test block, pass it front to back across the cutting edge. Repeating this process from left to right across the full width of the blade will allow you to check that the cutting edge is correctly positioned and is indeed taking a shaving over the full width of the blade, with the exception of the last few mm on either side of the blade. As you move from left to right across the mouth of the plane, the first shavings should only be created once you are away from the edge of the blade. These first shavings should be extremely fine and as you move towards the centre of the blade, they should become noticeably thicker. As you move beyond the centre of the blade, the shavings should then become thinner, as before, with no shavings being made at the outer edge of the blade.

If you have set up the cutting edge of the blade with the small amount of curvature suggested in articles three and four, in issues 230 and 231, and you set up the plane as described above, then you should achieve fine shavings with a maximum thickness of between 0.02mm and 0.05mm.

Hold the plane upside down to examine the amount of blade projection

Your first full shavings

With the plane now fully setup, you are finally in a position to take your first shaving. It is suggested that you take your first shavings on a securely clamped piece of flat timber.

The plane should be held securely in both hands with the front hand holding the front knob and the back hand holding the tote. At the start of the cut, the front hand should supply most of the downward pressure, initiating the cut. Once the plane has started to take a shaving, you should move towards providing equal pressure with both hands. As the plane finishes the shaving and moves off the workpiece, you should move towards the rear hand providing most of the downward pressure. You also need to control your body movement so that you do not favour one side of the plane over the other.

It's very hard to explain in words how to perfect your planing technique. The best approach is to practise, analyse your results and modify your technique as appropriate. What you are striving for are shavings across almost the full width of the blade, thickest in the middle of the blade, progressively thinner towards the edges of the blade and with no shavings at the extreme edges of the blade.

Begin the stroke with more downward pressure through the front knob

Transfer the balance of pressure to the rear tote as you complete the pass

A good indicator of a well set up plane is that, when planing with the grain, the plane leaves no lines from the edges of the blade on the piece of timber being planed, there is little or no break-out and a mirror-like finish is obtained. What you now have at your disposal is a tool that can reliably dimension stock to within 0.02mm.

Next month

In the next issue, planing techniques will be described in more detail when we look at preparing an edge for jointing. To see the full video sequence of setting a traditional bench plane, with a bevel-down blade and a chipbreaker, plus many other instructional videos as they appear in the series, visit the Waters & Acland YouTube channel: www.youtube.com/user/watersandacland. F&C

£80,500

UNDER THE HAMMER: A pair of George III carved giltwood wall mirrors

This month, we take a look at another prized lot from Bonhams' recent Fine English Furniture and Works of Art sale

PHOTOGRAPH COURTESY OF BONHAMS

A pair of George III carved giltwood wall mirrors in the manner of Thomas Chippendale, 810mm wide × 1,250mm high

These mirrors, made in the manner of Thomas Chippendale – lot 100 – recently went under the hammer and surpassed all expectations when they sold for a mammoth £80,500. The guide price on this lot was £25,000-35,000, which goes to show that these mirrors are much sought after, and for good reason.

Taking a closer look at the pieces, you can see the pierced cartouche crestings surmounted by acanthus foliage, with each flanked by a pair of ho-ho birds. The oval plates are set within elaborate rocaille frames with leaf scroll, flower and C-scroll ornament and are headed by 'icicles'. The mirrors have been re-gilded and the carved elements restored.

Other examples

A pair of mirrors of closely related form but surmounted by chinoiserie busts, were supplied by Thomas Chippendale in 1759 to the fifth Earl of Dumfries for Dumfries House – see Christie's op. cit., lot 20. They were invoiced at a cost of £36 15s and described as 'two large oval pier glasses wt. rich carv'd frames and painted white'. The third edition of Chippendale's Director published in 1762 illustrates several related designs for oval mirrors, which are variants to the offered mirrors. These include pls. CLXXIV and CLXXII, which similarly feature ho-ho birds flanking the crestings.

A further comparable pair of mirrors sold at Christie's London on 26 January, 2011 and a single giltwood oval mirror surmounted by carved birds, with provenance from Richard Courtenay Ltd, sold at Sotheby's, London on 25 November, 2005. F&C

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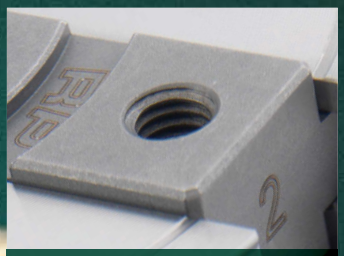

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