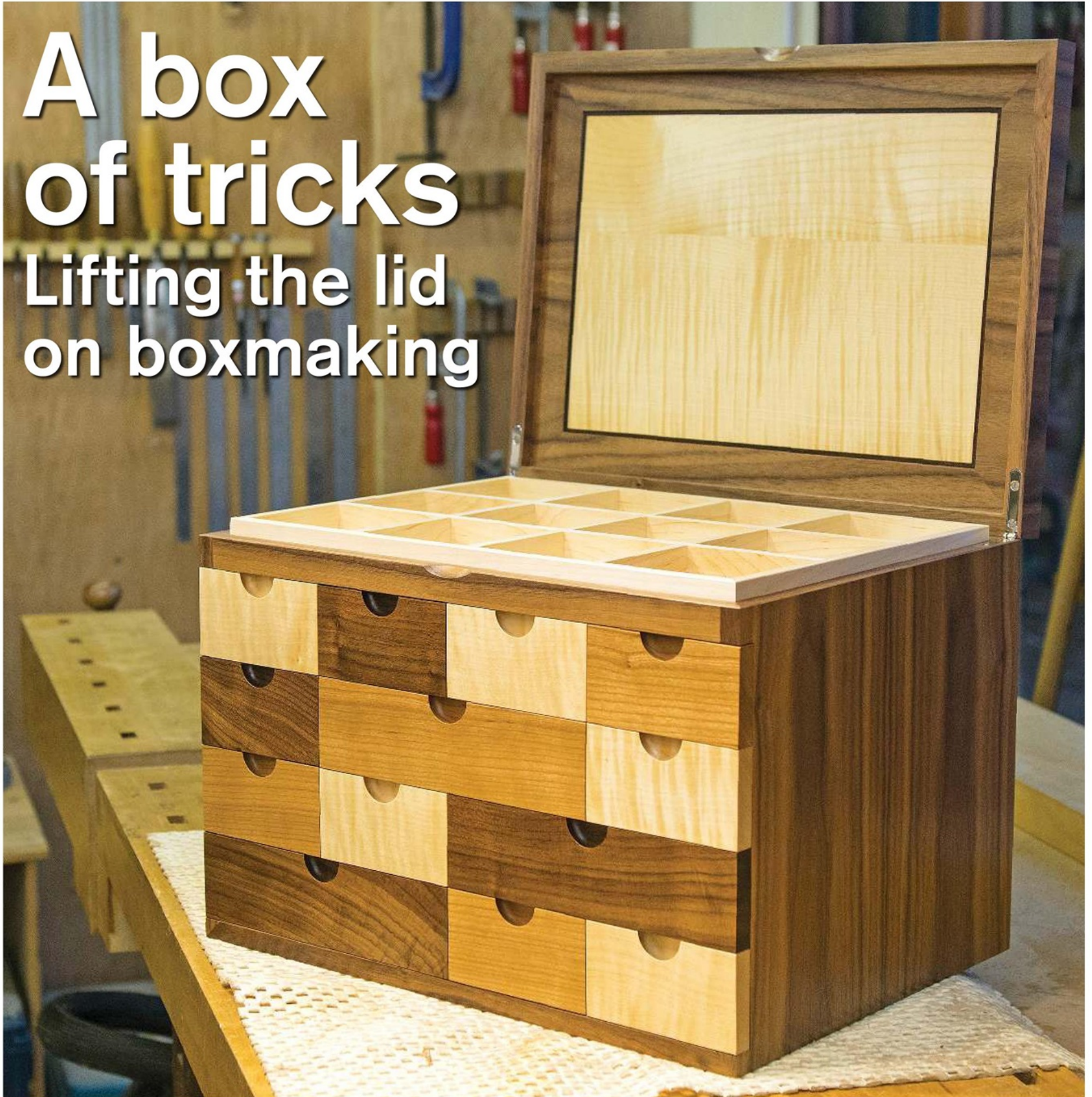


Furniture & cabinetmaking

DESIGN • INSPIRATION • PROJECTS • TECHNIQUES • TESTS • NEWS • EXCELLENCE

A box of tricks Lifting the lid on boxmaking



Back to basics

Kieran Binnie builds a traditional Roubo bench, the hard way

Maker's marks

Everything you need to know about the lead in your pencil

Louis Gandolfi

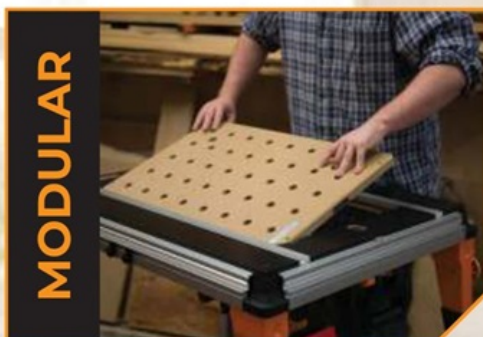
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*Roger Bisby,
Professional Builder Magazine*

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Welcome to... ...unknowns

Since putting my first issue of *F&C* together back in the autumn of 2009 I must have written, read and commissioned well over a thousand articles on the subject. With all that information under my belt you'd think I was some kind of an expert on the matter by now but in fact, the opposite is closer to the truth. I'll admit I was aghast when I read my first few articles on sharpening, dovetailing and various approaches to tool care. The deeper they went into solving the problems in our little universe the further away it seemed they were getting from the subject, or at least the subject as I knew it. Digging deep into the minutiae generally raises more questions than the answers it reveals. The United States Secretary of Defense between 2001 and 2006 Donald Rumsfeld put it like this: 'There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say, we know there are some things we do not know.'

In this issue we're tidying up some loose ends with the concluding parts of two articles; one on saw sharpening from Mark Harrell, the other on traditional box making from me. The latter is something I should know a lot about given the number of boxes I've made but there doesn't seem to be a project that goes by without me thinking that next time I'll do one part of the build a different way.

Our main feature this month is a story about Louis Gandolfi and the family business that lasted 100 years. The Gandolfis operated in an area that sprung out of the cabinetmaking industry at the end of the 19th century. From their humble workshop in Peckham Rye, south London they produced handmade cameras and tripods from mahogany that were French polished, fitted with brass hardware that was engineered in-house and attached with clocked screws. A Gandolfi was the camera of choice for Lord Carnarvon on his expedition to the Valley of the Kings in search of Tutankhamun's tomb in 1922 and became standard issue equipment to the police force and Prison Service for capturing mug shots as recently as 1975.

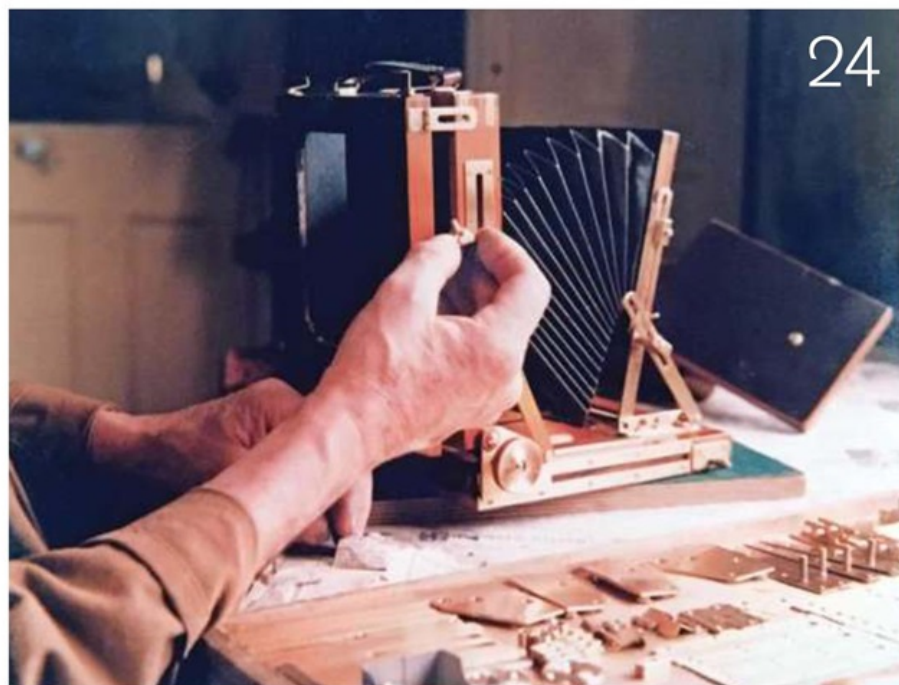
In January this year the world of fine furniture making lost one of its most colourful exponents. David Savage wrote dozens of articles for *F&C* in the early days, telling readers all the things they needed to know even when it wasn't what they wanted to hear. Controversial, entertaining and informative, the articles he wrote for me are among my favourites, probably because I didn't have to work that hard for the content. You just lit the blue touch paper and stood back. Our book extract this month comes from *The Intelligent Hand* by David Binnington Savage published by Lost Art Press. It contains all the articles I wish I could have published.

Derek Jones

Derek Jones
derekj@thegmcgroup.com

DESIGN & INSPIRATION

Learn about the history of wooden cameras, discover the design styles of the past and plan your next day trip



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Martin Reed looks at the history of this family business

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This month we head to Leeds to view a nationally important collection of decorative art

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This month we're going back to April 1997 and issue 5 for a look at Rod Wales' blanket chest





Invisibly oiled – the invisible look using Hesse INVIPRO-OIL



The trend towards dull matt surfaces and those that appear untreated has become increasingly widespread in recent years. In addition, there is an increasing demand for natural surfaces in situ with more dramatic finishes such as high gloss. A product such as this offers the ultimate contrast.

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PROJECTS & TECHNIQUES

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David Waite makes a multi-compartment memory box

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



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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Meet the contributors



Kieran Binnie

Kieran's passion for woodwork started when, at the end of law school, he enrolled at the Totnes School of Guitar Making. His focus has since expanded to include furniture making as well as lutherie. Kieran has contributed research and interviews for *The Life & Work of John Brown* (Lost Art Press), and is currently researching and co-writing with Christopher Schwarz a book about the history of the bookcase. He writes a regular blog at www.overthewireless.com.

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Simon Frost

Simon is a writer and editor currently retraining in furniture making at Robinson House Studio. He has worked for a number of print and digital titles, mostly relating to science and engineering, as well as GMC's woodworking magazines, where he began his editorial career.

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Mark Harrell

After a 28-year career with the US Army, Mark retired to Wisconsin and set up Bad Axe Toolworks, where he restores vintage tools and strives to build the best woodworking handsaws around in his (relatively) unplugged workshop.

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Martin Reed

Martin established a specialist UK photographic materials import and distribution company in the 1980s, which he ran until 2013. A writer for photographic magazines, as well as books on alternative photography, he is now pursuing interesting publishing projects, the latest of which is the DVD publication of the Ken Griffiths film *Gandolfi – Family Business*.

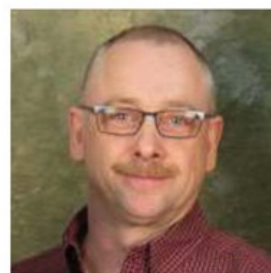


David Waite

David owns and runs his bespoke fine furniture business, Four Limes Design from his studio near the cathedral city of Canterbury in Kent. Following a successful scientific career, David retrained at Waters and Acland furniture school in the Lake District before establishing his practice. Its remit is to provide clients the opportunity to commission, own and appreciate fine furniture made to the highest standards using both traditional and modern cabinetmaking techniques.

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Richard Wile

Richard lives in Nova Scotia, Canada; he is an accomplished IT professional and has been an amateur woodworker for a lifetime. He has tried his hand at many woodworking genres throughout his years in the craft. His personal take on traditional designs is heavily influenced by his global travels and has become a trademark of his work. Using a variety of hand and machine techniques, Richard has crafted many unique furniture pieces, hand tools, turnings, miniatures, and acoustic stringed instruments from his basement workshop.

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Tools for the toughest demands



A special box for special memories

David Waite makes a multi-compartment memory box

It's often difficult to spot where a new commission for work may come from. Sometimes the most enthusiastic admirer of your work at an exhibition is never heard of again, despite an exchange of contact details and several follow-up email/phone calls. At the same time the most fleeting and circumspect interaction can lead to surprisingly interesting and enjoyable work. A case in point for me was at a recent exhibition, which I managed to arrange at the corporate offices of my old employer. As I was setting up my display early in the morning, I acknowledged a passing employee who admired one of my jewellery boxes and asked for a business card before heading off to start his day. I did not see him again and thought no more about the interaction, spending the rest of an enjoyable day talking to all manner of interested people about my work and their 'potential' furniture requirements.

Out of the blue, several weeks later, I received an email from the early morning employee asking whether I would be interested in designing and making a box for

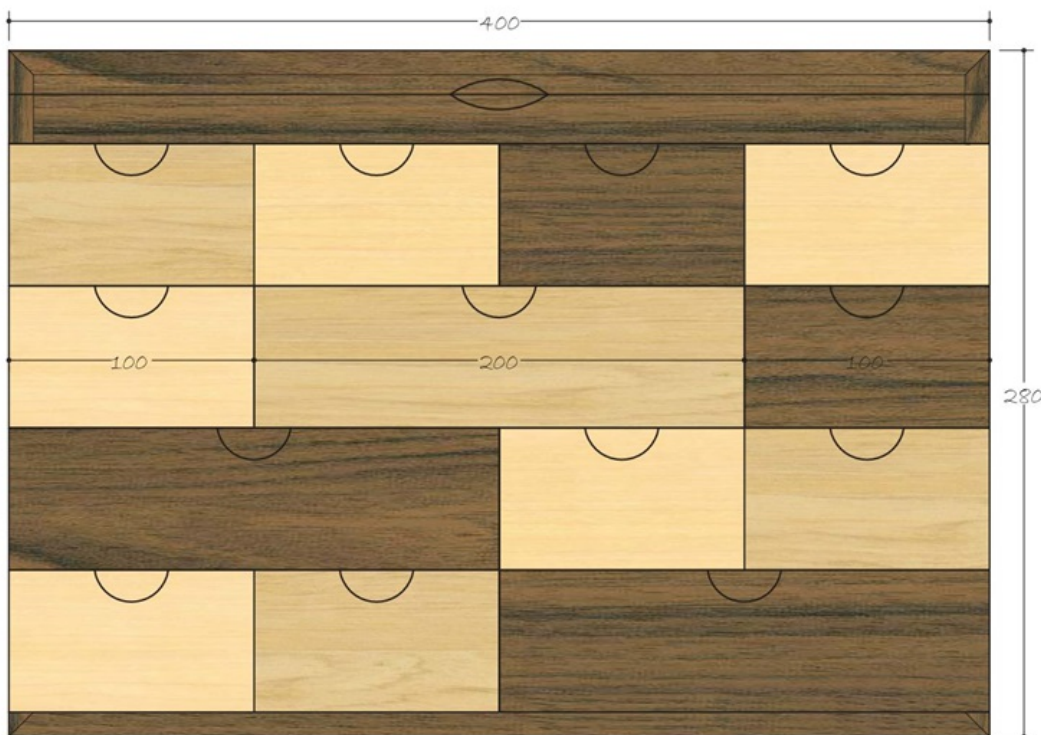
his wife's upcoming birthday. His idea was to commission a piece that would be able to hold up to 25 special mementos of their time together as a married couple.

Design details

The client's brief was for a large box the approximate size of a cutlery canteen containing multiple drawers to hold keepsakes and mementos. He was also keen to incorporate timbers of different natural shades and tones into the piece to make a striking visual impact. My initial design ideas were loosely inspired by the work of Dutch artist Mondrian, incorporating a variety of contrasting timbers arranged in randomly blocked and geometric patterns across the top and front of the box.

These initial concept designs met with my client's approval and I next turned my attention to creating 25 compartments and multiple drawers in the box. This gave me some cause for concern, given the inevitable time and cost required in traditional drawer making, and so I suggested we use simple

drawers made at the router table and a drop-in tray with multiple compartments within as a compromise to keep costs in check. I was relieved to find that my client was not particularly keen on the look of traditional dovetail drawers and instead liked my proposed idea of using contrasting dowel pins to join the drawer sides to the front. This feature had a more modern feel and should be quick and simple to execute. The simplest and cheapest version of the design I proposed had four drawers each with five compartments in and a top tray with five compartments in it; the most complex design had 13 individual drawers and a drop-in tray in the top of the box with 12 compartments housed within. I proposed both designs fully costed to my client and was gratified when he chose the more expensive and complex. I find that time spent with the client prospectively is often mutually beneficial, allowing them to engage in the design process and gain a good appreciation of what's involved before selecting the final design option from alternatives at different price points.



FRONT ELEVATION



SECTION
(Sample drawer and fronts shown dashed)

Lid of box formed by sawing through carcass near top. Construction includes mitred outer frame with string inlay around veneered central panel held in grooves in outer frame. Sides of lid meet frame as a long mitre joint and front lower edge has finger recess applied

Maple multi-compartment tray with mitred corner joints and dividers intersecting with halving joints, into v-grooves at ends. Bottom from maple veneered MDF.

Carcass sides from solid African black walnut, grooved to take dust boards

Front and back top rails tenoned into carcass sides

Dust boards and dividers from walnut veneered ply with solid walnut lippings all round, located using dominos for alignment

Sample drawer with false drawer front with finger pull worked into top edge, fixed to maple drawer box, dowel jointed at corners with contrasting walnut dowels.

Back from walnut veneered ply with solid lippings

Carcass formed using long mitre joints at corners reinforced with ply splines



The box top being glued up



Routing channels for plywood mitre splines



Test fit of carcase mitre joints



Cross-cut router housing jig

Carcase construction

The box carcase was made from a nice single board of American black walnut which I had acquired for a previous commission. To achieve a pleasing wrap of the grain around the box, I opted for mitred joints at the box corners and marked out the sides, top and bottom from the single board in a consecutive order. The section of the board marked for the top was then cut into stiles and rails, which were mitred at the tablesaw, grooved on the spindle moulder and then Domino mortised together to form the top frame. The ripple sycamore panel in the top was then made from two bandsaw-cut veneers that were stuck to a plywood core to ensure stability. This panel then had tongues machined on each of its edges at the router table and the frame was then assembled and glued around the panel ensuring the mitre joints closed up tightly. Finally, a rosewood string inlay was added at the interface of the frame and panel to complete the top.

The box corner mitres were cut on the carcase components at the tablesaw. Several test cuts were made first to ensure a perfect 45° mitre was achieved using a dedicated fine tooth cross-cut blade. Once the mitres had been cut, stopped channels for plywood splines were cut in each of their edges using a hand-held router and a simple jig as recommended in Bob Wearing's excellent book, *The Essential Woodworker*. Once the splines were inserted the carcase was assembled dry with the aid of band clamps to check for tight closure of all mitre joints.

Next the front and back top cross rails that complete the lid section of the box were cut. Care was taken to ensure the width of these rails was adequate to allow the box lid to be cut open with a 2mm wing cutter to leave a tray well depth of 20mm in the box and a lid with a 5mm recess depth in it. The position of this cut line was clearly marked on the cross rails and from this line, the position of



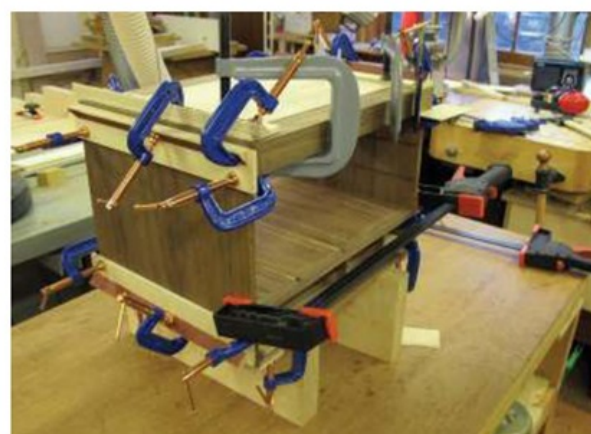
Carcase components ready for glue-up

the stub tenons and corresponding mortises that joined the rails to the box sides could be positioned to avoid being visible when the lid was separated. The width of these rails also defined the position of the top of the drawers and a recess was cut into the front edge of each of the sides the exact thickness of the drawer fronts from this point down to the intersection of the bottom mitre. A rebate was also cut in the back edge of the sides, bottom and top back rail to accommodate the back panel using the spindle moulder.

Stopped housings were next cut in the sides of the box for the four internal dust panels that the top tray and drawers would sit on. A simple slotted T-square jig was made to allow a router with guide bush and cutter to run in to cut the housings perfectly square across the side components. The sides of the box were carefully aligned and the position of the bottom of each dust panel was carefully marked on both side components at the same time. The T-square jig could then be easily lined up with these marks and the stopped housing cut in each of the sides at the same height. The dust panels and dividers were made from walnut-veneered ply with a solid lipping attached to all edges using Dominos for alignment. Stopped housings were routed into the dust panels and inside face of the base of the box using the T-square slotted router jig to allow the drawer dividers to be slid into from the back. Finally, ahead of glue-up the internal faces of the carcase components were prefinished with two coats of shellac sanding sealing and then a fine paste wax, being careful to mask off all joinery surfaces first with tape.

Carcase glue-up

The carcase glue-up took some planning. After trialling the sequence dry, I opted for a two-stage process whereby the main carcase components (box sides, top, bottom and upper cross rails) were glued together first, then once dry, the dust panels and dividers were slid in from the back and glued in place with glue only applied to the front third of the dust panel housings to allow for seasonal movement in the carcase sides.



Carcase glue-up using mitre glue blocks and lots of clamps



Glued-up carcase ready for drawer fitting

Drawers

Despite avoiding traditional dovetails in the drawers' design, my approach was still to provide 13 high-quality piston-fit drawers for my client. I initially cut MDF templates to check for any front to back tapering of the carcass and was pleased to find each opening was either square or was minutely wider at the back, which is a prerequisite for a piston fit.

I had machined maple stock 1mm oversize for all drawer components at the start of the project and left it in stick and under weights while completing the carcass construction. After machining to final thickness, the components were cut to width and length at the tablesaw such that the sides slid snugly into each drawer aperture and the front and backs only just started to enter the front opening. I then cut rebates on the edges of the drawer front components and through

housings on side components at the router table, opting for the Alan Peters approach of setting the back of the drawers in 50mm to allow full access to the opened drawer without needing to remove it. Grooves were also cut in the front and side components at the router table to accept the drawer bottoms, which were made from maple-veneered ply. All the internal faces of the drawer components were then prefinished with two coats of shellac sanding sealer and after denibbing with a coat of fine finishing wax.

Once each drawer had been glued together, three evenly spaced holes were drilled in both lap joints on the front edges and 4mm walnut dowels glued in place to strengthen the joints. Once the drawers were complete, they were individually fitted into their apertures by carefully removing a

shaving at a time from the drawer sides using a sharp bench plane until a nice piston fit was achieved.

The drawer false fronts were selected from attractive pieces of walnut, cherry and ripple sycamore that I had deliberately kept back for show. Each was held in place by two countersunk brass screws protruding from the inside face of each drawer box. Care was taken to ensure the edges of each false front aligned perfectly with the edges of the drawer front above and below them. Once all had been fitted, a sharp plane was used to flush off any minute steps or unevenness to make a perfectly smooth face of drawer fronts. Each false face then had a simple finger pull cut in the centre of its top edge using a router following a curved template with guide bush and appropriate cutter.



Walnut dowel pins being flushed off



Fitting drawers to a piston fit



The piston fit drawers in place



False drawer fronts attached with careful alignment



Template routing drawer finger pulls

Piston-fit drawers

For anyone interested in learning how to make and fit and piston-fit drawers properly, I would highly recommend Alan Peters' comprehensive article on the subject in *Fine Woodworking* magazine (July/August 1997 available through the *Fine*

Woodworking archive). It's a masterclass in words that I often re-read ahead of a drawer making session and never fails to both remind and inspire me. It conveys Alan's skill and passion for his subject and what he considers truly fine craftsmanship!

Lid and back

The back panel was then made from walnut-veneered ply, which was lipped with solid walnut. The panel was carefully fitted into the rebate in the back of the carcase using a sharp block plane to achieve a snug fit and then a 2mm shadow gap was created around the panel back using a router.

The lid was then separated from the carcase at the prescribed cut line using a six-wing cutter at the router table. Multiple passes of increasing depth were taken sequentially across each carcase face to creep up to the breakthrough point and a 2mm support shim inserted into each groove to prevent any binding as the lid was

separated. The mating faces of the separated lid and carcase were then sanded completely flat on a sanding board and a small 45° chamfer applied to the outer edges with a sharp block plane. A crescent-shaped finger recess was then cut into the centre of the front edge of the lid and carcase using a router following a curved template with a guide bush and dish panelling bit.

Rhodium-plated smartHinges were used to attach the lid to the carcase. These beautifully engineered pieces of hardware give excellent results provided care is taken in setting up the router table to accurately make the required cuts.



Fitted back panel



Lid separation at the router table



Flattening the box lid with a sanding board



Fitting the smartHinges



Tray

The tray in the top of the box was constructed from maple stock. The sides had a rebate cut into their bottom edges to accept a maple-veneered MDF base and then the ends were mitred at the tablesaw. V-grooves were then cut into the internal faces at the router table at appropriate points to house the internal dividers in a bird's mouth fashion. The sides were then glued together to make the tray frame using masking tape to close the mitred corners. Once dry, the base was fitted to and glued into the bottom rebate. Next the internal dividers were cut to length and shaped at the router table using the same V-grooving bit to create the bird's mouth joinery. Housing joints were also cut in the dividers to allow them to intersect each other in the tray and form the required 12 compartments. Once a nice fit had been achieved, the tray and its internal dividers were pre-finished with shellac sanding sealer and wax paste before the dividers were finally glued in place. The finished tray was then fitted into the carcase using a sharp plane to remove shavings until it dropped into its well, cushioned on a pocket of air. A minute chamfer was then planed on its front edge to allow the lid to close seamlessly.



The tray frame and internal dividers

Finishing touches

The box was sanded by hand and with an orbital sander as appropriate to 320 grit with all sharp edges carefully softened using sandpaper and a hard block. A hand-rubbed Danish oil finish was then applied following my standard process, with the first coat applied liberally and allowed to soak in for 5–10 minutes before removing any excess, and subsequent coats being applied thinly and being buffed off almost immediately until a deep shine was achieved.

My client asked for a small commemoration plate to be added to the box. After discussing his requirements with a local engraving company, they recommended a polished steel plate to match the rhodium-plated hinges with the inscription chemically etched into the metal to ensure perfect crisp lettering. I inset the delivered plate flush into the inside centre of the box lid to add a lovely personal finishing touch to the piece.

Polished steel engraving plate



The finished box

Reflections

Box making is always an enjoyable experience in my workshop. The smaller scale nature of the work means you don't have to manhandle large and heavy boards around the shop, devote too much time and effort to basic machining operations or create too much dust. Despite the smaller scale of this type of work, however, the complexity involved can be significant and a wide range of skills and techniques are needed. As always, a logical and well-planned

approach is the key to success and adopting a batch production mentality for repeat operations ensures efficacy and keeps the economics viable. This box took me around 120 hours to complete and my client was extremely pleased when he saw the completed gift. It's now stored in a secret location in his home awaiting the big celebration day when we are both hoping his wife will be surprised and delighted by the present. *F&C*

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A box of tricks Lifting the lid on boxmaking



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Everything you need to know
about the lead in your pencil

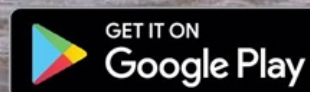
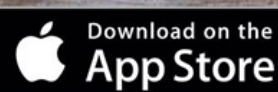
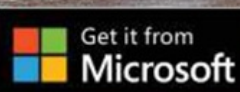
Louis Gandolfi

Cabinetmakers to the
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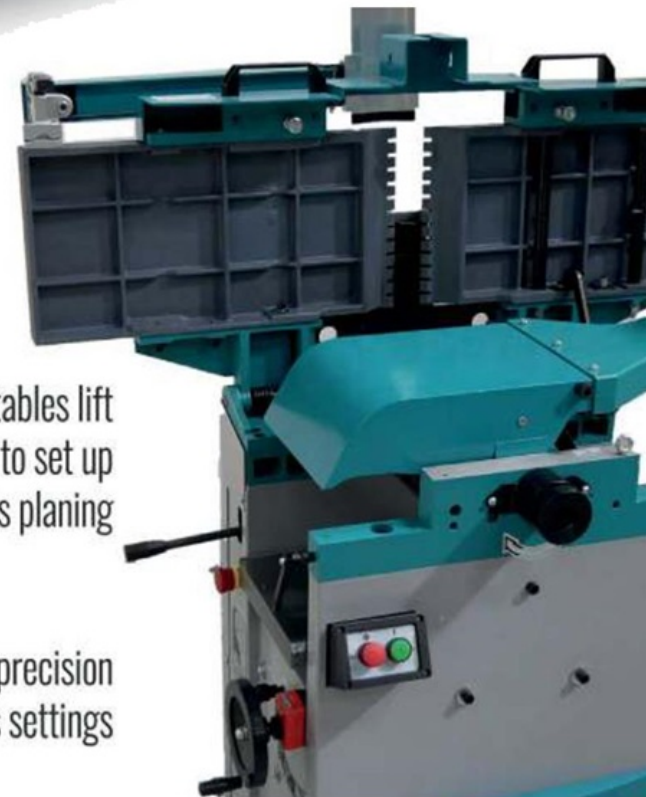


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Please accompany information with relevant, hi-res images wherever it is possible

British Woodturner of the Year winners announced at craft exhibition



Stephen Spanyol's set of stacking boxes and a goblet won the Professional Turners category

The winners of the 2019 British Woodturner of the Year awards were announced at the Celebrating British Craft exhibition, supported by Axminster Tools & Machinery, which was held at the Oxo Tower in London in May.

Stephen Spanyol won the Professional Turners category with his set of stacking boxes made from African padauk, putumuju, cocobolo, pink ivory, Macassar ebony, boxwood and African ebony with a goblet made of spalted boxwood.

Nick Simpson was named Amateur Turner of the year for his piece, Breakfast with the Alchemist. This complex, Steampunk-inspired work is composed of many turned elements made to illustrate the travels of Prof. Bergenstrauser, a Victorian/Edwardian romantic and Steampunk Engineer, in his quest to turn wood into gold. The topmost element rotates under battery-powered motor.

The Young Turner award went to Nathanael Griffiths for his segmented vase, made from 163 pieces of zebrano.

Organised by the Guild of Master Craftsmen, Celebrating British Craft showcased quality and expertise across a range of traditional and contemporary crafts and aimed to raise awareness of the importance of preserving the best of British craft for future generations.

Contact: The Guild of Master Craftsmen
Web: www.guildmc.com



Nick Simpson's Steampunk-style piece won the Amateur Turner prize



Nathanael Griffiths won the Young Turner's award for his zebrano segmented vase

A passion for teaching the next generation of woodworkers



PHOTOGRAPH BY JAMIE WARD

Satisfied students from Warwickshire College Group's Furniture Making Class

During a recent trip to the UK, Canadian woodworker Richard Wile paid a visit to Warwickshire College Group in Leamington Spa to volunteer a couple of days teaching students on the Furniture Making Programme some new skills. Richard brings a lifetime of teaching and woodworking experience driven by an enthusiasm for developing woodworking skills in youth. As a frequent F&C contributor, he is keen to share his knowledge and experience with others. After some discussion with the programme's Lead Instructor Jamie Ward, Richard agreed to teach the students the art of Shaker oval box making. This topic had never been taught at the College in the past and it was felt it would provide a number of new skills for the group of future makers.

After several weeks of discussion across the Atlantic and much preparation by Jamie, the day finally arrived on 26 March. The bending and drying forms had been crafted in advance with the all the wood

thickened and sanded prior to the big day. Additional preparation was completed by Richard on the day before the class to ensure every student would leave with a completed box, ready for finishing.

Making the boxes involved a number of key fundamental woodworking skills for the students. The bending of wood using heat and water (steam) is a skill that has broad applicability in many woodworking applications from cabinetmaking to luthiery. Working with thin materials is a challenge and some of the mitigating strategies that Richard uses were shared to maximise success. The fitting of the box top and bottom is a challenge to execute as any error will show up as an unsightly gap, once again mitigating strategies increased the chance of success and taught the future makers some real tricks of the trade. The completion of the box with wooden pegs shows the strength of tight joinery and how solid construction endures, even without the use of glue.

At day's end with all the boxes completed, Jamie Ward noted that he did not recall seeing this level of engagement for the entire day by all the students. In fact, over the following days the personalisation efforts continued – a real impact had been made on these students. The legacy from this day will be the jigs, equipment and skills for this topic to be taught to future students of the programme.

With this day of instruction falling the week before Mother's Day, many of the students' challenge in finding the perfect gift was resolved. In fact, many of them enhanced the boxes with inlay and pyrography to make a personalised handmade gift for Mum. Hopefully this has broadened the students' bag of tricks they will be able to bring to bear when designing their next project for school or a future employer.

Contact: Warwickshire College Group & Richard Wile
Web: wgc.ac.uk & richard-wile.blogspot.com

Chippendale school memorial bench

It's a bench that's been made by many hands and is now a fitting memorial to a departed colleague. Isobel Edgar was student welfare officer at the Chippendale International School of Furniture, and passed away earlier this year.

She was one of the school's longest-standing members of staff, having worked with the Chippendale team for 25 years.

The redwood bench is the school's way of paying tribute to her and a

permanent reminder of her contribution to the Chippendale school. All the school's students and members of staff contributed a small piece to the bench.

The bench was made under the supervision of deputy principal Tom Fraser, and a sugarplum tree will be planted beside it.

Contact: The Chippendale International School of Furniture
Web: www.chippendaleschool.com



Tom Fraser and the template bench with student and staff names marked on it

New Designers Parts 1 & 2

New Designers is a two-week exhibition celebrating and showcasing our creative future with over 3000 breakthrough design talents. The design disciplines featured in Part 1 are Textiles & Fashion, Costume Design, Jewellery & Precious Metalwork, Ceramics & Glass and Contemporary Design Crafts; Part 2 includes Furniture, Product & Industrial Design, Spatial Design & Interiors, Graphic Design, Illustration & Animation and Motion & Digital Arts. Both include One Year In, showcasing design entrepreneurs who have recently launched their creative businesses.

When: 26–29 June & 3–6 July
Where: Business Design Centre,
52 Upper Street, London N1 0QH
Web: www.newdesigners.com



Maquettes for Iklwa ash lounge chair by
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by RichCraft Furniture

WoodFest Country Show

Now in its 19th year, WoodFest Country Show is a celebration of all things wood, located in the heart of the North Wales countryside. Spread over 30 acres the festival showcases a variety of wood-related activities, crafts and forest industries. Timber professionals and competitors from around the world come together to compete in a range of skilled competitions of pole climbing, chainsaw carving, axe racing, wood chopping and logging skills. The show also includes the WoodFest Rocks music festival, woodcarving and furniture displays, new and antique tool sales, a craft fair and local food and drink.

When: 12–14 July
Where: Glascoed Road,
Saint Asaph LL17 0LH
Web: www.woodfestcountryshow.co.uk

Yandles Woodworking Show

Thousands of visitors come from across the country to enjoy the informal and friendly atmosphere that is created within the surroundings of Yandles' historic timber yard. The usual working site is transformed with marquees hosting a vast array of leading craftspeople. There will be live woodworking demonstrations with new techniques to learn, useful advice on tools and handy tips. The sawmill itself will be converted for use by international manufacturers, traders and publishers displaying their new product lines as well as the usual show sale and discounted timber.

When: 6 September
Where: Yandle & Son Ltd, Hurst Works,
Hurst, Martock, Somerset TA12 6JU
Web: www.yandles.co.uk

Festool Roadshow gives the UK, the chance to preview Sawstop technology live in action



This June Festool will be bringing its new Festool table saw with SawStop technology to Festool Roadshow. Touring the UK and Ireland from 12th to the 26th June 2019, the Festool Roadshow will offer a unique opportunity for visitors to see demonstrations of the new table saw with SawStop technology live in action. This will be the first time ever this ground-breaking new table saw has been shown in the UK or Ireland.

SawStop technology works using a sensor which registers when human flesh is near to the blade of the saw. Within just five milliseconds of flesh being recognised by the sensor, it stops the blade from moving - preventing serious injuries. This innovative technology keeps users' safe, which is why

the introduction of SawStop to the UK and Ireland is so important. It provides people with peace of mind that they are protected against serious injuries when using the table saw.

Visitors can also take advantage of free tool PAT tests from specialist Festool service engineers who will be offering the service throughout the Roadshow. In addition, all registered visitors will be entered in to prize draws for the chance to win prizes, including the grand prize of £3,000 worth of Festool products.

To find out when the Festool Roadshow will be coming to an area near you and to register for your place, visit: www.festool.co.uk/roadshow.

Successful Student Industry Tour educates young people on the furnishing sector



PHOTOGRAPH COURTESY OF THE FURNITURE MAKERS COMPANY

Students on the Industry Tour visited leading businesses such as Festool

For anyone who is considering pursuing a career in the furnishing industry and wants to find out more about the different companies that operate within the sector, the Student Industry Tour, organised by The Furniture Makers' Company, is an invaluable experience.

Over 30 college and university students studying furnishing-related courses at institutions around the UK enjoyed the 2019 tour, which took place from 25–29 March and saw the group visit six leading furnishing businesses.

The annual Student Industry Tour, which is sponsored by Festool, gives young people who are interested in pursuing a career in the furnishing sector a broad understanding of how it operates.

This year the students visited Corian distributor CD (UK) Ltd, tool manufacturer Festool, retailer Furniture Village, bed manufacturer Harrison Spinks, contract furniture maker Knightsbridge and foam manufacturer Vitafoam.

The students got to see inside factories, design offices and stores of some of the UK's leading furnishing businesses, getting

an understanding of sales, marketing, manufacturing and design.

The trip to Festool in Bury St Edmunds was a highlight as the students got the opportunity to use the latest machinery and were shown how to use it by Phil Beckley, technical trainer at Festool.

Phil said: 'Supporting The Furniture Makers' Company with the student tour is one of the highlights of the year for me. Being in a position to pass on as much knowledge as I can to the next generation of artisans is a privilege and I wish them every success in their chosen specialism.'

Commenting on the trip to Festool, one student said: 'I came away from the experience more informed about edge banders than I ever knew I could be! I was very impressed with the tools I saw demonstrated and I particularly liked the Systainers and how they all stacked neatly together. Phil was engaging and informative and was clearly very passionate about all that Festool produces.'

The tour also gives students the chance to socialise with like-minded students from other institutions.

Another student said: 'It is really nice to have a platform to meet other creatives, makers and people on the same page as you because a furniture design course is quite niche so it's a great opportunity to meet a lot of other people with similar mind-sets.'

David Woodward, junior warden at The Furniture Makers' Company, said: 'The students were impressive and clearly got a lot out of the experience. Thank you to our hosts who were brilliant and tour sponsor Festool – if this doesn't convince the students that the furniture industry is the place to be I don't know what will.'

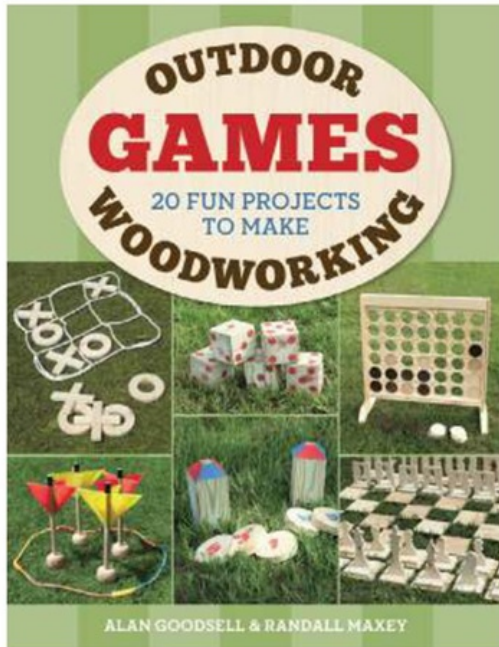
For information about the Student Industry Tour and other Furniture Maker initiatives, go to www.furnituremakers.org.uk



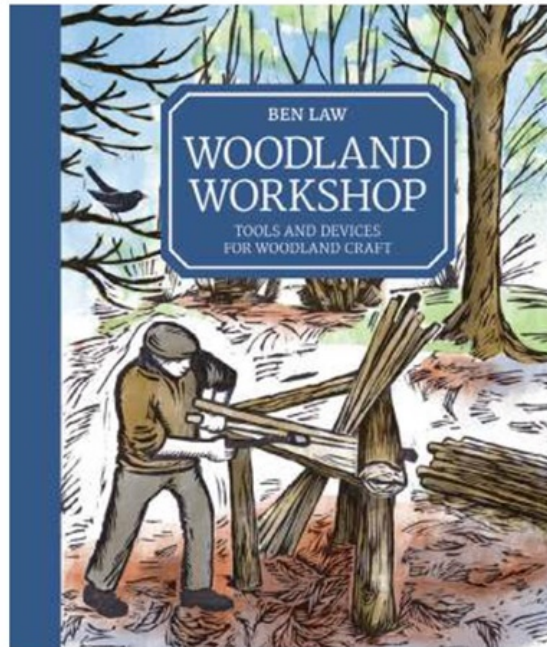
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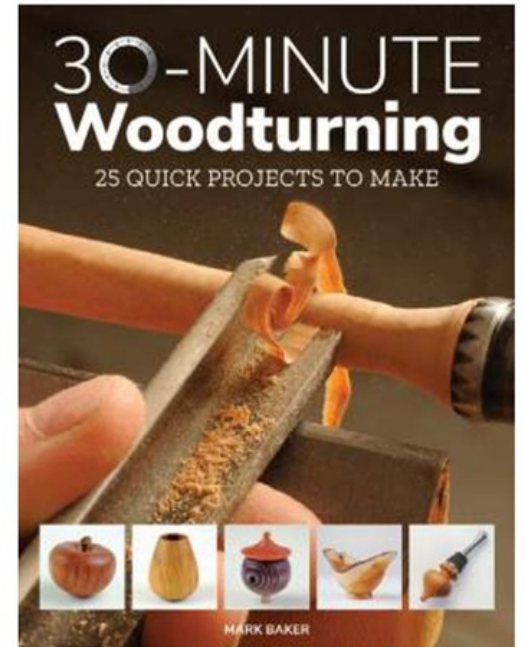
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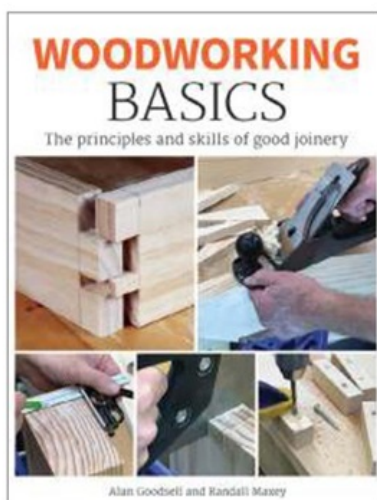
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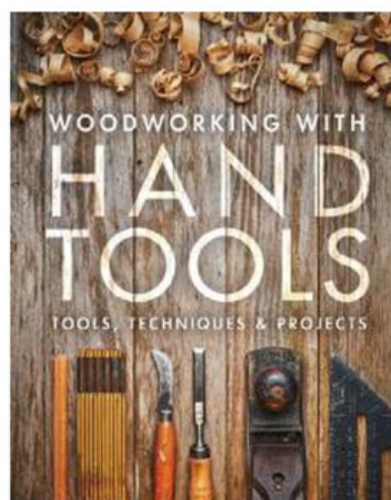
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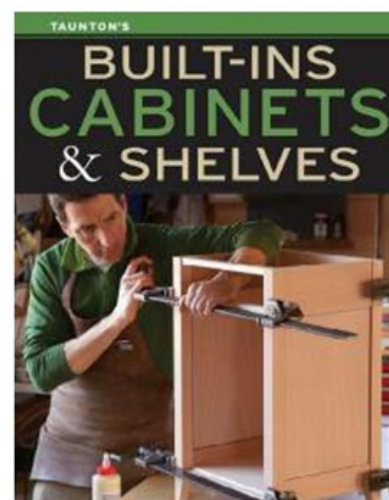
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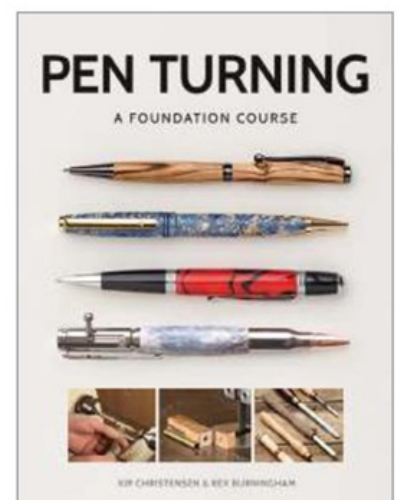
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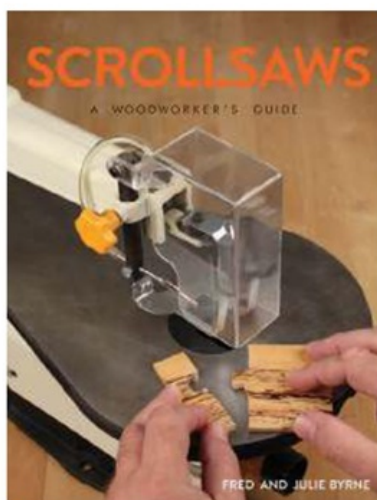
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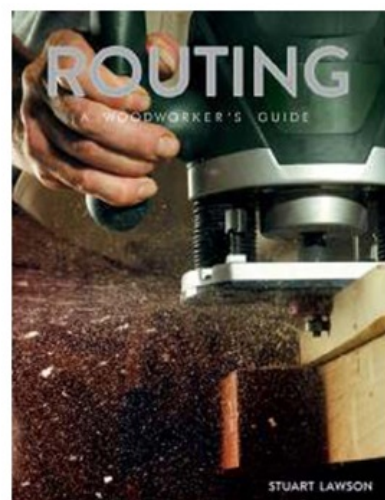
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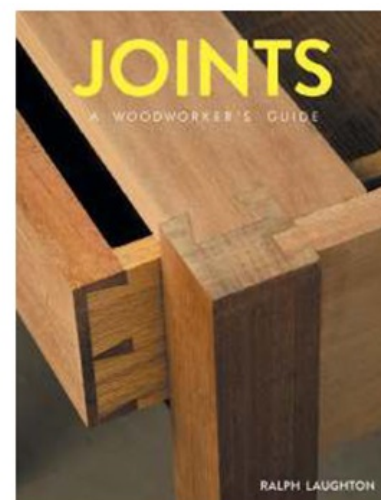
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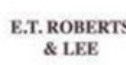
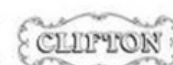


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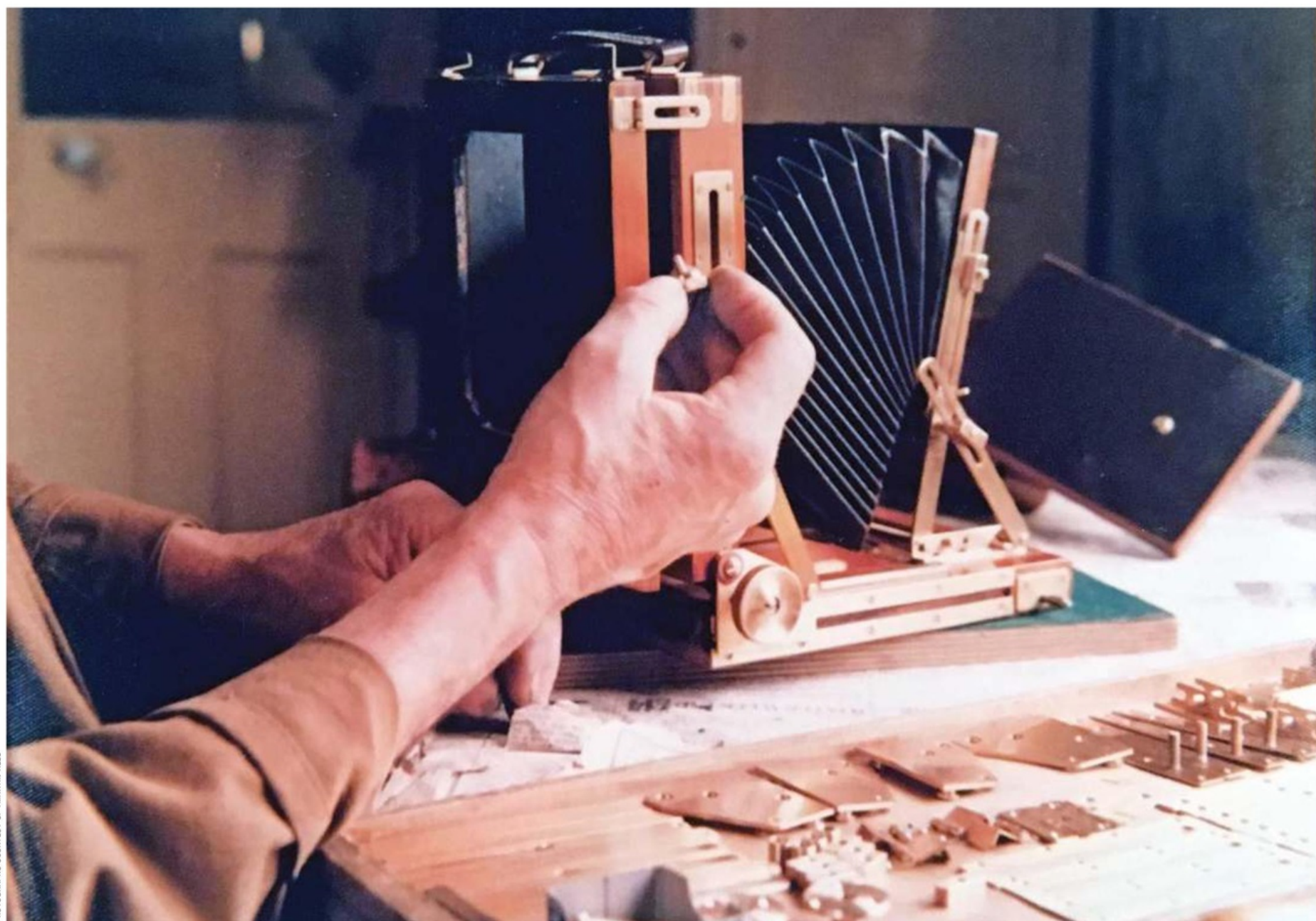
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Gandolfi & Sons wooden cameras

Martin Reed looks at the history of this family business



PHOTOGRAPHS COURTESY OF TMARTIN REED

When Fox Talbot, the father of modern photography, devised his first cameras in 1835, he simply had his estate's carpenter run up some small wooden boxes, to which were fitted a lens. And so began the history of the wooden camera; a design that dominated for much of the next century reaching its peak during the Edwardian period. However, for all its beauty, versatility and convenience, wood was never an ideal material for camera-making. It required careful selection and handling, and in those early days involved hand working rather than lending itself to manufacturing. After World War II, as the industrialisation of camera-making gathered pace, the design gave way to newer processes that featured metal components or sometimes wood wrapped with fabric to suggest metal beneath. Among the early pioneers of this industry one name stands out, Louis Gandolfi

& Sons. Louis Gandolfi built a family business that would endure for more than a century, outlasting all of his contemporaries by generating functional pieces of art that would eventually become collector's items.

Before the introduction of bellows, early cameras used tight-fitting wooden sliding box arrangements to achieve light-tightness, making them heavy and not in the least bit portable. Inevitably improvements were made and with the invention of tapered bellows in 1845 a more compact design was developed allowing more flexibility and a reduction in weight.

Although there were some genuine start-ups, many camera-making companies came into existence as off-shoots of existing cabinetmakers. One such company was Lejeune Perkins in Hatton Garden, London who established a camera-making branch. In 1880 they employed as apprentice, a young man called Louis Gandolfi. Louis came

from a craft-based family background; his Italian father made plaster casts for artists and, along with his Scottish mother, Louis lived in the 'Little Italy' community based in Clerkenwell. Louis had ambitions, and within a few years had married, started a family and, in 1885, building on the skills learned through Lejeune Perkins, he opened his own camera-making workshop in the Old Kent Road, where the workshop remained for most of his life. His wife Catherine assisted with the business functions as well as French polishing, and they had six children, including three sons, Thomas, Frederick and Arthur, all of whom were due to take over in the workshop. Louis offered a range of complete photographic equipment that included a lens, darkslide and shutter all in a fitted case. He even threw in a wooden tripod with the top of the range model to draw customers away from his rivals.

Why choose wood?

Towards the end of his working life, Fred Gandolfi took to writing notes about the technical aspects of making wooden cameras so that he could deliver talks to camera clubs and colleges. They make fascinating reading to anyone interested in the history of cabinetmaking. They give us a rare insight into the workings of a small commercial workshop where production methods remained unchanged for decades. 'The reasons for the use of this material, which is not inherently strong, are to be found if the technology of the period is examined.' In the early days of photography, 1840 to 1850, the production of small accurate shapes in metal was difficult, and even when the shapes had been produced the problems of jointing the pieces together remained. Metal screws at the time were fairly crude as the taps and dies needed for their production were not to be found due to the lack of high quality steel needed for their production. As a consequence the types of screws available were often too large for delicate components and not accurate enough. Cameras therefore in this early period were made from the material in which there was a traditional skill, and in which a range of tools existed. 'There was a good supply of skilled craftsmen who were used to working with the material [wood], and who could produce small items to a pattern with a high degree of accuracy. In addition, wood could be jointed by the use of specialised joints or simply by means of glue and nails. The working of wood also did not require a great deal of powered machinery, as due to the smallness of the components much of the work could be done by simple bench hand work.'

In the early days of camera-making, prime Cuban mahogany (originally referred to as Spanish mahogany) was used extensively by cabinetmakers making it an obvious choice. By the turn of the 20th century, through rising costs and scarcity, the material of choice moved to mahogany from British Honduras. Not as receptive to being worked by hand it hastened the introduction of machinery and a landmark period in camera history.

Construction

The essence of the quality in Gandolfi's cameras was balancing the timber pieces to achieve strength, lightness and, most importantly, dimensional stability. This was achieved by a process Fred referred to in his notes as 'panelling'. In the relatively small baseboard for a 4x5in plate camera one wide section would be balanced with two narrow pieces, their grain crossing. In furniture-making terms we'd call this type of bracing construction 'bread board' ends. Fred called them 'clamps'. As the size increased, so would the number of 'clamps', the mid-size 'half-plate' camera having a central oblong surrounded by four pieces, grain crossing whenever possible. The largest camera they usually made, the 12x15in would use 11 pieces. The 'Imperial', later to be 'Precision' camera would contain 91 separate pieces of wood in 10 sections.



Fred Gandolfi using the 'hold-fast' as another hand while screwing baseboard components together

Square-edged timber came into production around 1930. Here all waste is removed at an early stage to save space in transit and storage. Fred lived through this period and recalls: 'Our timber is first cut to approximate size with a circular saw. It is then stored for at least six months. At one time we could buy timber that had been seasoned for five years or more.'

Gradually the drying time was decreased until kiln drying became common practice. Further rationalising of the raw material continued as 'preferred' thicknesses became the norm limiting the selection available. 'Now we have to buy thicker than we need, split it on the saw and find that the inner slices are not well enough seasoned, hence the extra storage time.'



FROM TOP LEFT, CLOCKWISE: The baseboard showing the composite construction – also the wear from the tripod, a fully assembled Imperial camera with bellows and front standard



A family affair

When Louis Gandolfi died from cancer in 1932 his sons took over the business, having been well trained in the different specialisations. The cause of Louis' illness would need more research but may have been related to a lifetime of exposure to wood dust. His sons seem to have been careful in this respect and avoided a similar fate. Fred, the middle son, inherited Louis' commercial drive, he was also the most able wood craftsman among them and the majority of their output passed through his hands. Thomas, the eldest son, specialised in the brasswork while Arthur was content with filling the gaps and carrying out all the French polishing and finishing. After Thomas died in 1965 his son, also a Thomas, joined the company to carry on the metal working. Between them they carried on towards their centenary in the 1980s. Although they were always prepared to make bespoke cameras, the range was basically two models developed by Louis available in various sizes.

Some of the variations produced by the firm were major lines in themselves, such as the 'prison camera', designed to take a full face plus side profile on one plate or film. Originally commissioned by the occupation forces in Ireland, these came to be used throughout the prisons in England and came with a lucrative maintenance contract.



Louis Gandolfi, the company founder in middle age



Fred, Arthur and young Thomas, in about 1980

Tools of the trade



A workbench from the Gandolfi shop is shown here, with its complement of 93 hand tools, all that was required to make a camera apart from a circular saw for breaking down the timber. Their original handmade treadle circular saw was upgraded to motor operation, and they made much use of a thickness planer, so much so that Fred blamed it for his deafness.

- | | |
|---|---|
| 1 Coping saw with no set to the teeth | 11 Wimble cutter for making lens flange holes |
| 2 Flush cut saw with no set to the teeth | 12 Routers, blade widths $\frac{1}{8}$ – $\frac{1}{4}$ in |
| 3 Dovetail and gents saw with no set to the teeth | 13 Sixpenny brace (German) and bits |
| 4 Tothing plane with serrated blade | 14 Essex hammers with shaped shaft |
| 5 Jack plane | 15 Round rasps (barbed) & shaped wood files |
| 6 One rebate and two bullnosed planes | 16 Oval rasps (barbed) and shaped wood files |
| 7 Cramps, the smallest has a 1in gap | 17 Bellows irons for fixing bellows to the frames |
| 8 Dogs, holding mitre joints | |
| 9 Papering sticks | |
| 10 Smoothing plane, steel faced | |

The art of wooden camera-making

There was also during this period a fair amount of scientific equipment, which was constructed in the main from wood with metal fittings. The metal mainly used was brass, which was polished and then protected by a coat of lacquer. All these movements were controlled by the use of circular nuts and screws, which slid in either slotted brass or wood. The movements could be locked in the desired position by the use of screws and nuts. By the early years of the 20th century the art of wood and brass camera-making had been refined and perfected and the photographer was able to purchase an optical instrument with which

he could undertake any sort of photographic work. He could alter and change the perspective and correct any distortion in the image using the viewing screen to assess what his negative would show. The construction process is very similar to making furniture; the woodwork is cut to size, jointed and glued. At this stage the work is classified as 'glueings'. The Gandolfi's 'Precision' is an all-purpose camera built from 10 sections, and in a 5x4in camera this contains 91 separate pieces of wood. 'Usually we cut about 20 sets of woodwork and leave about two months to settle'.



Gandolfi Precision camerar

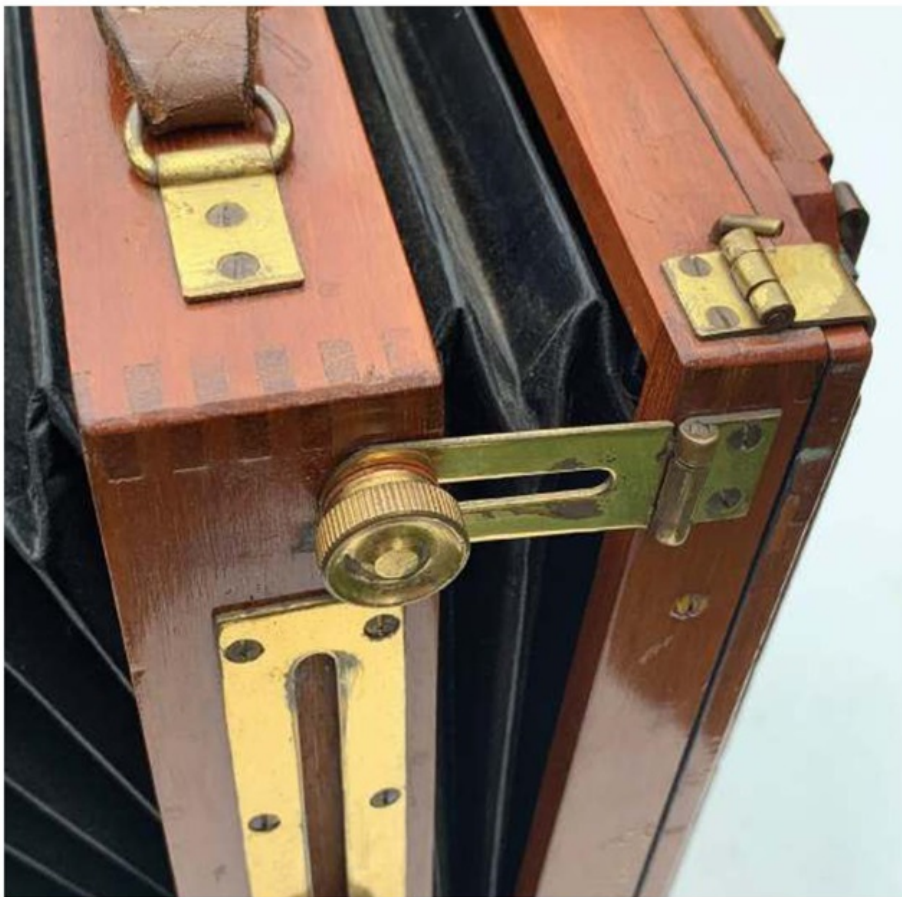


Fred attaching bellows to a rear standard

Joinery

In the early days of wooden cameras the material was generally thicker and cabinetmakers used mortise and tenons, and tongue and groove joints. Later the camera makers used much thinner material and so they devised the loose tongue joint for flat work, which is also very adaptable when making a variety of sections in small quantities. After gluing together with hide glue, the components are cleaned up, hand planed to gauge, trimmed and fitted to one another where necessary. The complete set is now referred to as 'in the white' and ready for the Polishing Shop.

For the main body, the Victorians and early Edwardians used mainly hand-cut dovetails. However, in the late 1880s a few of the big firms used the new combing machines which cut a joint resembling comb teeth. This machine later took over and wiped out the hand-cut dovetails. Many years later, the furniture trade used dovetail machines but these can only cut the joint with 'tails' and 'pins' of equal size. As Fred rightly points out, 'the correct hand-cut joint has large dovetails and small pins. Around 1938 we devised our own combing machine and gave up the hand joints.'



Details of the delicate comb joints on the camera body. The 'swing frame' is made as part of the main body, then cut away prior to finishing and assembly

Wood screws

The camera industry speeded the manufacture of wood screws. Before photography these were in small supply and handmade, often in cottage workshops. Later various machines were tried out, but their products all lacked a point, and this had to be cut by hand. In 1876 an American, Charles Rogers, devised a machine for pointed wood screws and the design of these screws has remained unaltered to this day. Observers are often fascinated by the neat pattern of screw heads all set in one direction. This requires skill and patience. With the development of lighter and smaller apparatus came the demand for smaller screws, even down to 1/16in long.



Gandolfi's 'Universal' camera.

Designed by Louis Gandolfi in 1907 this square bellows model remained as part of the range for the company until closure in 1982. Termed a tailboard camera, as when folded the rear tucks back up behind the ground glass screen for protection. This design offers less movement than the more popular bellows camera, but scores in rigidity. Robust brass arms lock it either into the folded or ready for use modes. The design was adapted into other models, including the non folding camera for prison photography.



Mitred bridle joints to the rear focus screen, also showing the small end of the loose tongue 'biscuit' jointing used in bread boarding pieces together

Into the 20th century

By 1980 Fred Gandolfi became increasingly aware of the firm's status as a living historical resource. Always the company spokesperson, he began compiling notes for a book about British camera history. But the clock was ticking, and after a severe accident in 1981 plans to dissolve the workshop had to be brought forward. After interviewing numerous potential applicants, the firm ended up being acquired by Brian Gould of Hampshire Design, and after handover in July 1982 the workshop was re-fashioned using up-to-date tooling in modern premises in Andover, Hampshire. It was a very equitable transaction and Fred maintained control over the quality of production until he was satisfied it was up to the old standard. It was unfortunate that Gandolfi cameras from Gould's company were by the 1980s and 90s competing with earlier Gandolfi cameras circulating in the burgeoning collectors market, suppressing demand for the new product. Although the new cameras were to a very high standard, and much appreciated by their owners, somehow the nostalgia factor dominated the market. After Brian Gould's death in 1992, the Gandolfi range was still maintained by Edward Hill, but eventually production ceased and he finally closed the business in 2017.

In their last years, rather late for Fred and Arthur Gandolfi, the industrious brothers at least achieved some fame, if not fortune. A good estimate of Gandolfi cameras produced is that around 2700 cameras were made over the entire working life of the workshop.

At best, it was an output of 50 cameras per year. Now circulating among collectors, and gaining ever increasing value, after their period as workaday instruments they are at last established as fine pieces of cabinetmaking. Old working examples are being restored, and very good early ones are the most valuable. The brothers' later cameras are still of high quality, but the standard slipped a little as arthritis and poor eyesight took their toll. 'Wood & brass' cameras of all makes are now for the most part in the province of collectors. At Fred and Arthur's memorial service in 1993, Sir Kenneth Corfield, an innovator in British camera products made the observation:

'There is a fine line between art and craft. Art rarely finds tangible expression without craft, as the painter and the sculptor readily acknowledge. Yet craftsmanship alone does not make art. Some intangible addition is necessary, a touch, perhaps, of genius. Many crafted products are endowed with an artistic merit which their creators neither thought of nor intended. And such is the way of Gandolfi. None of the family, father Louis, sons Thomas, Frederick and Arthur had artistic pretension. Yet their products are intrinsically Artistic.'

Staining & varnishing

In the early days the Cuban mahogany, being of a rich dark colour, little or no stain was required and mainly just brown polish was used. Later, however, with the increasing use of Honduran mahogany, a lighter coloured wood, a deeper stain and darker polish was required. 'After staining use was made of wood filler, usually made up in the works, no ready-mixed being obtainable from outside sources. The cabinetmakers used a base of Plaster of Paris'.

When dry the surface was removed and

An example of the Gandolfi Imperial in ebonised form, wood filled for maximum gloss, and the mahogany chemically treated to blacken it. Chrome fittings were used rather than brass



the whole stained with 'Dragon's Blood', the chemical name of which has been lost over time. Fred also warned against the use of water-based stains and fillers 'when cameras were made of thin wood the use of water as with plaster was useless through causing swelling. In this case the filler was made from a base of whitening, a very fine chalk. The mixing fluid was turps and linseed oil. The former was to evaporate and dry out the

mixture, the latter to hold the mixture together and in the grain one would often add a little dry colour when mixing for a matching colour, some venetian red for mahogany, yellow and a pinch of brown for teak.' *F&C*

The film 'Gandolfi – Family Business'

The film was shot largely in 1982, by a group of media professionals, headed by Ken Griffiths as director, his brother David on camera, with David's wife Pam also working as producer.

This was very much a labour of love, Ken being a particular champion of the Gandolfi brothers, having used their cameras in his work since he was at college. The film was intended to show the closing days of what by then was an industrial time capsule, the working methods basically unchanged since Louis Gandolfi set up the firm in 1885 in the Victorian era.

After shooting the main documentary footage in the workshop Ken followed the brothers into their retirement, and the film covers about 20 years. There was a long gestation period during editing, and the film finally had its premiere at the Sheffield Documentary Festival in 2004, where it was selected by the BFI for a national tour. After this film was almost lost from sight, it needed a release on media. Finally in 2017 an appeal for sponsorship was successful and at last in 2019 this almost lost film is



finally available in high resolution on DVD in a high quality package.

Information & links

Gandolfi-Family Business

Gandolfi-Family Business
This film is listed on Amazon, and is also available from central London photo dealer Silverprint Photographic Supplies:
shop.silverprint.co.uk

Darkside

Reference website, contains Gandolfi archive PDFs including notes from Fred Gandolfi's unfinished book.
darkside.photography

Early Photography

A collection of cameras from the 1850s to the 1950s
www.earlyphotography.co.uk

Wood and Brass

Wooden cameras before 1914
woodandbrass.co.uk

Building a Large Format Camera

By Jon Grepstad, a comprehensive manual on building one's own camera using basic woodworking skills.
www.jongrepstaddotcom.files.wordpress.com



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Chairs: the furniture maker's challenge

Chair design is about comfort and creating a light, strong structure that looks good from every angle. And the shapes have to seem new and all work together

In an extract from *The Intelligent Hand*, David Savage and Daren Millman build a chair prototype

Most chair design demands that you make a full-size prototype, then sit in it, then make the chair. We should do that, but having made a few chairs, we tend to go straight for the finished chair. It's swinging from the chandelier by your fingertips.

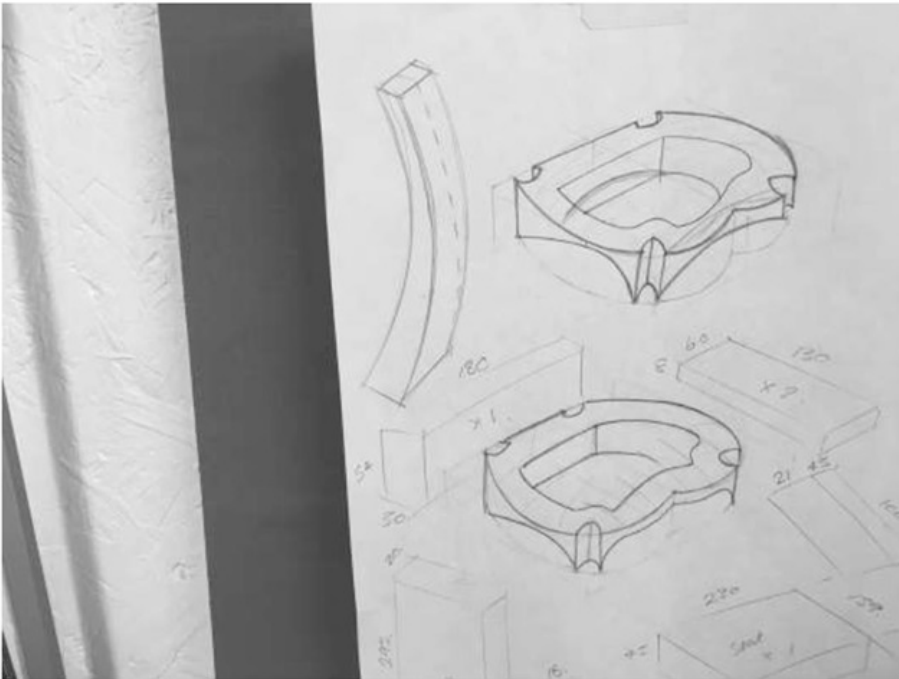
Take a look at the seat shape of this chair – it is a little unusual, so take a moment to get used to it. It starts off as a thick block of plywood laminated to give me the thickness I need at the leg junctions. It is then shaped. The middle is cut out, and the shape of the seat developed to the form you want. The benefit of this method is that I can make my seat any shape I want, without complicated joinery. Legs can be notched into the seat and fixed easily with good long screws or Parnham fittings.

Have a good look at this. This is the process Daren Millman, Senior Craftsman at the David Savage workshop, has developed to transfer my drawings, which are usually quite small, to a larger scale (in this case,

one-third of full size). He then makes an accurate model from dimensions he takes directly off the drawing. First, look at the accuracy of the model above; it's spot on. He knows I see slight changes, and he knows that this stage of transferring the drawing into 3D is the critical one. He takes the drawing at one-third scale and cuts it up, using it for templates for the legs, sticking the drawing on the timber then shaping it out to match the drawing.

Ignore, please, the foolish-looking seat block of MDF on which the back legs are sitting. Look instead at the support block the seat is sitting on, which holds the seat at the right height and angle while we develop the position of the legs. We do this when making full-size chairs, too; the relationship of the seat to the ground is critical.

Then he makes a seat block. Please try to see past that huge lump of timber (the seat), which is currently at the wrong angle and the wrong height. You have to get things wrong at times if only to change them later. This



Chair seat sketches



Model on support block



Model on support block, another view



Model on an angle

seat will later be shaped and formed into a sensual, fluid upholstered shape. Worry not.

The point now is to get something down that is accurate from the good parts of the drawing. The side elevation and front elevations are not great – but they are what I have. As the model evolves, I can develop and tighten up the design. You see from the photos that Daren is starting to shape the top of the seat upholstery and the seat's front shape. He works from lines carefully drawn on the seat, taken from the drawing.

You can see in the seat sketches a development. Until this point, the seat was pretty circular in plan. Here, I change that, cutting into the seat shape to take two great bites – one on each side. Huge improvement. When you do this, it's called 'going off piste' – it's where all the excitement lies. But you need to be able to get back to your old idea just in case the new one fails. Use photos at each stage.

Work through these developments a step at a time. Try to change one thing, assess, then move on. If necessary, write a list of changes and work out the order in which you will make those changes.

My next change is to the back rail of the seat, then the crest rail, then the rake of the whole chair seat. At the moment, the chair

leans back too far. I did it in the drawing to add speed and aggression to the pose of the chair; I wanted the side view to feel like it was under tension, was resisting a huge wind. Now that is working against me, making the chair too cool, too leaned back – and probably quite uncomfortable. The answer is simple. Lop an inch or so off the front feet to bring the whole chair more upright. We tested this by putting the rear legs on an 18mm sheet of MDF and the front legs on the benchtop.

Now we have the crest rail. And I had to resist the temptation to change it. Changes at this stage should generally be taking stuff away, simplifying the image – not adding complexity, but creating a more resolved image.

Chair design is about comfort and creating a light, strong structure that looks good from every angle. And the shapes have to seem new and all work together. Edward Barnsley said a good viewpoint for a chair is of the back three-quarters from about 15ft away. No question. A chair is a furniture designer's most difficult task.

This chair is running into trouble. We are working on a decent solution for the angles, but it has a seat that is too low to be usable for a working chair. A salon or drawing room

chair can be as low as 15in from the ground; it looks comfortable and inviting to sit in and is slightly more difficult to get out of. And that's what we have with the model at the moment – a salon chair not a desk chair. This kind of chair is not related to a working surface such as a table or desk. A desk or dining chair should be about 17½in from the ground, so our seat has to come up the equivalent of 2 whole inches.

It's design slippage – you need to always compare your model to a real-life comfortable chair. This is hard. There is no easy answer to this, as we are all different shapes and sizes and find chairs comfortable or not in lots of confusing ways. The best approach I suggest if you are a person of average size is to make a comfortable chair for yourself and let everyone else go hang.

So where do these magical figures come from? I have a Windsor chair in my studio, probably made in America, that I find comfortable. When I need seat and arm measurements, I measure this chair then carry those measures over to the new chairs I am making. We all stand on the shoulders of those who went before. This chair has been with me as a studio chair for more than 30 years, and I still love it to bits. It creaks and groans and needs regluing



now and again. But it is light, flexible and comfortable, and it is good to look at. If I can help produce as good a chair as that I will be a happy man.

So, let's look at these drawings and see what that Windsor chair tells us. Seat height: $17\frac{1}{2}$ in falling back to $16\frac{1}{2}$ in. Elbow height: $27\frac{1}{2}$ in, with the arm raising to $28\frac{1}{2}$ in at the point the hand falls over the end of the arm. The chair back falls away 4in. The overall width of the seat is $21\frac{1}{2}$ in, but the inside sitting width is 18in, the depth is 17in and the usable depth is only 15in. Engrave these dimensions on your chairmaking soul and move away from them at your peril. Do not think that if you make a good-looking chair, people will find a way to sit at comfort in it. They won't, and your chair will be chucked into the great dumpster of history – rightly so.

Back to work. The chair seat has now been raised by the 2in necessary. The seat is now not leaning so crazily back, and we are starting to see a chair design that might work. What we do is keep working around it, tightening up visual relationships, changing this, improving that. Each change has an effect on other parts of the chair, so it's important to make one change at a time and be able to step back again. Simplify at this stage; don't add new stuff in. Take stuff out. It's harder to be simple, but much better. Go around and around the piece, doing this until it is visually as tight as a drum.



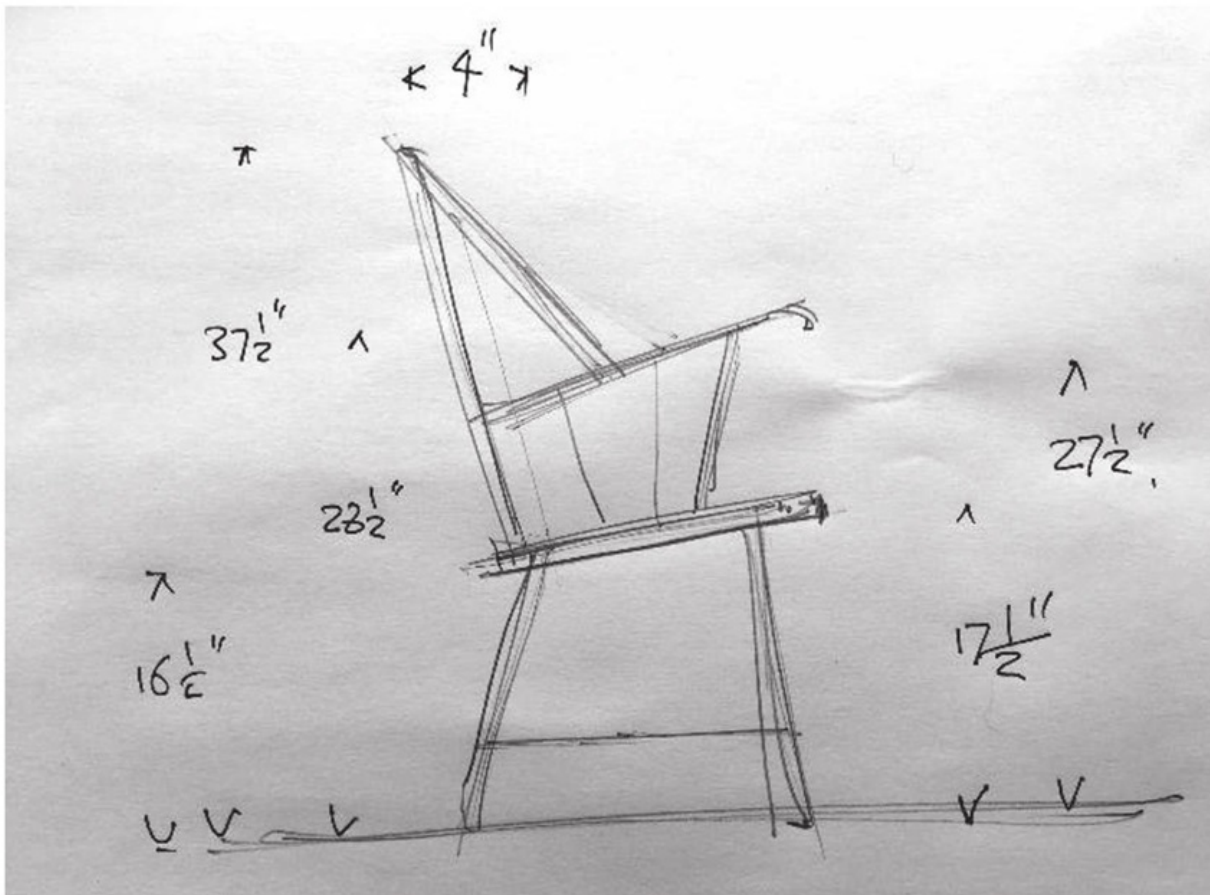
Sketching in the crest rail and propping up the back feet to change the seat angle



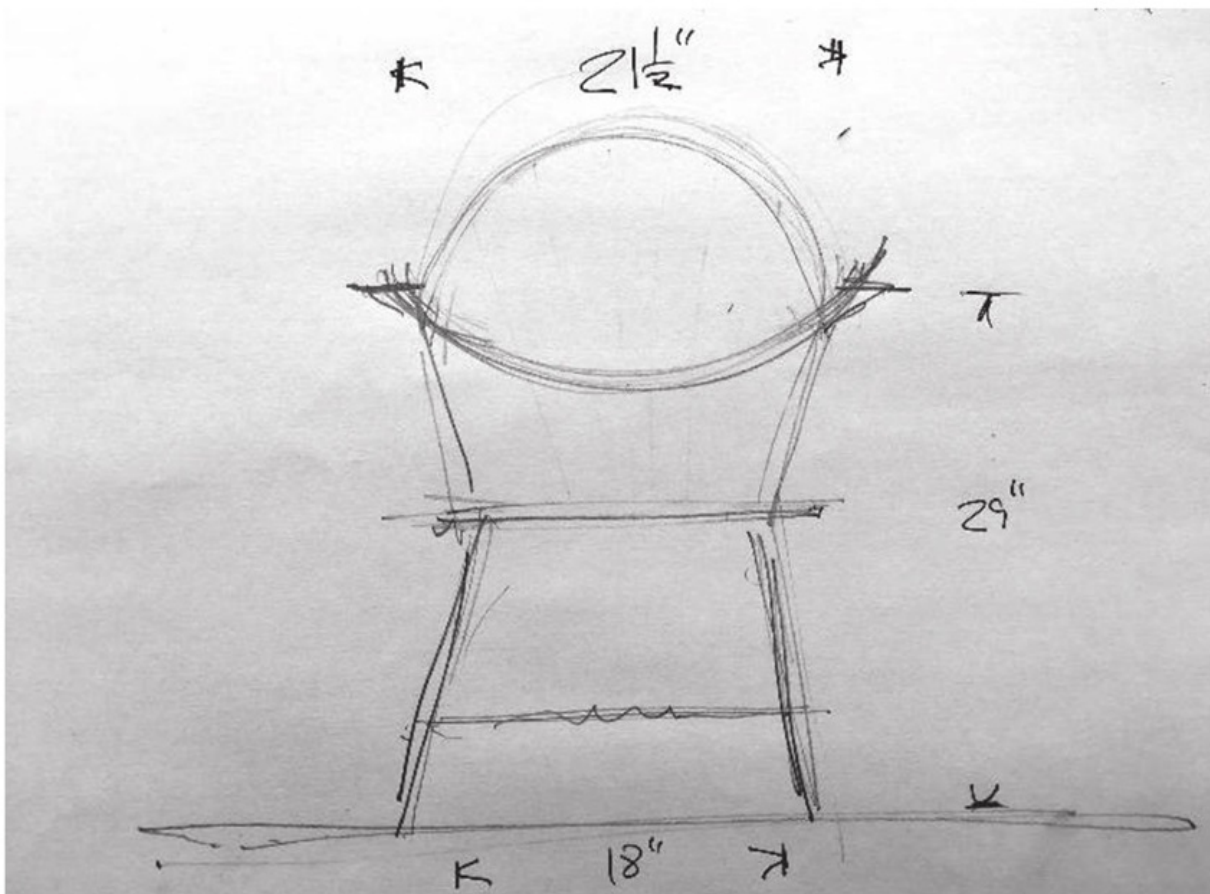
Changes at this stage should generally be taking stuff away, simplifying the image



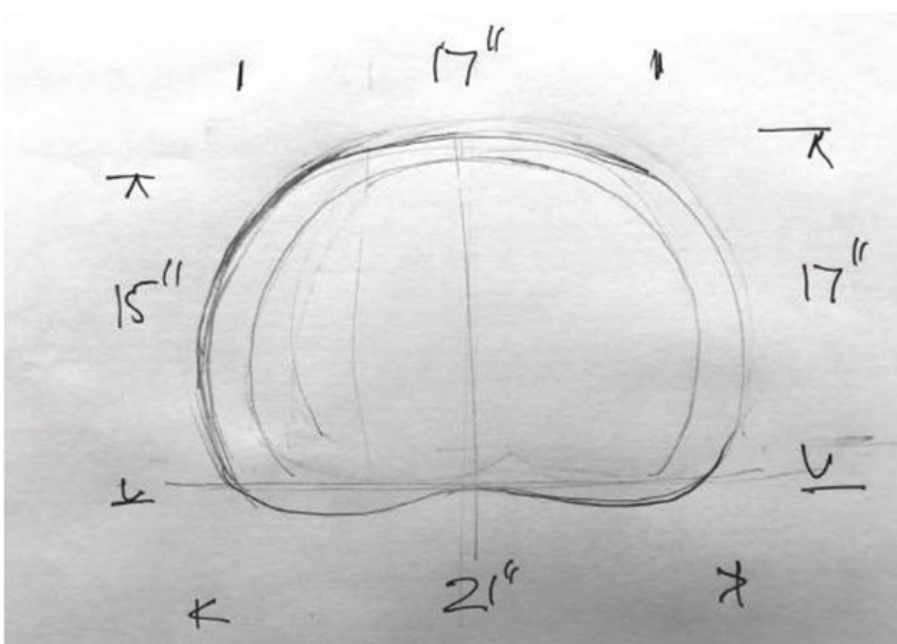
Model from back



Profile drawing of Windsor chair



Elevation drawing of Windsor chair

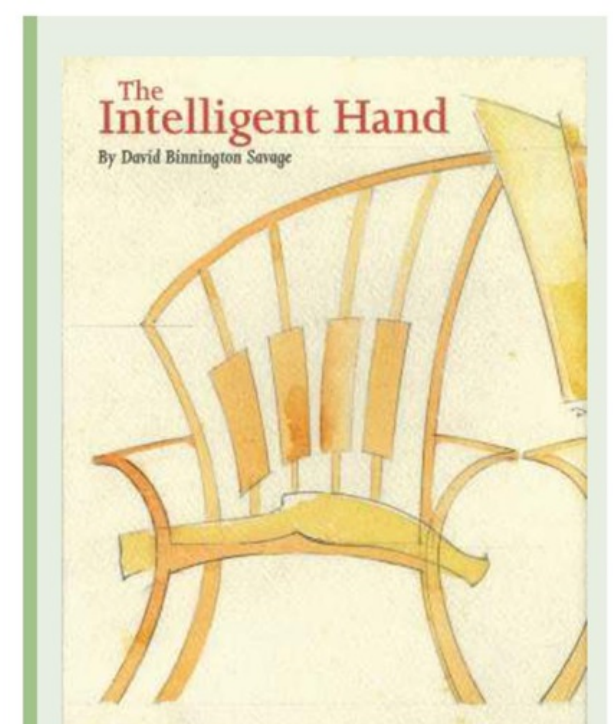


Plan drawing of a Windsor chair seat

You want to reach the point where nothing can now be changed without changing everything. It's like finishing a drawing: you are climbing a pyramid one pencil mark at a time. Revising, refining, simplifying, getting nearer the top, getting nearer to the finished image. You are almost finished; one more pencil mark and you are at the top. But two more pencil marks and you are back to base camp. So, watch it.

The images on the following page show the next step we took. The forward visual push of the legs has the effect of demanding that the arm support is pushed back. See how Daren is using the one-third scale drawing to get exactly the shape I want. My instructions at this stage were to go straight back at right angles to the ground. This kept the arm support simple, with a vertical line going up the outside of the leg and up the arm support. Next, we tapered the inside face. With luck that whole component can now be cut out at one go – arm support and leg – happy days.

Doing the arm is another matter. Daren took copies from the drawing but they were too curved. This is a taste thing. A bit like tasting soup, it needs a bit less curvy herb. Curves are great but you can have too much of a good thing. You can have floppy, indolent curves and curves in tension. I tend to draw curves either from Mr. Chandler's Unique Templates or by bending a steel rule to eyeball the curve while getting Daren to draw the line. Now, please, Daren – before my fingers give up. Without straight lines and tension to work against, curves are just floppy and dull. So now we need some new arms ...



The Intelligent Hand

By David Binnington Savage, published by Lost Art Press as hardback or PDF. Available from www.classichandtools.com for £46 or from lostartpress.com



Shaping the back for the model



Considering the arm supports



The support blocks below the arms

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Forsa 4.0 - P1	Workshop	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.1 / 415v	107 mm x 1.6 m	£3,895.00	£4,674.00
Forsa 4.1 - P1	Workshop	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.1 / 415v	107 mm x 2.1 m	£3,995.00	£4,794.00
Forsa 8.0 - P3	Professional	As Illustrated above	6.5 / 1.1 / 415v	107 mm x 2.6 m	£5,420.00	£6,504.00
Forsa 9.0 - P3	Professional	As Illustrated above	6.5 / 1.1 / 415v	107 mm x 3.2 m	£5,575.00	£6,690.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

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Selecting and using saw files – part 2

Mark Harrell continues his series on how to maximise your saw's performance



PHOTOGRAPHS BY MARK HARRELL

In last month's issue (*F&C* 284), we looked at using needle files and learned some sawtooth terminology. Now it's time to turn our attention to jointing and deburring your saw, plus some essential safety considerations.

Jointing and deburring

At Bad Axe, we offer German toolmaker Friedrich Dick's 10in mill file, which is an excellent choice for jointing sharpening flats along the toothline before sharpening the saw. Think of the jointing file as a long jointing plane – the long plane of the file establishes one's visual cue for sharpening by creating a flat on the tooth. Once you've sharpened off the flat (and no more!), then your tooth will be in jointing alignment with all other teeth, such that all teeth cut in unison. A chainsaw file is useful for deburring a sharp edge along the non-toothline perimeter of one's saw by drawing it backwards against the burr. This is common when one shears metal when shortening a saw due to a severe kink at the toe, or for widening an offset fastener through-hole in the plate when transplanting a handle.



Jointing and deburring files

Crowding your teeth

Often, a smaller file is useful when 'crowding teeth'; that is to say shaving away more metal on a larger tooth with a broader sharpening flat adjacent to a tooth with little to no jointing flat. This phenomenon is commonly experienced deep into the sharpening process when you have sharpened 90% of a toothline to joint yet have a remaining – and sometimes large – flat on a tooth next to another tooth sharpened to a point already. The solution? One pushes (or pulls) the sharpening file narrower in cross section laterally towards the larger tooth while pushing the file through the gullet both teeth share, as the graphic on the right illustrates.

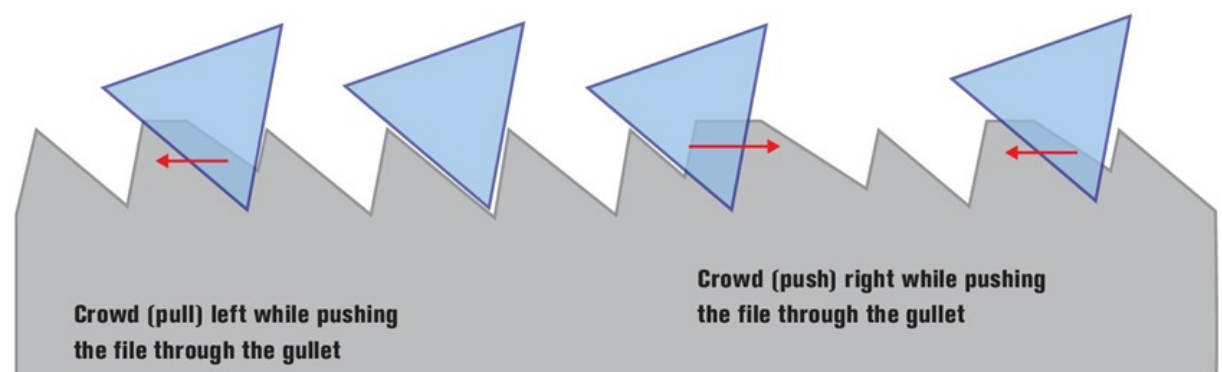
As you can see, the file size you'd normally use for a given pitch with this issue will overwhelm the tooth already sharpened, so size your file down. In the illustration, we're looking at 10 points per inch, for which we normally use a 6in slim file. For crowding the larger teeth, use a 6in xx-slim file, and don't hesitate to reach for your 5in xx-slim file to deepen and even out the gullet depths.

Safety considerations

Always remember that sawfiling kicks up a lot of dust, and we're not talking about your garden-variety wood dust, which can send you into sneezing fits. No, we're talking metal dust here, and that's some nasty stuff. Think about it: metal dust is actually metal shrapnel under the magnifying glass, and though it may seem innocuous while floating in the air, it's not. Just consider what it can do deep in the alveoli of your lungs if you're not wearing a dust mask, or how it would interact with your corneas when you wake up in the morning unshowered after a sawfiling session and you're knuckling the sleep out of your eyes.

So be safe. Wear a dust mask and eye protection when you're sawfiling. I like keeping a cordless vacuum handy to suck up all the metal dust particulate before, during and after a sawfiling session. Metal filing dust is dangerous stuff, and you'll definitely want to keep it out of your eyes, nose and mouth.

Crowding the Toothline



Carve away more material from the larger teeth by deliberately selecting a smaller file and pushing (or pulling) the file in a lateral fashion while pushing it through the gullet – this is known as 'crowding'



Metal dust is a health hazard



Use appropriate safety gear when sawfiling. A cordless vacuum and brush keeps the 'micro-shrapnel' of metal dust cleaned up, and eye and respiratory protection will keep it out of your eyes and lungs

Safety when mounting handles

Saw files are brittle and pointy. Don't get in a rush and mindlessly push a handle on to a file's tang by leaning into it – you might well stab your hand, or your hip, depending on your body English!

You are far better served safety-wise by securing your file handle up in a vice, then tapping the handle onto the tang with a light mallet.

If you're screwing one of our Skrooz-On handles onto the tang of a file, you're still best served by securing it upside down in a vice so you can bear down on the tang with the handle without putting yourself in jeopardy.

Think about it: if you're bracing the tip of the file against an immovable object and pushing the handle into the tang, what would happen if you get too gung-ho and the file snaps? Where does that sharp metal go? Into your hand, right? Or, depending on how you're leaning your body into the tang, somewhere you don't want that file to be. Exercise good sense here too.

One final note about handling a file: sometimes a handle has just

a smidge too large of a bore to securely fasten the tang of your file. A couple of wraps with masking tape around the tang will make up the difference and get your handle on securely.

In closing, don't hesitate to reach for a smaller file to accomplish a deeper gullet, finesse a deeper gullet or to crowd a larger tooth into symmetry with adjacent teeth. If a toothline is overset, don't hesitate to reach for a larger file to hog off more material, then switch to a narrower file more appropriate to the pitch. Conversely, if all you're doing is brush-sharpening a toothline that is already symmetrical, then apply a very light touch with the file appropriate to the pitch. Remember always the proper mindset for sharpening a saw is not the same as sharpening a plane iron; in other words, don't be an unthinking robot grinding away. Each pair of teeth your file affects has its own issues. Knowing how to switch back and forth between file sizes as the situation dictates is a deliberate choice that can and should be implemented. *F&C*



Secure your file in a vice when mounting handles. Note that needle files have cylindrical tangs, so handles are generally tapped on with a mallet



Some file handles, such as Skrooz-On handles, can be screwed onto a file's tang. Again, don't stab yourself with the tang and mount your file in a vice



If the bore of your handle is too large, reduce fitting slop by applying a wrap or two of masking tape around the tang





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Lifting the lid on box making pt 2

Derek Jones offers a solution when your finish has too much bling

We wrapped up last month's article having just separated the lids from the bases of the two boxes with a discrepancy of 0.6mm to take care of. This amount is not too difficult to remedy with a block plane, providing you're careful and avoid banging into the edges of the sides opposite. Another way is to use a sanding board and I talked about the technique for making and using this last month. With very dense hard woods like bog oak, it's often easier and safer to remove small amounts of material with a file or rasp as these tools are impervious to the effects of awkward grain. A long fine metal file is the ideal tool for feathering the mating edges of the base and lid to achieve a zero gap join. Then wrap some fine paper abrasive around the file to remove the last of the scratch marks.



Cover a flat board with abrasive paper to make a sanding board to flatten the edges of the lid and box base



Use a fine metal file to remove the coarse sanding marks from the abrasive paper

An obsession with cocked beading

When I started out in the restoration business, apart from making the tea and running errands, one of the things I did most was repair or replace miles and miles of cocked beading. You could buy 8ft lengths of it in Brazilian mahogany off the shelf but it was either too thick or too wide to be of much use in the antique trade. And by the time you'd shaped it up to fit you may as well have made it yourself from old stock. The polishers certainly preferred it that way. As a consequence I'm always drawn to this detail on period furniture and fight the urge to buy up pieces at auction just so I can repair it. It's such a simple device that looks, at least to my eye, as good now as it did in the 18th century. Making your own is easy even without a router, in fact I'd steer away from that method altogether as the result is often too perfect and requires a lot of careful sanding to remove the cutter marks. First of all decide on the thickness of the bead and prepare the timber to suit. Aim for something just a fraction thicker than your most convenient round metal file, this happened to be 4mm for me, and use it to file a semicircle into the edge of a cabinet scraper. If you can break the corners off the stock with a moulding plane it will make starting the tool much easier and help to avoid a bumpy profile. Even a slight chamfer with a block or shoulder will do, just leave a flat section at one end. Use this to clamp the bead on edge to the bench and work away from the clamp with the scraper to round over the chamfered corners. A couple of passes is generally all it takes. Resist the temptation to work the edge more than is necessary as you want the scraper to remain sharp for as long as you can. It's not practical to re-sharpen it so be prepared to file a new semicircle when it gets dull. When you have a set of mouldings you can use a shooting board to trim them all to the same width and then polish them before gluing them into place. Use a scraper to remove the finish from the bottom edge and perhaps along the side faces.

Tooling, timber and hardware

Here are some handy links for sourcing all the tools and materials you'll need.

4mm spiral downcut – T4D4000C
8mm spiral downcut – T8D8000C
www.wealdentool.com

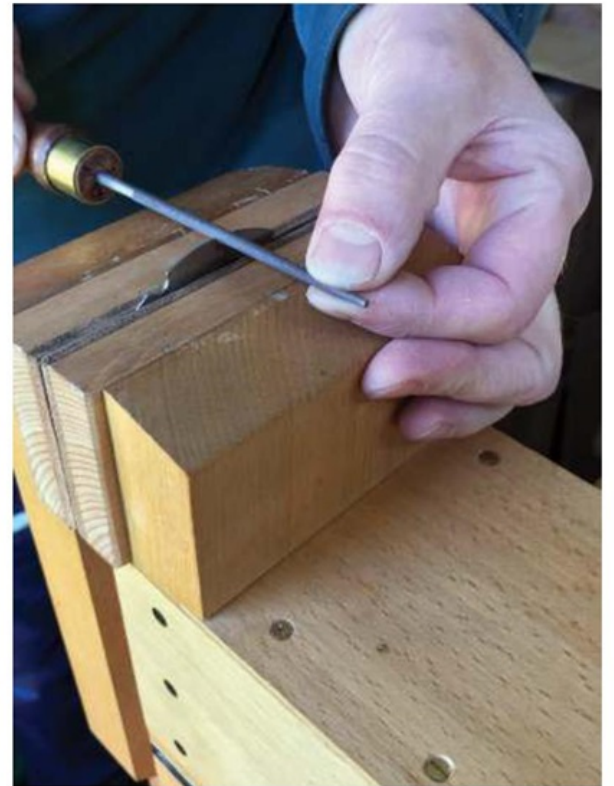
Lemonwood
www.exotichardwoods.co.uk

smartHinges
smartboxmaker.com

Peacock Oil
www.skeltonsaws.co.uk



Cocked beading is not just for drawers



Use a round file to make a scratch tool from a cabinet scraper



Use a moulding plane to take the corners off the square stock before using the scratch tool



Clamp the moulding to the bench at one end and draw the scratch tool away from the clamp



Separate as much of the bead as you need from the stock piece

No-finish finish

Deciding how to finish these boxes presented quite a problem. Actually it went a little further than that and turned into something of a nightmare. Perhaps it's a personal thing, but I'm not sure it's possible to improve or enhance the appearance of a natural material like bog oak with a shiny layer of anything as it takes away what for me, is the essence of the material. Imagine for a moment a forest of oaks 10, 15 maybe 20 metres tall with arrow straight trunks that existed perhaps 5000 years ago. Then consider the magical process, part alchemy part accident that has preserved these giants and given us such a unique material to work with. Tinkering with it just feels like an act of vandalism to me. If it's jet black and shiny you're after there are plenty of stains and polishes on the market that will do that to regular oak. Ideally the best finish for bog oak would be no finish at all but that's not exactly a practical solution. I've used matt and satin finishes on other timbers before and they work very well. If the appearance of your project isn't diminished by gazing through a blurry film at your timber,

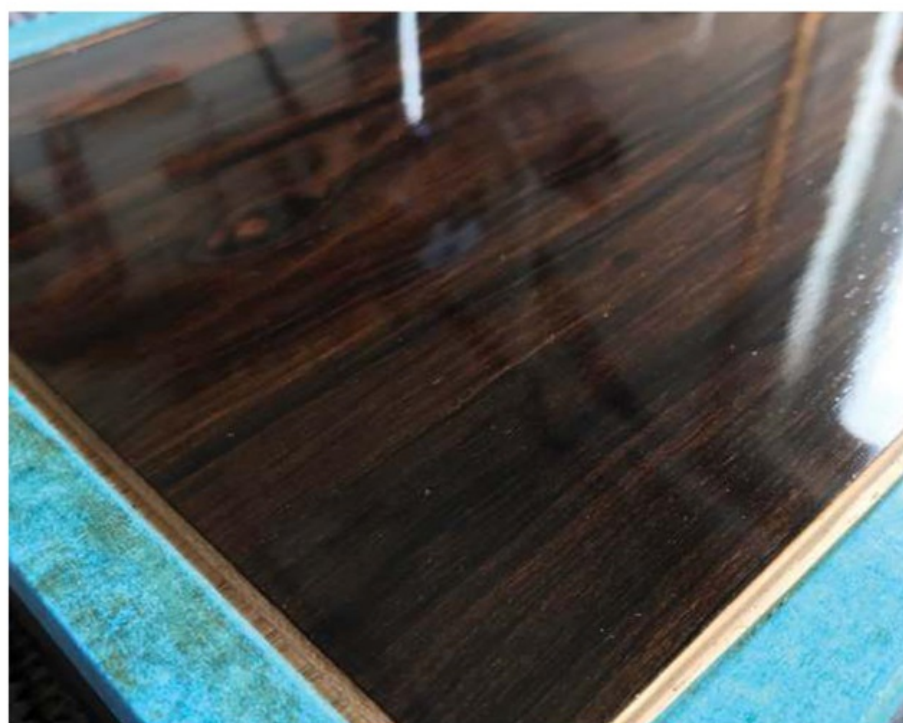
I recommend trying them out. Oils are less obtrusive than the water-based products I've tried but they do tend to darken the timber; sometimes for better sometimes for worse. I ruled out shellac as the finish for the bog oak because the only way to take the glare off it is to wax it, which is still too shiny for my liking. For practical reasons, however, it is necessary to add a layer of protection and for that I chose Peacock Oil from Skelton Saws for the bog oak parts on my boxes. After finishing the burr oak lid panel with Peacock Oil I noticed that it remained quite matt for at least the first two coats. And as luck would have it the bog oak responded similarly; a deep rich tone with all the varying shades of straw showing through and without the glare. With plenty of fine grade sanding beforehand and multiple coats, it is possible to build up quite a sheen with Peacock Oil, but hold back and apply just two or three coats and you'll get a low lustre layer of protection that doesn't mask the unique quality of the material. A matt Osmo oil will get you similar results but it won't have quite the same depth of colour. Hard wax oils are designed

to be high build products, which means that a lot of the finish remains on the surface of the timber. That's great if you want to fill the grain of course but not if you're after a no-finish finish.

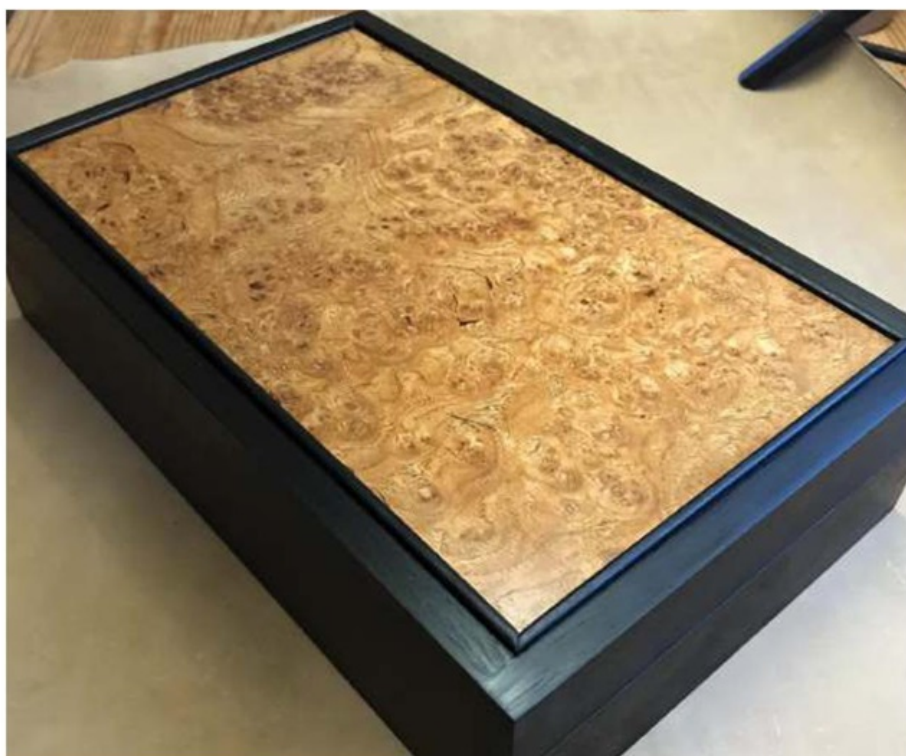
In the spirit of a full disclosure I should point out that it took a few mistakes to arrive at this finish. The inside of both lids were finished with a wipe-on melamine lacquer to protect the inside from excess glue while the box was put together. While it may be tough and resistant to water and alcohol, melamine is guaranteed to wreck your chances of achieving the wow factor on decorative timbers. Why I thought it would be a good idea to use it on the outside of the lid panels is a mystery; some lessons I guess you have to repeat a few times before they really sink in. My second mistake was darkening the ziricote panel with oil which made it too close in colour to the bog oak to have any chance of standing out. Like rosewood, it looks its best with a near full grain finish and for that the best option is shellac. After removing the oil and some very careful sanding it was time to break out the French polishing kit.



Epic fail; oil turns ziricote black (almost)



Shellac (French polished) spares the colour and brings out the highlights



Burr oak responded extremely well to Peacock Oil



Both timbers playing to their strengths

Hinge fitting

The smartHinges from smartboxmaker.com are without doubt the finest box hinges I've used and I recommend you pay their website a visit to find out as much as you can about them before placing an order. The site also has clear instructions on how to install them with either a table-mounted router or without. The key to achieving a clean mortise for the hinge lies with the use of a downcut spiral cutter. Unlike regular straight two flute cutters where the waste is ejected from the path of the cut laterally, a spiral downcut cutter draws the waste perpendicularly away from the path of the cut. The benefits are twofold. The cutter tips don't acquire a build-up of burnt waste quite so quickly so stay sharp longer and therefore maintain dimensional accuracy. Downcut cutters also deliver flatter bottoms and sides

to your mortise due to the skewed cut of the sharp edge. Straight cutters slam into the material head on to make a cut while a spiral cutter slices across the width of the material. This action is easier on the tooling, the machine and the workpiece. Think of it like a skewed blade on a shooting plane or that thing we do instinctively with a smoothing plane to tackle awkward or reversing grain.

I followed the instructions from the smartboxmaker website to the letter and have to say that Andrew's approach is about as thorough an explanation as you could possibly get. Do exactly as he recommends, right down to the low friction tape on your fence and you will have the best quality hinges on the market fitted to perfection.



The spiral downcut cutter



Apply low friction tape to the face of your router fence



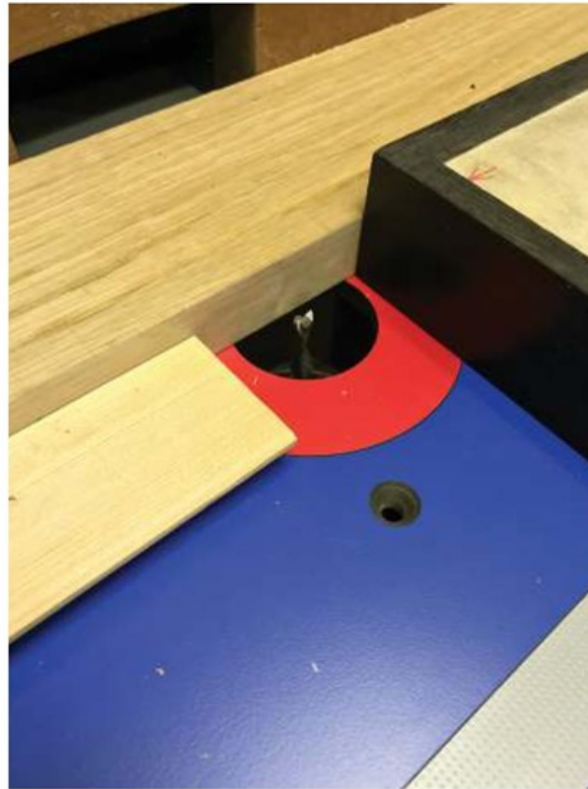
Make identical test cuts in two offcuts



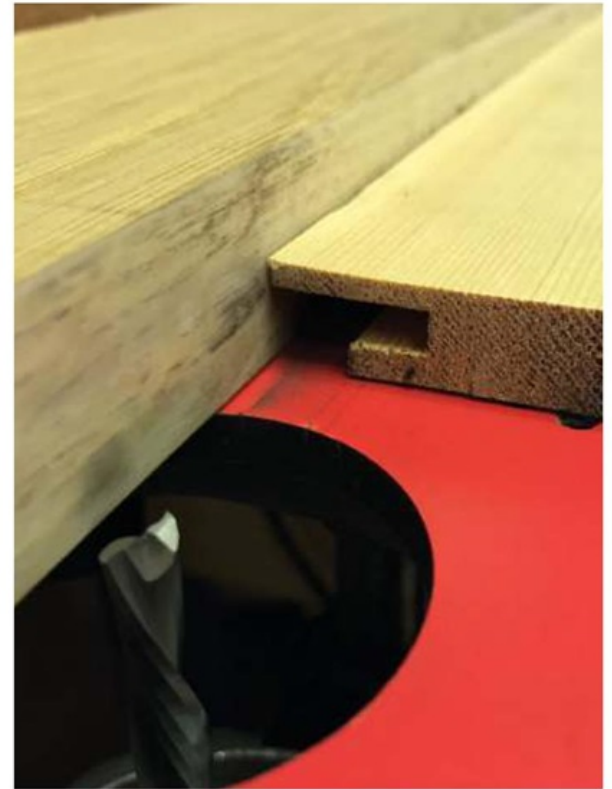
Check to make sure the hinge is held tightly between the two pieces and without a gap between them



Make a spacer block to set a stop the correct distance from the edge of the cutter



Mark the direction of the cut on the bottom of the box



Extracting waste effectively from beneath the router table is tricky so create somewhere for the waste to go instead



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Next month

I'll be lining at least one of the boxes with leather and lemonwood and adding the finishing touches.

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|-----------------|---|
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| TSPS450 | 450W Oscillating Spindle Sander |
| TSPS370 | 350W Oscillating Tilting Table Spindle Sander 380mm |



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UNDER THE HAMMER: The Oak Interior

We look at some of the top furniture lots sold at the Bonhams auction



Oak Interior sales are held twice a year at Bonhams' London auction house. These unique auctions include 16th-, 17th- and 18th-century carpenter-made and joined early vernacular furniture, often from single-owner and private collections. Sales include refectory tables, panel-back armchairs, coffers, side tables, chests of drawers, back stools, joint stools and Windsor chairs, made from a variety of timbers including oak, ash, elm, fruitwood, walnut and yew.

Related works of art, including treen, early metalware (brass, copper, iron, pewter and steel), early carvings in wood and stone, period textiles and folk art-related items, are sold alongside furniture in a sale that caters for both connoisseur collectors and clients wishing to re-create period interiors. Here, we take a closer look at some of the top-selling furniture lots from April's auction.

£13,812

An Elizabeth I/James I joined oak tester bed, made ca. 1600–20.

The tester is formed of 12 panels, each carved with a flower-filled lozenge within a knot-pattern border. The frieze rails have internal dentil-mouldings and nulled-carved outer faces with applied pierced and cushion-moulded 'corbels', all below a leaf-carved cornice. The headboard features paired narrow panels carved with leafy S-scrolls, above a pair of stylised flowerhead-carved panels, all centred and flanked by paired carved corbels. There are two deep recessed panels, each carved with a carnation stem within an egg-and-dart carved arcade raised on stiff-leaf-carved pillars and spaced by figural terms. There are four plain base panels below, and the free-standing end-posts are decorated with Ionic capitals and acanthus bulbs over a stop-fluted tapering column. There is a gadrooned base and further bulbous-turnings below carved with gadrooning and palmettes. The bedstock is formed of heavy rails.



£11,937

A rare late 15th/early 16th-century giltwood, pastiglia and polychrome-painted cassone, made in northern Italy, ca. 1500-30. The lid has a raised flat centre formed from two boards, with a gilt-decorated edge. The curved front is decorated with masks, scrolling-acanthus, a central flaming-urn and two coats of arms, all within a deep double-guilloche border. The sides are painted with a coronet, military trophies and a vacant cartouche. A cassone was an effective form of storage in Italy throughout the 16th century. By around 1550 it had become fashionable to carve rather than paint the chests. Unfortunately, the tinctures of the coats of arms on this chest do not conform to any accepted heraldic conventions, this is probably due to later overpainting or retouching.



£8812

A Charles I joined oak, elm and fruitwood mural spindle cupboard, made in the West Country, ca. 1640. Elaborately and in places deeply carved throughout, the cornice has unusual slender turned and pointed pendants. Each door has two rows of four paired-baluster spindles, the stiff-leaf carving to the doors' upright-rails is repeated on each boarded side above a large gauge-carved lozenge.



£8812

A rare and small Elizabeth I joined oak three-tier buffet, made in the West Country, ca. 1600. Each top board is framed by a geometric punched-decorated border. All the rails are cable-carved, the top two tiers also featuring paired flattened-arched aprons. These are centred and flanked by carved roundels and highlighted with punch decoration. The buffet has baluster-over-ball turned and fluted-carved front supports, and run-moulded rectangular-section back uprights.



£8812

A rare Charles II joined oak table-settle, made in Lancashire, ca. 1670, formerly referred to as a 'chimney settle'. The centre of the back is raised with a hinged board supported on a silhouette baluster and a pierced leg when open. This board is flanked by floral-carved panels over raised and fielded panels. The slender back uprights have pyramidal-finials and the downswept scroll-ended arms sit on columnar-turned front supports. The seat rails have a lower run-moulded edge, with similar columnar ring-turned legs, joined by run-moulded stretchers all round.



£8812

A George II joined oak bookcase, made ca. 1740. It has a cavetto-moulded cornice, a pair of astragal glazed doors enclosing a central division and two pairs of adjustable shelves. The lower section has two fielded panelled doors and six adjustable shelves, on a bracket-shaped plinth.



£7562

An Elizabeth I boarded oak, walnut, bog-oak, holly and fruitwood parquetry and marquetry-inlaid 'Nonsuch' chest, made ca. 1580. The cleated lid has a paired dog-tooth banded inlaid design of inner framed rectangles. The front of the dovetailed chest has two inlaid divided reserves, each decorated with architectural fantasies and flanked by an inlaid hexagonal tower, each side with further inlaid bands and iron bail-handle. Although the decoration on this chest is characteristic of 16th-century German inlay, it is now thought possible that this type of work was also done in London, particularly in the environs of Southwark, from the second half of the 16th century, probably by immigrant German joiners and inlayers. The architectural decoration is popularly assumed to represent Henry VIII's celebrated Nonsuch Palace in Surrey, particularly with reference to the fanciful towers. However, it is more likely to have been derived from 16th-century printed designs, like those published by Hans Vredeman de Vries, (1527-1604).



£6937

A Charles II joined oak open low dresser, made ca. 1670. The boarded top has a triple-reeded edge and projecting cyma-moulded under-frieze. There are four drawers, each drawer front with paired geometric and cushioned mitred-mouldings, raised on five spiral-turned front legs. The upper leg blocks have an applied fleur-de-lis headed fretwork motif and the lower leg blocks have an applied pyramidal boss.

£5312

A 16th-century boarded cypress-wood and 'pitch'-decorated chest, made in northern Italy for export to England, and dated 1592. Of dovetailed construction, the decoration is filled with mastic/pitch. The lid is formed of two thick boards with an applied floral and ribbon-decorated front edge, the front board is divided into seven decorative sections, each with alternate designs of paired angled S-scrolls and addorsed mythical beasts. 'IN GOD IS AL MY TRVST' is inscribed across the upper edge, centred by the date '1592 OCTOBER XX', with numerous sets of initials throughout the elegant design. The separate base has deep cut-away sides and is decorated on the front with paired hounds and wild boar.





£8187

A rare and exceptionally small early 17th-century joined oak and walnut half-round table, made in England, ca. 1600-30. The table has a single-piece top with a six-sided canted front and scribed edge, over four front rails with a moulded lower edge, and set between five columnar-turned legs. The legs are joined by plain stretchers all round, on turned feet.

Glossary of catalogue terms

Addorsed

Placed back to back.

Astragal

A moulding having the form of a string of beads.

Cartouche

A carved or cast ornamental tablet or panel in the form of a scroll, sometimes bearing an inscription.

Cassone

An Italian chest, usually used as a marriage chest, and the most elaborately decorated piece of furniture of the Renaissance period. They were traditionally made in pairs and sometimes bore the respective coats of arms of the bride and groom. They contained the bride's clothes, linen and other items of her dowry.

Cavetto

A concave moulding with a curve that approximates a quarter circle.

Corbel

A piece of stone, wood or metal, often in

the form of a bracket, serving to support a cornice, the spring of an arch, etc.

Cyma moulding

A moulding of double curvature, combining the convex ovolo and concave cavetto.

Dentil

A set of small square or rectangular blocks used to form an ornamental row in classical-style architecture and furniture.

Egg-and-dart

An ornamental moulding in which a half-egg shape alternates with a dart, tongue or anchor shape.

Gadroon

A moulding composed of a series of convex flutes and curves joined to form a decorative pattern.

Guilloche

An ornamental band or border with a repeating pattern of two or more interwoven wavy lines.

Ionic

One of the five classical orders of architecture, characterised by fluted columns and capitals with scroll-like ornaments.

Palmette

An ornament or design resembling a palm leaf.

Pastiglia

An Italian term meaning 'pastework' which describes a type of low relief decoration, normally modelled in gesso or white lead, applied to build up a surface that may then be gilded, painted or left plain. The technique was used in Italy during the Renaissance.

Term

In classical architecture, a human head and bust that continues as a square tapering pillar-like form.

Tester

A canopy, usually made of carved or cloth-draped wood, over a bed, tomb, pulpit or throne.

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A grand workbench journey – part 1

In the first of a new series, Kieran Binnie builds a bench following an 18th-century design

The workbench is one of the most totemic and instantly recognisable pieces of workshop equipment. Regardless of what sort of woodwork you do, or your preference for hand or power tools, you need a workbench of some description. And for many makers, building a workbench has become a rite of passage – one of their first steps into the craft. When I first set up my workshop I was torn between whether I should purchase or build a bench, and ultimately I ordered a commercially available European-made bench. That bench has served me well for quite a number of years, although as my focus has shifted away from lutherie to furniture making I have found myself pushing the limits of what that bench can sensibly provide. As a consequence, the idea of building a bench that would meet my needs started to rear its head yet again. That idea bounced around my mind in idle moments for a while, but there were always more pressing or interesting projects that demanded my attention. All of that changed when I read *With All the Precision Possible: Roubo on Furniture* (Lost Art Press, 2017) – the second translated volume of 18th-century carpenter and author André Roubo's masterpiece *L'Art du Menuisier*. Finally, I knew that I needed to build a bench, and I knew exactly what sort of bench it had to be.

Introducing the Plate 11 Bench

For the uninitiated, the bench described by Roubo comprises a thick top supported by four stout legs that are in turn connected by stretchers a little above floor level. There are many modern variants available for this design, both in terms of blueprints to build from, and also very nice commercially available examples. Many of these build the tops from laminated timber, to achieve the thickness and width necessary while mitigating the effect of wood movement and the cost of sourcing large slabs.

But really, the best way to understand the design of the bench is to look at the engraving contained at Plate 11 of *L'Art du Menuisier*, and to read Roubo's description. Roubo describes the bench as being constructed out of hardwood:

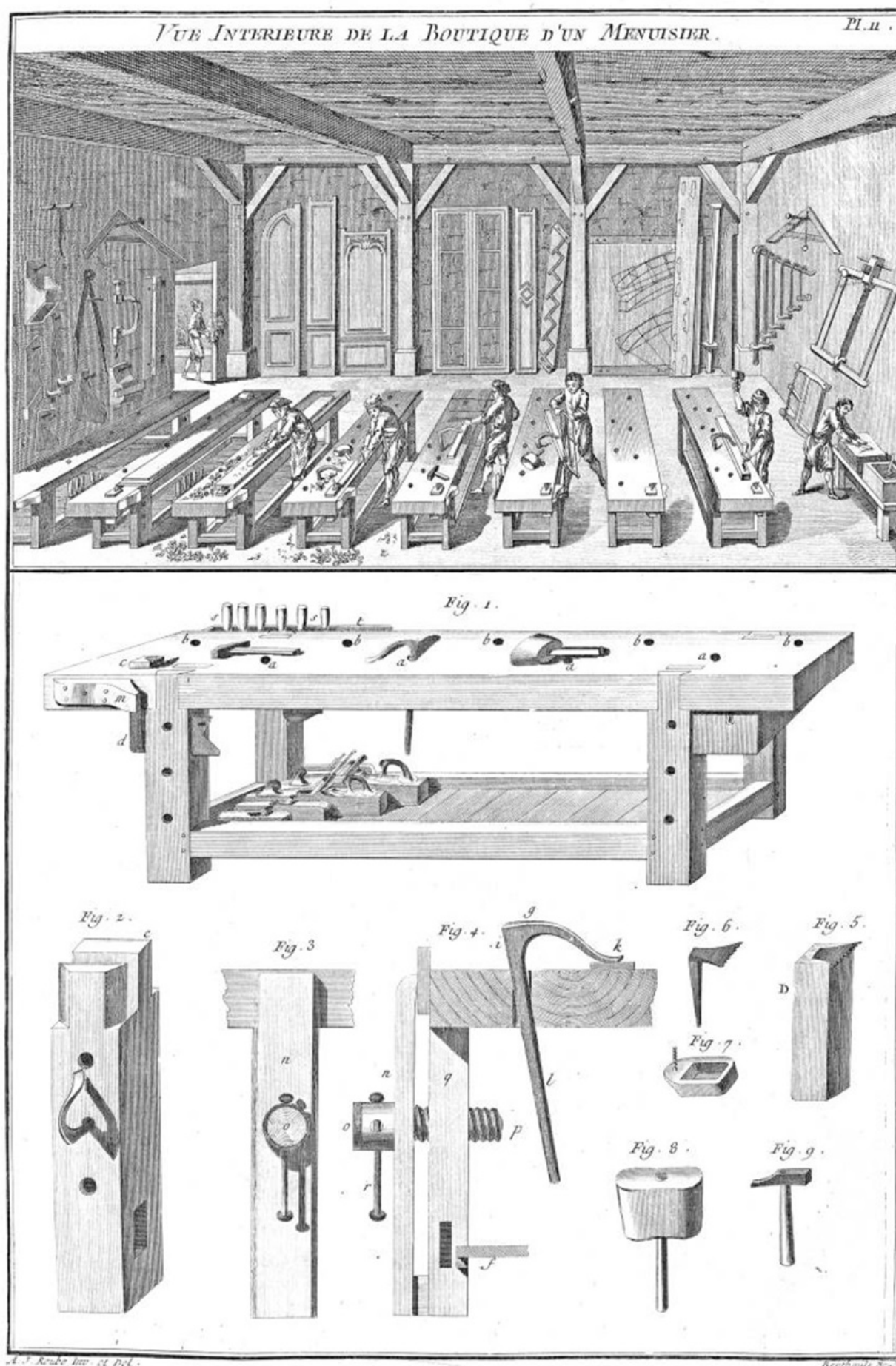


Plate 11 of *L'Art du Menuisier* by Roubo shows the French-style workbench in extraordinary detail. This engraving will be my blueprint for the bench build

1. From a single-piece slab top, orientated heart-side up, measuring between 5 to 6in thick, 20 to 22in wide, and from 6ft to 12ft long;
2. The legs are 6in wide and 3 to 4in thick, and secured to the top with a double tenon joint in which the tenon facing the edge of the bench is dovetail shaped;
3. The stretchers are 4in wide and 2in thick, positioned between 4 and 5in above the floor, and mortised into the legs;
4. A planing stop 3in square and at least 12in long is mortised into the top, and further workholding is provided by way of holdfasts; and
5. A leg vice is positioned at the front left leg

(for right-handed users).

While Roubo was describing a form of bench commonly in use in 18th-century France, rather than inventing the form, this style of bench has invariably become known as the 'Roubo bench', and that is how I will refer to the form in this series.



The slab top of the bench



Stretchers and legs are all stickered and waiting to be processed

Design concept

Workbench use and design is an endlessly deep topic in its own right, and for those who are interested in learning more I highly recommend *Workbenches: From Design and Theory to Construction and Use* (F+W Media, 2015) by Christopher Schwarz. In simple terms, to be effective a workbench must provide stability when working, and provide ease of securing the workpiece so that it does not slip at a critical point. Workholding can be through clamping, holdfasts, a vice, planing stop or even the user's body weight. Many of my frustrations with my current bench arise out of the awkward face vice, and the serious lack of mass which means that even though it is braced against a wall it dances and skitters across the floor when planing stock. Additionally, the bench top is a scant 4ft long and so I've found myself working on projects larger than the surface of the bench, particularly table tops. So I knew whatever bench design I settled on would need to offer greater stability when taking heavy cuts with a hand plane, and greater surface area for working on larger projects. The design described by Roubo provides ample mass, as well as ease of clamping, and an 8ft bench would

also give me plenty of capacity for working on large casework and tables, which would otherwise exceed my current bench.

I had found my bench design, and I knew that I wanted to build it out of oak. I was ready to start building, right? Well, not quite. Because the more I looked at Plate 11, the more I started to think about what it would be like to follow Roubo's description as closely as possible and avoid modern reinterpretations. That is not to denigrate modern reinterpretations, far from it – I've tried several modern Roubo benches which were truly breath-taking. But as a keen historian the opportunity to follow in the footsteps of craftsmen before me is something I cannot resist.

So, the concept became one of building a bench to Roubo's description, including a single-piece slab instead of a laminated top, and using predominantly hand tools. Hardware choices came very easily – Roubo calls for a metal planing stop and a leg vice. I sourced the planing stop from blacksmith Peter Ross, whose work I have admired for a long time, while my one concession to modernity is using a Glide vice and Criss Cross Retro hardware by Benchcrafted.



For the leg vice I am using a Glide vice by Benchcrafted



A planing stop is one of the key workholding solutions. This stop was forged by blacksmith Peter Ross

Measuring up

To add another twist, I decided to also adopt the same unit of measurement as Roubo had used when he described the bench. The ‘pouce’ used by Roubo is in effect an 18th-century French version of the inch, with 1 pouce equating to 1.066 modern inches, and 12 pouce making up the Pied du Roi (or ‘King’s Foot’). I was lucky enough to buy a Pied du Roi ruler made by American furniture and tool maker Brendan Gaffney (www.burn-heart.com), although if you want to try out this unit of measurement for yourself

I have included a cut list for modern and 18th-century measurements below. Using the pouce as my base unit of measurement means that my bench will be ‘Roubo scale’ as well as conforming to the design set out by Roubo. This adds a further research dimension to the build – once the bench is completed will having used the pouce as my measurement unit have any effect on the utility of the bench? There is only one way to find out. The one measurement where I have not followed Roubo is bench height.

Unlike the other dimensions of the bench, height should be based on the intended user’s physical build and working practices, including whether the user favours power tools (for which a high bench is preferable), metal bodied planes or wooden planes. As a starting point for working out your preferred bench height, stand with your arms down by your sides, and measure the distance from the floor to the knuckles where your fingers join the hand. For me that distance is 34in, and this is the height I will be building the bench to.

Conversion table

	Modern Inch	Pied du Roi	Modern Inch	Pied du Roi	Modern Inch	Pied du Roi
	Thickness		Width		Length	
Top	5.33	5	21.32	20	102.336	96
Legs	3.198	3	6.396	6		
Long Stretchers	2.132	2	4.264	4	60.762	57
Short Stretchers	2.132	2	4.264	4	20.254	19
Planing Stop	3.198	3	3.198	3	12.792	12



A sturdy pair of saw benches will be essential for this build INSET: *With All the Precision Possible* and a Pied du Roi ruler, provide the design details and blueprint for the build

Finding a slab

One drawback of basing the build around a massive slab top is that you find yourself looking for timber sizes that most conventional timber merchants are unable to supply. What you need is a sawyer, or at the very least a timber merchant who can place unusual orders with saw mills. After many dead ends I finally found Acreman's Timber (many thanks to Matthew Platt of Workshop Heaven for making the introduction). Paul Acreman took my request for a 6in thick, 22in wide and 110in long oak slab in his stride, and kindly agreed to deliver the timber direct to my workshop, which was a great source of relief – you really should not underestimate the weight of that slab!

The timber arrived in August 2018, and after six months of acclimatising is now ready to be turned into (what will hopefully be) the last bench I ever need.



Breaking down the leg stock on the saw benches, using a cross-cut panel saw by Skelton Saws



Workbench height can be measured by the distance between the floor and where your little finger joins the hand. My bench will be 34in high

The building blocks of hand work

This might all sound like an ambitious project, but the good news is that you will be able to follow my progress in the pages of *Furniture & Cabinetmaking*. Each month I will be detailing a key stage of the build and unpacking the techniques used. Because when you break down a bench build, or in fact any project, you distil a number of key techniques and processes that can be applied to other projects, and a hand tool-only Roubo build offers a wide range of critical techniques. So in this series I will be covering amongst other things

processing stock by hand (including the additional challenges of processing bench-sized timber), mortise and tenon joinery, drawboring, cutting the iconic Roubo leg joint, shaping workpieces with rasp and spoke shave, dovetailing, tongue and groove joinery, and periodically wondering whether you have embarked on a journey of hubris.

This promises to be a once in a lifetime build. If anyone plans to build along with me, please do let me know! *F&C*



I will be processing all of the timber by hand, so my three bench planes will be working on much of this build

Resources

André Roubo, *With All the Precision Possible: Roubo on furniture* (Lost Art Press, 2017)

Christopher Schwarz, *Workbenches: from design and theory to construction and use* (F+W Media, 2015)

Timber merchants for the supply of slab tops – Acreman's Timber (www.sawmillpro.co.uk)

NEXT MONTH In Part 2, we will cover processing stock for the legs and stretchers by hand.

Apprentice diaries part three: the project

Simon Frost concludes his time at Robinson House Studio and makes a bedside table



PHOTOGRAPHS BY SIMON FROST

In the first part of this series I spoke about techniques; in the second, design. This third and final instalment looks at my first attempt to marry the two.

My bedside table was made over about nine weeks, working around lessons and site visits. Were I to make it again, there's little I wouldn't change – something I'm told

furniture makers continue to experience throughout their careers. But, for a first piece of furniture, made using techniques I was learning as I went along, I'm happy enough.

To list everything I learned in my 12 weeks at Robinson House, my 800 words would be gone in no time, but fill in the gaps between redressing a grinding stone;

knowing when to use urea formaldehyde or hide glue; understanding the genius of Michael Thonet and the importance of the set on a sawblade, and you get some idea of the breadth of topics and techniques covered. To come out the other side with all of that knowledge and a piece of furniture is a great feeling.

Veneer laminating

I knew that while I was at Marc Fish's studio, I wanted to do some veneer laminating, so I opted for sycamore veneer legs that would contrast with a darker timbered drawer box. After various design iterations, I settled on a fairly simple shape with a tight curve at the top and a slender hourglass profile towards the bottom of each pair.

Once my laminating former was complete – a few layers of MDF routed from a template drawn with French curves – I took a crash course in laminating from one of the studio's makers, Alex Clough-Whelan, who guided me through consecutive veneer selection, mixing and applying epoxy, and executing the lamination in a vacuum bag.

My first try came out of the bag looking pretty good at first glance, but there were a few imperfections – while glue starvation gaps between veneers here and there could have been closed up after the fact, the main problem was with that tight curve at the top, which the 25-odd layers of veneer just didn't want to conform to.

In trying to force the legs around the former's apex, the veneers slipped slightly off-centre, too, so there were some layers that weren't completely in line with their neighbours. These complications for a



What you get when you don't make a female former...

relatively simple shape gave me an extra appreciation for the intricacy of the shapes Marc and his team manage to laminate in their work.

I gave the glue-up another go with a couple of tweaks to the process – a different ratchet strap setup, more reference points marked on the former – but, again, it wasn't quite right. So I decided instead to laminate with



The ledges for the box were cut from the legs in numerous tablesaw passes

mechanical pressure, rather than in a vacuum, to a pleasing result, albeit with the help of some rather slapdash clamping jigs.

'Leg-gate' helped me to appreciate that the only way to glue-up is to take time to carefully consider the process and practise the dry clamp until it's fool-proof. In hindsight, making a male-female former at the start would have saved me a lot of time and trouble.

Making the drawer box

With the legs laminated, I shifted my focus to the drawer box. On a school trip to Timberline – an exotic hardwood specialist timber merchant in Kent – I picked up a piece of Honduran mahogany, which would provide the contrasting timber for the box. For stability, and to get some experience in deep cutting, matching, lipping and applying veneers, I decided against solid mahogany in favour of MDF for the carcass. The veneered sides were mitred and biscuited to the top but, because the back bottom corners of the sides included a curve that followed the leg profile, they were butt-jointed (and biscuited) to the bottom.

Perhaps the trickiest part of the whole project was the fitting of the curved legs to the square box. Keeping the arc at the top of the legs

visible while the legs 'disappeared' into the base of the box would have been a lot easier, had the bottom edge of the sides been flush with the bottom, rather than gradually sloping down towards that curve at the back. Another adjustment for next time.

Much as I'm running out of my 800 words, I ran out of time to completely finish the table. I rushed through the making of a drawer in two days at the end, and so, after salvaging the drawer slips and base, the drawer inevitably went into the bin as I packed up and loaded the car to leave Robinson House after 12 incredible weeks. Thankfully, I live with the table's new owner, so it's not going far, and she's happy with a shelf for now.

Now, time to set my workshop up and get hunting for commissions. *F&C*



The carcass components veneered and ready for biscuiting



**The drawer which, ultimately, didn't make the cut
INSET: For the time being, a shelf will do**

Let's talk about the lead in your pencil...

Richard Wile considers a workshop essential – the pencil

PHOTOGRAPH BY BARANOV E. / SHUTTERSTOCK.COM

There are many items in our daily lives that we use to make life easier, and many of these are used without a second thought about how they came to be. As woodworkers we work with some of the oldest materials known to mankind, as well as some of those underappreciated tools of our trade. The humble pencil has become one of the most ubiquitous implements we use as woodworkers; whose image of that old school carpenter does not include a pencil stub stuck behind their ear?

The inventor of the wood-encased graphite lead is not clear, but most accounts see the pencil as we know it come into being in the 16th century in England or Italy. A large deposit of graphite was found in Grey Notts in England in the early 1500s and became the key source of graphite for the following decades in Europe, mistakenly referred to as lead initially; this misnomer has persisted to this day.

While researching this article, every woodworker I asked had their favourite pencil, be it mechanical, round, square or ink; this article is not intended to establish the answer to the question of which is best. Instead I will focus on providing useful information on this important, if not sometimes elusive, implement.

Pencil use in the shop can be divided broadly into two categories, drawing and marking. Whether drawing or sketching in preparation for building, or marking the material for cutting or machining, everyone has their favoured choice.

Pencils for drawing or sketching on paper

For those who draw and sketch as part of idea generation or detailed shop drawings the choice of pencil type is a personal one. Several woodworkers I talked to like a softer pencil for sketches and freehand drawings. These tend to be more on the B side of the hardness scale for those that expressed a preference. A number mentioned the Blackwing brand of pencils, which are all in the B range, with the 602 being the hardest at B, and the Palomino coming in at 4B,



Four grades of pencil on oak, cherry and walnut. Only the softest of leads show up on the darker woods

just a little harder than butter. These pencils mark very black, and feel very smooth in the hand. Softer pencils require a lighter touch and as such the underlying paper is not depressed, making erasing the marks easier for modifying a sketch as design options are explored. To me this is a nice advantage, as harder pencils tend to leave indentations in the paper, making previous marks impossible to erase completely.

For technical drawings a harder pencil lead is in order, this ensures a fine point is retained longer, making a better quality drawing; I tend to go with a 2H, hard yet still dark enough to scan or photocopy easily. With digital drawing tools such as SketchUp readily available, hand-drawn technical or shop drawings are becoming rarer. Nothing shows the craftsman's drawing ability better than a well-executed technical drawing of an original piece with the personal embellishments only a hand-drawn piece can exhibit.

Marking on wood

For all furniture makers we need to make marks on wood as part of our building process, either to label the material or make marks for cutting operations. When researching this piece I recalled an anecdote I read many years ago about a perhaps made-up Master telling his Apprentice that 'when you can cut along a pencil line and leave half the line on the piece and half becomes sawdust, you will be ready to build furniture.' To me this comment relates to marking accuracy more than anything, and while many are in the marking knife camp, I generally defer to using a pencil to mark for my cutting operations. The most notable exception is dovetails, where even the thinnest pencil line is too wide; however, I will frequently highlight the knife lines with a pencil to ensure my aging eyes can see well enough.

One key challenge when marking on wood is legibility, the darker the wood, the more difficult it becomes to see a mark in any colour but white. I solve this issue in one of two ways; putting light masking tape on the wood and marking on the tape solves most problems, for the rest I keep around a light or yellow coloured pencil. For all but the darkest woods I use a softer pencil, such as an HB or a B, these do not actually dent the wood, making it easier to remove the line when the time comes. As a rule I do not sand out pencil marks on sanded surfaces, I always erase them with a white eraser first. Trying to sand out a pencil mark can cause an unevenness in the surface, or invests graphite bits into the pores of the wood – neither of which I want. The white eraser removes the mark from the pores as easily as the surface of the wood.

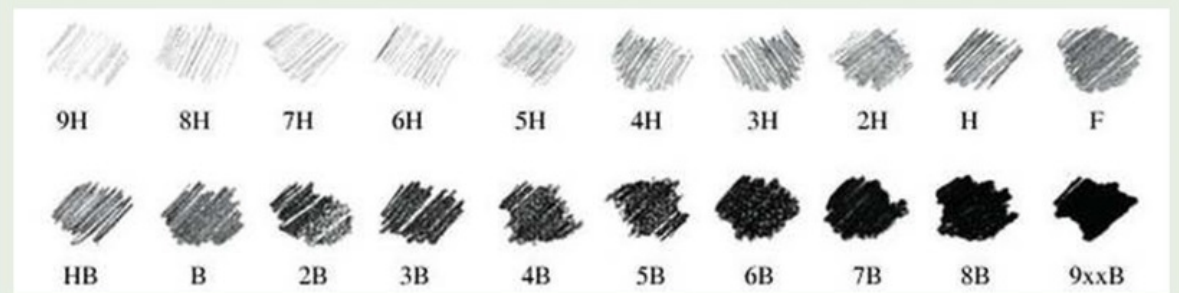
Using a pencil with a very soft lead has one downside in that it wears very quickly, making it necessary to only use a pencil soft enough to mark on the wood legibly. This would often mean using an HB for this purpose, however my experience is that this is not dark enough for aged

Pencil grade scale

For many of us who learned about pencil hardness in high school, this is long in the past so a quick refresher is in order. The pencil grade we are all most familiar with is HB (or HB#2), which represents the middle of the scale and the best compromise as a universal writing implement. The entire scale ranges from 9B to 9H, with 9B being very black and soft, and 9H being very light and very hard. The softer a pencil, the blacker the lead, and the quicker the lead dulls. The opposite is true with harder pencils, which make a lighter mark while holding their point longer. There is no industry

standard on pencil hardness and variations will occur across manufacturers, however the overall attributes of the range apply.

The hardness is controlled by the mix of graphite and clay in the pencil's lead. A higher percentage of clay makes the lead harder and less black, while reducing clay content makes the pencil's lead blacker and softer. For artists wanting to sketch in graphite and vary their grey scale, the entire range is useful. Woodworkers' needs are less complex and having a small range of pencil hardness is usually sufficient to meet those needs.



Various colours of lead work differently depending upon the material being used

cherry. For this I usually go to a B or 2B which is black enough to show up on the medium coloured woods, such as cherry or mahogany.

All pencils work better when they are sharp, a crank-operated old school sharpener is the best and I have one mounted on the wall near my bench. I also have a selection of manual sharpeners scattered around that work just as well and are easier to control for soft-leaded pencils. The soft B and coloured pencils often get ground up in the crank sharpener, so manual sharpeners give a better result and waste less of the pencil being sharpened.



The choice of mechanical pencils is as varied as wood-encased pencils, including a variety of lead thicknesses and colours

Mechanical v wood

Mechanical pencils come in too many forms to discuss here, however common lead sizes vary from .3mm to 5.6mm and use various gripping mechanisms to hold and feed the lead. In my work I make extensive use of .5mm and .7mm mechanical pencils loaded with various types of leads, mostly for drafting or designing on paper. The key advantage of a mechanical pencil is that no sharpening is required and the line width is consistent, which with a wood-encased pencil is not the case. This makes writing small measurements and notes on the drawings much easier, as well as making my assembly notes much neater and easier to read.

My preference for lead type with mechanicals for writing on paper is a harder lead, such as a 2H which does not smudge easily and tends to not break in use as the softer leads. I do not find these smaller leads work well on wood, the tendency is for them to break as soon as they hit a bump or open pore in the wood.

So what pencils do I really, really need?

I keep a selection of several pencils at every workstation in my shop; even though I have a pencil pocket in my apron, it always seems to end up empty. A repurposed coffee mug or workshop turned cup is ideal – with one situated at the lathe, and one near each bench, they are always within an arm's reach. Because no one pencil will meet all my needs, each holder has a range of wood-encased pencils in a range of hardnesses from 2B to 2H, which is the most practical range. I also keep handy a couple of mechanical and coloured pencils for when they are the best option.

While for me the best choice often seems to be the first one I can find, hopefully this article has enlightened you on this indispensable writing implement and will help you when choosing the right type to store behind your ear. Like many things in the workshop, what pencil to use for a given task is a matter of personal preference, and, in my research, the topic for some heated debates. Hopefully I have provided some information to support your choice of pencil for your specific shop application.



Various grades of pencils were used to enhance the knife line from a marking gauge



Having a good supply of erasers to replace the pencil's original one is important. Pencil marks on wood should be removed by an eraser and not sandpaper



Larger format pencils for rough marking of material come in a variety of colours

Derwent Pencil Factory

The Derwent Pencil Factory manufactures 14 million pencils every year from Canadian cedar – enough to circumnavigate the globe six times. Until 1932 the factory manufactured only in monochrome. Today its workers produce 14 million artists' pencils every year in a bright array of more than 1000 colours.

Black gold

Derwent's roots lie in the deep deposits of black, staining material that shepherds discovered in the ancient volcanic rocks of the Lake District at the turn of the 16th century. First called wad, black lead, plumbago or black cauke, the substance later came to be known as graphite. The material was found to be brittle and it left marks on the hands so early attempts at casing used sheepskin or string wound around it. The addition of a wooden casing was developed by an Italian couple in the 1560s. Their design was a hollowed-out juniper stick with graphite inside to create a flat carpenter's pencil. The oldest example of a carpenter's pencil is dated from the 17th century and was found in the roof of a German house built during this period.

Over the next century, it became immensely valuable – worth even more by weight than gold at £1300 per ton, equivalent to

approximately £170,000 today. As the most stable form of carbon, it was coveted for use in cannonballs and coin moulds. Attempts to prevent theft included storing it on an island in the middle of a lake and forcing miners to change their clothes when leaving the mine. To prevent access to the precious material the mines were often flooded while not in use. Undeterred by such measures, a roaring trade in stolen graphite soon sprang up. It was known as the black market, in reference to the smugglers' stained hands. There is uncertainty about the identity of the first manufacturer of mass-produced pencils, although it is known that he was from Nuremberg, Germany. At the same time, a cottage industry of pencil-making was forming in Cumbria. The first pencil factory opened there in 1832. The word 'pencil' was used towards the end of the 16th century and derives from the Latin word *penicillus* meaning 'little tail' used to describe a fine artist's brush or a lead stylus.

Home of the world's first pencil

Pencils now do far more than colour. Watercolour pencils – whose leads can be mixed with water on the page – were developed in the 1980s. Ink-tense pencils, which can be used to permanently mark

fabric, were released in 2007. Derwent's most recent release is its lightfast pencils, which can produce drawings that will not fade for 100 years.

Cumberland Pencil Museum is on the site of the old factory in Keswick.

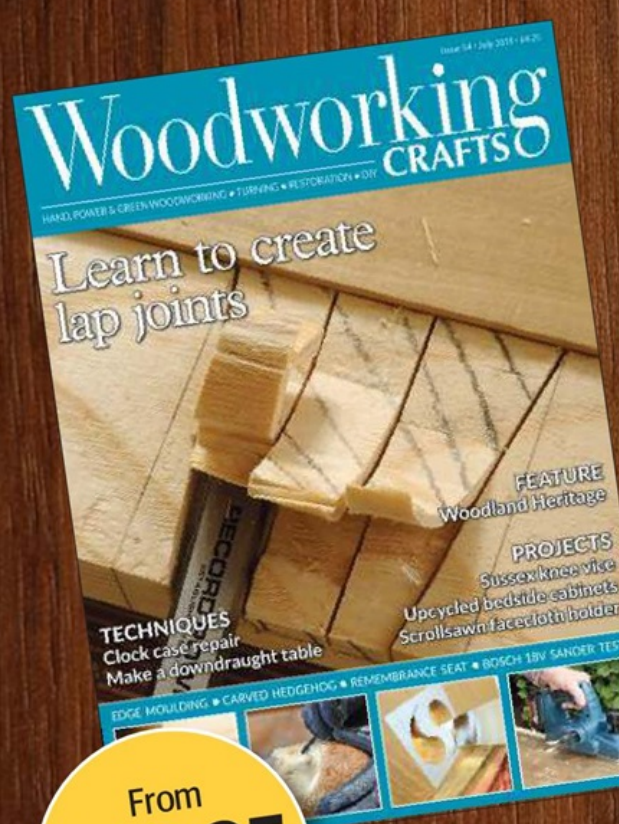
www.derwentart.com/en-gb/c/about/company/derwent-pencil-museum

If you want to learn more there are plenty of websites but one in particular, a manufacturer in the USA, shows the steps of the production process:

www.generalpencil.com/how-a-pencil-is-made.html F&C



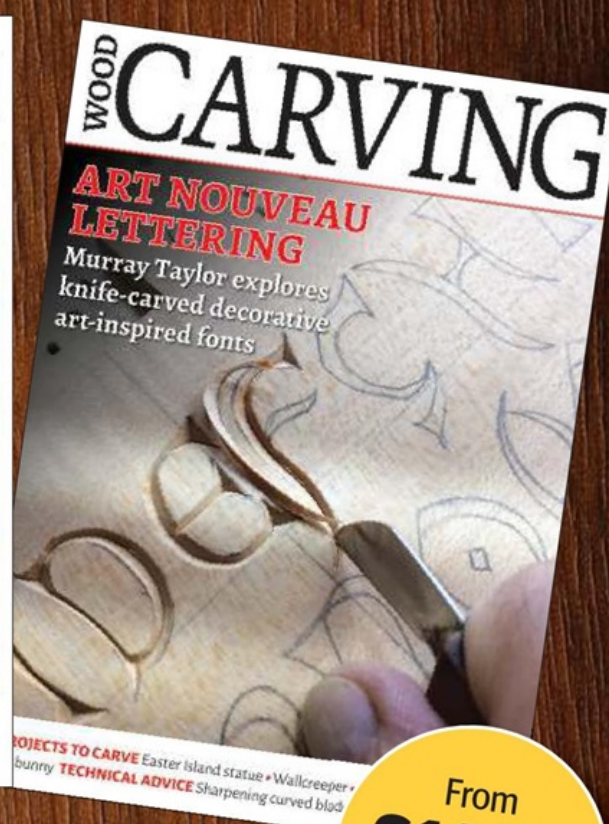
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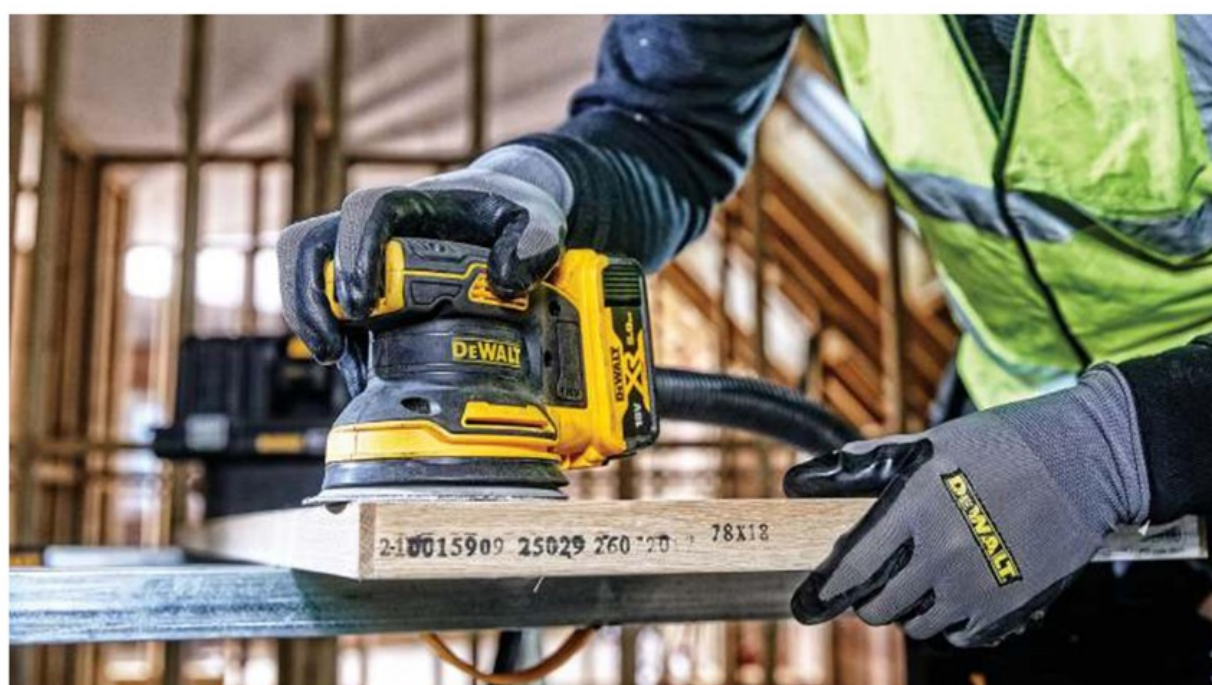
MINI TEST: Chopstick Master

Jigs are probably 90% of furniture making whether you construct formers for laminating or carriages for guiding pieces past a cutter on a spindle moulder. Even a simple bench hook is a jig of a kind when you think about it. Jigs do make the world a better place so you can imagine how excited I was when I took delivery of the ultimate jig last month: a Chopstick Master from Bridge City Tools. Forget the chopsticks for a moment, it's really not about the chopsticks. This is about the unbelievable amount of attention to detail that has gone into devising a table top device that turns everyone, even the most ham-fisted in-law in the family into a competent maker. Now you could argue that such a device is in fact dumping down a process or two but for the serious makers out there it will only spur you on to design and develop better jigs. And anyway, isn't that what jigs are supposed to do?

Made from a range of high-quality materials and expertly engineered, the Master allows you to take a square section hardwood blank of specific dimensions and taper it evenly on four sides. It does this by using a purpose-made block plane equipped with skis that gauge the depth of cut while an angled bed supports the blank. When the tapering is done you rotate the blank to chamfer the edges and form a perfect octagon. If I told you the next step in the process you'd rush out and buy one immediately just to see how it works but that would rob you of the kind of experience that money can't buy. There are no spoilers on my watch.

The kit comes with enough blanks to make 10 pairs of chopsticks in both Chinese and Japanese styles with cotton tie-up bags that make them ideal as gifts. Having friends round for dinner will never be the same again. The food might arrive on the back of a scooter but the cutlery is handmade.

From: www.axminster.co.uk



DEWALT 18V XR Brushless Random Orbit Sander

The lightweight, compact DCW210 18V XR Brushless 125mm Random Orbit Sander provides outstanding power, runtime and cordless convenience, with integrated dust extraction. Key features include an easy-to-reach 'switch & speed' control wheel for quick, one-handed speed adjustments; a 2.6mm orbit and variable speed options from 8000 to 12,000 OPM; and the sealed power switch has been precisely engineered to prevent dust contamination for a longer overall tool life. Ensuring optimum dust control, included with each sander is a locking dust bag for effective fan-driven debris removal. The tool also offers an integrated Air-Lock connection to fit the DEWALT series of powerful dust extractors (sold separately). The DCW210 has been ergonomically designed with outstanding grip, plus anti-vibration technology for more comfortable operation. Enhancing user safety, an integrated brake reduces the stopping time of the platen.

The sander is compatible with the DEWALT range of 125mm Extreme Abrasive Mesh sandpapers, which are quick and easy to attach and remove thanks to the hook & loop design. It is available as a bare unit (with included dust bag) for use with all existing 18V XR batteries, or can be purchased in a kit with a T-STAK II protective storage case, or with 2 x 18V XR 5Ah batteries, charger and T-STAK II.

From: www.dewalt.co.uk

£147



Axminster Trade Woodworker's Vice

The Axminster Trade Woodworker's Vice is manufactured from close-grained grey cast iron for long, trouble-free service. Accurately machined housings ensure smooth sliding movement and the solid steel guide rods reduce wear and tear giving the vices a smooth and true parallel action, free of side or cross deflection. The jaws have a 'toe-in' feature so that, when fully closed, they meet only at the top, providing even clamping on the whole depth of the workpiece. Square body seating provides easy fitment under the bench top so that jaws are flush with the bench top. The steel main screw has buttress threads for smooth, accurate and responsive adjustment. The body and sliding jaw have provision for attaching wooden liners to protect the vice, workpiece and tools. The vice is 175mm in width with a maximum jaw-opening capacity of 150mm.

From: www.axminster.co.uk



£52.99



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£1000

Clarke Modular Garage Storage Systems

Clarke's new heavy-duty professional modular storage systems are suitable for workshops, warehouses, garages or sheds and are ideal for both trade and domestic use. There are 10 complete package systems or you can

build your own custom workshop simply by selecting the individual component parts to suit your space and budget. Whichever route you choose, you can always add further units as required. The packages comprise heavy-

duty tool chests, floor and wall cabinets and accompanying back panels, all finished in a high quality, black and grey metal.

From: www.machinemart.co.uk

Clarke Commercial and Heavy Duty Industrial Drum Fans

Clarke's Commercial Drum fans are ideal for commercial and industrial applications, providing a solution for fast cooling in large workshops, garages, factories and more. This range produces an excellent amount of air flow, up to 310m³ per minute, allowing large areas to be cooled quickly and efficiently, with three large fan sizes to choose from: 24in, 30in or 36in. All models include two handles and are mounted on large rubber wheels for easy transportation to wherever the fan is required.

Clarke's high output Heavy Duty Industrial Drum Fans are built for long term industrial, commercial and agricultural use. These models produce an air flow of up to 222m³ per minute. There are two fan sizes to choose from, 24in and 30in. All models have a tilt range of 300° and are mounted on large rubber wheels.

From: www.machinemart.co.uk



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Spokeshaves

Of all the woodworking tools the spokeshave has got to be the most intuitive one to use as, no matter which way round you hold it, you're guaranteed to get a result. Admittedly some are easier to use than others but for the most part after just a few passes you're in control and well on your way to shaping all manner of components. There are spokeshaves designed for very specific purposes and some for general use, here's a small selection that will go a long way to making your tool collection complete.

Caleb James Roundshave



\$185

This unique 'roundshave' made by Caleb James will be released in August and is available for pre-order now. Its primary function is to carve into tight concave areas with fluidity and ultimate control. Its form is based on the traditional round bottom spokeshave of yesteryear but its functional design departs from there. Caleb has developed a bevel-down blade that allows carving into tight curves. The feel is a natural carving action, much like using a carving gouge, with just the right bevel shape to aid in a smooth action. The blade setting can be fine-tuned to fit your desired range of action from light to aggressive.

From: calebjamesmaker.com

Veritas Low Angle Spokeshave



£63.95

This spokeshave returns to a traditional design with the blade set at 20° and with a 25° micro bevel, which produces a very clean cut. The cutting depth is adjusted by altering the position of the toe piece rather than the blade. The shape of the body allows it to be used in the conventional position for flat or convex work and when turned over it can be used for concave work. The body is cast aluminium alloy and the blade is a high quality PM-V11 tool steel, which holds its edge over a long period of time.

From: www.axminster.co.uk

Axminster Rider No. 151 Spokeshaves



£17.96

Rider spokeshaves are in the traditional style, 250mm long with a fully adjustable blade. The spokeshave body is made from ductile cast iron, with a tough black enamel finish. The well-rounded handles and thumb rests offer comfort and control when cutting. Twin knurled adjusting screws control both depth and lateral adjustment of the 55mm-wide blade. This adjustment allows very fine setting for delicate work. The O1 steel blade is oil quenched, hardened and tempered to HRC 63, and only requires a little honing before use. The spokeshaves are available with either a flat or a curved base. The primary use of the flat base spokeshave is cutting chamfers and working convex shapes, while the curved base spokeshave allows you to shape concave surfaces.

From: www.axminster.co.uk

Lie-Nielsen Concave Boggs Spokeshave



£134

This spokeshave is the result of a collaboration between master chair maker Brian Boggs and Lie-Nielsen Toolworks. It has a 67mm diameter sole, which is concave, making it suitable for working chair spindles and other round parts. It weighs 225g and overall is 245mm long, fitted with an A-2 blade 28.5mm x 3.2mm thick. It has a bronze body and cap with hickory handles.

From: www.axminster.co.uk

Clifton 600 Flat 10in Spokeshave



Clifton spokeshaves are made from virtually unbreakable spherical graphite/malleable iron and polished to give maximum comfort. The weight and balance allows the tool to sit firmly on the wood so that only a stroking action is required to make them cut. The blade is made from cryogenically treated O1 steel.

From: www.classichandtools.com

Veritas Pullshave



The Veritas Pullshave was designed for hollowing and smoothing recessed areas like chair seats. The unique design is the result of taking a convex spokeshave and reconfiguring it with a handle and knob to make it both easier to use and better suited to rigorous work.

From: www.classichandtools.com

Clifton No. 500 Convex Spokeshave



Beloved of chairmakers the world over, the Clifton No. 500 is a serious production tool; equally happy taking heavy cuts to establish a shape, or taking more delicate shavings to refine a surface. The steep 45° cutting angle makes deft work of knots and tricky grain.

From: www.workshopheaven.com

Lie-Nielsen Small Spokeshaves



These spokeshaves from Lie-Nielsen Toolworks are based on an Edward Preston design from the early 20th century and are available in flat-soled or curved versions. They are ideal for fine, precise shaping work in all woods. They are 170mm long with a 16mm sole and a 35mm x 3mm blade.

From: www.classichandtools.com

The Windsor Workshop Chairmakers Travisher – Deluxe



The new 'Deluxe' version of James Mursell's ever popular Travisher is made from an engineering polymer, Delrin, and should last a lifetime of normal use. A substantial brass insert increases its resistance to wear. Used after an adze and scorp, the travisher can remove wood quickly to create the final shape, but by re-positioning the blade with the two grub screws it can also produce very fine shavings.

From: www.classichandtools.com

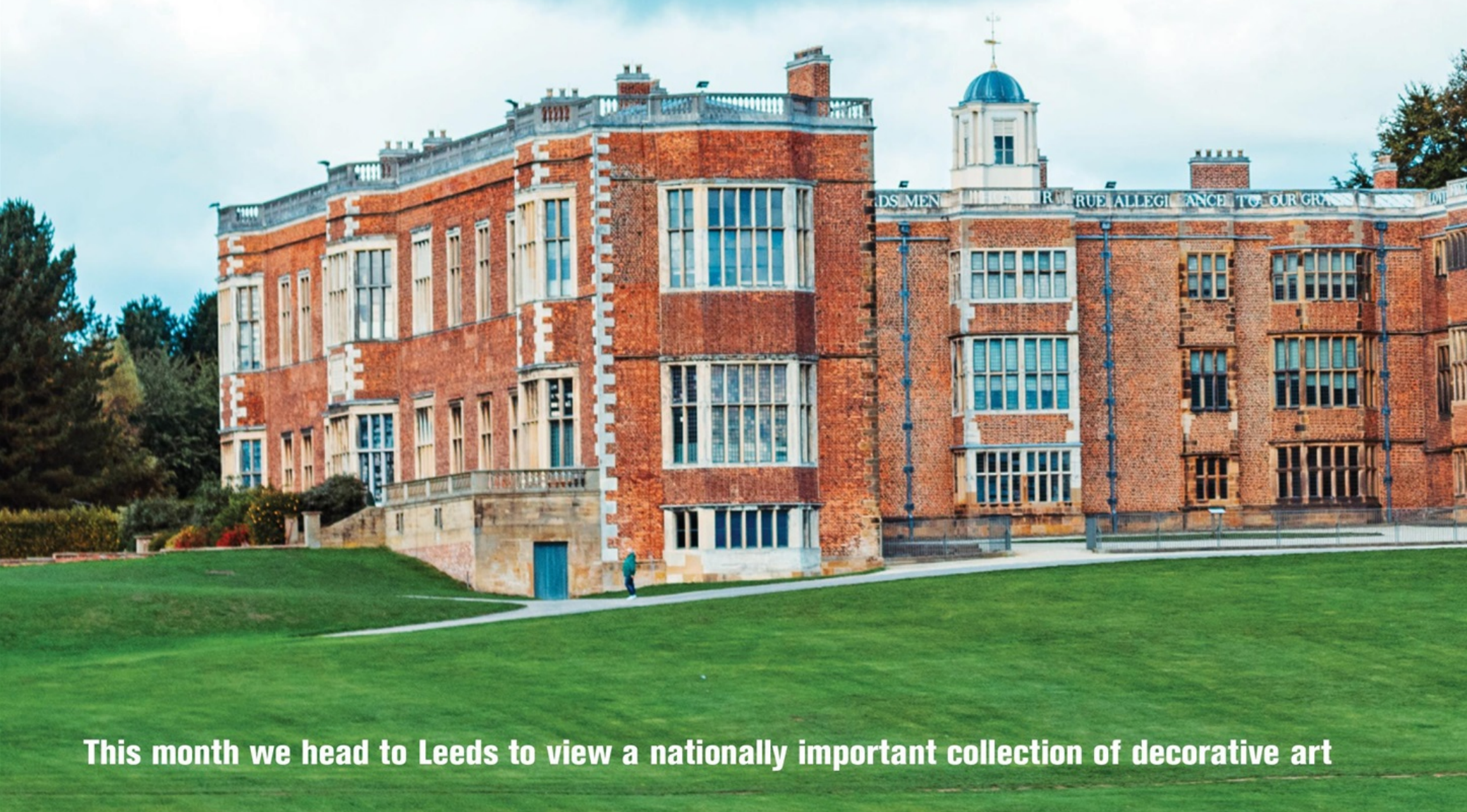
Elia Bizzarri Travishers



These travishers are made by chairmaker Elia Bizzarri in his workshop in North Carolina. His travishers feature brass soles attached to the walnut bodies for increased wear resistance. The blades are made from 3mm-thick O1 tool steel and bent in either a 4½in or 12in radius, tight enough to fit in the back of the deepest seats. They will cut both hardwoods and softwoods.

From: handtoolwoodworking.com

Out & about: Temple Newsam



This month we head to Leeds to view a nationally important collection of decorative art

Temple Newsam near Leeds is a treasure house of outstanding collections including furniture, ceramics, textiles, silver and wallpaper. Its collections of fine and decorative arts were designated as being of pre-eminent importance in 1997 – the first country house to be recognised in this way. Visitors to the house experience 500 years of history told through all art forms including digital, music, theatre and fine art.

History

Temple Newsam House was built in 1518 on the site of the 12th-century Temple Newsam Preceptory, which had belonged to the Knights Templar. The house and the estate belonged to the Darcy family, although it was seized by the crown in 1537 when Thomas, Lord Darcy was involved in the Pilgrimage of Grace rebellion against Henry VIII. The property was seized again in 1565 following the marriage of Henry, Lord Darnley to Mary, Queen of Scots. The house underwent substantial rebuilding in the 17th and 18th centuries, and in the 1760s

Capability Brown was commissioned to re-landscape the park. The house and park were sold to the Leeds Corporation in 1922 and it is now run by Leeds City Council.



Chest of drawers, made ca. 1680



Rococo candlestand, probably made by Edward Griffiths ca. 1760



What to see

Following extensive restoration, over 40 interiors are now open to the public, displaying the outstanding collections of fine and decorative arts, especially paintings, furniture, silver, ceramics, textiles and wallpapers. The collection has been built up since 1923 when the estate was bought from the Hon. Edward Wood (later the Earl of Halifax) by the city of Leeds and developed as a country house museum, to restore the house and its fine collections to its earlier glory. Despite the sale of many of the furnishings in 1922, the basis of the contents of Temple Newsam today is still the family collection. This has been added to over the years and now makes up one of the finest publicly owned collections of English decorative art outside London. A selection of items from the Chippendale Society's collection is on display at Temple Newsam, including furniture by Thomas Chippendale and his contemporaries. As well as the house, visitors can explore the park, formal gardens and lakes. The grounds also include a working farm, timber yard and sawmill.



The grounds include the park, landscaped by Capability Brown, as well as formal gardens



The Picture Gallery was added to the house during remodelling work in the mid-18th century



Chinese coromandel lacquer screen

Fantastical Beasts exhibition

From gryphons to gargoyles and wyverns to wolves, visitors to Temple Newsam can explore the hidden beasts as part of this temporary exhibition. Inspired by the rich ornamentation of realistic and imaginary animal motifs on the furniture, interiors and decorative arts at Temple Newsam, the Fantastical Beasts exhibition combines a focused trail around the house, a display of art and artefacts in the exhibition room, including items from the social and natural history collections, and an interactive themed space for family visitors. The exhibition runs until 3 November.

Information for visiting

Address: Temple Newsam Road, Selby Road, Leeds LS15 0AE

Website: www.leeds.gov.uk/museumsandgalleries/visit/temple-newsam-house

Opening times: Tuesday–Sunday; House: 10.30am–5pm; Farm: 10am–5pm

Charges: House & farm: adult £10, child £4.50, family: £24; LeedsCard: £8; **LeedsCard Extra:** £5.20

Information correct at time of publication, check the house's website before making your visit

Where else to see ... The Yorkshire Chippendale Trail

Temple Newsam is part of the Chippendale Society's Yorkshire Trail, a guide to the best places to see Chippendale's work in his home county.

Aske Hall

www.zetland.co.uk/About-Us/Aske-Hall

Bolling Hall

www.bradfordmuseums.org/venues/bolling-hall

Burton Constable

www.burtonconstable.com

Cannon Hall Museum

www.cannon-hall.com

Harewood House

harewood.org

Newby Hall

www.newbyhall.com

Nostell Priory

www.nationaltrust.org.uk/nostell



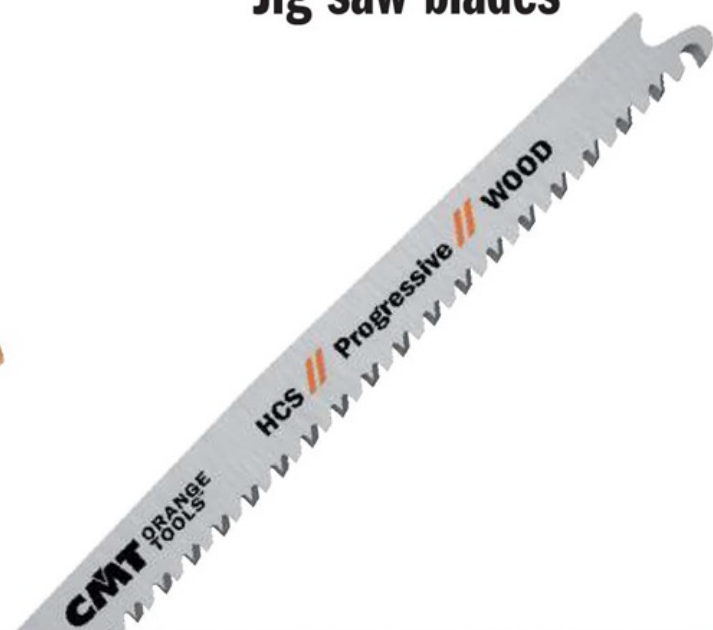
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Social media dashboard

Bringing you a round-up of the best from the online world, plus a selection of the latest projects that have caught our eye

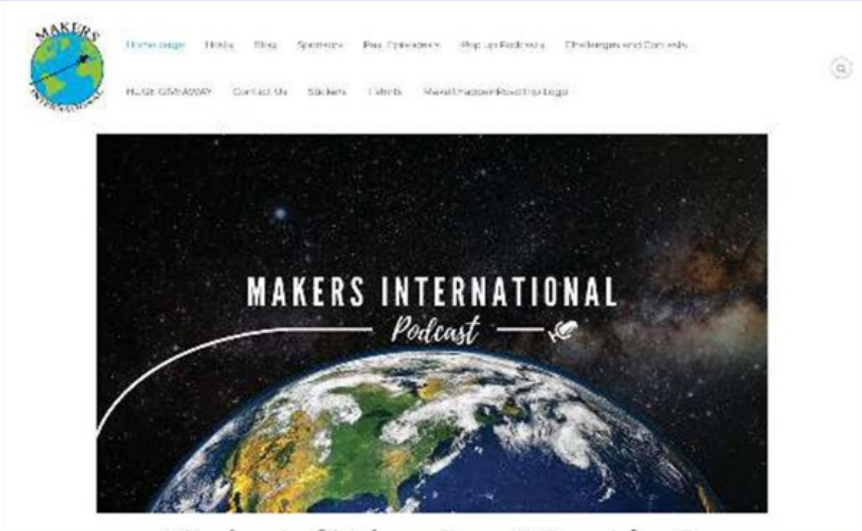
In this section of the magazine we bring together the best furniture and woodworking related content from social media. Here we'll recommend who to follow, where to comment and which online communities to join. We also feature projects we love, readers' letters, comments from the Woodworkers Institute forum and pictures of readers' work. If you'd like to see your furniture on these pages, email derekj@thegmcgroup.com

Website: Makers International

Makers International is a weekly podcast that can be accessed online as well as via YouTube, Facebook, Instagram and SoundCloud. The podcast is hosted by four makers from three different countries: British maker and woodturner Richard Morley; American woodworker Chris Cute; British woodturner

and scrollsaw artist Jamie Page and Irish woodturner Steven Twydell. Each podcast lasts around one hour and covers a range of making topics.

Address: makersinternationalpodcast.com

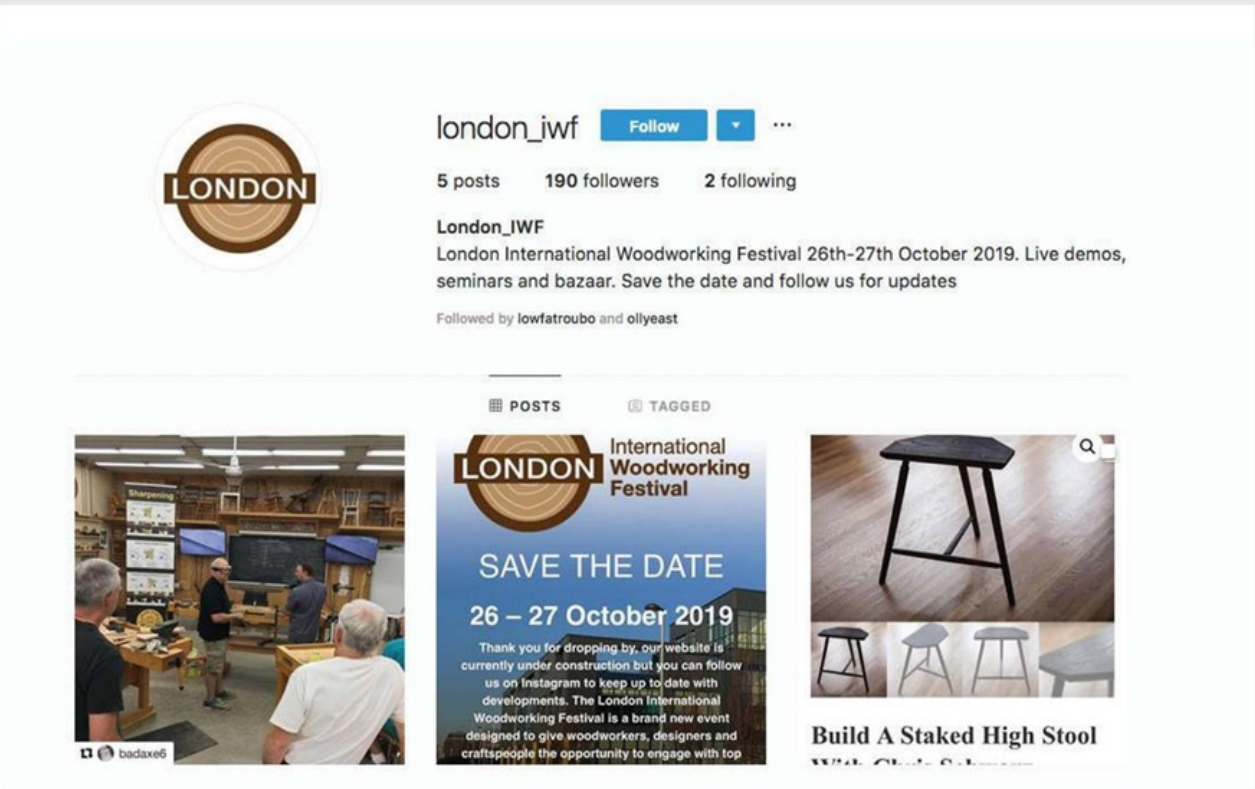


Instagram: London International Woodworking Festival

This account is relatively new to Instagram but is worth a follow to stay up-to-date with the latest developments for the London International Woodworking Festival. The Festival will take place

in October and is a brand new event in the woodworking calendar. It is set to feature demonstrations, seminars and a bazaar.

Address: [@london_iwf](https://www.instagram.com/london_iwf)



Projects we love

Here we highlight the latest furniture and woodworking projects from around the world that we think deserve to be shared with our readers. If you're a member of a collective or a student group and would like to see your work here, then submit a story to: derekj@thegmcgroup.com



X2Chair by Lessmore

The X2Chair is part of Italian brand Lessmore's Ecodesign Collection. The chair is made from cardboard and the design can be adapted to form an armchair, chaise longue, or a single or double sofa. A new version of the chair was unveiled at Milan Design Week in April.

As part of a collaboration with Spanish company Ecoalf, the X2Chair is also now available with eco-friendly fabric side

panels. Ecoalf takes plastic waste from the Mediterranean Sea and transforms it first into microgranules and then into yarn for making fashion accessories and high-quality fabrics for furnishing accessories. Using this process, 70 plastic bottles can be turned into 1 metre of yarn.

www.lessmore.it & ecoalf.com/en/



An airbrush with the past

This month we're going back to April 1997 and issue 5 for a look at Rod Wales' blanket chest

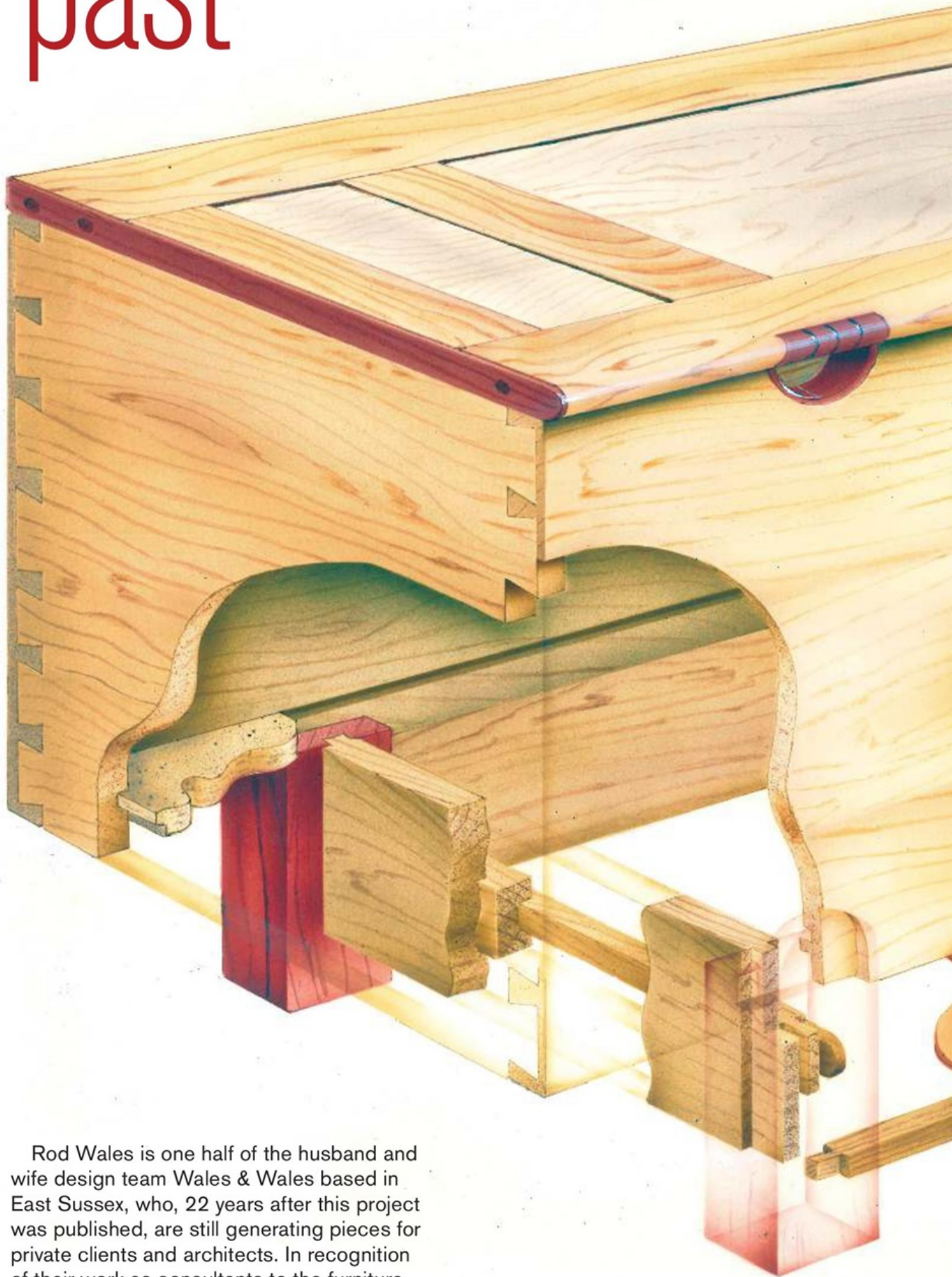
One of the hardest skills a designer-maker has to develop is learning to recognise which of the voices in their head to listen to: designer or maker. You'd think the two were perfectly compatible or at least complementary to one another, but that's not always the case when these worlds collide and the dialogue is fresh.

Rod Wales made this blanket chest more than 22 years ago so, relatively speaking, you could say it was fairly early on in his career. But reading through his original text you can already detect a balanced and pragmatic approach to the build process where design influences maker and vice versa.

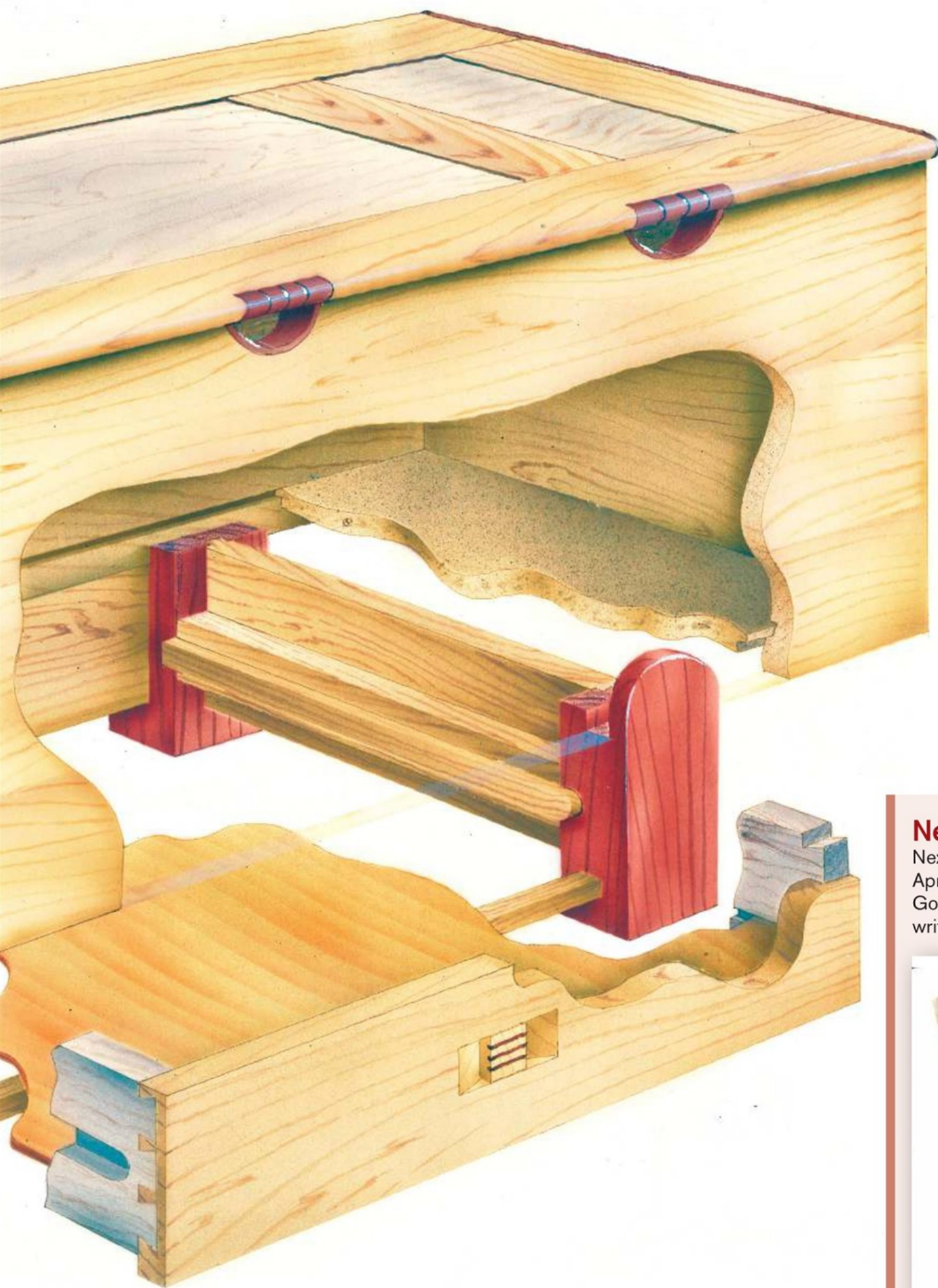
Perhaps without even noticing it at the time, Rod presented the case for every single element of this piece with a why and a how, taking the time to assess each process within the general scheme to determine the outcome. The underframe is a good example of design and engineering. The feet posts are load bearing through bridle joints that accept the front and back while also registering with the underside of the base board. Stretchers run between them front to back with stub tenons forming the joint. Attached to these are runners that are also tenoned into the feet, taking the weight of the drawer and all its contents and transferring it straight into the ground.

The joinery throughout is traditional in the strictest sense. You only have to look at the lapped dovetails on the sides and Rod's explanation for not using through dovetails to realise he's far more aware of design than most makers. I mean, how many contemporary makers do you know that would pass up the opportunity to flash some exposed joinery?

Handles on a blanket chest with an overhanging lid aren't necessary but this is where Rod has used his making skills to design a feature that influences function. Intended for use as a toy chest they replicate the handles of a skipping rope, the same detail is duplicated with rope on the inside of the lid instead of a more conventional (and often ugly) metal stay.



Rod Wales is one half of the husband and wife design team Wales & Wales based in East Sussex, who, 22 years after this project was published, are still generating pieces for private clients and architects. In recognition of their work as consultants to the furniture industry, they have received several awards for design and are proud to have their work on permanent display at prestigious galleries and museums around the world; the Victoria & Albert Museum, the Fitzwilliam Museum, Manchester City Art Gallery and the Crafts Council Collection, to name a few. I strongly recommend going out of your way to see their work if you can. For more information see: www.walesandwales.com



Next month

Next month we're heading back to April 1999 and issue 27 for a look at Gordon Wright's curved marquetry writing bureau.



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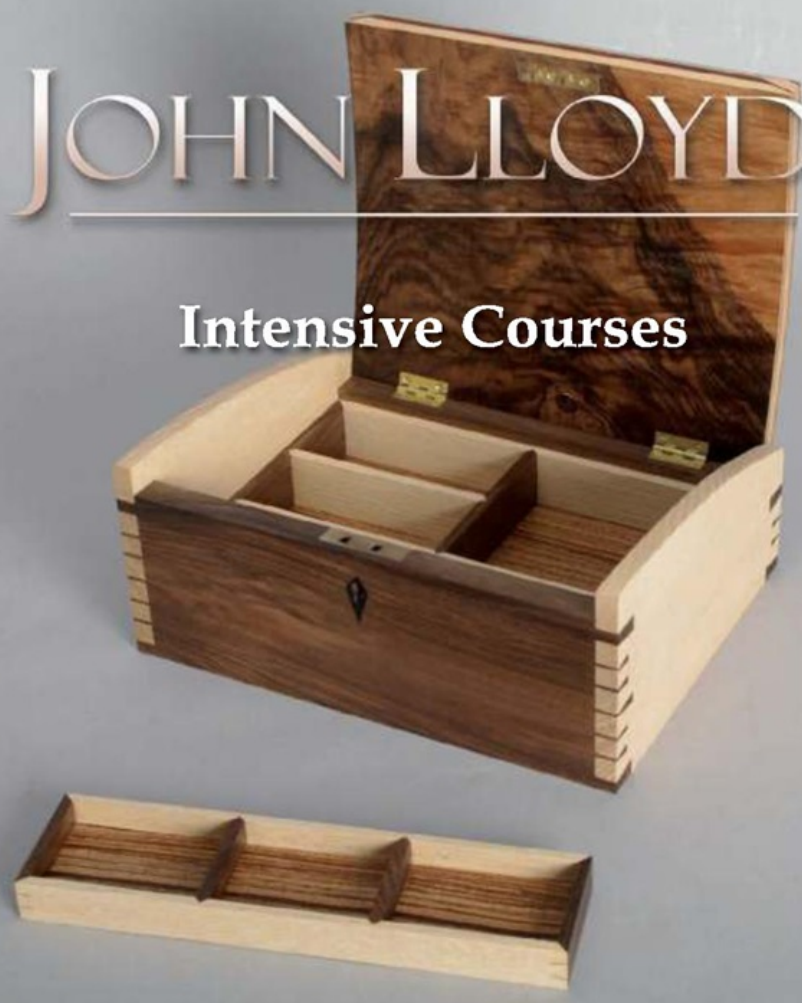
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Furniture & cabinetmaking

ISSUE 286
ON SALE 4 JULY

Construction tech

Shooting mitres

Workshop tech

The logistics of working large scale components by hand

Feature

Skelton Saw's homage to Chippendale's workshop

Project

Two-drawer jewellery box

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Coronet Herald Heavy Duty Cast Iron Electronic Variable Speed Lathe

"I found the lathe a delight to use. Functionality wise, it did everything I asked of it without fuss and components stayed put when locked in place...I think it is a great midi-lathe which will suit many turners' needs, capacity and space wise."

Woodturning 317



"With large blanks mounted you can use the variable speed control to keep the machine stable and vibration free...Would I recommend this lathe? Yes without a doubt, it's well designed and built to a high standard."

Online Review

"The new Herald - Sets a new standard

It surpasses my expectations by a country mile! The size is ideal for the turner with limited space, has outstanding capacity for its footprint and is very quiet indeed... Record Power most certainly have a winner."

Online Review



Heavy-duty spindle lock and 24 point indexing



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Rotating headstock features accurate angle stops and can swivel 360°



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16013 Cast Iron Outrigger	£39.99	Save £10.00
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Shown with optional leg stand.

Specifications

Maximum bowl diameter:	533 mm
Maximum between centres:	508 mm
Maximum swing over bed:	355 mm
Spindle speeds:	96-3890 rpm
Motor input P1:	1000 W
Motor output P2:	750 W
Thread:	M33 x 3.5
Taper:	2 Morse taper
Weight:	48 kg
Size:	W870 x D290 x H252 mm



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