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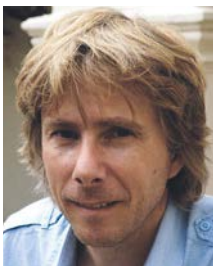

Welcome to...

...preparation

Even though I take my hat off to woodworkers who prefer to prep their stock by hand I have no desire to join their ranks. It's not that I don't like the idea, I'm sure it's a very wholesome way to start a project but the reality is I simply don't have the time for it. Come to think of it, neither do I have the space for a collection of machines to take the grunt out of the work. I can see why this might be viewed as a little inconvenient, and at times it is, but on the whole I've found it works extremely well. I buy nearly all the timber for my classes prepared on four sides from a supplier who's more than happy to take my money for doing so. The going rate for this service is around £1 per metre, which sounds like a lot until you weigh up the cost of doing it yourself.

For a start if I wanted a machine to process a lot of stock accurately, whether it be solid or sheet goods, I'd be looking at upwards of £3000 for a decent dimension saw and perhaps the same for a similarly spec'd planer thicknesser; I'm thinking new machines and not second-hand. Add to that some additional tooling like blades and spares to have on standby between sharpening, plus adequate extraction and all of a sudden you've got one hell of an investment. At the risk of being pedantic, you could even look at the footprint of said items and factor in the cost of simply putting the machines on the ground but I'm guessing you get the idea.

If you're in a similar position, forming a good relationship with your local supplier is the key here obviously and I'd be willing to bet that if they weren't happy to process the material themselves a local 'shop would. Every small business needs to rack up billable hours and an idle machine is just taking up floor space if it's not running. The downside is that you may not be able to hand pick every face of every board but maybe that's something we should just get used to dealing with; after all we're talking about a natural material here and should seek to celebrate that, warts and all.

Derek Jones

Derek Jones
derekj@thegmcgroup.com

For those times when you do need to hand pick a board, it pays to keep a D8 and a saw bench in the boot of your car

Contents

Issue 266 January 2018

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.

Your *F&C*

Design & Inspiration

Projects & Techniques

54

Meet the contributors

John Adamson
John began his publishing career as a graduate trainee at Cambridge University Press and afterwards worked in the Press's marketing department as European sales representative, then publicity manager and lastly as export sales director. He then served as head of publications and retailing at the National Portrait Gallery in London before setting up a small publishing house in Cambridge under his own name devoted primarily to highly illustrated books in the decorative arts. He is the publisher of David Russell's book *Antique Woodworking Tools*.
Web: www.johnadamsonbooks.com

Kieran Binnie
Kieran's passion for woodwork started at the end of law school when he enrolled at the Totnes School of Guitarmaking. His focus has since expanded to include furniture making as well as lutherie. Kieran writes a regular blog at www.overthewireless.com, and is currently researching and writing a book for Lost Art Press about Welsh Stick Chairmaker John Brown.
Web: www.overthewireless.com

Tatiana Baldina
Tatiana is a professional woodcarving artist with a degree in Applied Fine Arts from the Volga Regional State University in Russia. She specialises in chip carving on basswood and draws inspiration from her own life, nature and music. She has been carving ever since she visited a woodcarving studio in 2008 and was so struck by the craft that she was inspired to try it for herself. She has created hundreds of original pieces, as well as working for companies that produce wooden home décor. She lives in Zhigulevsk, Russia.
Web: www.etsy.com/uk/shop/FancyChip

James Bowyer
Having left behind a career in financial services, James trained at the Building Crafts College on the Fine Woodwork course. Now undertaking a residency in the College, he is developing his portfolio seeking to marry traditional techinique with contemporary design, while exploring possibilities in texture and form.
Web: www.jamesbowyerfurniture.co.uk

Mark Dunning
Mark was a tree surgeon and landscape designer before beginning a career as a telecoms engineer. Last year, he decided to reacquaint himself with his love of woodworking and undertook a fine furniture making course at Waters & Acland Furniture School. While on the course he designed his own piece of fine furniture, the Corona Cabinet.
Instagram: @coppertreefurniture

Barry Robbins
Barry is the latest contributor to our tool collecting series. He shares photos of his vast collection of tape measures and other vintage tools on his Instagram account. He will shortly be launching an online shop, Robbins and Sons Hardware, on etsy.com.
Instagram: @oldtape61

Vic Tesolin
After his honourable discharge from the Canadian Artillery, Vic studied furniture design and making at Rosewood Studio. He ran his own studio furniture business while working at Rosewood as a part-time instructor and craftsman in residence. He now serves as Woodworking Technical Advisor in the R&D department of Veritas Tools. Vic is also the author of *The Minimalist Woodworker*, which encourages new woodworkers to do more with less.
Web: www.minimalistwoodworker.com

Ramon Valdez
Ramon works full-time as a production manager in his brother's cabinet, countertop and fixtures shop in New Mexico. As well as making gallery quality furniture in his spare time, he has taught marquetry classes at his local college. Ramon is the man to go to for the best time-saving tips and ingenious short cuts.
Web: www.ramonvaldezfinefurniture.com
Instagram: @ramonartful

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If you'd like to propose an idea for an article drop me a line at: derekj@thegmcgroup.com

EDITOR Derek Jones
Email: derekj@thegmcgroup.com
Tel: 01273 402843

DESIGNER Oliver Prentice

GROUP EDITOR – WOODWORKING Mark Baker
Email: markb@thegmcgroup.com

SENIOR EDITORIAL ADMINISTRATOR Karen Scott
Email: karensc@thegmcgroup.com
Tel: 01273 477374

ILLUSTRATOR Simon Rodway

ADVERTISING SALES EXECUTIVE
Russell Higgins, Email: russellh@thegmcgroup.com

ADVERTISEMENT PRODUCTION & ORIGINATION
GMC Repro Email: repro@thegmcgroup.com
Tel: 01273 402810

PUBLISHER Jonathan Grogan

PRODUCTION MANAGER Jim Bulley
Email: jimb@thegmcgroup.com
Tel: 01273 402810

PRODUCTION CONTROLLER
repro@thegmcgroup.com

MARKETING Anne Guillot

SUBSCRIPTIONS Helen Johnston
Tel: 01273 488005, Fax: 01273 478606
Email: helenj@thegmcgroup.com

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A little ray of sunshine

Mark Dunning describes building his Corona Cabinet

PHOTOGRAPHS BY MARK DUNNING

After years working as a landscaper, tree surgeon and telecoms engineer, I finally decided to take my passion for woodwork to the next level and enrol on a fine furniture making course. After visiting a few studios I settled on Waters & Acland in the Lake District and on completion of their set piece exercises, I set about designing a piece of furniture that had been playing on my mind for years. The space it would occupy was the entrance hall in our family home and it needed to fulfil a very particular brief; striking but not overpowering, and also functional. I like the clean lines of Shaker style and the timeless appeal of quality materials paired with good craftsmanship.

With more than a little guidance from Will Acland (head designer at W&A) I started to develop drawings that enabled me to discount as many unsatisfactory ideas as it revealed better ones, before finally settling on a sunburst pattern to cover the entire front elevation. This design is often seen on small objects such as jewellery boxes or on interior surfaces to create impact, so to have it on such a large scale would make for an eye-catching piece.

Design dilemma

With any piece of furniture designed for a specific purpose there will be a range of compromises where aesthetics compete with functionality. My dilemma was to decide on whether the drawers formed part of the façade or were better off located behind doors. I opted for the latter. The next stage of the design process and part of my training, was to begin work transferring my sketches into CAD drawings; an invaluable exercise to generate and become familiar with the overall dimensions. The final step was to produce a series of full size cardboard shapes to gauge how the finished piece would sit in the space it was intended to occupy.

I already had an idea of the timber I wanted to use for each part of the piece and spent hours picking out the finest boards I could find at the timber yard. Consistency in the character of the grain and colour were all qualities that I felt would help to achieve the look I was after. And with the boards chalked up and rough cut they were set aside to adjust to the conditions of the workshop.


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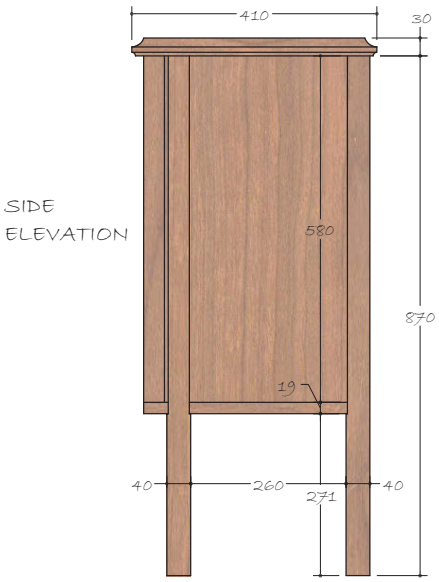
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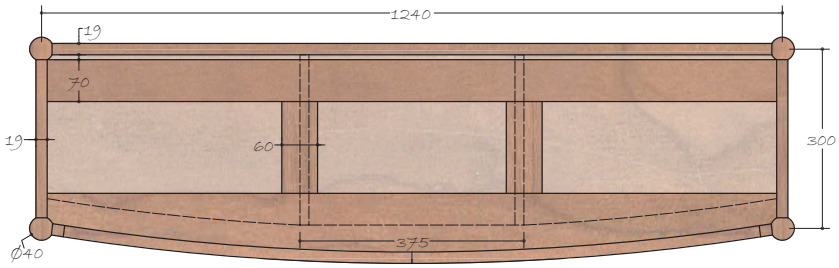
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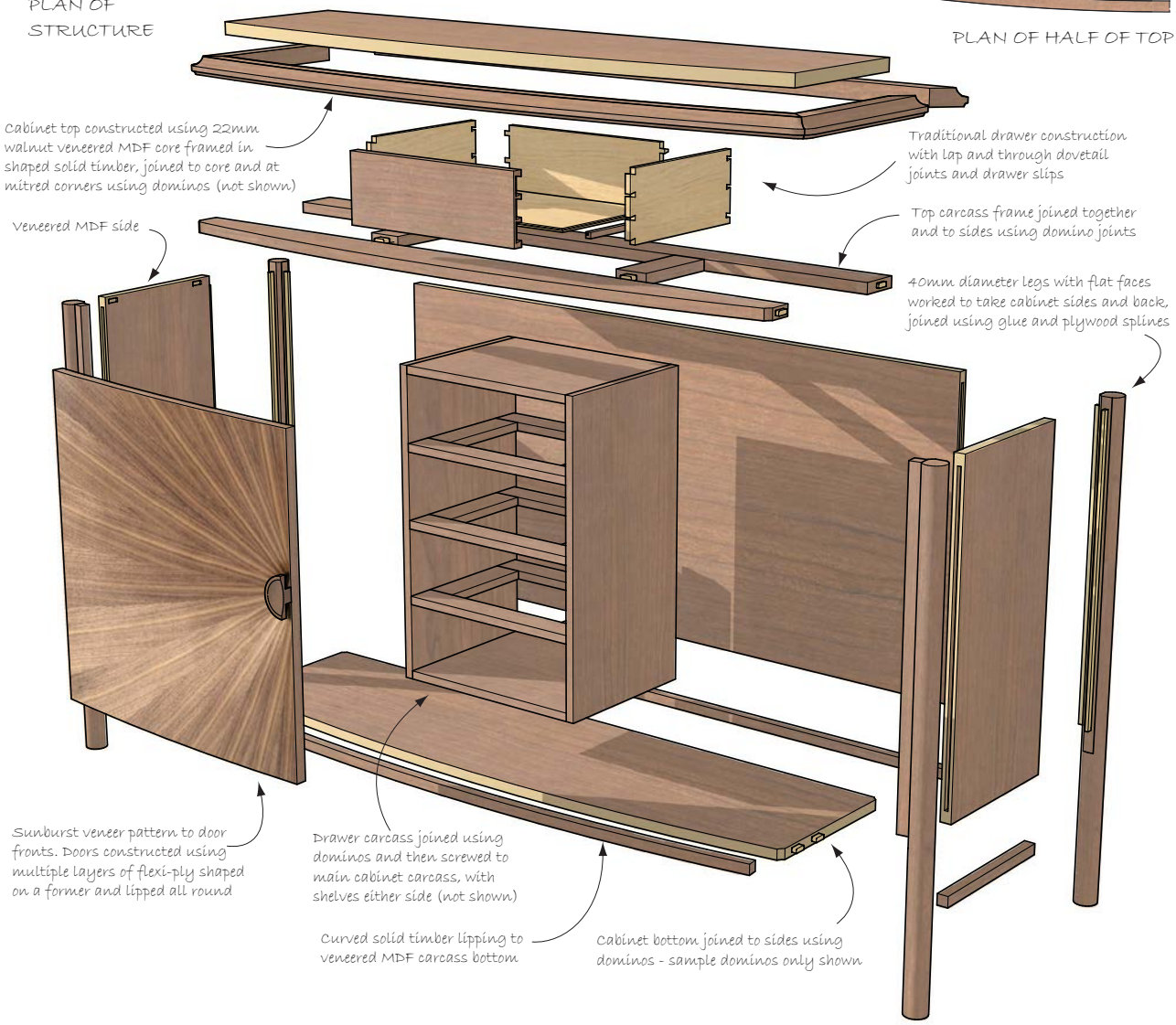

Cabinet top constructed using 22mm walnut veneered MDF core framed in shaped solid timber, joined to core and at mitred corners using dominos (not shown)
Traditional drawer construction with lap and through dovetail joints and drawer slips
Top carcass frame joined together and to sides using domino joints
Veneered MDF side
40mm diameter legs with flat faces worked to take cabinet sides and back, joined using glue and plywood splines
Sunburst veneer pattern to door fronts. Doors constructed using multiple layers of flexi-ply shaped on a former and lipped all round
Drawer carcass joined using dominos and then screwed to main cabinet carcass, with shelves either side (not shown)
Curved solid timber lipping to veneered MDF carcass bottom
Cabinet bottom joined to sides using dominos - sample dominos only shown

Legs to stand on

From the outset, head tutor Graham Loveridge encouraged me to work to tenths of a millimetre when preparing stock, which resulted in plenty of tweaking along the way before arriving at a complete set of components.

Starting out with this degree of accuracy makes the steps that follow that much easier. I started by making the legs. These are 40mm in diameter and I produced them on a router table using a 20mm roundover bit. I left a 100mm of square stock on each end to use as a point of reference for the next stage. The router cutter generates a lot of machine marks so the legs were placed on a lathe afterwards to be sanded smooth. I then made a jig to use on the spindle moulder to cut a 6mm-wide groove that would accommodate the sides and back. After that, a 90° flat surface was machined on the back legs and an angle surface on the front legs to match the shape of the bow. The back, sides and base were selected from pre-veneered sheets of walnut-faced MDF. The exposed edges were then lipped with solid walnut.

A stop jig was made to create a shoulder at the ends of the flat surfaces machined on the spindle moulder

The shoulders line up with the bottom of the sides and back

The top and doors

The top was made from boards of 22mm-thick pre-veneered walnut MDF. The lower part was smaller in size than the top and designed as a frame fastened with Dominos. The lippings were also attached with Dominos, including the mitred corners. Although the joints were clean I decided to use this line to place a 6mm-wide maple inlay. The groove was cut with a hand-held router before the edge profile was applied to ensure the router had the maximum amount of support possible. Levelling off the inlay was a tense moment as the veneer was only 0.6mm thick. Nothing that a well-tuned block plane can't handle though. The final stage in making the tops was to add the profile to the edge. This was carried out on the router table.

The doors were made by laminating four sheets of flexi ply over a former in a vacuum bag press. The edges were again lipped with solid timber before shooting to an exact fit within their respective carcass openings.

Working the curves

The best thing about generating CAD drawings is that you have the ability to produce full-size templates and rods for use in the making process; things that would otherwise take hours to make and perhaps even be less than accurate. I called on the services of a local CNC operator to produce a series of male and female templates that would allow me to use a bearing guided router to cut all the curved components, including those used to make a former for laminating. This technique is particularly useful to produce lippings for a curved edge.

This 4.5m radius template was one of many ordered in from an external source

A carrier was used to hold the maple strips of inlay as they were passed through the calibrating sander

The maple strips were machined at the same time for consistent results

The inlay was placed where the lippings attach to the top

The edge moulding was applied after the inlay was cut and trimmed

Sections of medium density foam were shaped from templates cut on the CNC using the spindle moulder

The foam was glued together to make the former for the doors

Sunburst style

The sunburst is a design that's been used for hundreds if not thousands of years to depict the sun, either symbolically or simply for decoration. It consists of lines radiating perpendicularly from a central point. Sometimes the whole circle is shown, sometimes a half circle. Earlier forms are likely to be more literal in their construction as the lines get narrower as they extend away from the centre. Later interpretations often show the rays getting wider.

Quartersawn veneer makes a very effective sunburst pattern

Creating the corona

For consistency of grain and colour I provided the veneer supplier with a sample of the solid timber I had been using for the lippings. They were able to provide a good choice of sequentially matched veneer. It worked out I needed 24 wedges in order to create the full circle of the corona and from there I made another jig to sandwich a few leaves at a time to cut with a flush cutting bit in the router. To prepare the leaves for pressing onto the doors the individual leaves were glued along their edge before taping together. Running the tape in a zigzag pattern across the joins helps to even out the tension and keep the shape flat. I chose SOSS concealed hinges to hang the doors which allowed me to get an almost seamless gap around them. They're not the easiest hinges to fit especially on a curved door but well worth the effort. The final stage was to make the single handle on the lathe before splitting it in two and fastening one half on each of the doors.

The face panel veneers are glued along the joints and taped together

Taping across the joints helps to keep the veneer panel flat before pressing

The doors are planed to achieve the smallest gap possible before fitting the SOSS hinges

The single piece handle before sawing in half

The finish line

Four coats of Danish oil were then applied to the cabinet with vigorous buffing in-between each coat. More were applied to the doors to create extra shine and depth to the finish. The internal parts received fewer coats and the drawer linings were given a coat of clear wax.

I learned a tremendous amount from this process and not just the skills to build a fine piece of furniture. The cabinet now sits in my hallway and to see it every day fills me with pride. It's my first real piece and gives me the inspiration to move on to bigger and better things. F&C

Internal parts were oiled and waxed

Plenty of options for storage and all out of view

The Corona Cabinet in situ with a matching mirror frame

News&Events

Contribute to these pages by telling us about matters of interest to furniture makers. Call Derek Jones on 01273 402 843 or email derekj@thegmcgroup.com

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

WOOD AWARDS 2017

The winners of the 2017 Wood Awards were announced at a ceremony on 21 November. In the Furniture & Product Category, the Narin chair by David Irwin and Case Furniture won the Production Made award, Mark Laban of Central Saint Martins won the Student Designer award with his Rustic Stool 1.0, while the People's Choice Award went to Damian Robinson's Hex Drinks Cabinet. The Time and Texture Installation by Eleanor Lakelin won the Bespoke product award.

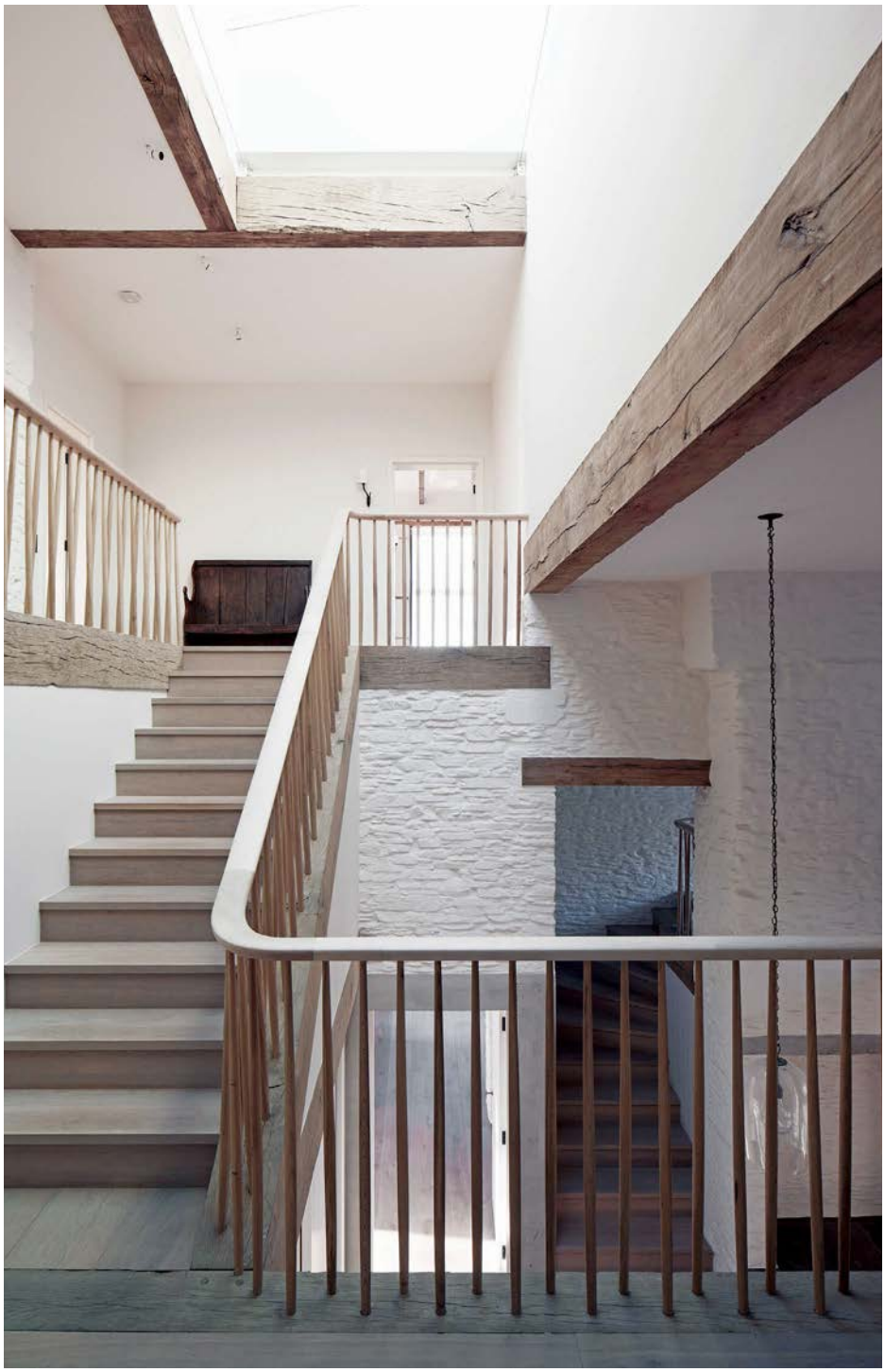
In the Buildings category, the Rievaulx Abbey Visitor Centre & Museum by Simpson & Brown architects for English Heritage won the Commercial & Leisure award, Maggie's Centre Oldham by dRMM was chosen as the Education & Public Sector winner, Hampshire Passivhaus by Ruth Butler Architects won the Private category, Feilden Fowles Studio won the Small Project award and The Smile by Alison Brooks Architects won the Structural Award.

The Arnold Laver Gold Award, the 'winner of winners' was presented to 6a architects for their work on Coastal House, Devon, which also won the Interiors category.

The Wood Awards is the UK's premier competition for excellence in architecture and product design. We'll have more about all the winners in the next issue.

Contact: The Wood Awards
Web: woodawards.com

David Irwin's Narin chair, manufactured by Case Furniture, won the Production Made award



PHOTOGRAPHS COURTESY OF THE WOOD AWARDS

The interior of the Coastal House in Devon by 6a architects won the Arnold Laver Gold Award

Northern Design Festival

PHOTOGRAPH BY OSKAR PROCTOR

Dan Schofield's Mag tables are made from natural volcanic lava stone. Designed for and manufactured by Conran Shop

This year's Northern Design Festival, which took place in November in Newcastle, was a successful event celebrating design across multiple disciplines. The Festival's theme was 'Material Matters', which was reflected in many of the exhibits. Designer Daniel Schofield held a solo exhibition of his work made with materials ranging from brass and oak to enamelled volcanic stone, with each material's properties informing the design. Daniel, who is based in Sheffield, was named Best Northern Designer.

Other awards went to Georgina Heighton, a student at Northumbria University, who won Best Use of Materials for her desk lamp; Best Interior Product went to textile and wallpaper designer Susi Bellamy; and Most Innovative Product was awarded to North Sea Collaborations for their Tulip lampshade.

Contact: Northern Design Festival
Web: design-event.co.uk

PHOTOGRAPH COURTESY OF DESIGN EVENT

The Tulip lampshade by North Sea Collaborations is made from high-quality Italian paper and Nordic birch plywood

Makita opens factory service centre and training academy in Glasgow

PHOTOGRAPH COURTESY OF MAKITA

Makita's new Glasgow centre provides repairs, maintenance and training

Makita UK has opened their first regional factory service centre and training academy in Glasgow's Govan district. As well as providing a valuable regional role, this new facility will now handle all dust extraction servicing for the brand right across the UK.

The Factory Service Centre & Training Academy covers nearly 1000m³ on South Street in the G14 area and delivers technical repairs and maintenance services for the full range of Makita products, including all mains and cordless construction machines. The centre also offers a full itinerary of training courses covering Makita's product range. A key course, The Correct and Safe Use of Handheld Power Tools, is a City & Guilds accredited course which offers either a user certificate or instructor certificate upon successful completion of the course.

Contact: Makita
Web: www.makitauk.com

Rare Chinese folding chairs achieve top price at Bonhams

The highlight of Bonhams' Fine Chinese Art sale at New Bond Street, London was a set of four huanghuali folding chairs that sold for £5,296,250, the highest price for an item sold during November's Asian Art Week.

The folding chairs appear to be the only known version of this form and type, and are widely considered a masterpiece of Ming Dynasty furniture. They had been estimated at £150,000–200,000. In a packed saleroom, the bidding war finally came down to a tense battle between a bidder in the room and one on the phone, with the chairs finally sold to the phone bidder.

The chairs came from the collection of the Italian diplomat, Marchese Taliani de Marchio (1887–1968) and his wife, Magaretha, the Archduchess d'Austria Toscana (1894–1986). From 1938 to 1946, Taliani served as Ambassador to the Nationalist Chiang Kai-shek Government. Despite spending only eight years in China, the Talianis were shrewd and gifted connoisseurs who assembled a collection of extremely important pieces that convey the rich history of Chinese decorative arts.

Contact: Bonhams
Web: www.bonhams.com

The set of four huanghuali folding chairs may be considered a masterpiece of Ming dynasty furniture

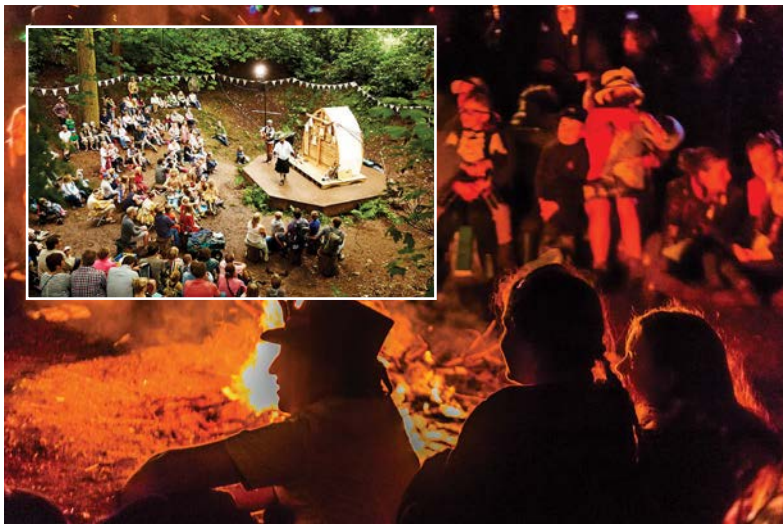
New UK timber festival for 2018

The National Forest at Feanedock, Derbyshire will host a brand-new festival in July 2018. 'Timber' will be an international forest festival 'exploring the transformative impact of forests'.

Featuring writers, artists, musicians, scientists and thinkers from across the world, Timber will explore what woodlands can mean to us and how we can re-imagine our relationship with our environment. The festival has been created by the National Forest Company and Wild Rumpus, award-winning producers of the Just So Festival. There will be a variety of activities and experiences on offer including talks and discussions, live music performances, craft workshops, farmers' markets, organised forest walks and much more. Camping will be available on site.

Timber will take place 6–8 July, 2018. For more information about the festival and to book advance tickets, visit the Timber website.

Contact: Timber Festival Web: www.timberfestival.org.uk



PHOTOGRAPH BY TENEIGHT

PHOTOGRAPH BY ANDREW ALLCOCK

Events

Information correct at time of publication, check websites before planning your visit

EVENT OF THE MONTH

January Furniture Show

The January Furniture Show returns with the newest launches, the biggest names and the freshest trends. Over 500 suppliers will be exhibiting including top UK and international brands, plus emerging designers and manufacturers.

Show partners the BFM (British Furniture Manufacturers Association) will have a stand in Hall 1 to promote and represent British companies at the show. They will also provide information on their successful 'IT IS Great British Furniture' initiative, which has been designed to increase awareness of the key factors that make British-made furniture great in the eyes of consumers and trade buyers. 2018 will see the BFM commence promotion of this campaign in consumer magazines.

Ashley Manor, Ashwood, Buoyant, Celebrity, Cintinque, Collins & Hayes, Dar Lighting, Duresta, ercol, Furnico, G Plan Upholstery, Kingstown, Lebus, Parker Knoll, Westbridge and Whitemeadow are some of the companies on an unrivalled exhibitor list of British and international manufacturers. Visitors will be able to see dining and occasional furniture, all kinds of upholstery, flooring, fabrics, art, mirrors and decorative accessories. The Furniture Awards, developed in partnership with Furniture News magazine, will be announced at the show.

When: 21–24 January, 2018 Where: NEC, Halls, Marston Green, Birmingham B40 1NT Web: januaryfurnitureshow.com

Top Drawer

Top Drawer showcases design-led, commercially appealing products. The show is arranged in four sectors: Home, Gift, Fashion and Craft. The design showcase Spotted highlights exciting new talent from across the show.

When: 14–16 January, 2018
Where: Olympia, Hammersmith Road, London W14 8UX
Web: www.topdrawer.co.uk

imm cologne

imm cologne brings together suppliers and decision makers from across the industry. The fair presents the latest trends and highly sought after designs. The show's segments include 'Pure' for the big brands, 'Pure Studios' for new names to watch and 'Pure Editions' for innovative products.

When: 15–21 January, 2018
Where: Koelnmesse, Messeplatz 1, 50679 Köln, Germany
Web: www.imm-cologne.com

AIS Furniture Show

Forty leading brands will be exhibiting at the AIS Furniture Show, which is open to members 19–20 January and non-members 21–22 January.

When: 19–22 January, 2018
Where: Cranmore Park Exhibition Centre, Cranmore Avenue, Shirley, Solihull, West Midlands B90 4LF
Web: www.thefurniture-show.co.uk

Maison&Objet Paris

Keep on top of evolving consumer trends, inspiring experiences and brand offers, with the show that takes you into three major sections, including two new spaces dedicated to textiles. MAISON is interior decoration, OBJET is concept and retail, while the third section INFLUENCES encompasses luxury, design and architecture. There will also be a series of talks and workshops on topics such as 'Design and Crowdfunding'.

When: 19–23 January, 2018
Where: Paris Nord Villepinte Exhibition Centre, CD 40, ZAC Paris Nord 2, 93420 Villepinte, France
Web: www.maison-objet.com/en/paris

North Point

The furniture and interiors exhibition for Northern UK returns after a successful 2017 event with over 80 exhibitors covering upholstery, living room, occasional, dining, mirrors, pictures, lighting, accessories, bedrooms, beds and floor coverings. This is a trade-only show.

When: 28–30 January, 2018
Where: The Highland Hall, Royal Highland Centre, Edinburgh EH28 8AU
Web: www.thenorthpointshow.co.uk

Spring Fair

Spring Fair is the UK's number one trade show for gift and home products. It includes 14 trade sectors and showcases the best products, launches and inspiration that over 2500 UK and international exhibitors have to offer. There are also daily seminars and demonstrations, workshops and 1-2-1 meetings with industry experts.

When: 4–8 February, 2018
Where: NEC, Halls, Marston Green, Birmingham B40 1NT
Web: www.springfair.com

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Social media dashboard

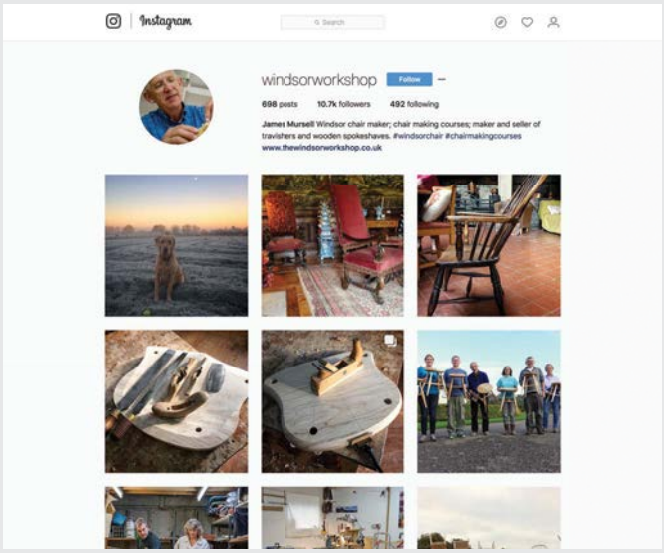
Bringing you a round-up of the best from the online world plus a selection of the latest projects from our readers

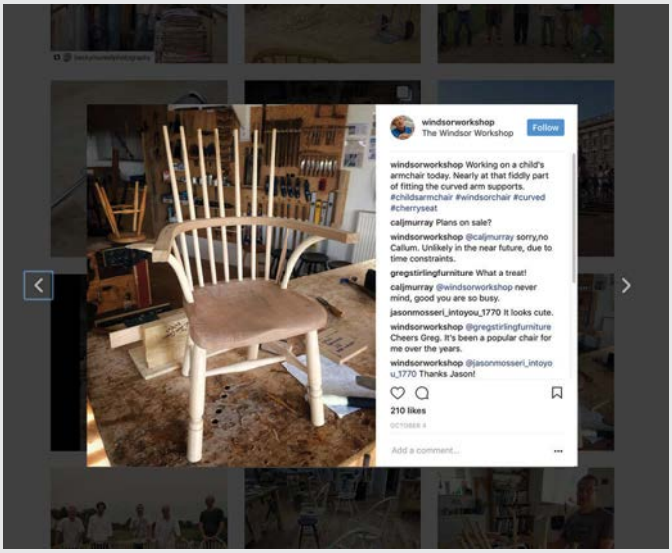
In this section of the magazine we bring together the best furniture and woodworking related content from social media. Here we'll recommend who to follow, where to comment and which online communities to join. We also feature projects we love, readers' letters, comments from the Woodworkers Institute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

Instagram: The Windsor Workshop

James Mursell's Windsor Workshop offers chair making courses as well as selling specialist tools and completed Windsor chairs. His Instagram feed features photos of his and his students' work, as well as beautiful images of his workshop's West Sussex location.

Address: windsorworkshop



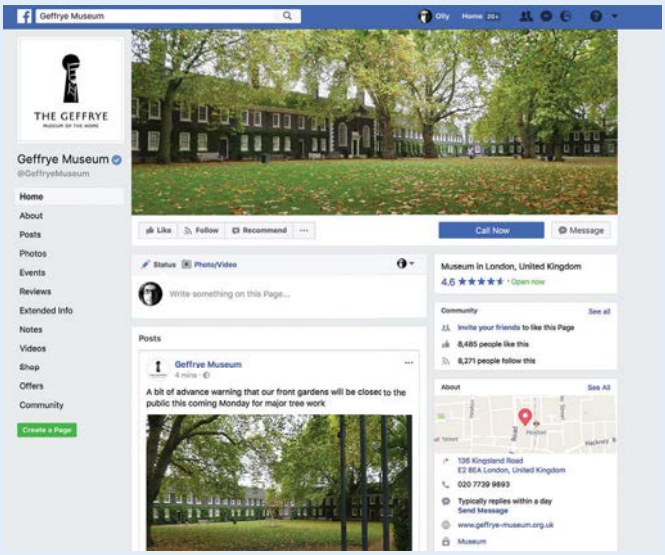


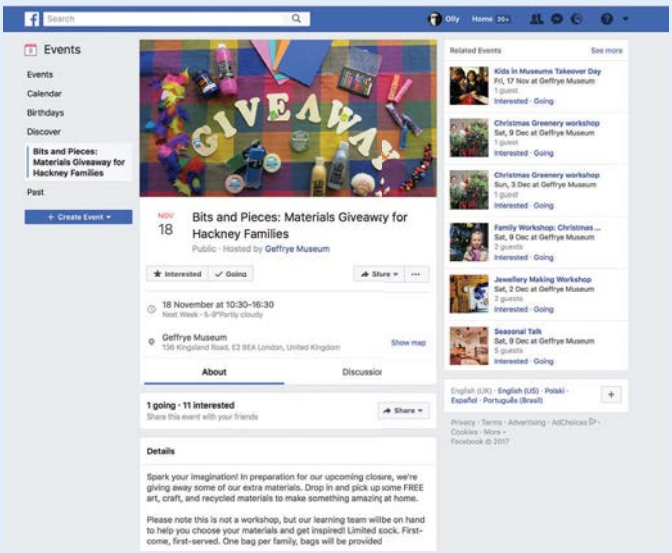
Facebook: The Geffrye Museum

The Geffrye Museum in Shoreditch is about to be closed for almost two years while it undergoes an £18 million redevelopment. Special events and activities will still be held and the restored almshouse will also remain open for tours.

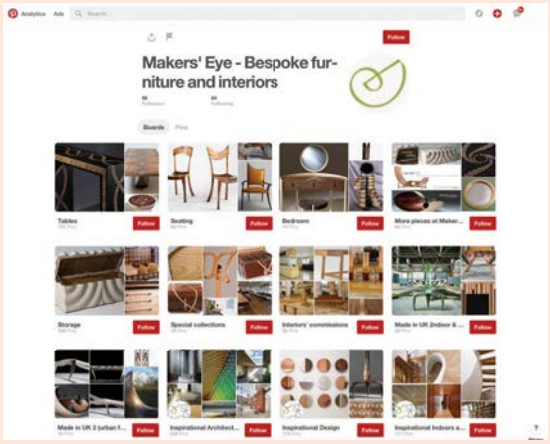
And you can also stay in touch with the museum's work via Facebook and other social media channels, such as its Instagram, Twitter and YouTube accounts.

Address: www.facebook.com/GeffryeMuseum

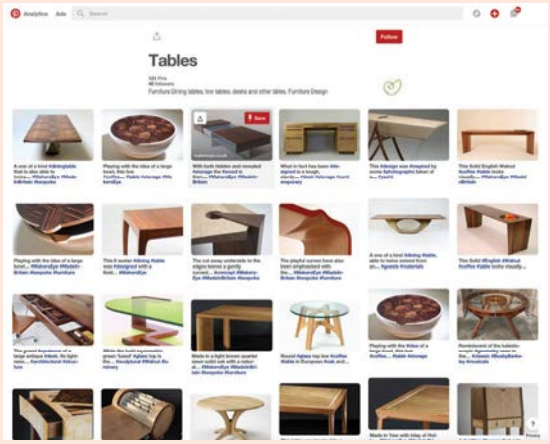


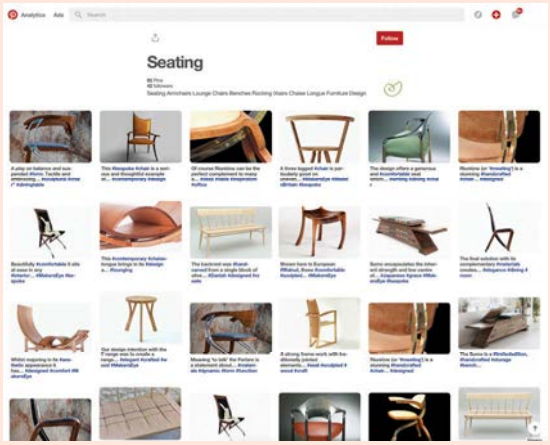


Pinterest: Makers' Eye



Makers' Eye is an online gallery that showcases Britain's leading bespoke furniture designers and craftsmen. The site offers a point of contact between designers and customers as it features completed pieces that are ready to buy or which can be customised to suit clients' needs. Makers' Eye's Pinterest account has boards on subjects including Tables, Seating, Bedroom Furniture and Storage, as well as Inspirational Architecture, Interiors and Design. The It's All a Matter of Taste board showcases experimental and flamboyant designs that may not be everyone's cup of tea!
Address: www.pinterest.com/makerseye





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**

New Boosbeck Industries

New Boosbeck Industries is a social enterprise that encourages people to work together to design and build furniture. For November's Northern Design Festival they presented a new range of furniture designed and built in collaboration with community groups from a social enterprise inspired by the iconic 1930s initiative that aimed to address unemployment through creativity.

The project is led by artist and designer Adam Clarke, who says: 'A big part of of my practice as a designer and maker is research – I love discovering social history ... The way we make things is quite unique – taking inspiration from an old catalogue we found in the Teesside archives, we work with people who are unemployed to reimagine how a piece of furniture from the past can look today, using modern techniques and machinery. There are maybe only six original 1930 Boosbeck pieces left in existence now, so we're recreating a piece of social history. We embrace modern technology to keep the old traditions alive.

'When we make something, everyone has a hand in all aspects of design but one person is the lead designer – when we sell a piece of furniture a percentage goes back to everyone who made it, and some to the business so we can make more prototypes for the future. We're trying to tackle social issues through alternative ways, like making things. We're trying to help people be more employable, we're not trying to be the next IKEA.'

For more information, visit: www.newboosbeck.com

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*The **Profiled Leather Honing Wheel LA-120** hones away the burr from the inside of the bevel.*

For more information visit **www.tormek.com** or call UK importer: BriMarc Tools & Machinery 0333 240 69 67

Young Furniture Makers

Showcasing some of the outstanding pieces from this record-breaking exhibition

The Young Furniture Makers exhibition is organised by the Furniture Makers' Company and was set up more than 10 years ago for schoolchildren, students and university graduates to showcase their work and meet potential employers and members of industry. Each year it has grown and the overwhelming success of the 2016 exhibition demonstrated that if they were going to continue to expand and enable more young people to showcase their work, they needed to relocate to a larger venue. However, not wanting the show to move away from the Furniture Makers' hall – the heart of the Furniture Makers' Company – they decided to spread the 2017 exhibition across their hall in Austin Friars and the Dutch Church opposite. The additional space allowed them to triple the number of exhibitors to 120, enabling visitors to see even more talented young British designers and furniture makers. Adding to the excitement, the exhibition was treated to a radical makeover with fresh, modern branding that captures the creativity of the Young Furniture Makers.

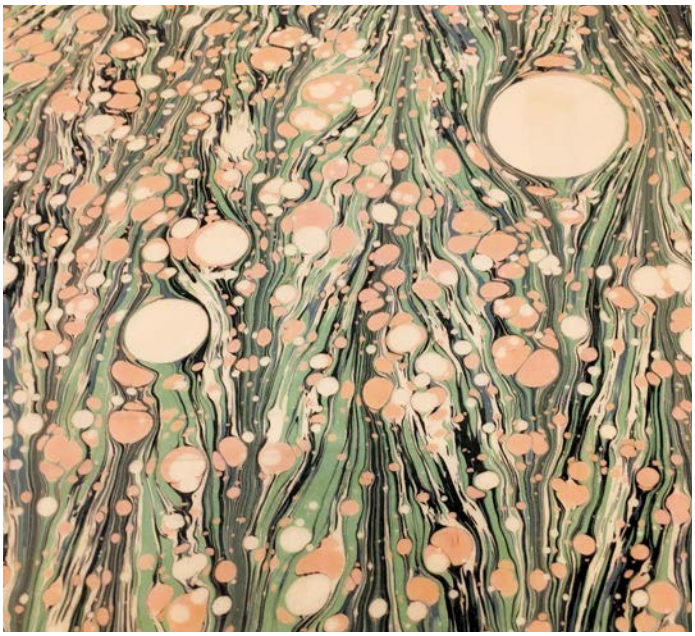
MAIN PICTURE: The Moravian Collection by Jasmine Craven-Huffer of Northumbria University

Dark Side of the Room by Ian Lidgbird of the Peter Sefton Furniture School

Herringbone side table by Conor Bedford of Northumbria University

Elipse Table by Noah Morris of the Peter Sefton Furniture School

A regal setting for the exhbition



Miss Marble by Joseph Hillary of Manchester Metropolitan University

PHOTOGRAPHS BY JOE PARKER

All students are welcome to join the Young Furniture Makers group. It's free and gives the opportunity to access The Furniture Makers' Company members, network and learn on their dedicated Facebook page, and get involved in the events and seminars created especially for them.
For more information see: www.furnituremakers.org.uk/young-furniture-makers-exhibition/

Sponsors of the group are Axminster Tools & Machinery, Bluecrush Communications, Blum, Crofts & Assinder LTD, DFS, Festool, The Furniture Ombudsman, Gordon Russell Design Museum, Furnishing Knowledge, Knightsbridge, WH, Cabinet Maker and Furniture News.

Joe Parker's Folding Chair won The Young Furniture Makers Innovation Award. It is a high-end compact chair designed for everyday use while approaching the problem of foldability versus practicality in a different light

PHOTOGRAPH COURTESY OF THE FURNITURE MAKERS' COMPANY

Charlotte Lloyd won The Young Furniture Makers Design Award and The Blum Best in Show Prize for her Giddy Up Chair

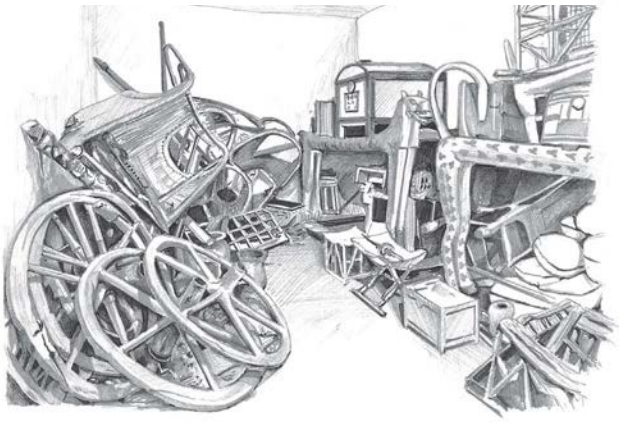
The original minimalists

For clean lines and simplicity you need look no further than the Middle Ages

The period in European history known as the Middle Ages began with the fall of the Roman Empire in the 5th century and ended with the Renaissance in the 15th century; a huge chunk of time by anyone's standards. It's a period of history that's surprisingly well documented if you know where to look, for there are clues in every single artefact found from this era to provide us with an accurate picture of how dozens of disparate nations formed alliances, traded and fought with each other across three continents.

The Golden Age of Furniture that we talked about in last month's issue may be considered the point at which the craft of cabinetmaking reached its peak but the origins of the craft can be found much earlier. Sure, the Egyptians and the Romans had furniture and no doubt so did the civilisations that preceded them, but as a genre distinct from other forms of carpentry this is where the seeds were sewn. The Middle Ages is often referred to by historians as the Medieval Period and as if that weren't confusing enough it's also carved up into three sections; Early, High and Late Middle. We're going to be looking at furniture and the events that shaped its development from a period partway through the middle of the second period (AD 1000) to the end of the Late Middle Ages (1460).

THE CORONATION CHAIR AND STONE OF SCONE, WARWICK RODWELL, OXBOW BOOKS, 2013



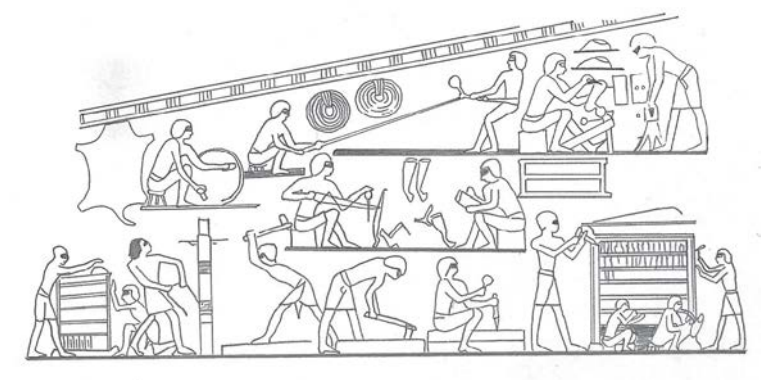
A sketch showing the contents of the ante-chamber of the tomb of Tutankhamun from around 1350 BC. Among the contents are items of furniture that appear to be more sophisticated than items produced in Europe in the Middle Ages

The Coronation Chair built between 1297 and 1300 is made from English oak and was originally covered in gesso before gilding. A block of sandstone seized by King Edward I from the Stone of Scone in Scotland is housed beneath the seat

PHOTOGRAPHS BY GMC PUBLICATIONS UNLESS OTHERWISE LISTED

Ancient furniture

This illustration is taken from a wall painting from the tomb of Vizier Rekhmire in Thebes. It clearly shows craftsmen in the act of chair making. Cane was used to form the base of seats and mattresses and frames were held together with joints that we would recognise today. In the middle of the image you can see items that appear to be leg components with mortises cut into the top. Elsewhere workers can be seen drilling, carving and preparing timber.



Ancient Egyptian tomb wall painting

The minimalist 'shop

Before we can move on to talking about these early pieces I want you to imagine a workshop without glue or screws or clamps or in some cases even saws. Then ask yourself how you would make a piece of furniture. The chances are you would come up with a design that resembled something from the Middle Ages, and that's really about as complicated as it needs to be to appreciate the form, function and aesthetic of the period. Some of my favourite pieces of furniture to study and to make are the early forms of chests and they don't come much simpler than a straightforward boarded version. Actually they do if you include those hewn from a single log but we'll save that adventure for another day.

In modern-day terms 'minimalist' generally refers to the aesthetic appearance of an object but as anyone who has ever attempted to create something in this style will tell you, the making part is usually anything but minimal. I haven't studied the sociological path for this but suspect it might have something to do with us having to purge our creative vocabulary of white noise before we can think 'straight' and see clearly.

At the user level, furniture from this period can be divided into two categories; that which was built for the nobility by skilled tradesmen and that which was made for necessity by, most probably, the end user. In construction terms there's not that much difference in how the parts were assembled but there is however, in the way the items were decorated. Painters were some of the most revered artisans of the day and although the popular image of Britain in the Middle Ages is one of varying shades of brown, brightly coloured paint was used extensively to decorate walls, screens and items of furniture. The gold standard of the day was St Edward's Chair, otherwise known as the Coronation Chair, in Westminster Abbey. The throne, for that was its intended purpose, was commissioned by Edward I in 1296. It was made entirely from oak (*Quercus robur*) by Master Walter of Durham, the king's painter, between 1300–1 and was originally covered in gesso, decorated with geometric patterns and foliage before finally being gilded. Painters also made furniture and often employed a range of skilled craftsmen. By the time Edward commissioned Walter of Durham to make the chair, he had already been in court for more than 30 years. He would have been familiar with the later architecture of Henry III's reign and perhaps even played a part in its execution.

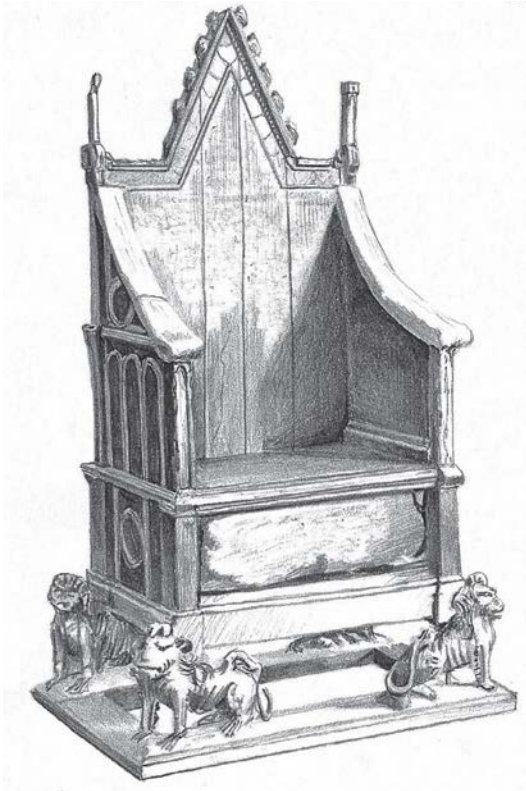
PHOTOGRAPH COURTESY BONHAM'S

An early 16th-century oak chest of the type made throughout the Middle Ages. In terms of construction things don't get much simpler than this; six boards and a handful of nails

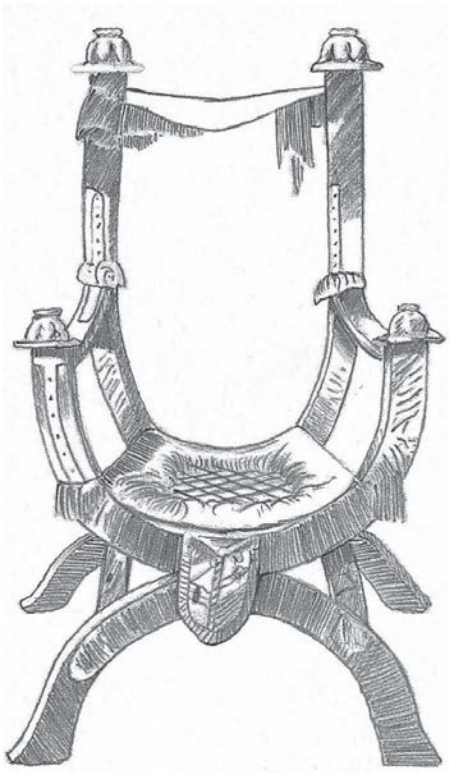
PHOTOGRAPH COURTESY BONHAM'S

An early 16th-century meal chest or ark from the Welsh borders, which was used to store grain such as meal, corn and flour. Traditionally it is thought the domed lid was not fixed or hinged in place so it could be removed and repositioned upside down on the base to provide a trough for kneading dough

The Coronation Chair: a work in progress



The Coronation Chair has been used in every English coronation since that of Edward II in 1308



A typical example of an X-framed chair or 'faldstool' that featured throughout antiquity as a ceremonial throne

Although the Coronation Chair we see today is a fine example of medieval craftsmanship, it's not what the king initially had in mind. Documents show that in 1296 an order was placed for a substantial amount of copper and tin to form an alloy from which a throne was to be made. A similar document describes an order for an oak model and templates from which parts to construct a solid copper chair were to be cast. Further documents list what might best be classed as 'stage payments' in lieu of work carried out on the metal parts. This would have included skilled craftsmen dressing the rough castings, drilling holes, creating fixings, engraving and finally polishing the parts for gilding. But, as there is no record of payments being made for gilding it is assumed that the project was cancelled. There is a lot of speculation as to why this happened, but the most likely reason is that wheeling a chair that weighed three-quarters of a ton around for ceremonial use was deemed a bad idea.

Mixed media status

The design of the St Edward's chair is interesting in that it appears to be influenced by references to the Biblical throne of King Solomon. Medieval thrones with an enclosed seat and arms (stays) emerged in the 13th century to appear on seals and manuscripts replacing the X-framed chair or 'faldstool' that was extant before. The Second Book of Chronicles describes Solomon's throne as 'a great throne of ivory, overlaid with pure gold' with 'stays on each side of the sitting place'. Edward's design was undoubtedly an attempt to assert his authority through assimilation with the great king. As far as construction is concerned it's a very typical frame and post design held together with mortise and tenons and wooden pegs; a common feature on all furniture from the royal throne down. Despite its weight and size, and not to mention the huge piece of stone located beneath the seat, there is no evidence of any metal reinforcements being used to strengthen the frame. Either the maker didn't feel they were necessary or perhaps their inclusion was incongruous with the overall design. Either way the practice was commonplace elsewhere. In fact the finest coffers of the period were typically draped in wrought ironwork for decoration as much as strength. Finer versions would be covered in leather that may even have been embossed with a decorative pattern. It's not unheard of to discover old chests with metal bindings under which can be found the original leather.

An oak chest decorated with wrought-iron straps and vines attached to the surface with hand-forged nails

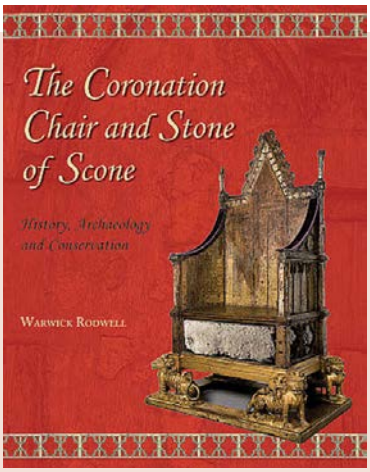
A riven oak chest from the 13th century with chip-carved decoration constructed with wooden pegs

Decorative vernacular

The finest pieces of furniture made in the Late Middle Ages would have ecclesiastical provenance and if we were to study these items alone it would likely skew our perception. Elaborate carvings, pierced tracery and even inlay were common features on furniture made for the wealthy. Out in the sticks, however, furniture was far more basic. There are numerous regional interpretations of vernacular furniture that have stood the test of time, most of which would have developed as a consequence of the natural materials available to make things. Oak was the primary material for most furniture, or at least it accounts for the bulk of items that have survived the last 500 years and more. For a woodworker starting out I strongly recommend making one or two pieces based on designs from this period, not to recreate that period but to learn the fundamentals of making furniture before dipping your toe into the world of fine cabinetmaking. Trestles, pegged or wedged mortise and tenons and even nails can be used with great success to make almost any piece of furniture for the home and all without the aid of glue or clamps. F&C

Further reading

The Coronation Chair and Stone of Scone by Warwick Rodwell covers the history, archaeology and conservation of one of the most remarkable and precious treasures to have survived from the Middle Ages. This scholarly piece of work spans 300 pages and features dozens of diagrams, photographs and even X-rays to tell one of the most fascinating detective stories ever written about a piece of furniture. Highly recommended.
From: www.oxbowbooks.com
Price: £9.85



Drawbore mortise and tenons

Vic Tesolin explains how a few extra steps will guarantee centuries of strength

PHOTOGRAPHS BY EX BOWELL, COURTESY OF VIC TESOLIN

A clean reveal is always the goal with the mortise and tenon joint

In medieval times, it wasn't uncommon to see the trestle table. This simple design is strong, sturdy and easily adorned with carving or other embellishments. The secret behind this rock-solid design is the always present mortise and tenon joint. Specifically, the drawbore M&T is a joint that will stand the test of time because the mechanics of the pin intersecting the joint provides centuries of strength. Drawboring a joint is not a difficult skill to master so let's dive right in.

There are only a few extra steps to drawboring a M&T joint. The first step is to get a good fitting M&T. It's true that the drawbore technique will hold together a sloppy fitting joint, but there is no need to intentionally do shoddy work. Also, don't rely on this technique to correct the reveal of this joint. Sort out your shoulders first and test fit the joint prior to drawboring. A proper M&T joint should only require moderate hand pressure to close and there should be no gaps where the tenon shoulder meets the mortised part.

PHOTOGRAPH BY DEZIDOR/CREATIVE COMMONS

Long trestle table and bench in the Latvian Ethnographic Open Air Museum

Mark the mortises…

A marking gauge with two cutters makes easy work of marking this joint

The secret to success for most joinery is the step before cutting it – marking. Knife-in the left and right lines that will define the width of the mortise as well as the top and the bottom. I find the most reliable way to do this is with a mortise gauge. Take time to get the layout right, sloppy work here will come back to haunt you for the rest of the build.

Personally, I'm a fan of using a drill press to muck out the waste but you can use any technique that you prefer. I use a wide chisel to remove any waste left behind by the drill press. I also like to leave the mortise round at the ends because it is much quicker to shape the tenon to fit than it is to square the holes. Don't get lost in the minutiae of differing techniques, the key is to respect your layout lines.

Go as wide as you can to make paring the mortise easier

…and now the tenon

Locate your tenon shoulder by inserting a small stick into the mortise to gauge the depth. It's good practice to make the tenon slightly shorter than the mortise is deep to prevent an overly long tenon from hanging up the joint; 2mm shorter is a good number though I usually just gauge this by eye. Use the gauge stick to set a second marking gauge for the shoulder and carry the line all around the board. In the case of an angled shoulder, use a sliding bevel and square to lay out the shoulders. Using the same gauge you used for the mortises, simply change the fence setting to accommodate the tenon board and strike your lines. Be sure to maintain the spacing between the gauge cutters as you used for the mortise.

With a chisel, cut an angled groove into the knife line on the waste side to create a reference point for your saw. Now you can drop your backsaw blade into the groove and saw the shoulder to depth. The goal is to get the shoulder fitting right off the saw but in all probability you will need to do a bit of tweaking with a shoulder plane.

Forget the numbers and determine the depth of the mortise referentially

Clamp your board securely in your vice to saw your tenon cheeks. Saw as close to your lines as you dare but keep in mind that if you go past the line you will have a sloppy fit. It's always good to cut the tenon a bit fat and pare it down for a great fit. To get a straight cut, start by angling the board towards you and making the first cut down to the shoulder line ensuring you reach the halfway point. Then reverse the angle and do this for the other side. Finally, drop the saw into the kerf and saw straight down until the waste falls away at the shoulder line.

Test fit the joint and make sure that the shoulder meets nicely with the mortise board. If the tenon needs to be thinned down, do this now. I like using a rebate block plane for this task but you could also use files or joinery floats for the task. The key is to keep the tenon cheeks flat and true. Also, be sure to remove material equally from both sides of the tenon cheek to ensure that your offset doesn't change. A good rule of thumb is whatever you do to one side, do to the other.

This small groove will give you all the guidance you'll need

Start with angled cuts to ensure great cheeks

The width of this rebate block plane makes it ideal for thinning down tenons

Locate the holes

Once you have a good fit, it is time to draw the joint. The drawbore hole should be about 10mm away from the edge of the mortise. This not only looks pleasing to the eye but it also keeps the hole that will be created in the tenon far enough away from the edge so it doesn't split the end of the tenon. Bore the 6mm hole into the mortised component, stopping short of coming through the other end. A flag of tape acts as a great depth indicator – as soon as the flag clears the shaving on the surface, you know you are at depth.

Insert the tenon into the mortise and ensure that it is fully home. Use the 6mm drill bit to lightly prick the hole location, then disassemble the joint. The location marked is your starting point. Measure 2mm towards the shoulder and prick another mark. This offset is a good general measurement but it never hurts to do a test joint with the wood species you are working with to be sure. Be advised, as little as 0.5mm of change one way or the other can have dramatic changes to how the joint goes together. Drill the hole through the tenon with the same 6mm drill.

Reassemble the joint and test the fit using a drawbore pin. Gently twist the pin into the holes and observe how the joint comes together. If you get a solid, gap-free fit then you are ready for the wooden pins.

The drill press allows you to not worry about whether the holes are plumb

Prick the location of the hole using the drill

Make sure the second hole is closer to the shoulder or you will drive the tenon open instead of closed

A gentle twist is all you need to judge the fit of the joint

It's all about the pins

It seems that historically, pins for most furniture construction were ¼in (6mm) in diameter, bigger for larger work. The pins should be riven for maximum strength so that there is no grain run-out on the pin. You are asking a lot from this small oak pin so make them as strong as you can. Start with some straight oak stock and rive (split) it out so that you end up with a slightly oversized pin. Using a block plane and a knife, whittle the pin to an octagon shape and taper the leading end to allow the pin to pass without interference at the start. As before, don't get lost in the minutiae of differing techniques, the key is to respect your layout lines.

A small hacking knife is all you need to split out the pin material

This small chamfer will prevent the pin from binding

To glue or not to glue

There are plenty of examples in antiquity that show these joints going together, and staying together, without glue. Being a belt and braces kind of guy, I add glue to the joint just to be on the safe side. Apply glue to the mortise and bring the joint together. Apply some glue to the pin hole and drive the pin in with firm blows using a mallet. The best part about this system is you don't need to clamp up while the glue cures. Once the pin is fully home, trim the pin almost flush and pare to the surface with a sharp chisel.

While steeped in history, the drawbore tenon is a great way to assemble this ubiquitous joint. With only a few extra steps you can add some insurance to an already resilient connection. Give this technique a try the next time you have some mortises and tenons to cut. F&C

Send the pin home with a mallet. Listen for a dulling change of pitch to your strikes to know when the pin is fully home

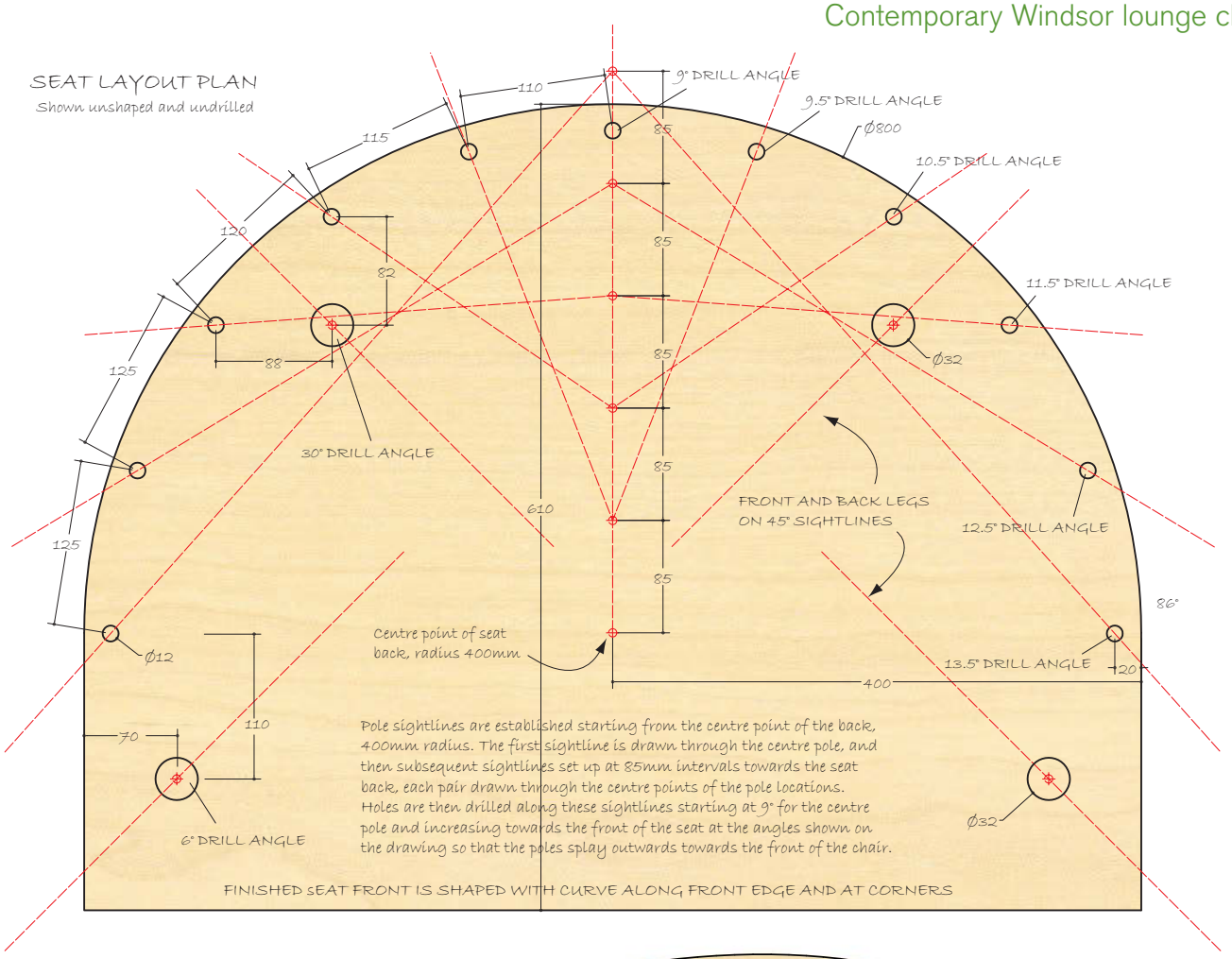
Bring the pin flush with the surface using a paring action with a sharp chisel

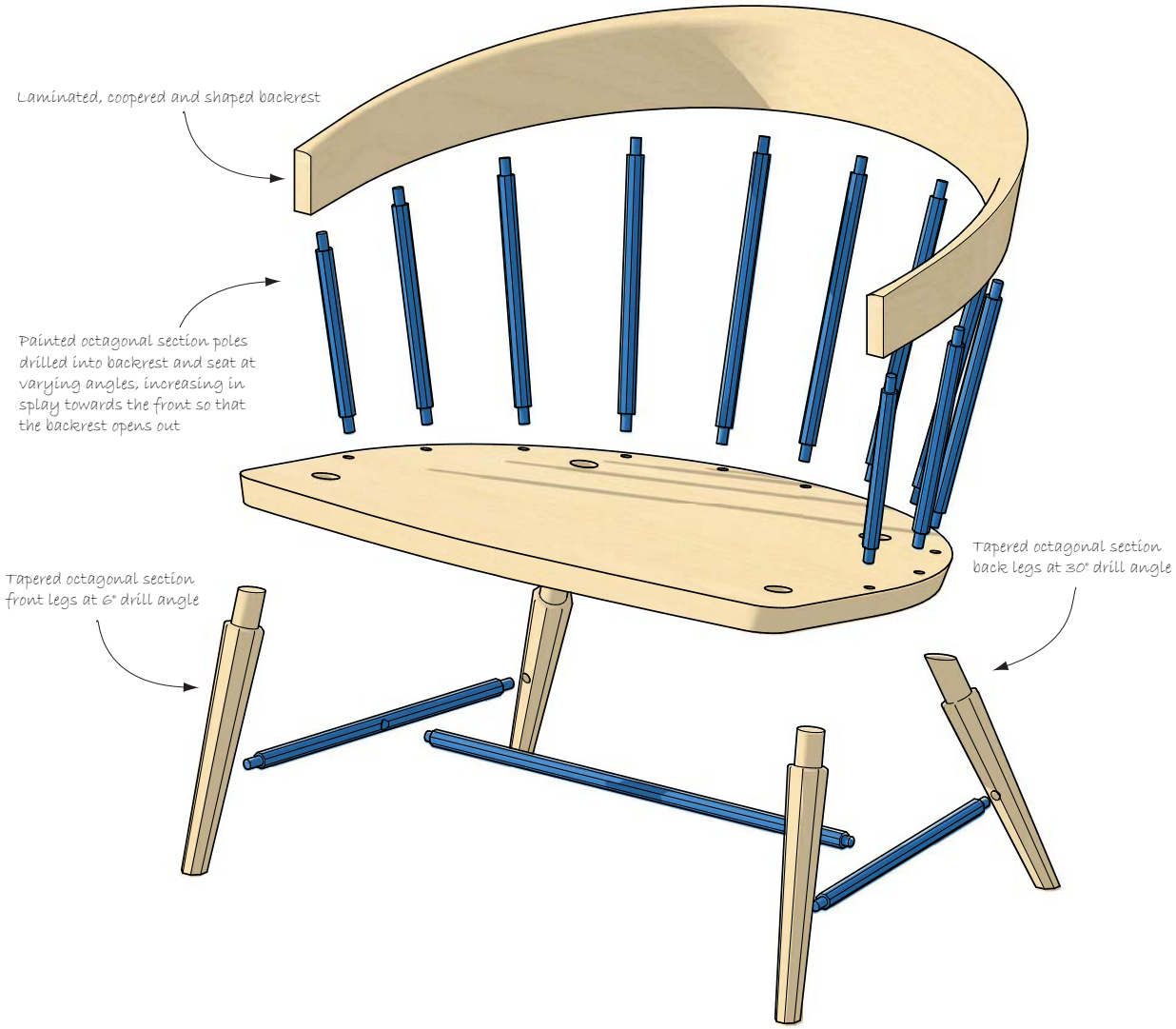
The Cartwright Chair

James Bowyer unlocks the methods behind the stack laminated, coopered and shaped backrest on the Cartwright Chair and reveals his techniques to recreate the chair's characteristic carved dimpled texture

In a candid moment I'd admit that the prospect of designing my first chair filled me with as much dread as it did excitement. When approaching this task, being a speculative piece with no client brief to set parameters, I couldn't help but recall the words of one of my tutors (an esteemed contributor to this publication), that 'there's nothing truly original'. His inference being: don't try to reinvent the wheel, or in this case the chair. For my inspiration I chose to look back in time, at the rich vernacular history of English chair making and that most iconic of English chairs, the Windsor. My chair would be a contemporary take on this classic style. Drawing as much inspiration from the early Georgian iterations as their 20th-century Scandinavian cousins, I wanted my Windsor to make a valid contribution to the brilliant lexicon of contemporary Windsors. To that end the Cartwright is a generously proportioned, low slung lounge chair. For the purposes of this article I am going to focus my attention on two of the chair's defining features and most technically interesting and demanding parts: the backrest and the carved dimpled texture on the seat and backrest.

PHOTOGRAPHS BY JAMES BOWYER


SEAT LAYOUT PLAN
Shown unshaped and undrilled
110
115
120
125
125
88
82
85
85
85
85
85
610
400
9° DRILL ANGLE
9.5° DRILL ANGLE
Ø800
10.5° DRILL ANGLE
11.5° DRILL ANGLE
Ø32
30° DRILL ANGLE
FRONT AND BACK LEGS ON 45° SIGHTLINES
12.5° DRILL ANGLE
86°
Ø12
Centre point of seat back, radius 400mm
13.5° DRILL ANGLE
120
70
110
6° DRILL ANGLE
Ø32
Pole sightlines are established starting from the centre point of the back, 400mm radius. The first sightline is drawn through the centre pole, and then subsequent sightlines set up at 85mm intervals towards the seat back, each pair drawn through the centre points of the pole locations. Holes are then drilled along these sightlines starting at 9° for the centre pole and increasing towards the front of the seat at the angles shown on the drawing so that the poles splay outwards towards the front of the chair.
FINISHED SEAT FRONT IS SHAPED WITH CURVE ALONG FRONT EDGE AND AT CORNERS


Laminated, coopered and shaped backrest
Painted octagonal section poles drilled into backrest and seat at varying angles, increasing in splay towards the front so that the backrest opens out
Tapered octagonal section front legs at 6° drill angle
Tapered octagonal section back legs at 30° drill angle

The backrest: design and timber selection

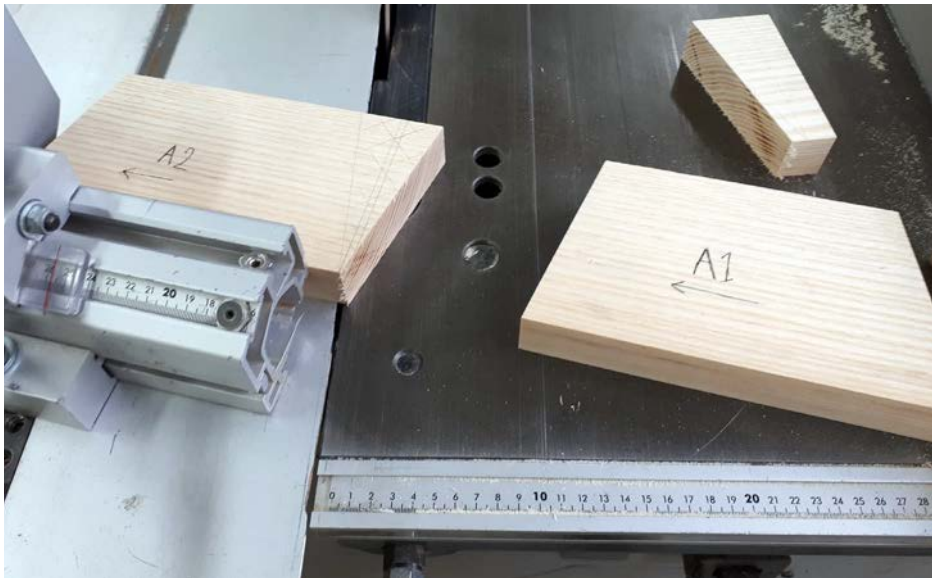
The design of the chair's backrest is fairly complex. In essence it is a semicircular arch, however, the angle of rake/splay is constantly changing along the curve. Starting with a 9° splay at either end, it becomes a 24° rake in the middle of the backrest. The whole of the backrest then sits forward on the poles at a 6° negative incline. As such it would have been impossible to steam bend without incurring massive wastage and cutting through too many glue lines in the shaping process.

The solution was a stack-laminated structure of three layers, each layer made from coopered trapezoidal sections. The stack lamination is then shaped to form the curved arcing finished backrest. The design gives massive strength and a neater more deliberate arrangement of glue lines (more on that later).

The top layer is made up of nine trapezoidal sections. The middle 10, and the bottom layer another nine, making 28 identical trapezoidal sections in all. First though, careful timber selection is required. Each layer of the lamination requires continuous grain matching around the outside and inside of the curves. The sections need to be cut very carefully so as to remove as little waste as possible between sections, just the width of a saw kerf. Boards were carefully selected ensuring that no blemishes or defects would interrupt the continuous flow of the grain.

Each trapezoidal section was coded with a letter and number as it came off the saw, denoting the layer and its place in the sequence, to enable quick re-arrangement at the bench.

Marking out the trapezoidal sections on each board for grain continuity around the backres



Cutting the angles on the dimension saw, coding each piece as it comes off the saw

Assembling the coopered layers and sacrificial Dominoes

Once cut and arranged at the bench, each section has two Dominoes cut in to the end grain. While these Dominoes are ultimately sacrificial, removed with the waste in shaping, they provide essential alignment and prevent slippage when glueing. The Dominoes are placed at the inner and outer extremities of the trapezium's width, aligned 20mm in from each edge. This leaves the middle area, what will ultimately become the backrest once shaped, clear of Dominoes, ensuring there is no chance of hitting and exposing a Domino when shaping.

Each layer of the stack lamination would be glued up in three stages. Firstly, in pairs, then two pairs together and finally altogether as a complete layer. The sections were arranged into pairs and glued together end grain to end grain. Achieving perfect glue lines across all the joints is absolutely vital to the success of a stack lamination, therefore I made a jig that at first glance might look like overkill, but when repeating this process 19 times, proved invaluable. The jig was very simple, consisting of a 25mm MDF board, with a 35 x 35mm softwood stop at the back. Offcuts from the trapezoids are then positioned and screwed down so as to hold the two sections in place at the correct angle. Softwood wedges, calculated to give parallel pressure across the centre of the joint are then used at either end with a single Bessey K Revo clamp applying ample pressure. The next step was to glue each adjacent set of pairs together. In order to glue these together, additional angled blocks were glued on to the outside of the trapezoidal sections. These blocks, also sacrificial, enabled easy clamping by providing parallel surfaces that intersected the middle of the joint, again ensuring a clean glue line in the area of the joint that would ultimately be left after shaping. The same process was then repeated to complete the glue-up of each layer.

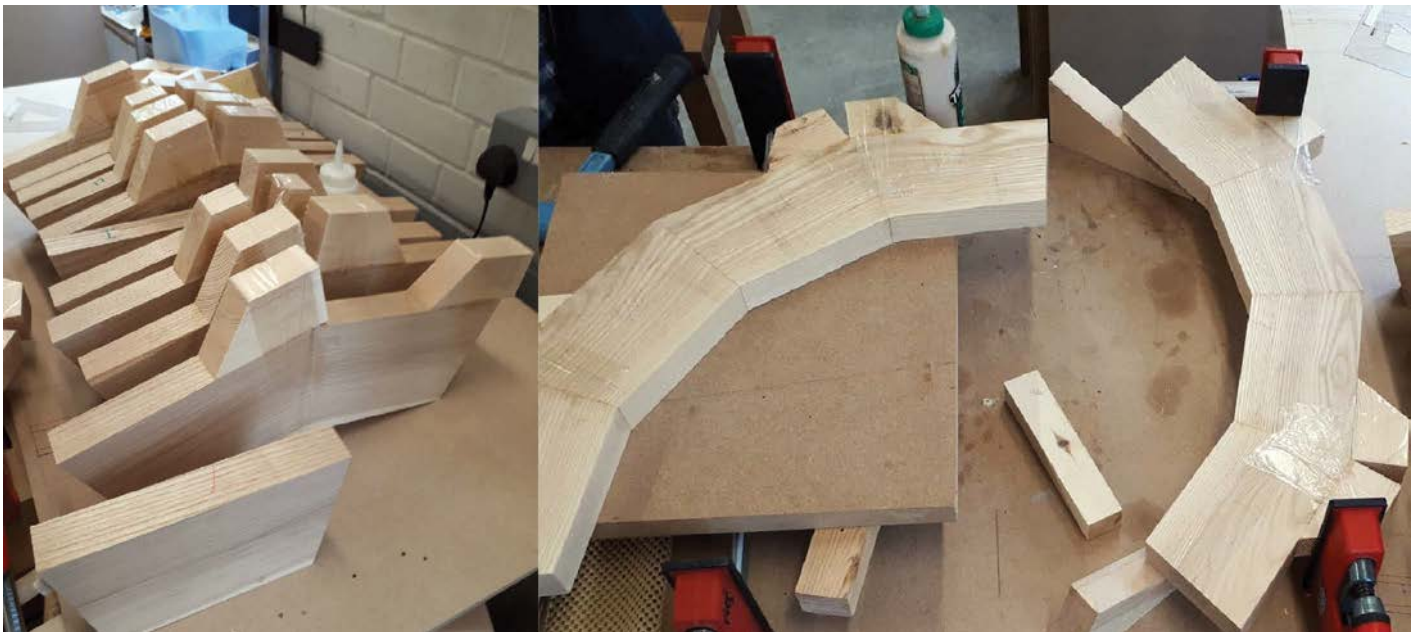
Showing the location of the sacrificial Dominoes

Location of Dominoes, staying well clear of where the backrest will be after shaping

Keeping offcuts from the trapezoidal sections meant I didn't have to remake angled wedges for the glueing jig

The first sections being glued together – showing the location of the sacrificial Dominoes

Glueing jig for the initial stage of the glue-up



Once glued in pairs, wedges were glued on to give parallel pressure for the second stage of the glue-up

Glueing the laminations

Once assembled, each coopered layer of the stack lamination is passed over the surface planer to ensure a clean and flat glueing surface. The middle layer requires flattening on both top and bottom surfaces. Satisfied with the result off the surface planer, I then closely check flatness with a straightedge and fettle where necessary with a jack plane to ensure I have four absolutely flat, clean glueing surfaces. Due to the stack laminated, coopered structure the effect is brick-like, and just as any bricklayer looks for neat alignment, I was very particular in lining up the joints in the top and bottom layers of the stack. This accuracy of alignment becomes highly visible once shaped and sanded.

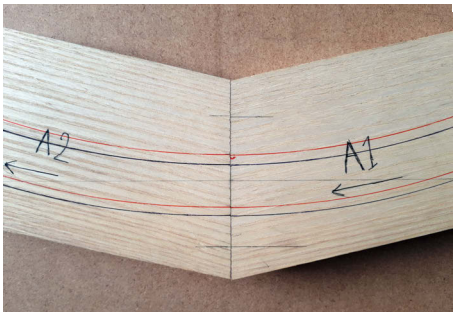
The clamping process is slow and careful, using regular PVA glue to leave the faintest glue lines possible. F and G clamps suffice, ensuring pressure is focused in the central area of the coopered layers, which is left behind once shaped. Clamping blocks are not required, as both top and bottom surfaces will be planed and shaped, with a considerable amount of material coming off.

Carefully aligning the glue lines of each layer

F and G clamps glue the lamination together

RIGHT: Dry fitting and arranging the three coopered layers before laminating, checking alignment against my 1:1 rod

Marking the curves



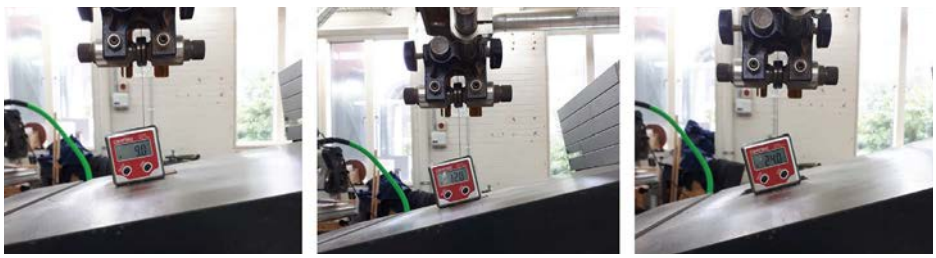
Marking the positioning of the top (black line) and bottom (red lines) curves on the top face

Using a trammel and my 1:1 scale rod, I transferred the curves on to the top and bottom faces ensuring that both curves were shown on the upward face. During shaping those lines would be all I have to work to, so needed to be highly visible. The red line denotes the position of the curve on the underside, front and back. And the black line shows the line of the curve on the top of the backrest, front and back.

Roughing the shape

As the angle of splay at both ends of the back rest is 9°, going up to 24° at the centre point, the first cut I made was at 9° all the way round the curve. For the inside of the curve I followed the innermost red line, denoting the position of the curve on the bottom of the backrest. When cutting the outside of the curve I followed the outermost black line, denoting the position of the curve on the top of the backrest. I then repeated this process at approximately 12°, for the middle section of the curve, and again a 24° just around the centre of the backrest.

Due to the constantly changing angles of rake and splay around the curve of the backrest, it was impossible to get any machine tooling to carry out the task.



Setting the angles on the bandsaw, using the GemRed digital bevel box. The first stage of the shaping process was to rough out the shape on the bandsaw. This involved three cuts at different angles on the inside and outside of the backrest

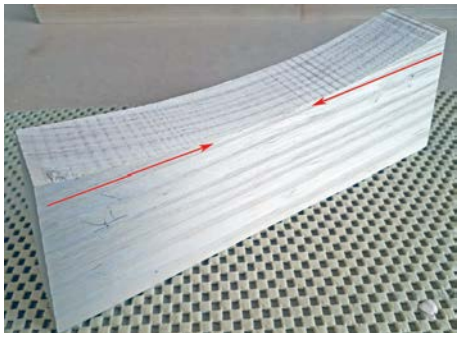
Choosing a carving chisel

With nearly 4000 hand-carved dimples decorating the seat and backrest of the Cartwright Chair, choosing the correct chisel was fairly crucial. Having tried a variety of Stubai, Pfeil, Marples and Sorby Chisels I eventually opted for the following: 19mm Ashley Isles Straight Gouge (Sweep 10) chisel. For this type of dimple carving, the robust 3mm blade gave the chisel a really solid reliable feel, which gave me confidence in my ability to repeat the cuts and maintain a consistency of cut. The wide, tight curve suited the size of dimple I was looking to carve, around 8mm across and 1–2mm deep, while the slightly meatier handle and short blade made it extremely comfortable for the full duration of the two days' carving.

Final shaping

At this stage, the process begins to veer away from jigs, digital bevels and machinery. The remaining shaping process is reliant on instinct, care and my 1:1 rod; while removing material the backrest would constantly be returned to the rod and checked to see where material needed to be removed. The difficulty in making curves out of stack laminated solid sections is that as you cut a curve out of each trapezoidal section the grain direction reverses from one end to the next, and that occurs with every one of the 28 trapezoidal sections in the curve. This means that no blade can take a clean cut, without tearing out somewhere – no matter how well honed. I tried low angle jack planes, low angle block planes, compass planes, round bottomed spokeshaves, flat bottomed spokeshaves, drawknives and scrapers … the result was always the same. Tear-out. Only abrasives would do the job.

Now with a roughed out, faceted curve off the bandsaw the next task was to even out the curve starting on the outside. Initially on the belt sander and with a portable belt sander, then moving to a orbital with a hard pad, I carefully removed the excess material and worked through the grits to fine smooth finish around the curve. Smoothing the inside of the backrest was considerably harder as I couldn't get the belt sanders on to the curve. As such, most of the waste material needed to be removed with an angle grinder, leaving a relatively uneven surface. With the constantly reversing gain ruling out any blades, I continued the flattening/smoothing process with abrasives. Cabinet scrapers and random orbital sanders follow the gentle undulations left by the angle grinder, but do not remove them. The solution was to make a custom MDF sanding block. I matched the curve of the block to the backrest's inside curve to increase the surface area in contact with the abrasive. This also helped to maintain the consistent curve and shape when knocking off the little high spots. Once satisfied that I had a smooth even surface, I worked up through the grits to 240 before finishing with a white tinted Osmo 501 hardwax oil, and finally a coat of Osmo 3044 raw, de-nibbing between coats with a non-abrasive pad.



Red arrows show the reversing grain direction left when cutting a curve out of straight section

Custom-made sanding block, for final shaping of the inside curve

Carving the chair's dimpled texture

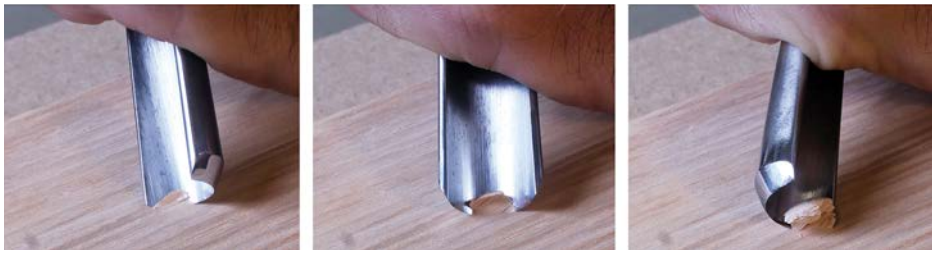
The other of the chair's most prominent features is the hand-carved, dimpled texture over the seat and back. I incorporated this feature to make oblique references to the historical method of carving Windsor chair seats. Prior to the advent of abrasives, the craftsman's adze which was used to shape the seat would leave subtly textured carving marks. My dimpled surface texture referenced this rather charming historical idiosyncrasy. In order to achieve this effect, and to maintain the bespoke handcrafted feel this would have to be done by hand. Being right handed, I held the chisel in my right hand, thumb pointed down the shaft. My dominant (right) hand would make the cut, pushing forward, but simultaneously my left would act as a brake. Laid over the top of the chisel and my right hand, my left pushes back against the right controlling the power applied to the cut and offering control and preventing you slipping out of the cut and gouging a great chunk out of your work.

Then in making the cut, I use a rotating motion. Rotating about 45° through each gouging cut – using this rotary action utilises the length of the blade, slicing through the cut rather than forcing it straight. This not only leaves a better finish but is considerably more energy efficient – which when making this number of tiny cuts is fairly crucial.

The angle of each cut is also vital. Approaching the start of each cut so that the bevel on the back burnishes the cut as you make it, leaves a perfectly smooth finish in each cut. I worked directly across the grain, to avoid breakout and chipping, and was very careful not to be too greedy in each cut. Making two or three cuts for each dimple if necessary; getting greedy and cutting too deep at first will almost certainly lead to tearing and an unsatisfactory finish. I kept the chisel razor-sharp by keeping a strop to hand and polishing every few minutes, returning to the sharpening stones only when necessary. I also used a small manoeuvrable spotlight at a very low angle to clearly show the size of each dimple, the low angle light producing clear shadows and making it far easier to keep the size of each dimple roughly consistent.

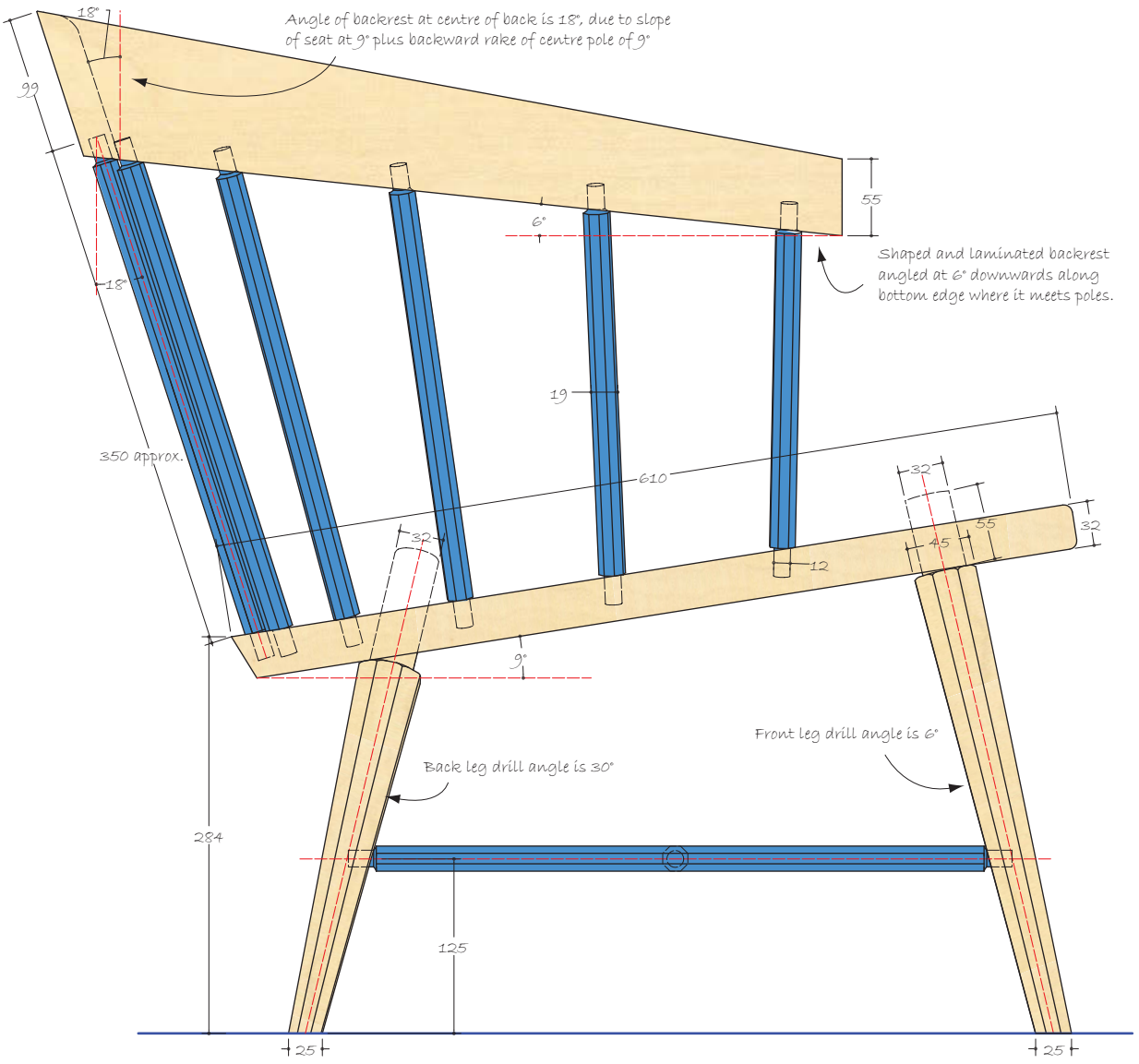
Ashley Isles carving chisel

Carving grip, where the left (weaker) hand acts as a brake ensuring control in the cut when carving



Rotating through the cut, using the full length of the blade. Slicing rather than forcing the cut ensures a cleaner finish

INSET: Approaching each cut at the correct angle, using the bevel to burnish the cut LEFT: The finished carved surface of the seat RIGHT: The completed stack laminated, coopered backrest with hand-carved dimpled texture

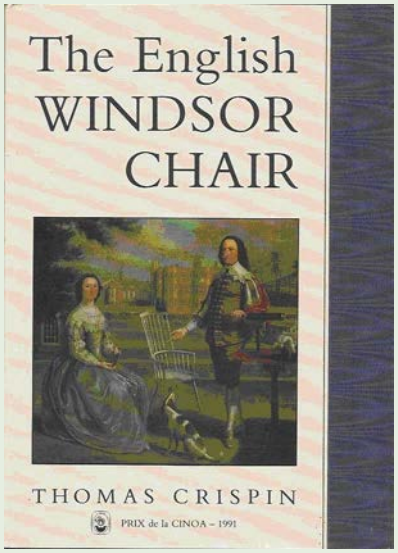


Inspiration

While designing the Cartwright, Thomas Crispin's excellent historical overview of Windsor chair making in the UK, *The English Windsor Chair*, revealed some charming idiosyncrasies of early Windsor chair-making techniques, two of which gave rise to the Cartwright's most distinctive features.

Crispin notes that prior to the advent of abrasives the round-sectioned components – the legs, poles and stretchers – were often made using drawknives and that those drawknives, even in the hands of the most skilled craftsmen would leave tiny facets on the finished components. I was particularly taken with this quirk of production and chose to exaggerate these facets into larger faceted octagonal sectioned legs, poles and stretchers.

Similarly the early 18th-century craftsman's adze, which was used to hollow out and shape the archetypal 'Windsor' seats, would leave the faintest of carving marks in the finished chair. The Cartwright's hand-carved dimpled texture on the seat and along the outer edge of the backrest sought to make oblique reference to this. F&C



ABOVE: *The English Windsor Chair* by Thomas Crispin was an excellent resource

RIGHT TOP: Octagonal facets on the chair legs

RIGHT BOTTOM: The dimpled texture was inspired by the traditional use of the adze

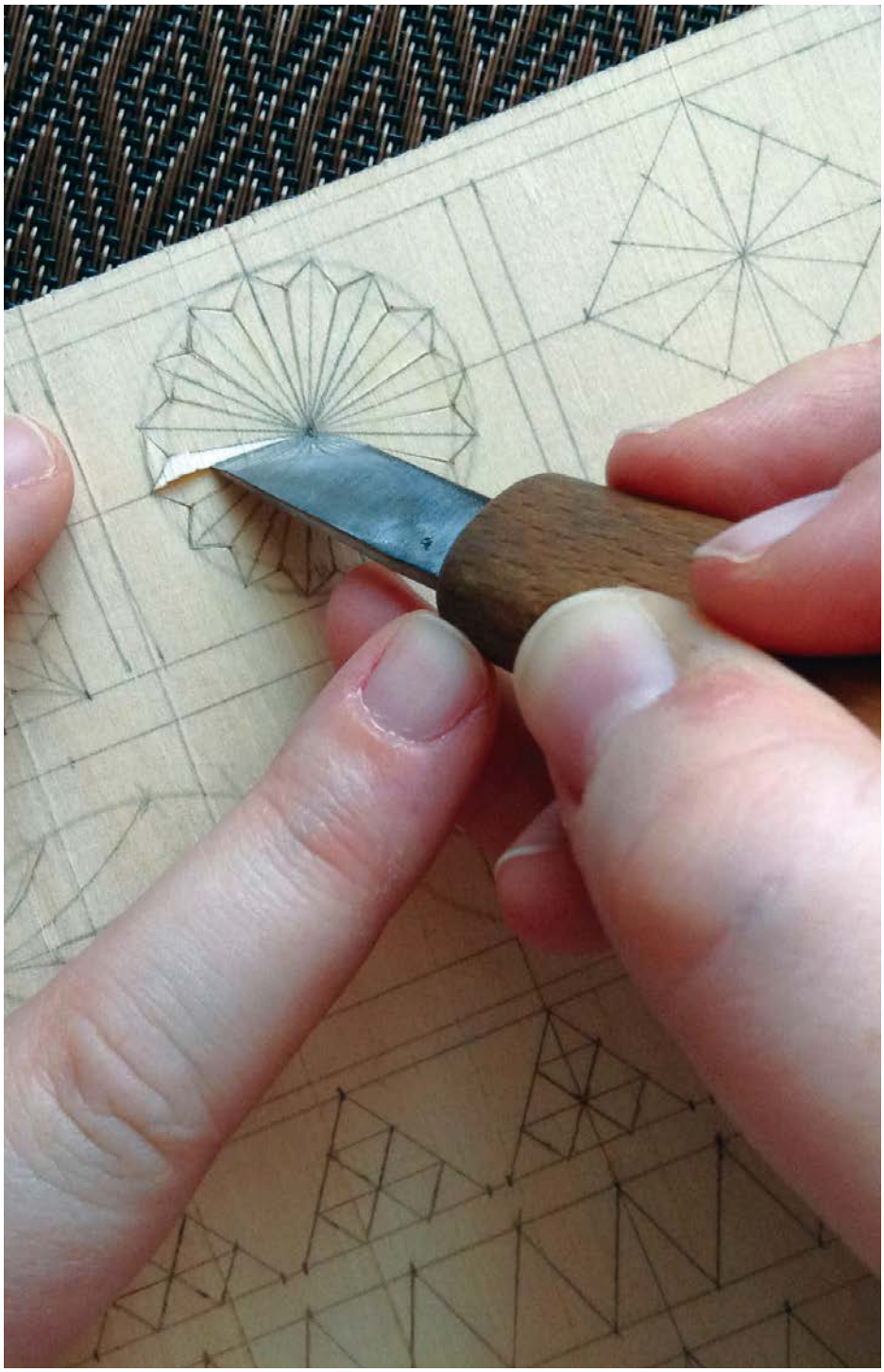
Introduction to chip carving – part 2

Tatiana Baldina explains how carving simple practice boards can take your skills to a higher level

In last month's article (*F&C* 265) you took your first steps towards learning the art of chip carving. Although we just dealt with the drawing and layout rather than actual carving, it was a crucial step in the overall process. Although the two-dimensional patterns are decorative features in their own right they also carry information that enable us to translate them onto a three-dimensional surface. In this second article we are going to move on to the next stage – interpreting that information and carving patterns onto your sample boards.

You can use any type of rigid blade skew knife to carve these patterns as long as it is comfortable to hold and does not tire your hand in the process. A blade with identical bevels on both faces is preferable but by no means mandatory. For example, one of the knives I like to use is the Flexcut Skew Knife.

And one more note before we start to carve: the practice board is not something you should try to complete in just one day. My practice board contains four sections of patterns with an increasing number of lines for each one that gradually increase in difficulty as you work through the board. Yes, it's possible to complete in one session and that's fine if you're looking for a new fun activity to fill a few hours but it's better to do it in small steps every day. And always remember the rule of taking one step back every day (see sidebar at the end of the article). This is one of the key things I've learned during the 10 years that I've been carving.



PHOTOGRAPHS BY TATIANA BALDINA

Materials and tools for carving

- A basswood board with drawn patterns (25cm long, 15cm wide, 1.5cm thick)
- Skew knife
- Sandpaper or leather strips for sharpening

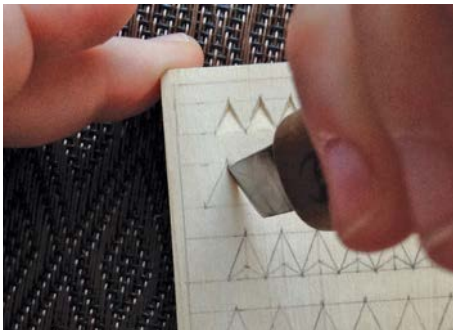
First pattern section

Straight-wall chips

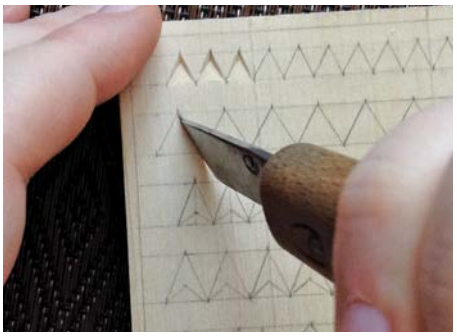
The first pattern to carve is the simplest chip carving pattern – a small straight-wall chip. Before you start to carve place your practice board onto a flat rigid surface with a non-slip mat beneath if you have one. To produce clean consistent cuts you need to get into the habit of positioning your knife in exactly the same manner each time you repeat a similar cut in the pattern. For this exercise you will need to hold the knife directly above the first side of the chip at about 90° to the surface, then gently push the tip of the blade deep to the top of the triangle, where the facets meet. Then, without removing the knife from the wood, lower the heel of the knife to the base of the chip, to the third side of it, without applying any pressure. Try and capture the feel of the blade as it pierces the wood and the movement of the technique. Now repeat those steps to the same degree on the other long side of the triangle.

Then turn the board away from you (around 35–45°) so that you can lay the knife blade low to the surface of the wood along the bottom of the triangle and push the knife towards the top of the triangle where the sides intersect at the top. The first chip is done. Again, try to capture the technique and so you can reproduce it on the following chip. Continue across the board making adjustments as necessary working towards creating a consistent pattern.

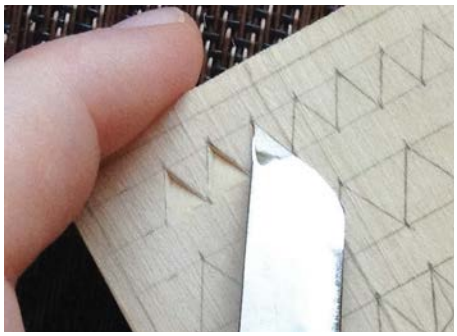
The second pattern is a bigger version of this straight-wall chip. The carving technique is exactly the same so just repeat all the steps and work towards creating a consistent pattern that will come from making a series of identical cuts in both depth and alignment.



Hold the knife firmly at about 90° to the surface of the board. Then push the knife's tip deep into the wood...



...then lower the heel of the blade along the pencil line to the base of the triangle

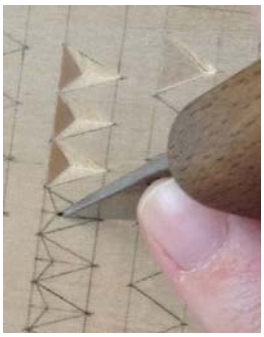


Push the knife towards the intersecting corner of the straight-wall sides to remove the chip

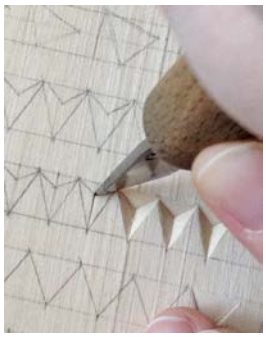
Simple triangle

This is a more complex chip pattern than the previous ones and there are two ways of tackling it. To begin with you can make stop cuts as before along the lines that converge in the middle of the triangle. Rest the knife gently at top of the triangle with the point towards the centre and then, gradually applying pressure, roll the knife towards the middle so the point of the knife penetrates beneath the surface. Repeat this technique for the remaining two stop cuts. Then angling the knife at 45° work around the edge of the triangle to remove the chips one at a time. For consistent results it's important to maintain the same angle for all the angled cuts so the pattern appears uniform on all sides. I recommend you do the stop cuts while you are learning to chip carve.

When you are comfortable with this technique you can try removing the waste by just using the angled cuts. If you have been holding the knife correctly a single chip will pop out. However, there are times when this doesn't happen so you will have to repeat the cuts or make stop cuts to sever the wood fibres at the meeting points.



Place the heel of the blade at the top of the triangle and roll towards the centre



Rotate the board and complete the two remaining stop cuts

Place the knife a the edge of the triangle at 45° to undercut the first chip

Rotate the board and undercut the second chip

Rotate the board a second time and undercut the third side. The chip will pop out

Snake

The next pattern to carve is the 'snake made of straight-wall chips' as it translates from Russian. For carving this pattern, repeat all the steps you made when carving a small straight-wall chip.

Insert the blade to cut along a straight line...

... removing a chip that meets at the top of the triangle

Second pattern section: chain of triangles

The pattern from this section is a chain of isosceles triangles that are connected to each other by their short sides or bases. As you can see, this pattern runs along the grain so requires a different carving technique. This is good preparation for the complex pattern we will be carving next.

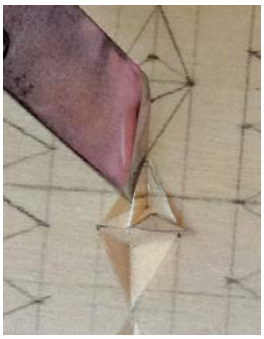
Again, make the stop cuts inside of every triangle in the pattern. When carving a chip that goes along the grain, the first cut you make is the 'base' cut, or the third cut you were making when you carved the first triangle on the board that ran across the grain. After the first cut is done, turn the board and start making the next cuts. Always lead the knife along the grain, as shown in the photos, otherwise you could break the chip and the angles, or you could crush the wood fibres inside the triangles leaving a rough surface to the inside faces of the pattern that will be hard to correct.

Complete the stop cuts inside the triangle starting with the long line

Now complete the two shorter stop cuts

Remove the chip at the base with an angles cut of 45°

Now remove the second chip with another angled cut



Remove the third chip with another angled cut to complete the shape

Sharpening a knife

Get into the habit of sharpening regularly and especially before you start work on a new section as this will help to maintain consistent results to your finish. My preferred method is to stick abrasive films along the edge of a sheet of glass that has had the sharp edge removed. A strip of leather (strop) can be used as well along with some honing paste to polish the surface of the bevel. Blades with a round heel are best sharpened by rotating them along the sharpening surface while straight edge skew blades are best oriented to run in a straight line.

Abrasive strips stuck onto a piece of float glass

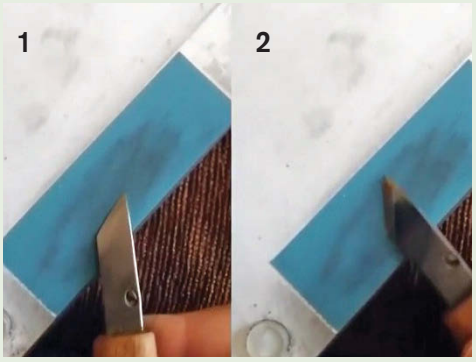


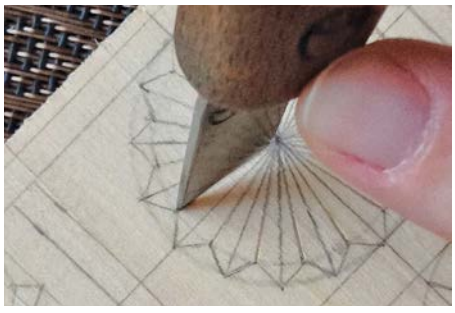
Fig 1 shows the best method of sharpening a straight edge skewed blade using abrasive films

Third pattern section: circle

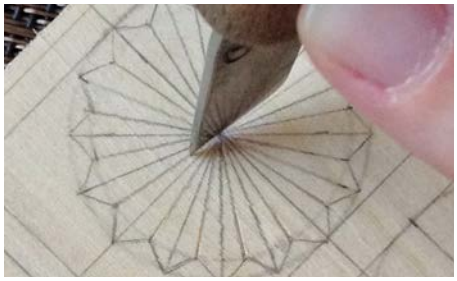
I chose a circle with 16 three-corner chips from this section. It's a complex pattern and may well be tricky for you to carve because there are chips that go along the grain, across the grain and at various angles diagonal to the run of grain. The chips of this pattern also connect with each other, so you need to have more control of your knife.

I prefer to start carving this pattern from the chips that go along the grain. It's easier, as it seems to me, to control carving the next chips when these ones are done. But first, start by doing the stop cuts inside every chip: raise the knife right above the centre where the stop cuts meet, then stick the very tip of the knife into it at an angle of 90° to the wood surface and then, if you are using a round heeled knife, roll the knife along the line. Or if you have a straight edge skewed knife gently drag the tip of the blade along the line stopping short of the centre. Repeat this for all of the stop cuts.

Start carving the pattern from one of the four chips that go along the grain, make the 'base' cut first. Then, pushing the knife deep to the central point where all the stop cuts inside of the triangle meet, lead the knife to the centre of the pattern using a tip or a heel of the knife. Then turn the knife in your hand and repeat the actions and complete the chip. Continue to carve the chips to one and then to another side of the carved chip following the grain of the wood, and go right to the centre of the pattern. Then carve another side of the pattern starting from the chip that goes along the grain. Finish carving all the chips using the method used on the other side to complete the pattern.



Creating the stop cuts first helps to identify the high and low spots in the design



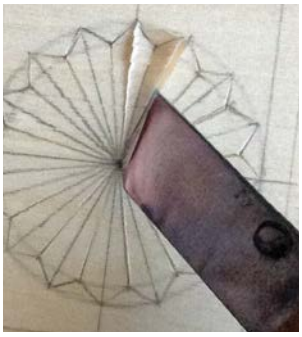
Avoid cutting the stop cuts right up to the centre of the pattern for now

A complete set of stop cuts clearly outlining the 16 three-corner chips around the edge

Use the tip of the knife to carve the first chip at the perimeter of the pattern

Push the knife deep into the centre of the chip...

... then gently lead it to the centre of the pattern



Rotate the board and make the third cut

Cutting along the grain away from the centre of the pattern

A finished circle with 16 three-corner chips completely carved

Try these tools

The KN11 Skew Knife is used for taking more vertical cuts. The handle is shaped to allow long periods of work without fatigue. The range uses the same edge-holding steel as the Flexcut gouges and chisels.
Price: £20.92
From: www.axminster.co.uk

The Flexcut Knife Strop is the perfect accompaniment to the KN11 knife and plenty of other edge tools as well.
Price: £17.05
From: www.axminster.co.uk

Fourth pattern section: multi-level carving

The fourth section of our practice board is for multi-level carving and I have chosen one of the basic patterns – don't worry it's not as complex a pattern as it might seem at first glance.

The technique for carving this pattern is the same as you used for the small and bigger straight-wall chips. By now you should be able to accomplish them quite quickly with consistent results. So, as before, raise the knife right above the first side of the chip, then push the tip of the knife deep to the top of the triangle, where the facets meet, at an angle of almost 90° and then, by not removing the knife from the wood, lower the heel of the knife to the base of the chip reducing pressure as you go until you are applying no pressure at all at the end of the cut, then repeat on the other side.

Now turn the board away from you (35–45°) so that you can lay the knife blade low to the wood along the third side of the chip (the short side of your isosceles triangle), and push the knife towards the intersecting corner of the straight-wall sides (the apex of the triangle). To carve the smaller chip inside this chip, stab the knife at an angle of almost 90°, but not to the surface of the board this time but to the surface on the 'big' chip instead. Then repeat all the steps you made on the straight-wall chips to remove a smaller chip.

Make stop cuts and remove a regular straight-wall chip

Place the tip of the knife in the centre of the big chip area

Make two stop cuts from the centre to the base of the triangle

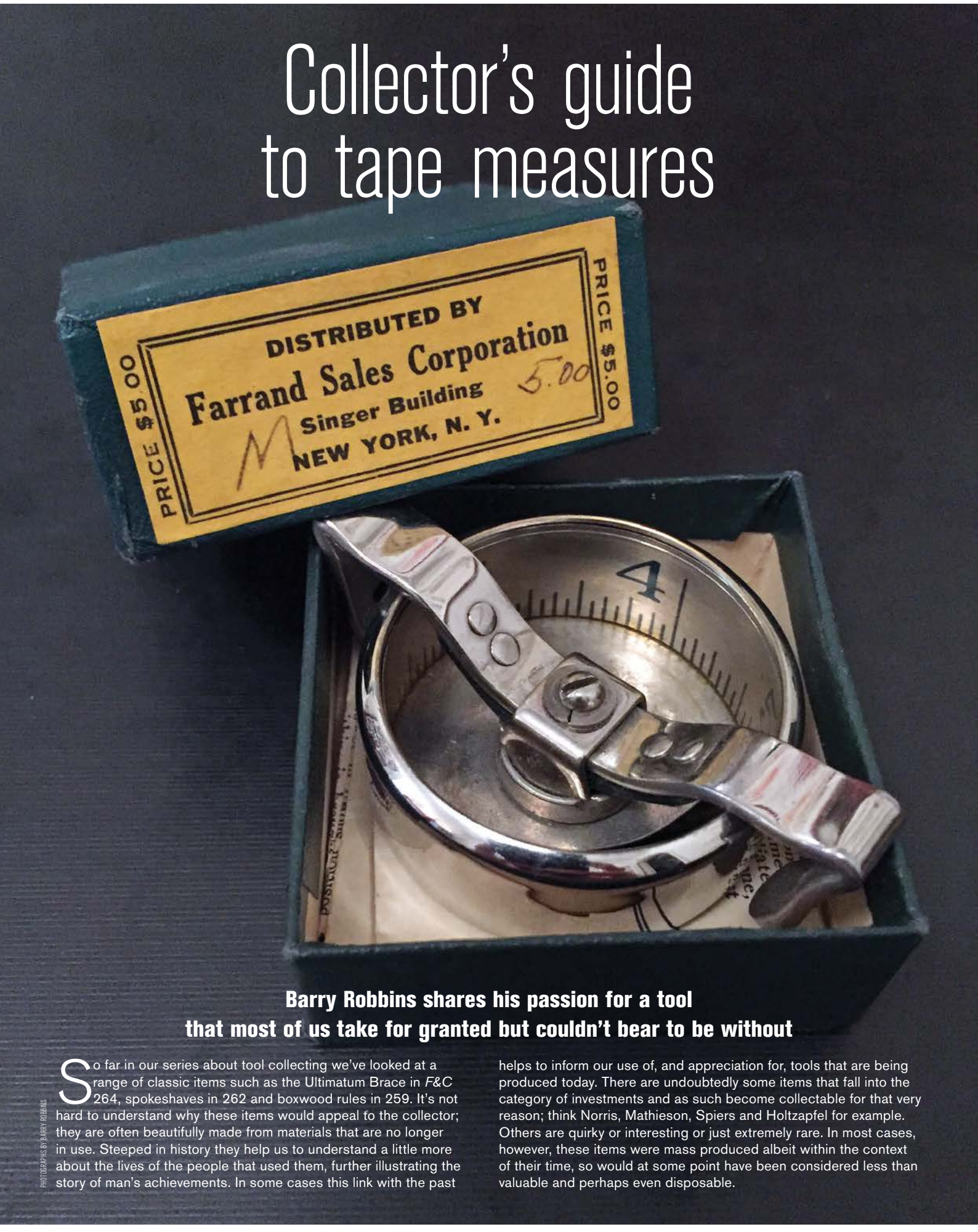
Lower the knife and push it towards the centre point

A smaller chip will break loose and complete the pattern

Take one step back every day

The foundation of a strong technical base in wood carving/chip carving is to take one step back every day. Sounds strange at first, doesn't it? However, in my opinion, a step back is not a regressive action; it's not giving up on the plans you have, but rather repetition of the steps you've already accomplished and the consolidation of new knowledge, as in any kind of creative activity or like learning a new language. Without repetition and, accordingly, retreating back, there is no progression. In other words if every day you start with something brand-new, you will be building on fragile foundations. For example, when I receive an order for a practice board, especially for sets of them where one board needs to be completely carved, it is like returning to my roots and to the university where I learned to carve the simplest patterns for the very first time. Re-visiting these moments frequently not only helps with my chip carving but with myself in general – it's carving the simplest patterns all over again, but with a new, deeper understanding. F&C

Collector's guide to tape measures



Barry Robbins shares his passion for a tool that most of us take for granted but couldn't bear to be without

So far in our series about tool collecting we've looked at a range of classic items such as the Ultimatum Brace in *F&C* 264, spokeshaves in 262 and boxwood rules in 259. It's not hard to understand why these items would appeal to the collector; they are often beautifully made from materials that are no longer in use. Steeped in history they help us to understand a little more about the lives of the people that used them, further illustrating the story of man's achievements. In some cases this link with the past helps to inform our use of, and appreciation for, tools that are being produced today. There are undoubtedly some items that fall into the category of investments and as such become collectable for that very reason; think Norris, Mathieson, Spiers and Holtzapfel for example. Others are quirky or interesting or just extremely rare. In most cases, however, these items were mass produced albeit within the context of their time, so would at some point have been considered less than valuable and perhaps even disposable.

PHOTOGRAPHS BY BARRY ROBBINS

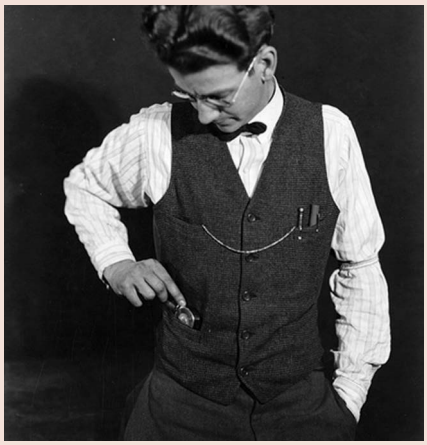
This month we've been talking to Barry Robbins from New York about his collection of tape measures, which at first might not sound quite as interesting as a premium plane, but I'm prepared to wager that at some point in our lives we have all owned, and most likely lost, a much loved example. When it comes to tape measures I think we're all aware of their limitations, in the scheme of things they're not that accurate. Even so, it's hard to imagine ever starting or finishing a single project without one. Retractable pocket tape measures started to come into common use around the 1930s, replacing what was then in the top drawer of every carpenter's tool chest, the folding wooden rule. Of course, the concept of a flexible tape measure had been around for years before then but in the form of string, leather or woven material tapes that required rewinding by hand every time the tape was used. Although the first ever patent for a retractable tape measure was recorded in America in 1864, historical documents show that a 22-year-old Englishman, Charles White, was transported to the penal colonies in Australia in 1838 for the heinous crime of stealing a ribbon tape measure that spooled into a plain metal container.

Packaging for the original Farrand Rapid Rule

The Rapid Rule: one of the rare tapes in Barry's collection

Farrand Rapid Rule

The first ever patent for a tape measure was issued on 6 December, 1864 to William H. Bangs Jr. of West Meriden, Connecticut. It was the first and for nearly 50 years the only attempt in the United States to make a spring return pocket tape measure until 3 January, 1922, when Hiram A. Farrand received the patent he filed in 1919 for his spring tape measure, called the Rapid Rule. By 1926 Farrand had teamed up with co-owner of the Brown Company, Berlin, New Hampshire to mass-produce the product. The company was formed by a group of philanthropic businessmen from Portland, Maine whose interests included a sawmill, a railroad and latterly a paper mill. The Brown family owned land that stretched from Canada to Florida, which they used primarily for logging. During the early 1900s the company created a new department known as 'research and development' and constructed an entire building to contain it to 'demonstrate that the future of the Brown Company didn't lie in the achievements of the past, but in the development of products and processes that were yet to come'. The company had its fair share of financial difficulties, even surviving bankruptcy in the 1940s, by which time rights to Rapid Rule had been sold to Stanley Works.


Hiram A. Farrand with the Rapid Rule

Hooked on tapes

'Having worked in construction for 25 years I've always liked tools especially vintage ones, and after finding my first vintage tape, a 1950s Master Brownie, I was hooked,' explains Barry. 'Like any collection the more you discover the more you find there is to collect and learn. I just loved some of the cool names they were given like the Lufkin Donut, the Tuff-Boy by Master, the Big Chief by Carlson & Sullivan and the Glide-o-Matic by Stanley. Although these were sold primarily as tools intended for use, the manufacturers never missed an opportunity to make them stand out from the competition and what better way to promote a brand name than to have it in the palm of your customer's hand hundreds of times a day, every day of the working week. By the late 19th century the device was so popular that it caught the attention of two newspaper publishers and entrepreneurs from Coshocton, Ohio who thought it would be a good idea to use their printing presses to put adverts onto a range of objects including horse blankets, book bags, shoe horns and pencils. But when the humble tape measure was given similar treatment it changed the face of product marketing forever. All of a sudden companies that had no interest in tools were having tape measures made with their advertising slogans displayed on the cases.'

Early 1930s Lufkin Donut

Original packaging for Carlson & Sullivan's Big Chief

Early 1930s Stanley 6386 Direct Read

Promotional Zippo pocket tape measure made in 1962

1951 tape measure by Singer Sewing Machines

Who's counting?

'I do have tape measures dating back to the early 1900s but most of my collection is later than that and would best be described as pre-1950s. I have close to 1400 in my collection, the rarest and most valuable of which is a pristine Stanley #3206 from 1933. To give you an idea of how rare this tape is, I've only seen one other example in 20 years of collecting. I found my one at a flea market in Connecticut for $10. In 2012 one sold on eBay for $620.

'Other rare tapes in the collection are the Rapid Rule by Hiram Farrand and a complete set of the Stanley Stanlex #7886. This tape was only produced in 1933 and was available in three colours, red, yellow and green. To find one is tough but to find all three is very unusual. The #7886 are so rare that they are featured on the cover of the acclaimed *Stanley Woodworking Tools: The Finest Years* by Walter Jacob.

'While tape measures are used in hundreds of different trades my interest lies primarily with those connected with the construction industry and there are a number of details that are specific to their use. Some tapes are marked with small black diamonds known as 'truss marks' at 19¼in intervals. These are used to set out the required number of five trusses in a roof structure at equal spacing over 8ft of building material. A similar mark can be found at 16in intervals for setting out studs in a dry wall construction; three spaces of 16in equals exactly 8ft, which is the standard length of most sheet goods.'

Early 1900s celluloid advertising pocket tape

Commemorative tape by Stanley made in 1940–41

A rare collection of the Stanley 7886 in all three colours

Instagram

You can see more of Barry's collection on his Instagram feed: **@oldtape61**

Where to start

'For collectors in North America, the main makes to look out for are obviously Stanley from New Britain; CT Lufkin from Saginaw, Michigan; Master from White Plains, New York; Keuffel and Esser both from NYC and Starrett from Athol, Massachusetts. Less prevalent but still easy to find are examples by Justus Roe & Sons from Long Island, New York; Carlson & Sullivan from Monrovia, California, Walsco from Milford, Connecticut; Evans from Newark, New Jersey and Baldwin from Parkersburg, West Virginia. With international bidding available on most auction websites it's likely you would be able to add these to your list alongside more local makes. Whatever you collect, the most important thing to consider is condition. I always try to look for tapes in the best possible condition and wherever possible with the original box. Yes, once upon a time tape measures were sold in boxes and not in plastic blister packs. For this reason I store all my tapes in a cool, dry place out of direct sunlight to protect the packaging as much as possible.'

Dating tape measures

'As far as dating tape measures and finding information about them is concerned, it's not that easy as there's no single reliable source of information available. There are a few books about tape measures used in advertising and novelty tape measures but nothing that would help the collector date or gauge value. The best and probably the most reliable source of information can be found in old trade and hardware catalogues but be warned, you could find yourself starting a whole new collection.' *F&C*

Red Ace tape measure

Stanley 3206 produced in 1933

Otis Elevator advertising tape by Lufkin

1925 Lufkin tape measure in excellent condition

Lufkin, 'The Name That Reminds You of Tapes & Rules'

Solid brass pocket tape by Best Made Co

Original packaging for Stanley and Lufkin tapes

Barry looks for tapes in good condition, preferably with the original box

Boxes of Lufkin's Wizard Jr

UNDER THE HAMMER:
Decorative Art and Design

We look at several lots from Bonhams' auction of 20th-century decorative arts

PHOTOGRAPHS COURTESY OF BONHAMS

Bonhams' Decorative Art and Design auction held in Knightsbridge featured stunning examples of 20th-century decorative arts including paintings, ceramics, metalware and sculptures. We take a closer look at some of the best furniture lots here.

£5000

A Gordon Russell mahogany, burr yew and ebony display cabinet. It has double-fronted glazed panels with side access doors, and is raised on six carved legs, with decorative vaulted arch supports. The paper label attached to the piece states that it is Design No. 787 and was made in the Russell Workshops in Broadway, Worcestershire in 1929.

£3750

An Art Deco drinks cabinet made by Jacques Adnet, ca. 1935. The cabinet is made from ash, with a parchment-covered exterior and brass handles and feet. An icon of French Modernism, Adnet is known for incorporating materials such as metal, leather, glass, parchment and mirrors into his furniture designs.

£1750

A rare pair of armchairs designed ca. 1955 and attributed to Neil Morris for Morris & Co., Glasgow. The laminated chair frames are made from Australian walnut veneers. The Morris Furniture Company was founded in 1884 by Harris Morris, whose son Neil joined the firm in 1938. Neil was an innovator in wood technology and design, especially in pioneering the use of laminated wood to shape chairs and tables.

£475

1930s lamp table, made in the manner of Gerald Summers. The table is made from laminated birch plywood with ebonised wooden feet. Summers was an innovative furniture designer, best known for his Bent Plywood Armchair.

UNDER THE HAMMER:
David Stanley Sale

Fom a 'mint' Norris jointer to exquisite, craftsman-made gauges, John Adamson reports back from a sale where there was something for everyone

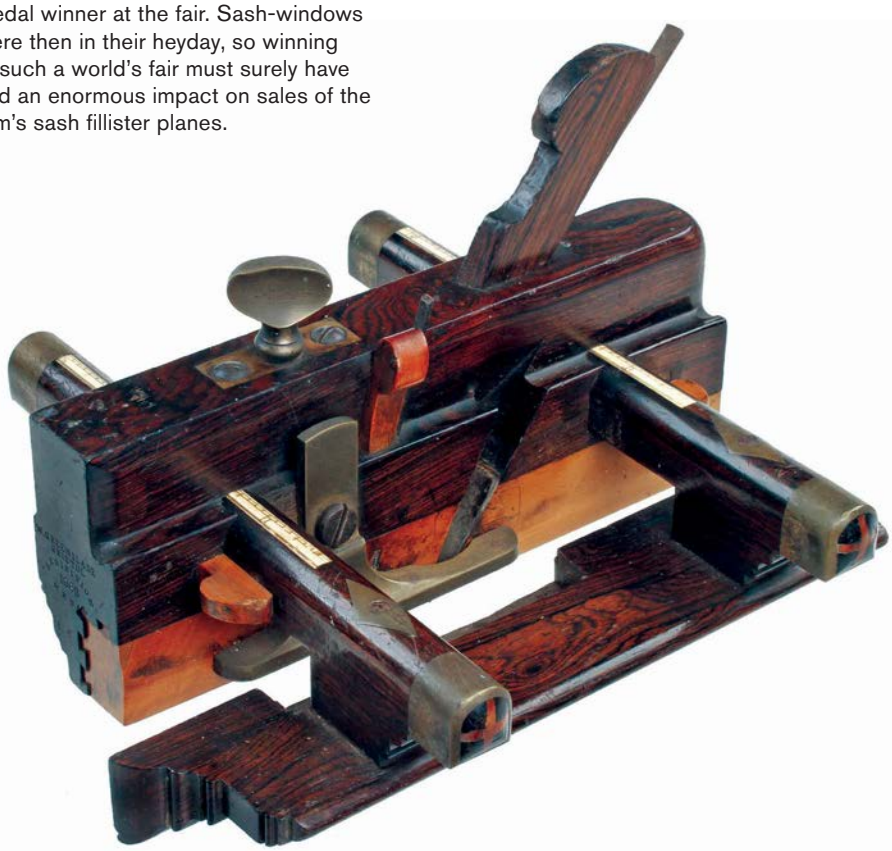
£6000

In the firm's later years, Norris used lengths of steel channel as a cost-saving measure to form the stocks of A1 panel planes and jointers. The dovetailing of the sole on this A1 jointer (lot 923) therefore suggests earlier manufacture. In almost mint condition and thus very scarce, the plane has a rosewood infill and the firm's patented cutter adjustment mechanism

Collectors and woodworkers found themselves in seventh heaven at David Stanley's 69th international auction of antique woodworking tools and tools from allied trades held in Leicestershire on 30 September, 2017. There was much to delight both kinds of buyer: bliss for collectors, who could bid for antique items of outstanding quality as well as some of impressive provenance; bliss for woodworkers, who could bid for countless useful tools selling at modest prices.

Among the 970 lots in the sale woodworking planes abounded. Indeed planes (16 by Norris, the highly sought-after former London maker) took up 19 of the top-selling 25 lots. The special draw of the Norris planes at this sale was that some came from a collection of mint or slightly used planes which had been together since new. One of these, a virtually unused, dovetailed A1 adjustable jointer (lot 923), stole the show, going under the hammer at twice the guide price for £6000 (excluding buyer's premium) to an English buyer on a commission bid.

A sash fillister plane (lot 792) by W. Greenslade of Thomas Street, Bristol, dated 1862, in fully boxed rosewood instead of the habitual beech and furnished with ivory scales to the stems, sold for £1800 to an American bidder in the room. It is highly likely that this plane was made in a limited edition following the firm's success at the International Exhibition of the same year held in London on the site in South Kensington now occupied by the Natural History Museum and the Science Museum. The firm displayed planes in the class XXXII of 'Steel Cutlery and Edge Tools'. According to Cassell's *Illustrated Exhibitor* published in 1862, the firm of Greenslade was a prize-medal winner at the fair. Sash-windows were then in their heyday, so winning at such a world's fair must surely have had an enormous impact on sales of the firm's sash fillister planes.



PHOTOGRAPHS BY JOHN JAMES. COURTESY OF DAVID STANLEY AUCTIONS

£1800

A sash fillister plane (lot 792) by W. Greenslade of Thomas Street, Bristol, is proudly stamped 'EXHIBITION MEDAL' in an ellipse around the date 1862, alluding to the award the firm won at the 1862 Great London Exposition. The boxwood insert and wedges for stems and nicker are in pleasing contrast with the rosewood of the stock. The use of this exotic wood rather than beech suggests the plane was part of a special edition

£800

This 18th-century 13in French brace (lot 845) with C-shaped crank and lathe-turned head formerly belonged to the Swiss-Italian collector Luigi Nessi

An 18th-century 13in French brace with C-shaped frame (lot 845, sold for £800 to an absentee bidder in the United States) came with a magnificent provenance, that of Luigi Nessi the Swiss-Italian collector from Lugano. Nessi, who died in 2009, had given up his practice as architect and urban planner in 1970 to devote himself to collecting some of the finest European tools from the Renaissance to the 19th century and to gathering information about them. An auction of nearly 1000 items from his collection was held by Koller of Zurich on 2 April, 2012 and included this French brace (Koller lot 657), which bears the stamp of Nessi's discerning eye. In wrought and cut iron with rotating bulbous brass handle edged with knurling, the brace has a slender thumb-screw to hold the bit tight. Noteworthy is the head turned in a close-grained wood known as *cormier* to the French and identified as service-tree by the great 19th-century tool-maker Charles Holtzapffel.

Detail of the rotating handle swelling to a baluster-like bulge

Detail of the swivelling head showing the etched collar frieze on the neck

A fine late 18th-century Dutch fore-plane or *voorlooper*, with the maker's mark of Pieter van Duijl the younger (lot 764, selling for £1100 in the room to a buyer from the Netherlands), came from the collection of the late Don Wing, a Massachusetts collector and dealer. In 1984 the plane graced the jacket of Christopher Proudfoot and Philip Walker's book *Woodworking Tools*, one of the Christie's collectors' guide series of that time. At 24in in length with a type-D mouth, according to the classification of William Goodman, the tool historian, the elegant scrolling design is carved around the date of 1783. The plane has the characteristically Dutch shape to the stock in the way that it tapers from behind the iron down to the heel. Like his father before him, Pieter van Duijl the younger worked in Rotterdam as a plane-maker.

£1100

A fine 18th-century Dutch fore-plane or *voorlooper* (lot 764) by Pieter van Duijl the younger from the collection of Don Wing

A wonderful clutch of gauges (lots 720–8 and lot 731) gives ocular proof of the continuing availability of utterly gorgeous items at very modest prices. While many gauges in the 19th and 20th centuries were made in beech, this little group of slitting and mortise gauges sold at the auction mostly came with ebony or rosewood stocks. Slitting gauges are designed to rip thin stock and veneers quickly and accurately; mortise gauges to mark the parallel lines for cutting the walls of mortises and the cheeks of tenons. The Sheffield tool-makers William Marples & Sons (later Record Marples) made three of the batch, the one still with its original box coming from Don Wing. The firm of Joseph Marples, another Sheffield hand-tool manufacturer, still makes mortise gauges in rosewood and in beech to this day. Some of the gauges on sale came from other still-active Sheffield makers, Robert Sorby and John Wilson, the latter firm known today for its ice-skating blades, but several gauges were unmarked. These were in all likelihood the superb work of proud craftsmen who chose to make tools of their own.

Next special sale

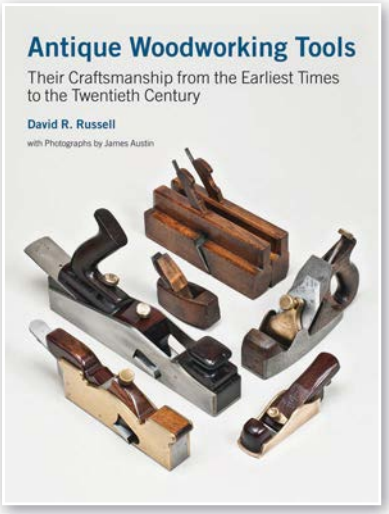
The next special sale will be held on 23 February, 2018, when 11 little-used and unused planes by the contemporary maker Karl Holtey ranging from 28½ to 1¼in from a private collection are likely to catch the eye of potential bidders.

www.davidstanley.com

From left to right: ebony slitting gauge with brass stock, maker unknown, £70; rosewood mortise gauge with heavy brass stock, maker unknown, £75; little-used brass-stemmed ebony marking gauge by Robert Sorby, Sheffield, £45; brass-faced mortise gauge by John Wilson, Sheffield, £30; brass-faced, little-used ebony slitting gauge by William Marples of Sheffield, £140

A mortise gauge (lot 731, selling for £190) from Don Wing's collection made by William Marples & Sons Ltd. 'Shamrock Brand' on the original box alludes to the trade-mark introduced in 1875 alongside the works name of Hibernia

From left to right: two rosewood and brass slitting gauges with boxwod screws, makers unknown sold as a single lot, £35; rosewood and brass slitting gauge with boxwood screw, William Marples, £30; craftsman-made rosewood-stemmed boxwood marking gauge, £25, two rosewood and brass gauges, one for slitting, the other for marking, makers unknown, sold as single lot, £42



If you're enjoying our series on tool collecting you will find more examples of the items featured so far in *Antique Woodworking Tools: Their Craftsmanship from the Earliest Times to the Twentieth Century* (ISBN 978-1-898565-05-5). For more information see: www.antiquewoodworkingtools.co.uk

Clarke Oscillating Belt & Bobbin Sander review

Kieran Binnie tests a versatile sanding solution

PHOTOGRAPH COURTESY OF CLARKE

One of the universal truths of woodwork is that no one enjoys sanding, especially when there are multiple components to be sanded, or unusual angles to be sanded to. These situations are likely to lead even the most ardent hand tool woodworker in search of a mechanised sanding solution. Enter the Clarke Oscillating Belt & Bobbin Sander – a versatile machine that promises to satisfy a variety of sanding needs at a very affordable price.

Specification

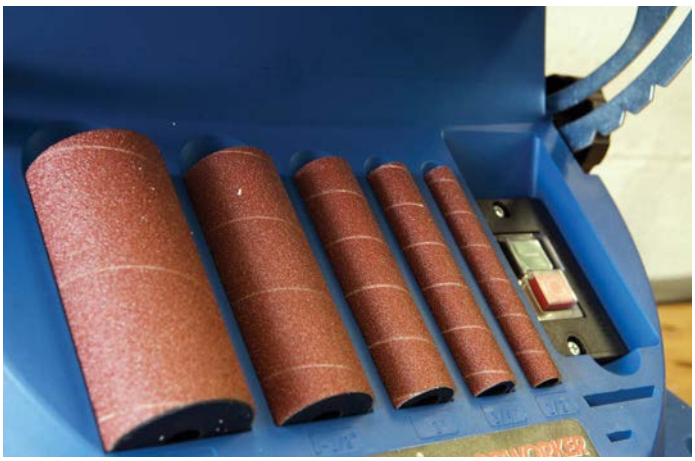
The Clarke Oscillating Belt & Bobbin Sander is, as the name suggests, a combination sanding machine offering both belt and bobbin modes. The sander can be used either in belt or bobbin configuration, but not both simultaneously. That being said, it only takes a few steps to change the configuration and the clear instructions make this a very simple (and swift) operation. Helpfully, Clarke provide all of the tools needed to set up the machine and to change configuration between belt and bobbin sanding, including full complement of washers to allow each of the different spindle sleeves to be fitted.

The body of the sander is in the familiar Clarke blue livery, and is made largely of plastic, which helps to keep both cost and weight down – the sander only weighs 12.4kg making it very portable. The grey sanding platform is hinged, allowing the front section to be set at 15, 30, 45 and 90° to the sanding element. The four feet moulded into the base have rubber grips to improve stability on the workbench, and feature mounting holes so that the sander can be bolted to a work surface if desired.

An 80-grit sanding belt, and five 80-grit bobbin sleeves are included with the machine, the latter covering ½in to 2in diameters. For finer sanding, 150 and 240 grit bobbin sleeves are available separately.

Although this machine includes dust extraction ports, this alone does not satisfy the Health and Safety Executive's requirements for safe control of dust particles in commercial workshops. The Clarke Oscillating Belt & Bobbin Sander is therefore very much a hobbyist machine. As well as hooking the Bobbin Sander up to a dust extractor, it is also prudent to wear a good dust mask while carrying out sanding operations.

PHOTOGRAPHS BY KIERAN BINNIE UNLESS OTHERWISE STATED



The sander includes some nice ergonomic features, like these holders for the bobbin sleeves…

…and the slots to hold the bobbin washers and wrench

In use

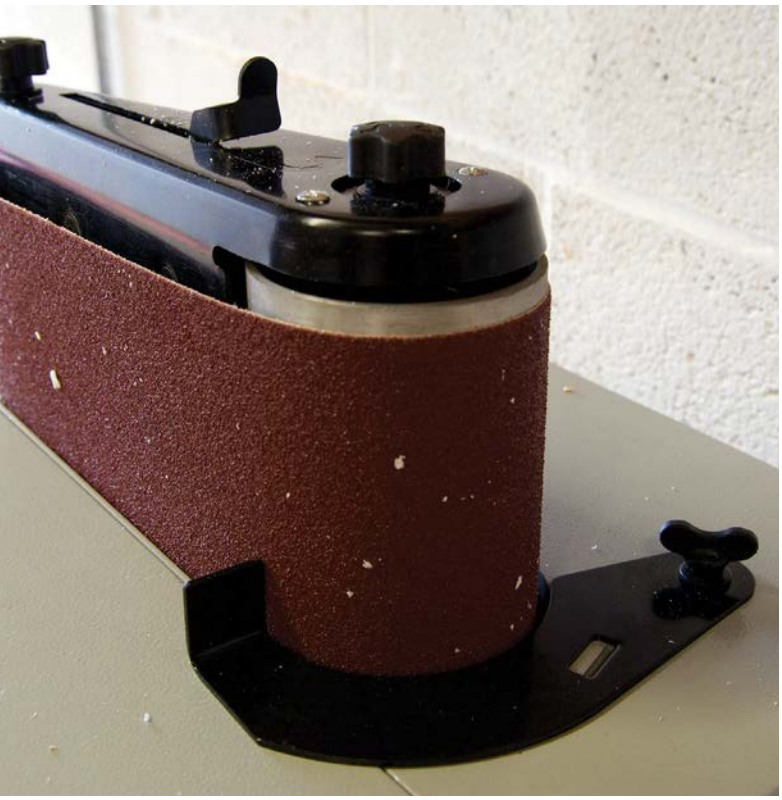
Out of the box, the first thing you notice is that despite being plastic and relatively light, the sander still feels very robust. Thanks to the clear instructions it only takes a few minutes to set up the sander, including swapping between the belt and bobbin functions. Once it is hooked up to a dust extraction system, and you have a dust mask on hand, you are ready to go.

The sander is not as earth-shatteringly loud as I was expecting, but it was loud enough to make wearing ear defenders a good idea, particularly for extended sanding sessions. The rubber feet kept the sander stable on my workbench and I didn't suffer from any sliding or movement.

In use both the belt and bobbin worked well. The 80-grit abrasive included with the sander works aggressively, and is good for roughing work before finishing up by hand. The finer abrasives sold separately would no doubt be more appropriate for finish sanding. The backstop provides a sturdy point on which to steady the workpiece – very much in the same way as you would use a lead on pin on a router table. Overall, the impression given is of a solid and safe machine which should provide good service over the years.

The sander also includes some thoughtful ergonomic touches. The base has five cylindrical moulded hollows for storing the bobbin sleeves, along with slots for each of the different sized bobbin washers. At the rear of the base is a moulded shelf for the belt sander and the bobbin insert for the sanding table. Providing dedicated storage for each of the components helps to reduce workshop clutter and minimise the risk of losing a key part at a critical moment.

The angle of the sanding platform is set with two large plastic knobs. These lock securely and hold the platform in position very well. Throughout testing I did not have any issues with the platform working loose or unexpected changes of angle. The angle of the platform is determined by the right-hand hinge, which is notched at the 15, 30, 45 and 90° positions. Changing the angle is simply a case of loosening both knobs, and sliding the hinges until the post of the right-hand knob drops into the appropriate notch in the hinge. The benefit of a notched hinge is repeatability of setting, and the angles offered will likely cover the vast majority of work. However, it is a shame that there is not a wider selection, or the ability to freely set the angle, as sanding to an angle not offered currently requires the use of shims or other workaround.



Setup for the belt sanding function

It only takes a minute to swap over to the bobbin function

The notches hinge allows the sanding table to be adjusted to a number of useful angles

The rear of the unit contains a compartment to hold the belt sander attachment while not in use

Conclusion

For light or occasional use, the Clarke Oscillating Belt & Bobbin Sander is a very good choice, combining good features with sturdy construction and a keen price point. The small form factor also means that when it is not in use, it is easy to stow away under a bench. In short, the Oscillating Belt & Bobbin Sander continues Clarke's reputation for offering good quality hobbyist machines at a sensible price. If you are in the market for a sander at this price point, then the Clarke model is well worth trying. Remember to budget for a dust collection system if you don't already have one – dust collection is essential when using the sander, and for safety's sake I would still use a decent dust mask and ear defenders. But that is to be expected when using a mechanised sander, and is in no way a criticism of this particular model. *F&C*

Information

The Oscillating Belt & Bobbin Sander is available from Machine Mart and costs £215.98*
Web: www.machinemart.co.uk

* Price correct at time of going to press

Dust extraction ports are included

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Tricks of the trade... ...thumbnail profile jig

Ramon Valdez makes a handy jig for shaping curved crest rails

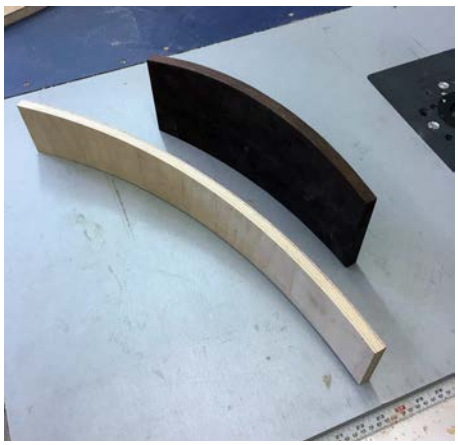
I recently created templates, jigs and fixtures to produce all the necessary components to build nine chairs (only six with marquetry are shown in this article). I needed the parts to be easy to reproduce, preferably quick and easy to make and most importantly, accurate and exactly the same as each other. For most of the chair components, this was a straightforward task. However, when it came time to add a thumbnail profile to the top and bottom edges of the crest rails (chair backs) this took a bit of head scratching. The crest rails are curved at a 30in inside radius to fit the user's upper back and the top edge is also curved for aesthetic reasons. Perhaps this could be called a compound curve. I needed a foolproof solution as I had already spent quite a bit of time on the crest rails because of the marquetry and I certainly didn't want any mistakes!

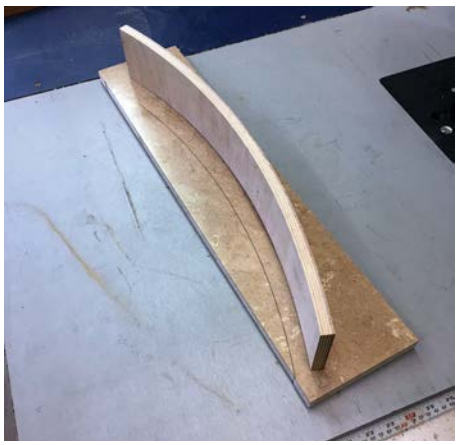
This was my solution. When making the curved substrate for any project, I intentionally make more than I actually need. You never know when you'll need the curved material during the project. As a backup for the curved material, I created a curved section using scrap particle board (I used Formica-covered sink cut-outs) and I traced the 30in curve onto this and cut to the line at the bandsaw. After fairing the curve with a belt sander and curved platen (see my article in *F&C* 260), I attached a narrow section of the curved material with glue and screws. This will later become the template that the back of the crest rail will follow. Using another section of scrap with a 45° angle and a notch for the router bit, I attached this section to the first, then attached them both to a sub-base. Then on to the second curved 'fence' that will guide the convex top shape of the crest rail. In other words, the crest rail will move across the router bit at a 45° angle, and not only follow the back of the crest rail, but also follow the convex shape of the top of the crest rail. This may seem overly complicated, but the photos should show the relative ease of the jig.

Setting up the jig required a bit of a dance between the router bit height and the proximity of the jig to the router bit. I assumed it was close by eye and made a test cut, just barely cutting the leading edge. After a tiny adjustment, I locked down the clamps holding the sub-base and routed all the curved top edges. Once finished, I simply removed the curved 'fence' and replaced it with a straight one to rout the bottom edge of all nine crest rails.

I love creating jigs and I believe that they should serve at least one of three principles: provide safety, speed of production and/or accuracy … or better still, all three. *F&C*

PHOTOGRAPHS BY RAMON VALDEZ

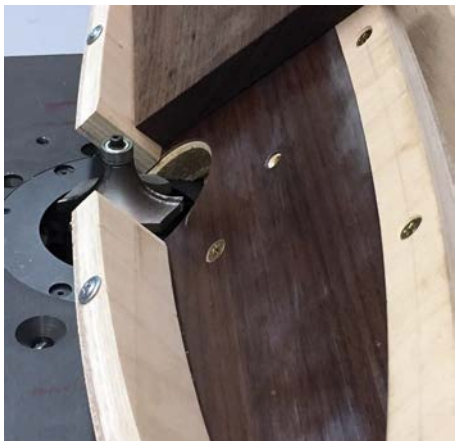

A finished crest rail (top) and a duplicate section

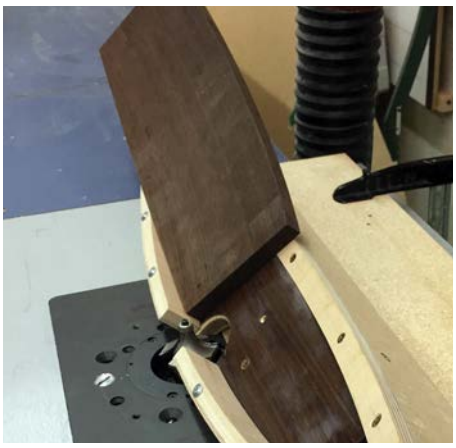

The duplicate becomes a template for the fence

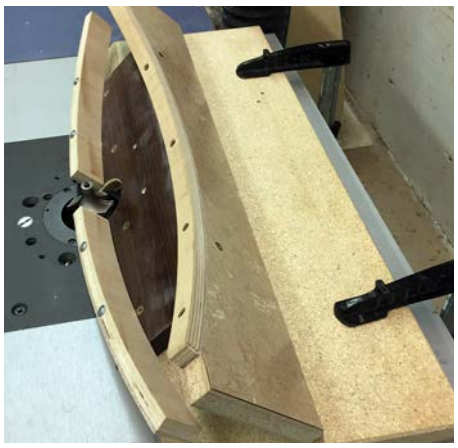

The base board rough cut on the bandsaw

Fairing the curve with the appropriate platen

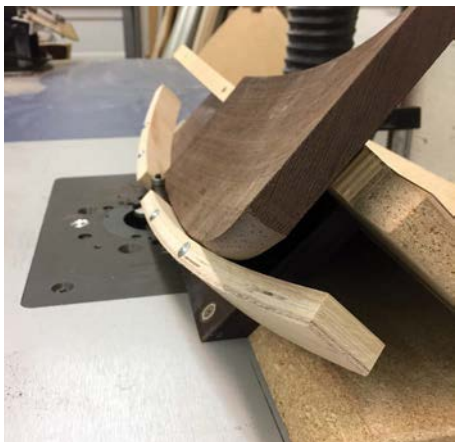

The particle board is faced with ply from the duplicate

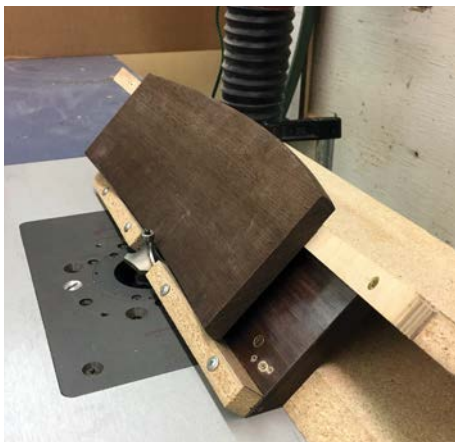

Create an opening in the fence for the router cutter

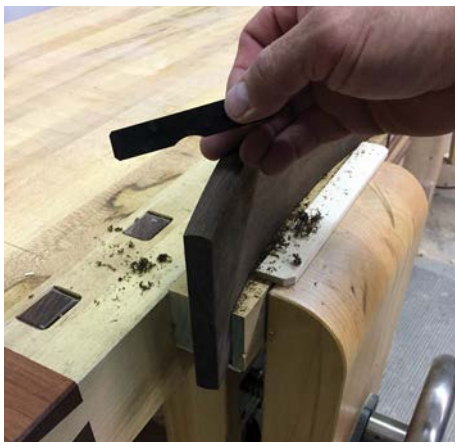

The jig needs plenty of lead-in and out-feed


It's essential to clamp the jig to the router table


Test cuts on a spare crest rail


The curved fence is used to profile the top edge...


... a straight fence is used for the bottom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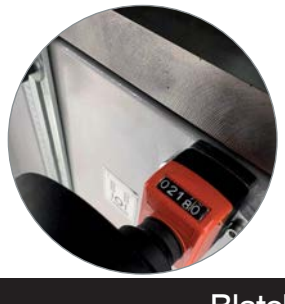

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Kit & tools

Having trouble sourcing the right tool for the job? Here's a selection of new and essential equipment for the workshop

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PHOTOGRAPHS BY DEREK JONES/GMC PUBLICATIONS LTD

MINI TEST
Mylands melamine lacquer

Even if you live in fear of the glue-up you've got to admit it's pretty exciting when the time comes to put all those components together. I mean if it were that bad we wouldn't attempt to build things in the first place. But if your glue-ups resemble a re-enactment of the Charge of the Light Brigade then clearly you're going about it the wrong way.

There are so many techniques you can use to relieve the tension at that critical moment that it's almost possible to enjoy the process. My favourite one – and it's not that obvious because until you've tried it, it feels like you're jumping the gun

– is finishing the inside faces of the components before assembly. It sounds a bit daft at first I know but there's method in the madness.

Most finishes repel adhesives quite well and those that don't can be made to do so with the application of a little wax, so any concerns you may have about ruining the finish with excess glue can be ruled out. Part of the job of a finish is to act as a barrier and prevent the ingress of dirt, dust, grime and the occasional spill from marring the surface below. Excess glue in this instance is all of the above and more, so anything we can do to control its use is a real bonus. Choose the right product and it won't feel like you're losing momentum in the general build.

This month I experimented with Mylands melamine lacquer for the first time to seal the interior components of a tool chest prior to assembly. Melamine has many good qualities; it's hard wearing, resists water and other non-corrosive substances and delivers a good shine. It also dries very quickly when used in thin coats and doesn't require any great skill to apply.

Like any finish, surface preparation is key to achieving good results. In this case sanding with a random orbital sander to 240g or higher is sufficient and that's about as much as you need to do. The lacquer does not raise the grain like other finishes so you can go straight to the finish grit and then put the abrasives away. The quickest method to apply the lacquer is with a cotton cloth similar to the way you might apply shellac for a French polish. Applied like this, the product dries almost instantly and you'll experience a lot of pull on the cloth so you'll need to wrap or bunch up the cloth quite tightly and work in small areas at a time. Putting the lacquer on the cloth and not on the surface of the wood helps avoid build-up and an uneven surface. Working in this way means that a second coat can be applied within a few minutes depending on the room temperature and other atmospheric conditions.

For interior surfaces you may find that the finish is adequate on its own but the addition of a little medium or hard wax over the top will give you a silky smooth finish in no time, and, more importantly, one that will make cleaning up after a gluing session so much easier.

A couple of things worth noting are that melamine won't make the grain pop like oil or varnishes do and neither will it darken the wood. Used rags cannot be stored and should be opened out to dry and disposed of when completely hard. I suggest good ventilation as a minimum requirement during use and a carbon filter mask for small areas and complete air-fed respiratory equipment for larger projects.

From: www.mylands.com

Bad Axe D8 hand saws

Bad Axe Tool Works have just released a new range of hand saws based on the venerable Disston D8. At 24in and 26in long the taper ground plates can be ordered to your requirements depending on their intended use; hard or soft wood, rip or cross-cut. 'We took inspiration from the most elegant pattern Henry Disston ever produced and incorporated it into the pre-1928 Simonds skew-backed hand saw with let-in mounting pattern for the handle,' says Mark Harrell of Bad Axe. The saws are available in both standard and thumbhole-grip versions, in a variety of timbers including hickory and walnut, either left- or right-handed and sized to fit the user. The difference between a quality tool and a not-so-quality one can usually be measured in thousandths of an inch. The difference in performance, however, can usually be measured in miles. We've been putting a pair through their paces for the last couple of months and will have a full review in *F&C* 267.

From: www.badaxetoolworks.com

Trend digital level box

Trend's digital level box has all the features of other makes but at almost half the price of some of its competitors. Use it to measure the angle between two surfaces or just capture one. The instructions suggest it's accurate to within +/- 0.2° so there's very little not to like. If that's within your accepted level of tolerance you might want to invest. The back-lit screen is clear and bright and the kit comes with a battery and soft case, plus a set of instructions that won't leave you with a migraine. If you happen to lose them you'll find an appropriate download, along with hundreds of others, waiting for you at the official Trend website.

From: www.trend-uk.com

£21.36

Note. The effects of a constantly evolving global market in raw materials and other resources mean that prices can change. Be patient with your supplier and please understand that the prices quoted here are correct at the time of going to press.

Online multimedia

If you can't make it to Colonial Williamsburg in person, you can get a flavour of the place from its extensive collection of online multimedia, which includes podcasts, videos, webcams and daily features.

The British Fife and Drum band

Visitors can enjoy carriage rides around the museum

Out & about:

Colonial Williamsburg

This month we visit one of the USA's most famous living-history museums

Visitors to Colonial Williamsburg, Virginia can immerse themselves in 18th-century life as they wander around preserved buildings, visit museums and interact with costumed actors. The historic area covers around 120 hectares and includes restored and re-created buildings from the Colonial and Revolutionary era, 'the dawn of America'.

History

Williamsburg was the state capital of Virginia from 1699–1780, forming the political, cultural and educational centre of what was at the time the country's most populous state. The project of restoring the historic area began in 1926 when the Reverend Dr Goodwin approached John D Rockefeller Jr with his vision for preserving this important part of the nation's heritage. With Rockefeller's support, around 85% of the original town was preserved.

The George Wythe house. Wythe was a lawyer and a prominent leader of Virigina's independence movement. This building was designed in the 1750s and is furnished as it would have been when Wythe lived there ca. 1779–91

PHOTOGRAPHS COURTESY OF SHUTTERSTOCK

What to see

The museum includes many original and re-created buildings representing the city's political, cultural, commercial and domestic life. There are churches, coffee shops, taverns, jails and hospitals. Costumed actors representing Williamsburg's citizens, both free and enslaved, help bring the past to life as they demonstrate trades and engage visitors in conversation. Colonial Williamsburg also includes two art museums. The DeWitt Wallace Decorative Arts Museum displays furniture, metals, ceramics, glass, paintings, prints, firearms and textiles from the 17th, 18th, and 19th centuries. It houses the largest collection of southern furniture and one of the largest collections of British ceramics outside England. The Abby Aldrich Rockefeller Folk Art Museum contains one of the largest collections of American folk art in the world, with paintings, sculptures and other objects created by self-trained artists and craftsmen.

Interior of R. Charlton's Coffeehouse

The speaker's chair in the Capitol building

18th-century trades

Several 18th-century trades are demonstrated at Colonial Williamsburg, the museum's website even has a suggested itinerary for 'DIYers and Makers' to follow. At the cabinetmaker's workshop, costumed workers make tables, chairs, desks and chests using colonial-era tools and techniques. The shop is a re-creation of the one established by Anthony Hay in the mid-18th century, one of seven cabinetmaking workshops based in Williamsburg in that era. Hay was originally from Scotland. His employees included a Virginia-born apprentice, a London-trained journeyman cabinetmaker, a skilled slave cabinetmaker and a master carver from London. Their customers included fellow Virginians, master tradesmen, merchants and planters – the established middle class and above. These customers were interested in the 'Modern Taste' of French, Chinese or Gothic mode, now coined 'Chippendale' style. Other trades on show at Colonial Williamsburg include blacksmithing, carriage making, carpentry and metalsmithing.

Trades demonstrated at Colonial Williamsburg include carriage making, cabinetmaking and woodcarving

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www.beamish.org.uk

Chiltern Open Air Museum
Buckinghamshire, UK
www.coam.org.uk

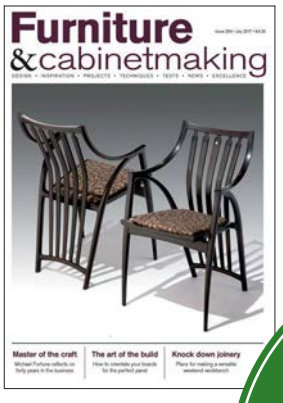
Netherlands Openluchtmuseum
Arnhem, the Netherlands
www.openairmuseum.nl

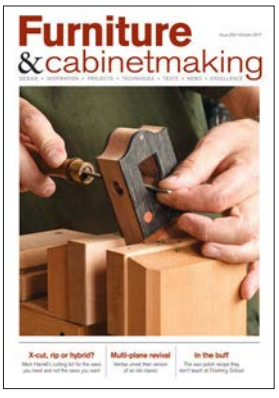
Weald and Downland Living Museum
West Sussex, UK
www.wealddown.co.uk

Information for visiting

Address: Colonial Williamsburg Visitor Center, 101 Visitor Center Drive, Williamsburg, VA 23185, USA
Website: www.colonialwilliamsburg.com
Opening: Open every day
Charges: Single-day ticket: $40.99 adult, $20.49 youth (6–12); Multi-day ticket: $50.99 adult, $25.49 youth (6–12); Art Museum Single-day ticket: $12.99 adult, $6.49 youth (6–12); other ticket options are also available

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





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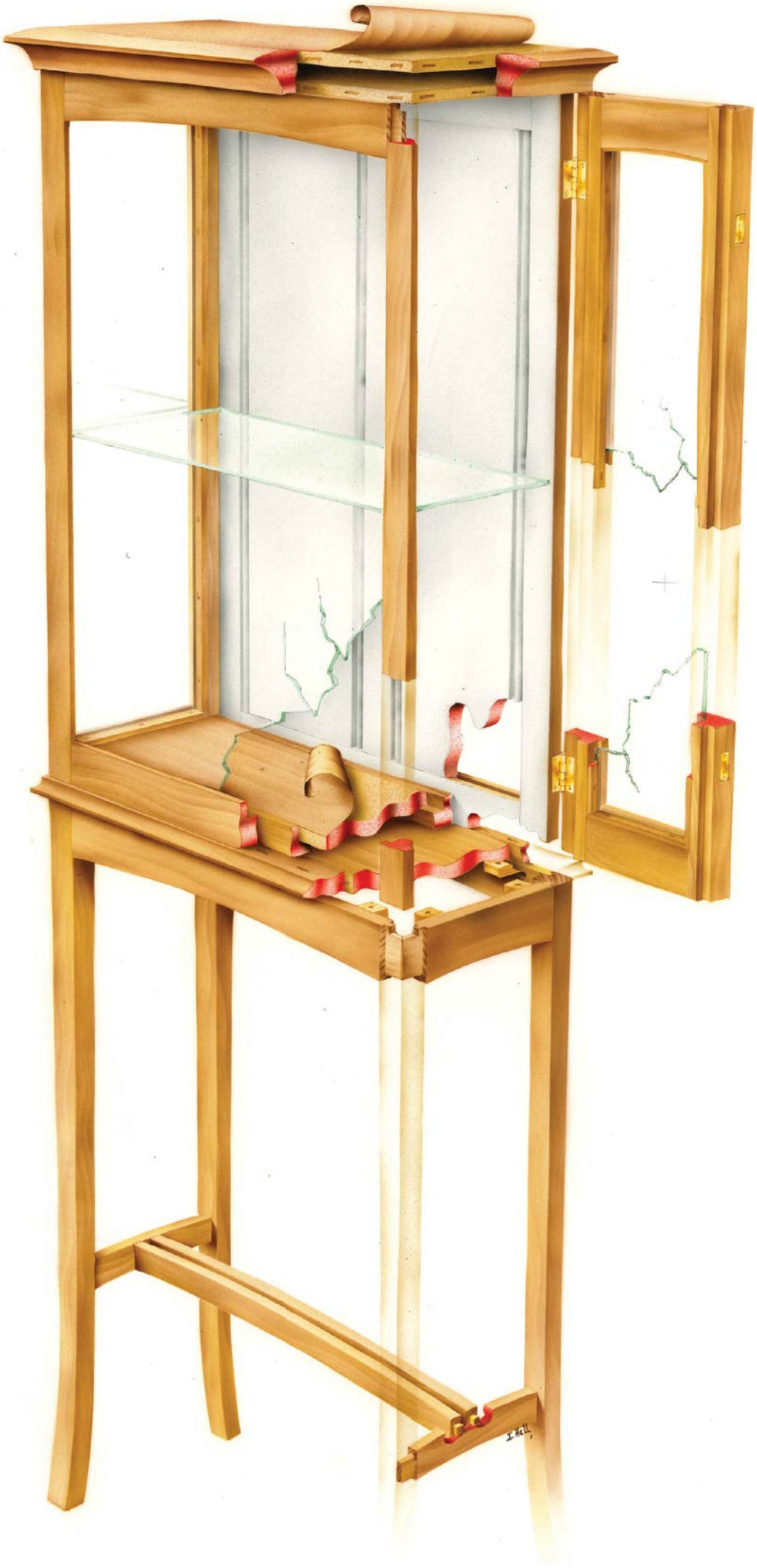

IMAGE BY IAN HALL/GARY DINGLE/GMC PUBLICATIONS

An airbrush with the past

Derek Jones dips into the *F&C* archives for this display cabinet

At first glance Gary Dingle's display cabinet from September 2004, issue 92 appears to be fairly straightforward. But take a closer look and you'll see a few subtle details that make it rather more interesting and therefore a great case study for building rigid structures with the least amount of material. Display cabinets are not about the cabinet but about what they are made to display. Sounds obvious I know, but you'd be surprised how many you see that overplay their part.

The subtle details I alluded to earlier are not just confined to the aesthetic features like the curved top rail of the top frame and door, and rails around the base. Some of them perform a vital function in the overall construction and performance. Take, for example, the splayed legs. The tendency with some designs is to taper the legs to give a lighter appearance, and although that's what happens it can also allow the top section to sway giving rise to rattles and creaks as people walk by. To overcome this, Gary chose to start with a delicate frame and leg and avoid the taper but splay the legs in two directions at the bottom, i.e. diagonally out at the corner.

Something that's not shown on Ian Hall's drawing and probably would go unnoticed is that the vertical parts of the top frame carcass are tapered by 2mm from bottom to top. I can't imagine anyone would ever notice it but they would be left with a sense that everything is in proportion. Once again, little details making a huge difference.

I also like the way Gary made the top of the cabinet, using it to firm up the whole structure. The thick cornice is glued to two boards creating a solid box section with a flat tabletop surface. Another feature worth noting is placing the door on the side of the cabinet because, in Gary's words, 'A door at the front would change the centre of gravity and distract the eye from the piece's visual simplicity.'

The last detail I want to bring to your attention, and it's a real belter by the way, is the bevelled rebate on the closing side of the corner post and the square rebate on the hinged side. I've never come across this detail before other than on external windows and doors to mitigate drafts and leaks. Here it serves two purposes; the first is to contain the door frame within the confines of the cabinet base frame and to remain in line with the legs. The second is to obstruct a clear line of vision through the gap around the door into the cabinet. See what I mean? Subtle. F&C

Next month

Next month we'll be going back to issue 63 and April 2002 for a look at David Applegate's use of the classic showcase or three-way mitre joint.

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