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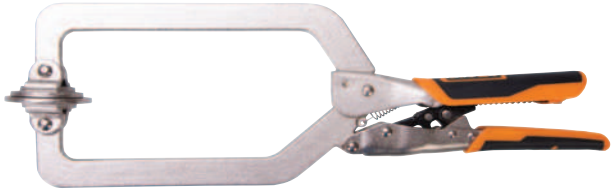

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WELCOME

Learning new skills is great for our general wellbeing: it can boost self-esteem, encourage social interaction, give us a sense of hope and purpose and help us to cope better with stress, according to mental health charity Mind.

Couple that with the meditative feelings and satisfaction we get from woodworking and furniture-making and we're well on our way to feeling fantastic through the darkest days of the year.

This issue of *F&C* is packed with opportunities to learn and try out new skills – from carving a decorative handle to making a Nakashima-style stool with a woven seat and from free form bent laminations to making decorative inlays from scratch.

And we meet the makers who have taken their furniture studies – whether those are formal or self-taught – into successful careers, making a living from the art and craftsmanship they love.

If you want to learn even more about furniture making, why not do what Constance Graesslin de Mare did and simply Google 'the best furniture school in the world'? Or stock up on books and magazines and teach yourself, like Ryan Cheney, whose career was born out of a cash-strapped retreat to an off-the-grid cabin.

Whatever you want to learn this season, we hope you'll find plenty to inspire you in these pages.

'Whatever I'm working on, I get excited. It does not matter whether I have done the same piece many times. I still can't wait to get out to the shop in the morning.'

SAM MALOOF

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F&C ISSUE 303

Furniture & Cabinetmaking magazine (ISSN 1365-4292) is published every eight weeks by Guild of Master Craftsman Publications Ltd, 86 High Street, Lewes, East Sussex BN7 1XN
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COVER IMAGE Mark Peacock

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.

HEMP CORD AND OAK STOOL

ISRAEL MARTIN MAKES A NAKASHIMA-INSPIRED 'SIBLINGS' STOOL FOR TWO PEOPLE

I was really impressed by George Nakashima's piece, Grass-seated Chair, and I wanted to make something similar. In fact, the way the hemp cord is woven on my stool is the same as on the Nakashima chair. Instead of using circular joinery for my stool, I used mortises and tenons for the main joinery.

This is a really simple piece to make. For the timber, I used a nice piece of oak from a tree that I cut a long time ago from the forest that surrounds my shop. I finished the piece with three coats of Danish oil and beeswax.

Before making this 'siblings' stool for two people, I used a similar design for a single seater, to teach a workshop for a French student who then used the stool as an admission piece to the fine furniture school in Paris.


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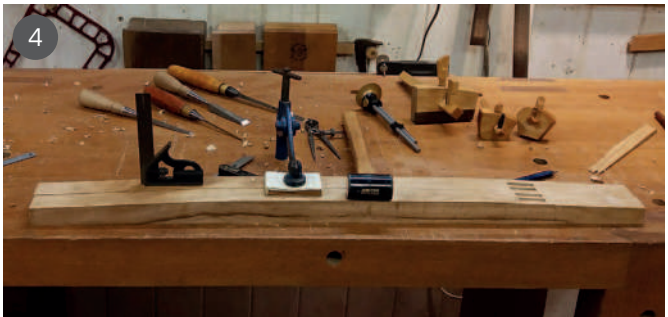
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PHOTOGRAPHS BY ISRAEL MARTIN

1 & 2 The oak came from the local forest **3** An earlier version of the design was made to seat one person
4 Making the double mortises to join the legs and seat **5** The double tenons were trimmed with a shoulder plane
6 Adjusting the tenon shoulders **7** A test fit of the joint **8** A single tenon **9** The completed main joinery
10 Shaping the side stretchers **11** The stretchers were fixed to the legs **12** Detail of the joint between the side and long stretchers
13 The glue-up before the weaving **14** Applying finish before weaving **15** The drilled holes for the hemp cord

THE MAIN JOINERY

I used twin mortises and tenons to add strength (more glue surface) to the joint that will suffer the most stress. I cut the tenons almost to the line and then trimmed the cheeks with the shoulder plane. I did the same with the tenon shoulders but I trimmed them with the chisels with a very light cut.

To join the horizontal pieces that will support the hemp cord seat, I used thick simple tenons. I added oak pins on every mortise and tenon to reinforce the joint.

THE STRETCHER JOINERY

I made the legs slightly splayed at the bottom but I added four stretchers to join them together: two side stretchers and another two long ones to join the side stretchers. The side ones that join the legs are just a square piece with rounded ends that fit into similar drilled holes in the legs.

I rounded them with spokeshaves from square in the centre (where the mortises of the middle stretches are located) to circular at the ends. I also rounded the external part of the centre part.

16 Weaving the hemp cord on the stool **17** One finished woven seat

The long stretchers are square and are joined to the side ones with a mortise and tenon and an ebony pin.

WEAVING THE HEMP CORD

The first thing that caught my attention on the Nakashima chair was the way the grass seat was woven. I thought, this is a simple way to weave a chair, and if Nakashima did it, it should work.

The stool has eight drilled holes, four in the front and four in the back that I made before gluing it up. On those holes there are three turns of cord and then the rest of the cord was woven between those and the horizontal pieces on the sides. It was finished with knots underneath the seat. Altogether, I used about 60m of 8mm-thick hemp cord.

BESPOKE GUILD MARK

"We feel honoured to receive two prestigious awards for our craftsmanship and feel extremely proud to receive this recognition within our industry".

– WAYWOOD

SCULPTURAL SIDEBOARD
BGM 477

The Bespoke Guild Mark, awarded by The Furniture Makers' Company, is the ultimate accolade for designer-makers, recognising excellence in design, materials, craftsmanship and function for exquisite pieces of furniture made as single items or a limited run of up to 12.

It is awarded to beautifully crafted pieces of bespoke furniture and, since its launch in 1958, has been the apex of distinctions for UK designer-makers.

To find out how you can become a Bespoke Guild Mark holder visit: **www.furnituremakers.org.uk/excellence/bespoke-guild-mark/**

The Furniture Makers' Company
the furnishing industry's charity

YOUNG FURNITURE MAKERS AWARDS

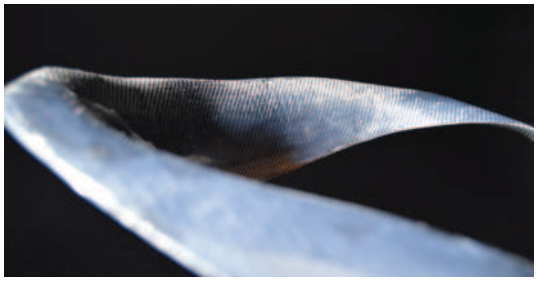
WE SHOWCASE THE WORK OF THE WINNING STUDENTS

The Young Furniture Makers Awards are the student equivalent of The Furniture Makers' Company's Guild Marks, recognising excellence in Bespoke and Design furniture. Every year the Company receives a huge number of entries from students for the awards. The designs that impress the judges on paper are traditionally invited to show at the Young Furniture Makers exhibition so they can scrutinise them in person and pick winners.

This year a virtual exhibition featuring 55 shortlisted designs took place online, so all the judging was done using the information and images provided in the application.

The judges for the 2021 Young Furniture Maker Awards were Zoë Bonser, portfolio director at Clarion Events; Chris Hyde, director of curriculum at Activate Learning; Peter Sharratt, technical support advisor at Blum; Alan Styles, managing director at Axminster Tools & Machinery; and Charles Vernon, Past Furniture Makers' Company Master and industry expert.

The winners were invited to a ceremony at Furniture Makers' Hall in October 2021, where they were presented with their awards by David Woodward, Master of The Furniture Makers' Company, and Zoë Bonser.



BESPOKE AWARD AND INNOVATION AWARD WINNER: **JOE GEEHAN FOR AERO**

Wolverhampton School of Art Master's student Joe Geehan won the Bespoke and Innovation awards for his chair Aero, made using American black walnut and carbon. He said: 'Designing and crafting Aero has been an incredible journey, testing me in ways I would have never expected. I have loved every second of it! The additional challenges of Covid have taught me how important teamwork and togetherness are in all aspects of life.

'I am delighted to have received the Bespoke award for Aero from The Furniture Makers' Company. I am very proud to have received such a prestigious accolade. It has been a really big confidence boost as I move into the furniture industry. Thank you to everyone who has helped me get to where I am today.'

Second place in the Bespoke category went to Finn Timmins for Regenerated Kumkio and third place to Charlie Teager-Neale for the Onyx Cabinet.

INNOVATION AWARD SPECIAL COMMENDATION: **HARRY PECK FOR WAVE CYCLE**

Northumbria University student Harry Peck received an Innovation Award Special Commendation for Wave Cycle, a stool design that aims to tackle the problem of plastic in the oceans and on beaches. He starts by breaking down the polystyrene packaging foam and transforming it into a mouldable material that can be made into durable, long-lasting seating. He uses metal moulds to form various parts of the stool, which he then assembles using screws. The final result is a piece of furniture that's reminiscent of the environment it came from, with its wavy curves and blue colourway.

PHOTOGRAPHS COURTESY OF THE FURNITURE MAKERS' COMPANY

DESIGN AWARD AND BEST IN SHOW WINNER: CHARLOTTE MCGOWAN FOR SET TEE

Charlotte McGowan is a graduate of the Kingston School of Art. Her design for a modular lounge chair, Set Tee, won both the Design Award and Best in Show. The piece is based on the idea that triangles always fit within a square, which allows the back to nest within the base. The piece is made from laminated aero ply, foam and woven fabric.

Charlotte said: 'Winning a Young Furniture Makers award has given me some amazing opportunities to display my work, on platforms which might not have seen it otherwise. The awards mean so much to me, as it feels like a validation of all our efforts, to produce and design, despite being in a pandemic with limited resources.

'I have known about the awards since I started university and had even visited as an intern at Luke Hughes; the exposure which comes with the award is really beneficial when entering a competitive industry like design, as it introduces us to industry professionals too.'

Second place in the Design category went to Harry Peck for Wave Cycle and third place to Jack Buttling for HUDL.

The winners from left to right, Joe Geehan, Noah Samson, Charlotte McGowan and Harry Peck

Annabel Harris

Noah Samson

SCHOOL DESIGN AWARD WINNERS: ANNABEL HARRIS FOR SPIRAL SEATING STRUCTURE AND NOAH SAMSON FOR TAMBOUR DOOR UNIT J

Annabel Harris and Noah Samson were the joint winners of the School Design Award. Third place went to Oliver Stiff for Bar Keeper.

Annabel said: 'I entered the Young Furniture Makers' Awards in 2019 and won third place in the School Design Award. That was an amazing experience; not only to win the award but also to exhibit my piece in London and have the opportunity to speak to those in the furniture industry.

'Despite being online, the exhibition this year was also a great opportunity to see the work of other designers and furniture makers. To win joint first place this year was a greater accomplishment, especially given the challenges of the pandemic. My piece was a challenging design to create and required many processes and new techniques. Winning the award acknowledged all the hard work put into the final design and gave me confidence as a designer. I am currently studying Architecture at Cardiff University, and this award has opened new doors and opportunities in the field of design, which will be valuable in my career going forward. Overall, I am incredibly proud to have been awarded this prestigious award.'

Noah said: 'Winning this award is extremely important to me. Ever since I came to the show in 2019, I saw the quality of the work on display and made it my goal to have one of my future pieces showcased at the event. So, when I found out I had won I was more than thrilled to know that people viewed my work in the same light as those from the previous years, and that all of my hard work and dedication throughout the uncertainty of lockdowns was being recognised. I hope that winning this award will open up new avenues and opportunities for me to progress into and develop my career, whether that be solo or within a business.'

MAPLE DESK

THOMAS EDDOLLS MAKES A BESPOKE PIECE FOR A HOME OFFICE

My client for this piece wanted a new desk for her home office. The brief was: something light and simple with hints of lime or orange, picking up on some of her home office details. The desk needed to be 1m wide by 600mm deep. In response, I suggested making the desk from solid maple with some fun coloured veneer details.

I set to work on the drawing board to outline my ideas, and luckily my first concept was accepted. We both agreed the project felt light and airy with enough subtle detail to remain elegant.

When the time came to start the project, I sourced some nice, solid maple in varying thicknesses from another local cabinetmaker who was happy to let some of his stock go.

PHOTOGRAPHS BY THOMAS EDDOLLS

1 Solid maple in various thicknesses was sourced for the project
2 The assembled end frames

THE LEGS

With the timber safely back in the shop and after the initial rough selection process, I began to look at things in more detail. I decided to make up the end leg frames initially, comprising simply of solid tapered legs and stretcher rails with an underslung relief curve.

After converting square stock for the legs, they had to be tapered. There are various ways to jig this process up, but as I only had four to make, I used the surface planer to rough the waste off, working carefully to my marked-out lines, before finish dressing with a sharp No.7 plane.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3–5 The framework was assembled and clamped together, the legs were fitted and a back rail and central divider were added
6 Everything could then be glued up **7** The solid maple top was given rounded edges to blend in with the carcass
8 The desk was coming together but the top needed to be rounded over a little more **9** A central division was housed in the desk carcass
10 The drawer sides were left overlength at first **11** The drawer front was hand-planed to the end grain
12 I achieved an exact fit of the drawers in the carcass

Maple is a wonderful, crisp timber to use owing to its hard nature and light colour. With the inside leg tapers cut, I also slightly relieved a 5mm taper from the outer part of the leg. I felt that just tucking the legs in a touch like this would elevate the piece in the viewer's eye.

STRETCHER RAILS AND FRAMEWORK

I then moved on to the stretcher rails which would mate the legs together. To achieve a clean look, they needed to be flush to the ends of the piece and so after converting the stock, it was time to make a decision on jointing methods. Given the modern nature of this design, I felt it was appropriate to use the Festool Domino system.

This meant I could clean-cut the ends of the rails to length on the panel saw before dropping the necessary loose Festool Domino tenons into the construction. I then needed to relieve the underside of the rails with a slight curve. This detail would visually take some weight off the piece and provide a line of interest for the eye.

I assembled the end frames dry to check the mate and fit before cleaning the components ready for finished assembly. I like to dress things straight off the tool where necessary, as I find it holds the surface completely flat, a state in which personally I prefer to keep my plane irons as opposed to a slight curvature on the iron, as preferred by many craftsmen. This way I can be confident my workpiece is flat and true, which is especially important around mating joint areas, but also adds overall to the crispness and final definition of the piece.

After clamping these frameworks up with Titebond 2 it was time to start working them together. I opted for a dust-boarded framework as the lower part of the carcass, tying the desk legs together with cross rails linked with runner rails and a running central muntin creating running surfaces for the drawers. Again, I used the Domino system to joint the solid maple framework together, which would dry house 4mm birch ply dustboards in appropriately routed grooves. I did these with an arbor cutter on a following bearing.

The framework was glued together and, once dried, notched around the inside profiles of the legs for an exact fit. I could now joint the framework to the side rails using biscuit joints, working in a back rail at the same time. I also added a central divider. The outline of the desk was becoming apparent and the piece was starting to come to life.

With this stage of the making accomplished I was able to glue the construction together, carefully checking everything was square and true.


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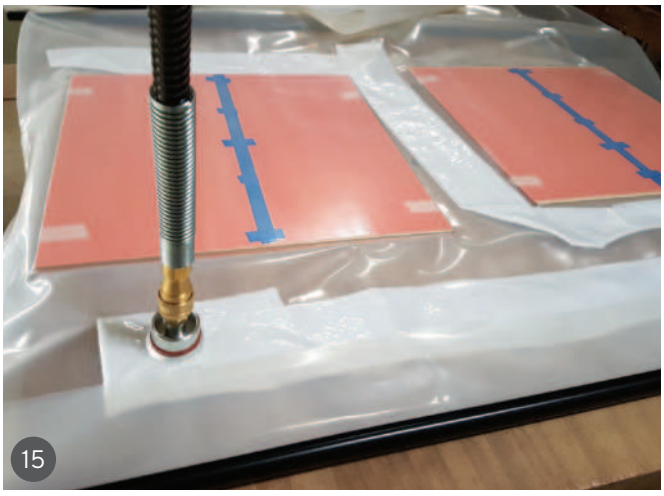
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THE DESK TOP

It was at this point that I needed to produce a top for the piece. After discussions with the client over the options of a veneered or solid top, the solid top route was chosen. However, this did raise technical issues regarding movement due to the opposing grain directions of the top in its width to the long grain side rails. To counter this fundamental issue I would put a shadow beak line around the carcass top, carefully worked in with a convex bullnosed router cutter, breaking up the mating surfaces without detracting from the piece. I planned to fix the top to the desk carcass with glued Domino joints at the front and hold it down at the back with screws into slotted buttons, allowing the top to make its movement at the back of the piece while keeping everything neat and trim at the front.

With the top planed up and glued as a blank, I accurately sized it on the panel saw to the carcass dimensions. I then worked the edges over all round with a roundover cutter in the router, creating I felt a visual and sensual melding point between the different elements.

THE DRAWERS

I could now start working some drawers into the piece. Looking at the timber I had left, I decided to deep cut some thick section down on the bandsaw, which gave me the opportunity to end-grain book match the drawer fronts out from the middle.

When I had converted the frontages I was able to hand fit each drawer front carefully with my bench planes to an exact fit. When I had achieved this I slightly relieved a gentle curve on the underhang, mimicking the side rails and creating a subtle lightness for the eye. It was at this stage I could see the piece as a whole.

The top instantly looked heavy on the edges and so I would have to round them off more with a bigger radiused cutter for a more fluid feel and appearance.

Moving on to the drawer work, I needed a central division housed in the carcass to guide the drawers. I carefully and accurately worked a solid maple section with biscuit joints into the underframe and the back rail, making certain of dead squareness as any discrepancy here would prevent the hand-fitted drawers from working properly. I then glued this guide rail into the piece.

The next job was to run in the drawer sides. After converting the stock to thickness, going quite fine on this occasion, I faced an edge on the surface before ripping the sides to just over width of the carcass opening. I then hand-planed the sides to final fit in their width within the casing.

I could then mark out the tails for the dovetailed joints. I usually mark out and cut the front tails first, leaving the drawer side overlength in case of a mistake at this stage.

The dovetails for these drawers were lapped at the front to keep a clean frontage, and once I had cut the tails they were scribed on the drawer fronts in a traditional fashion.

After gradually working through the necessary staged order of processes, I was able to assemble the drawers by sash-clamping the tails home before pinching the lapped section tight for the best fit and outcome. Any discrepancy at this stage with regard to wind or squareness would cause problems later on, so I double-checked both of these important factors before leaving the glue to fully cure.

When the drawers had been left for long enough I planed the slight amount of side I had left protruding out from the drawers front neatly down to the end grain.

With the back carefully sized to match the front it meant that when I had worked down to the end grain of the pins the drawer should be an exact fit in the carcass. Thankfully they were. The final fitting and fine-tuning would not be made until the drawer bases had been glued in.

DECORATIVE VENEERS

After discussions with the client it was agreed that an orange veneer would be used to complement some coloured details in her home office. I decided to firstly use it very sparingly overall by veneering the flat back of the undercut drawer pulls which I routed on to the fronts using a shaped template and guide ring.

I also used the dyed veneers on the drawer bases, veneering on to 9mm birch ply. These bases were fitted into the drawers using solid maple slips, dry in the slip groove and glued into a groove at the front.

FINISHING

The time had now come to joint the top on to the piece. Using Dominoes at the top of the legs and one in the middle divider, close to the front, these could be finish-glued, whereas at the back the top was held secure with screws fitted through slotted maple blocks fixed to the inside of the carcass in the drawer cavity. This allowed the solid top to make its movement at the back of the piece. After pinching the glued joints home, I screwed the top on at the back.

Once the joints had cured I was able to fettle the piece together and make a final fitting of the drawers, carefully working the top mould round into the leg structure and gradually working the piece right back with abrasive papers to a stage ready for oil finishing.

I worked the Osmo oil on to the piece and buffed it off like a wax. I cut the finish back with 400 grit after a couple of coats of oil, adding two more coats to achieve the final finish. I applied paste wax to the inside of the drawers and the running surfaces along with the drawer sides for a finish and lubrication.

The desk was now ready for its new home and I was pleased with the finished piece!

---

13 & 14 Orange veneer was used on the undercut drawer pulls which were routed into the front
15 The veneer was also added to 9mm birch ply for the drawer bases... **16** ... which were fitted using solid maple slips
17 The top was attached using Dominoes, glue and screws **18** The finished desk

18+

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BENDING BOUNDARIES

BASED IN RURAL KENTUCKY, **MARK WHITLEY** EXPERIMENTS WITH WOOD'S FLEXIBILITY TO CREATE HIS SIGNATURE 'CURLY' FURNITURE

'I am a man dedicated to living a genuine life where I can add things of beauty to a somewhat ugly world,' says Mark Whitley. 'My furniture can appear simple and unadorned, but is usually fairly complex to create. I just listen to my heart when I'm making something. My pieces are usually developed at the workbench with no plans to follow.'

Mark was brought up on a farm in Kentucky, where his father had a small cabinet shop to which he felt drawn for as long as he can remember. 'I was born a maker,' he says. 'For my sixth birthday, I got a little Bluegrass brand hammer. I'm still using it today.' By the time he was seven or eight he had built his first chair, learning the basics from his dad and teaching himself the rest.

After leaving school Mark moved to California and obtained a Bachelor of Arts degree in Peace Studies at private Chapman University. 'Growing up, I didn't know I could make things for a career,' he says. But after some failed attempts at employment after university he decided to go back to his love of furniture and see if he could make a go of it as a business. 'My dad had a little hardware store in my hometown with a spare room in the back,' he recalls. 'I managed to gather enough tools and started there. I worked in a tiny room for four years before building my home and shop, where I remain to this day.'

His 1,100 sq ft workshop in a walk-out basement is based on a small farm, where he lives upstairs with his wife and son. 'I built it all 17 years ago and have no plans to move, Mark says. 'I also have a couple of other buildings for lumber storage and completed work. I've amassed a pretty well-appointed studio with all the normal power tools, but some of my favourite tools are vintage hand planes and an amazing set of hand-forged Barr chisels.' He adds: 'I've yet to find a way to integrate CNC tools in my shop. I don't have anything against them, I just don't like such rigidity in my work.'

BEND AND SWAY

'I'm inspired by the flexibility of wood, how trees bend and sway in the wind,' says Mark. 'Much of my work is about pushing the limits of the material. My ideas just come to me. I try to never copy anyone, even myself.' His signature style is 'curly' furniture and these are some of his favourite ever makes. 'Of all the cabinets and tables and chairs I've made in 21 years, my current Twist Tables are my favourite' he says. 'Every one is a complete new journey and challenge.'

So how does he go about making these pieces? 'It all starts with a nice clear board of black walnut or cherry, sourced here in Kentucky. I cut the 8/4 board into thin strips and glue it with a two-part glue called Unibond 800. I use either clamps or a vacuum bag to hold the twist. I can only make one twist per day, so a table can take three to six weeks to create. The woodworking is basic, the joinery and design is the tough part. My goal is to make a functional, strong table with no more pieces than absolutely necessary.'

For readers hoping to try this technique themselves, Mark advises: 'Start with an exterior framework the size of the table base, then you have a place to clamp each twist as you go. The frame not only provides the necessary strength to hold the twist while gluing, it gives you an overall size of the table base.' Mark works 95% on commission, but most of his designing is done 'on the fly'.

He says: 'If I do any sketches, I use a marking pen just to visualise an overall plan. Since my shop is just downstairs, I'm here late at night looking at what I did today and visualising what will happen tomorrow. My gift is that I can see the finished piece in my head as I go.' His clients tend to like his work and give him free rein to design. 'Most clients come to me because they enjoy my style and method of work. The only guidelines I get are overall size and if they have a wood preference,' he says. 'I've sold everything I've ever made, so as a full-time artist, commissioned work is guaranteed income. I only work on spec pieces when I have a show to prepare for.'

PHOTOGRAPHS BY MICHAEL WARD FOR OVADA WARD PHOTOGRAPHY

MARVELLOUS MATERIALS

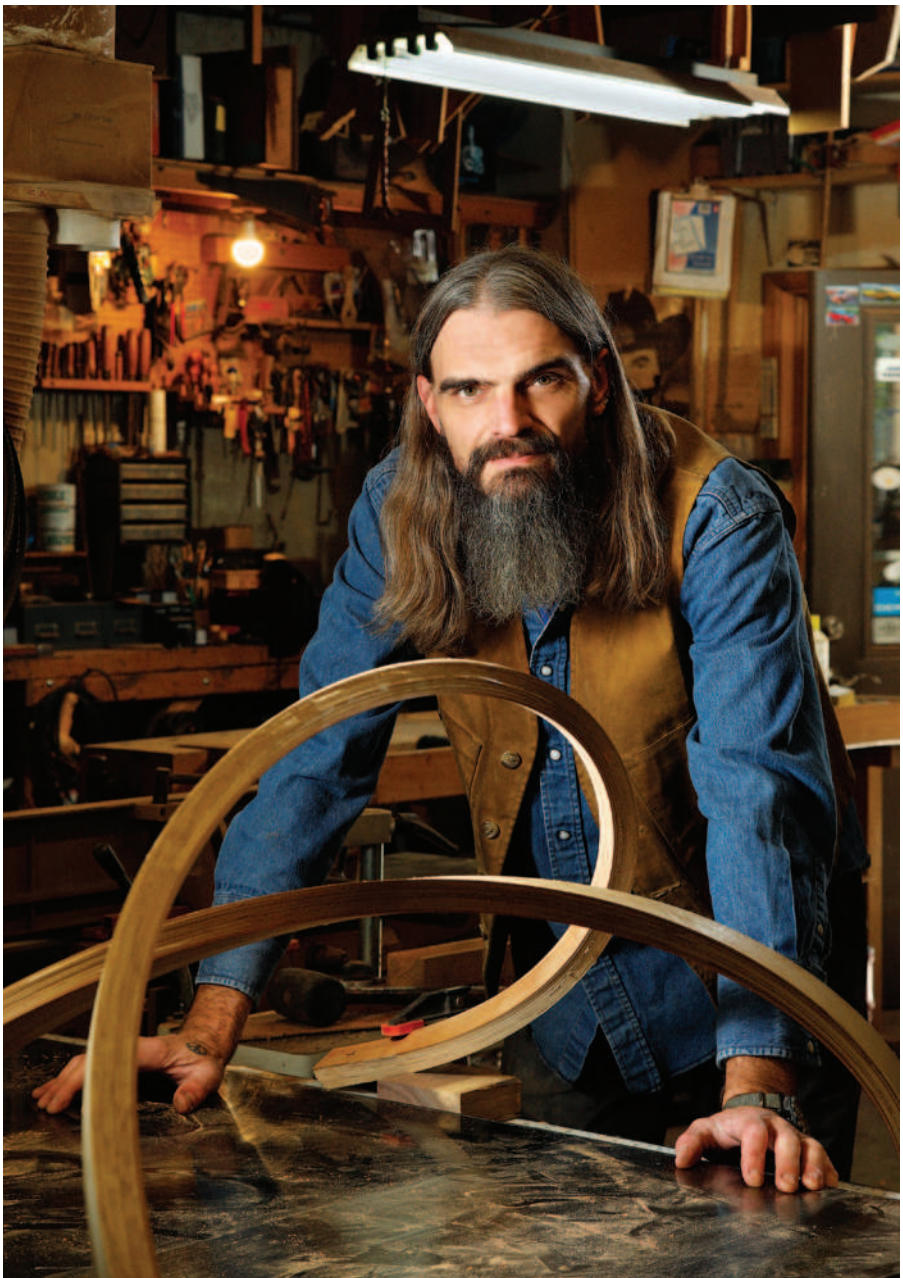
Mark's favourite woods to work with are Kentucky black walnut followed by South American mahogany. 'Both woods are a pleasure to work. The majority of my work is walnut because I know the wood is sustainably harvested and it is available locally,' he says, adding: 'I occasionally incorporate metal into my work. Over the past few years, I've learned to weld for a hobby. Obviously, metal requires a different set of parameters than wood for strength and joining. I have learned these rules for bodywork on my vintage vehicles, but I enjoy the quirks of wood too much to use metal extensively in my furniture.' His favourite finish is Minwax Wipe-on Poly Satin. 'It's simple and tough – I usually use four to eight coats,' he says.

His most challenging project so far has been an altar and other chancel furniture for a Catholic church built in the 1880s. 'The project took five months and required a great deal of old-school woodworking, gilding and hand-applied shellac finishes. It was a real challenge I'm proud to have completed,' he says. 'Besides the recent altar commission, I've worked with several churches to create furniture that fits their space and style of worship. I was once in line to attend a seminary, so making church furniture is a rewarding experience for me.'

Mark has just finished a large Twist Table for a client in Florida and is working on a large bench for a home in Colorado. Looking forward, he says: 'I just want to keep pushing myself and continue to explore bending and twisting wood. I've had visions of maybe experimenting with carbon fibre some day. Wouldn't a carbon fibre rocking chair be cool?' As he works alone in his home workshop, Mark's day-to-day work wasn't affected by the Covid-19 pandemic and lockdowns, and he says business has been great. 'I do miss the art shows I've done for several years, but I think those will resume in time,' he says.

When he's not working he restores vintage trucks, camper vans and other vehicles. 'In the past few years, my wife and I restored a 1976 Airstream travel trailer, and I recently completed restoration of a 1951 Ford F-2 pick-up truck. I'm currently working on a 1968 Jeepster Commando project. I enjoy camping with my wife and son in the Airstream. I'm also a singer-songwriter and play a few bluegrass and roots music festivals each year,' he says.

mwhitley.com
@markwhitleystudio



WOOD AWARDS WINNERS

WE CELEBRATE THE WORK OF THE PRIZE-WINNING DESIGNERS

The winners of the Wood Awards, the UK's premier competition for excellence in architecture and product design in wood, were announced at a ceremony in November 2021. Two pieces of furniture and six buildings were honoured with awards, and we take a closer look at them here.

woodawards.com

BESPOKE FURNITURE AWARD: **GAYLES FARM 5 BY WYCLIFFE STUTCHBURY**

This room divider was created to further the designer's exploration of textile techniques and characteristics using wood. The piece has a flowing appearance and is made up of thousands of small oak tiles glued to an open weave cotton twill, creating a curtain. The curtain is hung on a hinged, three-panelled European oak framework with hemp rope and cleats. The form is dictated by the ways in which the tile construction hangs over the supporting uprights, rather like a sail is held by the mast. The height is adjustable. The tiles were cut from discarded oak field fencing retrieved from the South Downs. The variety of colours and textures is explained by the different ways the timber reacted to weathering, and this piece is an attempt to display the many wonderful ways that timber responds to its environment.

PRODUCTION FURNITURE AWARD: **ISO-LOUNGE CHAIR BY JASPER MORRISON AND ISOKON PLUS**

An open brief was given to Jasper Morrison for his first collaboration with Isokon: to look at the company's archive, manufacturing capabilities and expertise, and design something that feels at home with the brand. Inspired by the original Isokon logo alongside Gerald Summers' Bent Plywood chair, with its single flowing plywood surface, and Gerrit Rietveld's Zig-Zag chair, Jasper Morrison's design of the Iso-Lounge started life as a single sketch where the hand flowed from the back of the seat to the floor. Plywood was the only choice of material to follow the curve of the cantilevered design. The cantilever chair relies on a highly technical production to create balance and support, especially when produced in ply veneer. More than four complete prototypes and many prototype sections were made over the course of a year to create a piece that offered total support and maximised comfort. Where it needs to be strong there are more layers and where it doesn't need to be as strong and needs to flex, there are fewer layers – the chair has been honed to be incredibly responsive. Integral to the chair is the tapering seat and its delicately curved back. The tapering is created by machining the individual veneer layers to a feather edge.

SMALL PROJECT BUILDING AWARD: **BUILT: EAST PAVILION BY OGU ARCHITECTS + DONALD MCCRORY ARCHITECTS**

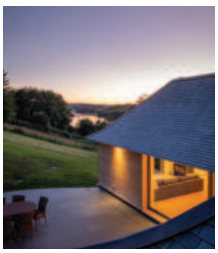
Built: East was the winning design in The Belfast Flare competition run by the Royal Society of Ulster Architects. With cultural identity being a divisive issue in Belfast, especially in areas such as the pavilion's location which have lost prosperity as surrounding factories have closed, it was important to find common cultural ground shared across the neighbouring communities. The site has a rich industrial history and the Belfast truss used in the pavilion design represents the area's history of manufacturing ingenuity. Originally designed to make use of waste ship-building timber, the Belfast truss inspired the team to make careful use of resources. Many of the city's largest factories had such a roof, including the Belfast Ropeworks, which previously faced the site. Each element is designed to evoke memories of the area's industrial structures – but rather than a nostalgic look backwards, it is an opportunity to draw attention to Northern Ireland's emerging construction innovation and contribute to the local economy. The pavilion is an assembly of three elements, each crafted in a local factory. Traditional craft skills were combined with innovative technologies to create bespoke building components that could be rapidly assembled on site. 1:1 scale truss and joint prototypes were CNC-produced to develop the design of each connection.

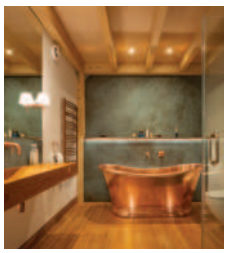
EDUCATION & PUBLIC SECTOR BUILDING AND GOLD AWARD: **MAGDALENE COLLEGE LIBRARY BY NIALL MCLAUGHLIN ARCHITECTS**

Built alongside the Grade I listed Pepys Library, Magdalene College Library in Cambridge is the first substantial addition to the main site in over 50 years. The new library is a suite of interconnecting rooms lined with bookcases, reading desks and galleries, arranged on a grid between linking passageways. The interior spaces are created by a glulam and CLT structure, supported on load-bearing brickwork and furnished with oak shelves and tables. The intention is for all the key features to be perceived as an interwoven set of elements: roof lights, columns, floor beams, shelves, windows, desks and balustrades form a coherent warp and weft throughout the space. This project received the Gold Award, as it was chosen by the judges as the 'winner of winners'.

PRIVATE BUILDING AWARD: **THE BOATHOUSE BY ADAMS COLLINGWOOD ARCHITECTS**

The Boathouse in Devon is a practical family residence that also respects the outstanding natural beauty of its surroundings. Natural materials are at the heart of the project and are shown off throughout. The geometry and materials used are expressed in different ways on different floors. Above ground, the materials are timber, straight and man-made. Below ground, the emphasis is on stone and natural curves, from a curved bench and coat rail to curved doors. The timber was supplied by the home owners' timber import company, sourced from Canada. Yellow cedar tiles and cladding adorn the roof and exterior, while the upstairs floor is made from Douglas fir. The long, straight grain of the wood has been deliberately exposed on all levels to show off its beauty. The typical house plan has been inverted, with the main living spaces set above the bedrooms. Other interesting design features include the eaves, which were inspired by thatched roofs, and the use of surplus roof copper throughout the project. The large, open plan living space is flooded with light and features a glass and timber balcony above the lower-level entrance door.

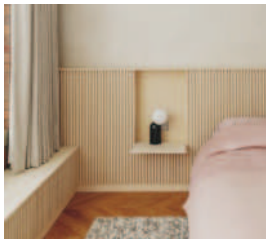




PHOTOGRAPHS COURTESY OF THE WOOD AWARDS

INTERIORS AWARD: **ST JOHN STREET BY EMIL EVE ARCHITECTS**

This London apartment has been reimagined as a warm, inviting home while retaining the building's original industrial character. The apartment opens directly into the library space, a rectangular room lined entirely in solid oak joinery. Large format terrazzo tiles pick up the warm oak tones and align with the joinery panelling. The library's thick timber lining contains deep entrances into connecting spaces. Shifts in floor surface occur at these thresholds, delineating a change in atmosphere and function, with oak chevron parquet in the living and sleeping spaces and a lighter terrazzo tile in the bathroom. Sliding oak pocket doors enable these doorways to be opened fully, creating lateral views from one end of the apartment to the other, through the timber library interior. When closed, the area becomes a contained room, a book-lined sanctuary at the heart of the home. A palette of lime-washed birch plywood, set against the richer oak parquet flooring, continues in the dressing room and bedrooms in the form of storage elements and a slatted bedhead and window seat. Carefully calibrated and crafted joinery runs throughout the apartment.

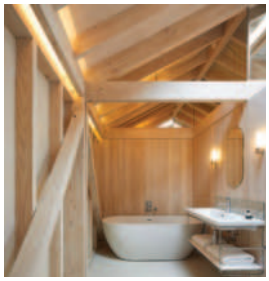


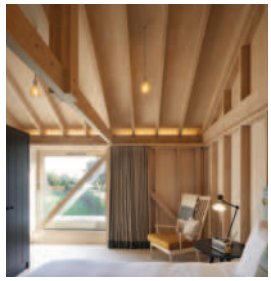
STRUCTURAL BUILDING AWARD: **THE WELCOME BUILDING AT RHS GARDEN BRIDGEWATER BY HODDER + PARTNERS**

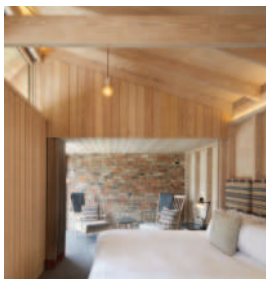
The Welcome Building sits within the new RHS garden on the site of the 154-acre Worsley New Hall in Manchester. The centre provides a gateway to the gardens as well as a visitor meeting and interaction point, restaurant, gift shop, offices and educational spaces. The building is predominantly one open space. All the public elements are contained under a single overarching glulam timber diagrid, supported on structural glulam trees. The roof extends beyond the enclosure to the north and south, blurring the edge between building and landscape, where it turns up and down at its edge, responding to the location of entrances, expressing specific uses, framing views and forming solar shading. The timber forms extend east beyond the building with a timber decking floating over a new lake. Glazed curtain walling spans between the ground and the roof to provide panoramic views. Natural light permeates the building through larch louvres, or filters through the diagrid via two rooflights, one running centrally and one that creates a glasshouse environment.

COMMERCIAL & LEISURE BUILDING AWARD: **THE ALICE HAWTHORN BY DE MATOS RYAN**

Nun Monkton in North Yorkshire was an important hub for the medieval river transport network, with many travellers stopping overnight. In recent years, the village's last remaining pub, a critical meeting point for the local community, had come under threat. This community-led project transforms the pub's sustainability with the addition of 12 guest bedrooms, eight of which are of an entirely timber frame construction around a new courtyard. The design takes its inspiration from the Norse 'garth' ('grassy cloister' or 'clearing in the woods'), creating a sense of quiet enclosure and a notional extension of the village green: a place of gathering. The home-grown Douglas fir framed buildings use authentic agricultural building materials, such as galvanised corrugated steel roofing and larch cladding, to create the sense that the animals have only recently moved out. Externally, a single layer of tight-grained larch cladding has been used, while internally there is a sarking layer of fireshield poplar ply. Subtle distinctions between the timber species are blurred by a tinted treatment.







FREE FORM BENT LAMINATIONS

MARK WHITLEY EXPLAINS HOW HE CREATES THE TWISTS FOR HIS FURNITURE

Trees are in a constant state of movement, bending and swaying in the forest for decades before being harvested for timber. The flexibility and strength of wood has always amazed me. When I opened my shop, I was building fairly traditional furniture. Then, in 2008, I received a commission to create a display stand for a client's Emmy Award. Examining the award, I was inspired by the globe atop the statuette and set out to create a display stand that was based on helical bends of wood. This simple idea involved layering wood strips around a section of large pipe to achieve my goal. Once the Emmy Stand was complete, I was left with an extra helical bend. I noticed it lying on the floor of my shop, and inspiration struck. I envisioned a cocktail table base with multiple laminated and twisted pieces of wood. The table was a success, and since then, Twist Tables have become my most popular furniture item. Each one is different, there are no plans or forms to follow, and while they are very time consuming to make, the end result can be pure magic. Here's how I laminate the twists.

WOOD SELECTION

Good laminations start with fine, straight-grained wood. I usually use 60–70mm thick black walnut or cherry, although nearly any species will work as long as it is free of knots and irregular grain. Each board has slightly different bending characteristics that one learns with experience.

TIMBER PREPARATION

1 Since I want the laminations to disappear, it is essential to draw lines across the board before ripping strips on the

PHOTOGRAPHS BY MARK WHITLEY

tablesaw. That way, the strips can be kept in sequential order during lamination. Keeping the strips in order serves two purposes: as mentioned before, the glue lines will disappear, but more importantly, sequential laminations will yield a smoother bend, as the layers are not competing with one another due to grain variations. This can be a critical factor as your twists become more complex.

CUTTING THE STRIPS

2 I set the saw fence for a 2mm cut. My saw is equipped with a riving knife which helps when cutting such thin strips. Each strip is sawn and stacked in order. Six to 10 strips are used for most twist laminations.

SETTING UP FOR GLUE

3 For this tutorial, a simple freestyle bend is made. When I am making a table or sculpture, I use scrap wood to make temporary locations to clamp the lamination while it cures. There can be quite a bit of stress on the bend until the glue dries, so take time to create strong attachment points. Springback is minimal compared to steam bending, but still must be taken into consideration when setting up attachment points.

GLUE APPLICATION

4 My choice of glue is Unibond 800, a strong, safe, two-part glue that dries very rigid, has excellent water resistance and sands away easily. I use a 4mm foam roller to apply an even coat of glue. It is not advised to use yellow woodworking glue for bent laminations as it has a tendency to 'cold creep' over time, risking the longevity of your hard work.

CLAMPING THE LAYERS

5 I employ two different means of clamping the layers. The easiest method involves using many small clamps and clamping blocks as close as I can get them for the length of the bend. This method is inexpensive and straightforward, although can yield mixed results. Most of the time, I use a custom-made heavy duty vacuum bag and a vacuum pump. The vacuum bag yields perfectly smooth bends and even clamping pressure along the entire bend. While this method is well worth the investment in my shop, it may be a bit much for the hobbyist.

APPLY HEAT

6 The glue I use requires 21°C (70°F) to cure correctly. I use an inexpensive heated blanket wrapped around each lamination to ensure full cure of the glue. I leave the clamps in place for a minimum of eight hours.

CLEAN UP THE TWIST

7 Once the lamination has cured, simply remove it from the vacuum bag, or remove the clamps. You can use a rasp, spokeshave or other means to smooth the edges of the twist. I prefer a small hand-held belt sander to do the bulk of smoothing.

REPEAT THE PROCESS

8 The twist that has been created is temporarily clamped into position on the upside-down table top. Then, using just one strip, I will decide where the next twist needs to go. It is a long process. My goal is a strong table base with no unnecessary parts where every twist has a job to do. The table base is complete when a balance of strength and aesthetics has been achieved.

I have employed this technique to create tables, display stands, floor lamps and guitar and other instrument displays. By far the

most difficult aspect of this method of work is deciding where the next piece goes. The goal is to create three points of contact with each twist. By creating triangles within what is otherwise a jumble of curves, a great deal of strength can be realised. Glue, screws and wood dowels are used to make connections where the twists intersect, and I also use gusset wedges and interlocking joints to strengthen the final assembly. The beauty of this style of work is that every project is completely unique. Due to varying characteristics in each stack of lamination layers, each table will evolve in a different way. As someone who seeks out challenges in my work, this technique offers a lifetime of completely original projects, while presenting a new problem to solve each day.

BUSINESS OF CONVENIENCE

WITH CUSTOMERS DEMANDING HIGHER LEVELS OF SERVICE FROM BUSINESSES, HOW CAN THEIR NEEDS BE MET? **DONNA FINDLAY** CONSIDERS THE OPTIONS

In a fast-paced world, customers want things fast. Without leaving their homes, they can order items online, often with just one click on their phones, which will arrive the next day. Of course, such speed is not possible with bespoke furniture, but general expectations of things being easy have risen and convenience is of high importance to consumers. Therefore, the easier things are for the customer, the more successful a company will be.

WHAT IS MEANT BY CONVENIENCE?

Convenience is about a service or product being delivered easily, quickly and with minimal disruption to the busy life of the customer. With consumers quick to review businesses, it is important to meet the needs of your clients and ensure they are happy. The easier the experience is, the more the customer is likely to recommend the company to others, give it good reviews online and use it again.

However, with the range of services and products being offered being so diverse, there is no magic formula or convenience checklist. Each business owner needs to assess what would be good customer service for their products and services. The best way to assess convenience is by asking customers and potential customers what they want and expect from your business, and ask clients for feedback after buying furniture from you so you can check how customer-friendly you are. You can then tailor your services to the customers' needs.

WAYS TO INCREASE CONVENIENCE

1. Embrace technology. There are many ways technology can be used to make the customer's experience more convenient:

- Up-to-date websites – websites can be used to promote any business and display details about everything from prices to contact details. Make sure the information on your website is current and all your products or services are listed. Provide information on how long things will take to make and be delivered, as well as costs. Enquiry forms could be added to websites as well as information about how to contact the relevant people.

- Make payments easier – simple things like offering contactless payment or Apple Pay when customers pay makes purchasing more enjoyable. Online, having the facility to use PayPal could also make things run smoothly.

- Make deliveries easier – customers can use apps for easy tracking of deliveries. Send them tracking numbers after posting smaller items so they will know when their order will arrive.

2. Communicate well. Customers appreciate honest, up-to-date and relevant information. If they can't reach you, or find communication difficult and unreliable, they are likely to go elsewhere. Keep in mind the following to ensure communication is clear and simple:

- The consumer will want to know how much things will cost and roughly when their product will arrive.

- Consider how you will get this information to them. Try to respond to emails within a certain time and answer phone calls or return messages promptly. Be prepared to answer questions from the basic to the complicated.

- Consider having an automatic email reply for the initial email or purchase, explaining that their purchase or email will be responded to within a certain period. Be reachable via several methods, such as telephone and email.

3. Delivery and returns. Customers will want to know how to return items to you:

- Have a range of delivery options that are relevant to your product or service, from pick-up to a range of postage options that meet the consumer's need.

- Be transparent with delivery costs and ensure your delivery costs are fair and competitive.

- Returns – consider what returns policy you will have that will work for you.

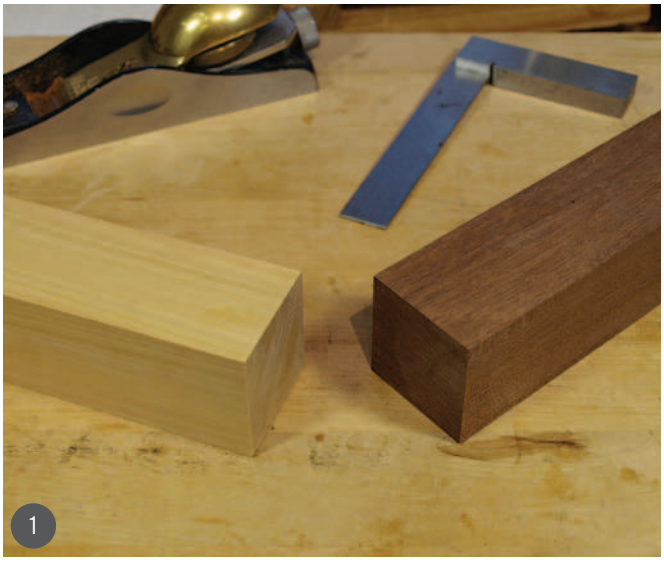
Overall, a few improvements to customer service could help boost your company's reputation and custom. If you can make the ordering experience as quick, easy and smooth as possible, the customer will happily use you again and recommend you.

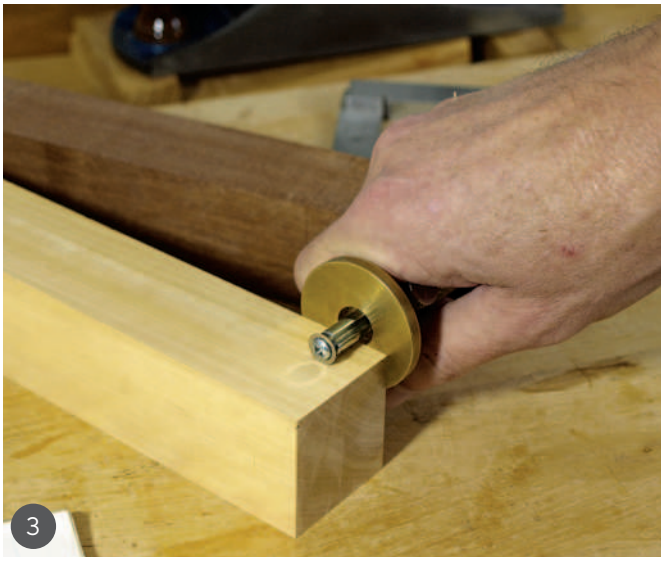
PHOTOGRAPH: GARAGESTOCK/SHUTTERSTOCK.COM

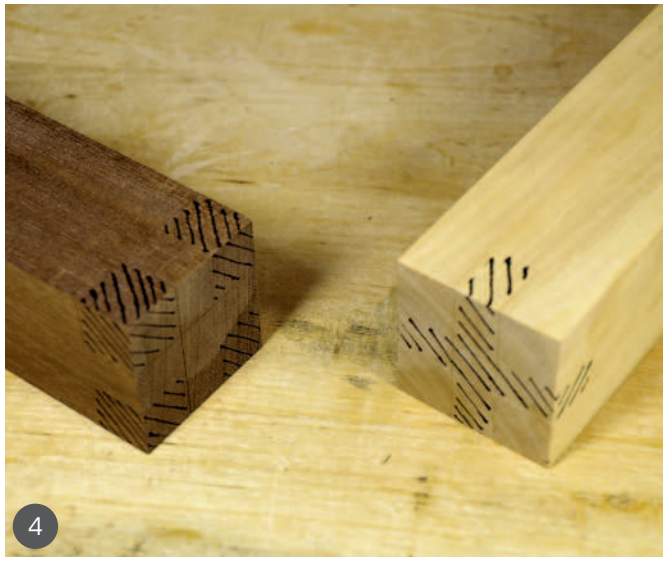
JUJI MECHIIRE

MITCH PEACOCK PREPARES A CROSS-SHAPED TENON AND MORTISE SPLICE JOINT

Also known as Jyuji mechigai, this unglued splice joint is effective in both compression and torsion, but not at all in tension, unless reinforced with metal plates such as in wood trusses. If made with contrasting timbers and glued, it can make an interesting design feature.







PHOTOGRAPHS BY MITCH PEACOCK

MAKING THE JOINT

1 The ends of the parts should be dimensioned equally and precisely squared to greatly ease the marking out.

2 The exact proportions are open to debate, with differing values given in the literature. I have used equal thirds before, but have since chosen 0.3535 times the component width. This results in the area of mortise/tenon being half the cross-sectional area.

3 With a marking gauge set just once, all the marking out can be done on both pieces.

4 Waste is marked in to define the cross-shaped mortise on one part and the tenon on the other.

5 Sawing in the waste, up against the line, should result in a tight fit. I prepare the mortise first, checking for accuracy with the marking gauge. If you over-cut, allowance can be left when preparing the tenon.

6 The tenon saw cuts can only be made halfway, on diagonals. Half of each side cut, and half of the baseline cut.

7 A little chisel work removes the tenon waste from each corner.

8 I used a fretsaw to remove most of the mortise waste, just cleaning to the baseline with a chisel.

9 Both parts are easily cleaned up, and so long as care was initially taken, they should mate perfectly.

10 Your finished Juji mechiire joint should look something like this. I prefer the new proportions to the simple thirds that I used to use, and I think it would look great if turned to a cylinder.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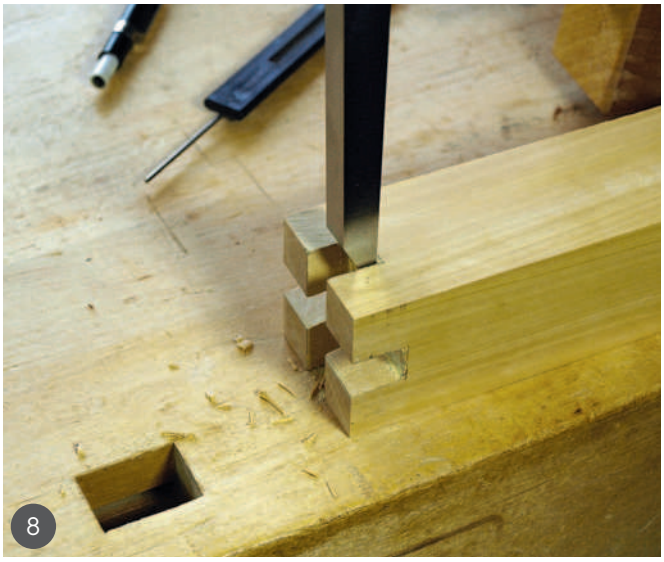
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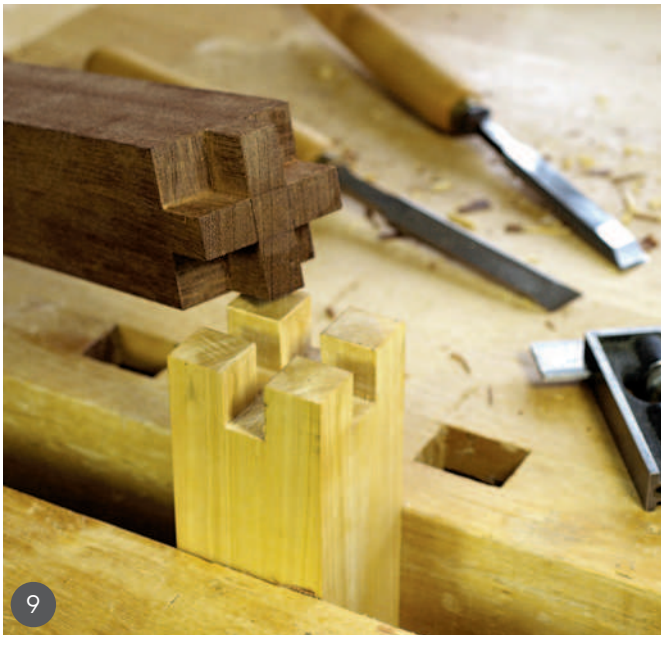
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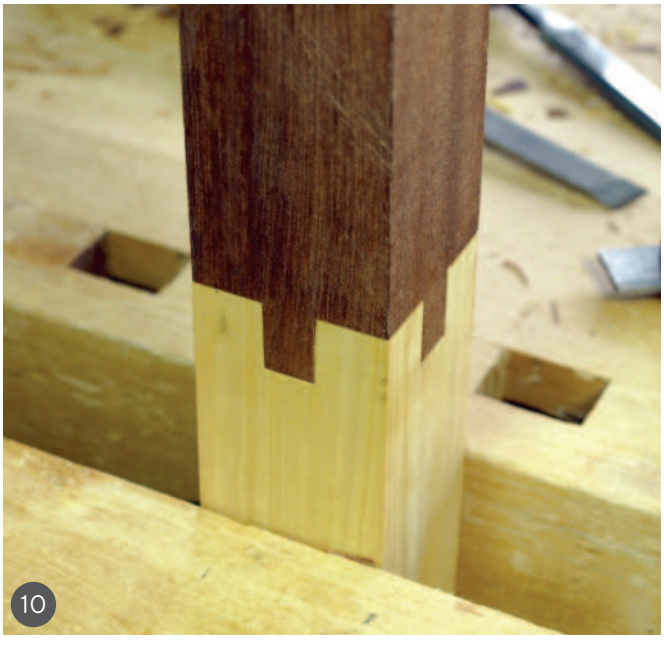
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WELSH MAKES

MARK PEACOCK HAS BUILT HIMSELF A WORKSHOP AND A BUSINESS IN HIS SMALLHOLDING NEAR DEER RIVER IN CONWY, NORTH WALES

Frustrated with a sedentary life in corporate project management, Mark Peacock started a new life as a furniture maker working from a smallholding in Conwy, North Wales. His workshop, which he built himself, is named Deer River Craftsman after nearby Afon Ceirw, which translates into English as Deer River. Mark builds custom buildings as well as furniture, which he has loved making since he was a teenager. 'I loved the creative process coupled with the practical application of working with my hands,' he recalls. 'My dad was a builder and we've worked on many projects together. My uncles did very hands-on jobs as well – one was a barge captain with boatbuilding and maintenance skills, from whom I learnt a great deal, and the other had a business in Canada making woodstoves. I spent the best part of a year welding in his workshop in the mid 1990s. I also spent a lot of time with an axe, hand-chopping firewood, an exercise I use as a form of meditation on my smallholding today.'

After his early experience in furniture making, Mark moved into the corporate project management world for his career. He says: 'Although I have never regretted my career choices, I grew frustrated with a sedentary life, and although I found myself capable of dealing with significant pressure, there was little satisfaction in my achievements. Starting my furniture business allowed me to combine a great passion for making and designing with an aptitude and work ethic for getting stuff done and problem solving, which in my experience is half of running your own business.' More than a decade spent running his own consultancy firm had given Mark a good foundation in the business side of things. 'I had experience and clear expectations of what it takes – hard work. The difficult part of starting a furniture business with no apprenticeship or contacts was having a portfolio.' He started off with his own furniture, then went to contacts from his former career, offering to make furniture for them at cost so he could develop his portfolio and design style. 'Social media has been integral to my business since the beginning,' he says. 'Today almost every initial commission comes from Instagram, although clients are finding my website more these days with search engines.'

Mark has had no formal training, and taught himself joinery from books and instructional videos, as well as plenty of advice from his dad and uncles. 'I suppose I'm a very practical learner, with a mind towards problem solving which has helped me develop my skills,' he says. 'My design process is something I've developed myself, taking an approach that just feels natural to me, but my style varies from piece to piece and is often dependent on the type of commission I get from clients.' His first solo furniture piece was an Adirondack chair he built during his spell living in Canada in the mid-1990s, and he made a number of pieces for his own home to build a portfolio. The first piece he completed for his business was a desk. He says: 'It was simple and rustic, but that was the client brief after seeing some work I did for my own home.'

DESIGN BRIEF

Mark started his business working almost entirely on commission, but is currently developing his own collection. 'I love working on designs with my clients, and I enjoy the interior design conversation as much as the furniture build,' he says. 'Unless clients have a very specific brief, the starting point will always be a home visit – or video call in recent times – to get a sense of their style and preferences. One example would be a walnut TV unit I did a couple of years back. The client had a Victorian property, but the style of their new kitchen adjoining the living room was modern. I advised a mid-century feel that would tie in with modern elements, using a classic timber like walnut. The key element of this piece was the tile accents behind the angled drawer faces which also acted as pulls – they were pixellated vinyl stickers to match the tiles on the client's fireplace hearth, with the pixellation creating a texture like the tiles.'

Nature is also a big inspiration. For an outdoor bench and pergola for a Japanese-inspired garden last year, he chose a rising sun design for the bench. 'I will often let the timber make a design decision,' he says. 'I've recently completed a lot of spalted beech pieces after picking up the entire stock from a local sawmill – the spalting just works so well for mitred waterfall pieces, and I've delivered several pieces in that style to clients this year.'

'I would say my guiding principle is customer experience,' says Mark. 'I'd like to think I'm part of making something the client loves, and they value the design and making of the piece as part of the story of it. I love buying from other craftspeople who I know have spent time developing their skills and are passionate about what they do. When I use one of my coffee cups from Tim Lake Ceramics or my hand-forged copper coffee scoop from Alex Pole's The Forge Kitchenware I smile to myself, knowing that I have met the people that made them, and have some idea of their work life and ethos. I'd like to think some of my clients feel the same about pieces I've made for them.'

When he is designing for clients, Mark starts with a consultation, then creates options using 3D drawing software, before making a detailed drawing with measurements and materials locked in. This process usually includes one or two more consultations with the client. 'I enjoy the design debate and working through the fine details, so collaboration is very much my preferred style,' he says.

Mark is just starting the journey towards building his own collection, and the design process starts very differently for his own pieces, such as the ZOZ Chair, cutting templates and refining in the workshop with rough sketches and the chalkboard. 'I hope to develop a range of furniture in the future that will be made to order, but continue doing commissioned work, as there are aspects of both that are challenging and enjoyable,' he says. 'A designer I really admire is Jory Brigham, and I think he has a terrific balance between both, although tends towards his own line these days, which may be a natural path for me in the future. But I think I will always want a balance between both. The key for me is that my hands will be on every piece from start to finish – that is what I think is most important to me and the brand I'm trying to develop,' he adds.

RAW MATERIALS

Mark most loves working with oak. 'It has the versatility to look fantastic in its raw form with clear or white-tinted finishes, but it looks amazing on certain pieces with a tinted finish, often to give it an antique look,' he explains. He used this technique in the Air Ministry pieces he has done for a client over the past two years, which include a desk, a pair of bedside tables and a bookcase styled on two 1930s Heals pieces. He adds: 'The spalted beech pieces I've done over the past 18 months have been very exciting, and the unique quality of the spalting gives the pieces a real edge. I've kept almost every scrap piece to hopefully do some knife handles in the future.'

He has his own woodland on his smallholding, mainly ash, and has recovered trees from storm damage which are drying and will be ready for milling in a few years' time. 'That is an exciting prospect,' says Mark. 'I really love old ash with its olive interior. Walnut shares a sense of class that oak has – it's a little less well known in the UK, but certainly becoming more popular.' Mark has dabbled in glass, leather and upholstery, but particularly loves working with metal and has been taking blacksmithing classes for the past two years. 'I love the forged aesthetic, and will be incorporating more metal into my designs in the future,' he says. 'Recent pieces like my Garver bedroom furniture – bedside tables, a tallboy and a chest – all had black steel fabricated bases. The design process and preparation of the material is very different to wood, but I really enjoy the flow and energy of metalwork, particularly forging. I was recently interviewed on a podcast with a friend and knife-maker in the US called Geoff Feder, who said metal seems to be my mistress!'

When it comes to finishes, Mark's go-to is hard wax oil. 'I have a great relationship with Fiddes, based in Cardiff, which has a great range of clear and tinted oils. I'm also partial to a wood dye with a shellac finish. Painted pieces are fun in small doses, but I find it takes me twice as long to get a quality finish compared to oils. That probably means I should practise more!'

EIGHT DAYS A WEEK

Mark loves what he does and works seven days a week because he can. He built his own workshop on his smallholding – you can read all about the project in his blog – to give him the flexibility to do that. 'It was also a great learning curve building it from the ground up,' he says. 'Although I've made a number of structures, this was a build like no other for me in design, complexity and scale – a true challenge.'

He built the 1,550sq ft workshop in 2018 on the site of an old barn that was once used to repair steam engines, on the North Wales smallholding that has been his home since 2011. Half the workshop is dedicated to workspace, a quarter to timber storage and the rest to Mark's garage. 'It also has an 800sq ft deck over the river – I use this area in good weather for sanding and power carving, and the occasional sundowner,' he says. 'The workshop cabinetry is all oak and I have artwork on the walls for inspiration and joy. I'm here every day and want to work in an environment that inspires creativity, but is also a shop window into the work that I do. I built my office in my woodland back in 2015 – this is where I do my design work and conduct business activity. The back of my office is actually my paint shop, as it's a dust-free environment.' He has no plans to move on. 'It's perfect for my work and lifestyle,' he says.

Mark mills and processes timber from a rough sawn state, either from long-term suppliers or his own woodland, and has trade-level machines and power tools which are efficient and help him to keep costs attainable to clients. But he prefers working with hand tools, especially for fine details. 'That is the fun part,' he says. 'If I have a plane or card scraper in my hand, it's meditation!' He adds: 'I certainly favour certain hand tools over others – I've never got on well with a router plane, and reach for a small chisel more often than not to clean up grooves.'












'I work long hours because I love what I do,' Mark says. 'I don't keep set hours as I enjoy the flexibility and work when I'm in the right mindset, which thankfully is still more often than not. Doing a practical or creative trade when you have the wrong mindset often leads to mistakes or poor craftsmanship.' So does he prefer making buildings or furniture? 'My preference is furniture, but I'd like to take on one building, like a home office or animal shelter, for a client each year,' Mark says. 'The building process has more regulation which, although necessary, makes it more difficult, with less creative freedom. I really enjoy built-in furniture work. It creates a different design challenge that I love, and most install days are great fun. But I'm happiest in the workshop surrounding, so freestanding pieces will always be my favourite.'

BRANCHING OUT

Mark's favourite project he has worked on recently is his ZOZ Chair, for his fledgling collection. 'I feel like it's a big step in the evolution of my design skills,' he says. 'This is a piece that I want to put out into the world. I'll continue refining the style and technique over the coming months before making it available for purchase, but it's my favourite because it's allowed me to see the potential of designing my own furniture range.' One of the most challenging things he has ever worked on was a trapezoidal coffee table with a push-to-open hidden drawer. 'The angles were enough to give me nightmares, but the matt black colour was so difficult to get a perfect finish on, I went through four different brands before I was happy with a final result,' he says.

Looking forward he plans to continue with commissioned work as he gradually transitions towards developing and marketing his own made-to-order range. 'The next step will be offering courses, as I believe teaching is a great way to continue learning,' he says. He is currently working on a walnut TV console and an oak dining table and bench with black steel legs, and up next is an oak dressing room – 'with built-in cabinetry and an antique feel in the finish, but with modern twists on the drawer fronts' integrated pulls,' he says.

Mark is in the lucky position of having benefited from the pandemic. He explains: 'I work alone so there have been no complications with staff, which some people have had to deal with. And I've never been busier, as I think a lot of people took the opportunity to improve their homes during the lockdown, including new furniture pieces. The biggest impact has been supply and rising timber costs, particularly sheet material. I think the production side of the issue is slowly returning to normal, but other economic factors and potentially Brexit are impacting the supply of materials still.' When he's not working Mark loves walking and hiking in North Wales, particularly Snowdonia, as well as playing baseball and golf.

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TURNED LAMINATED TABLE LEGS

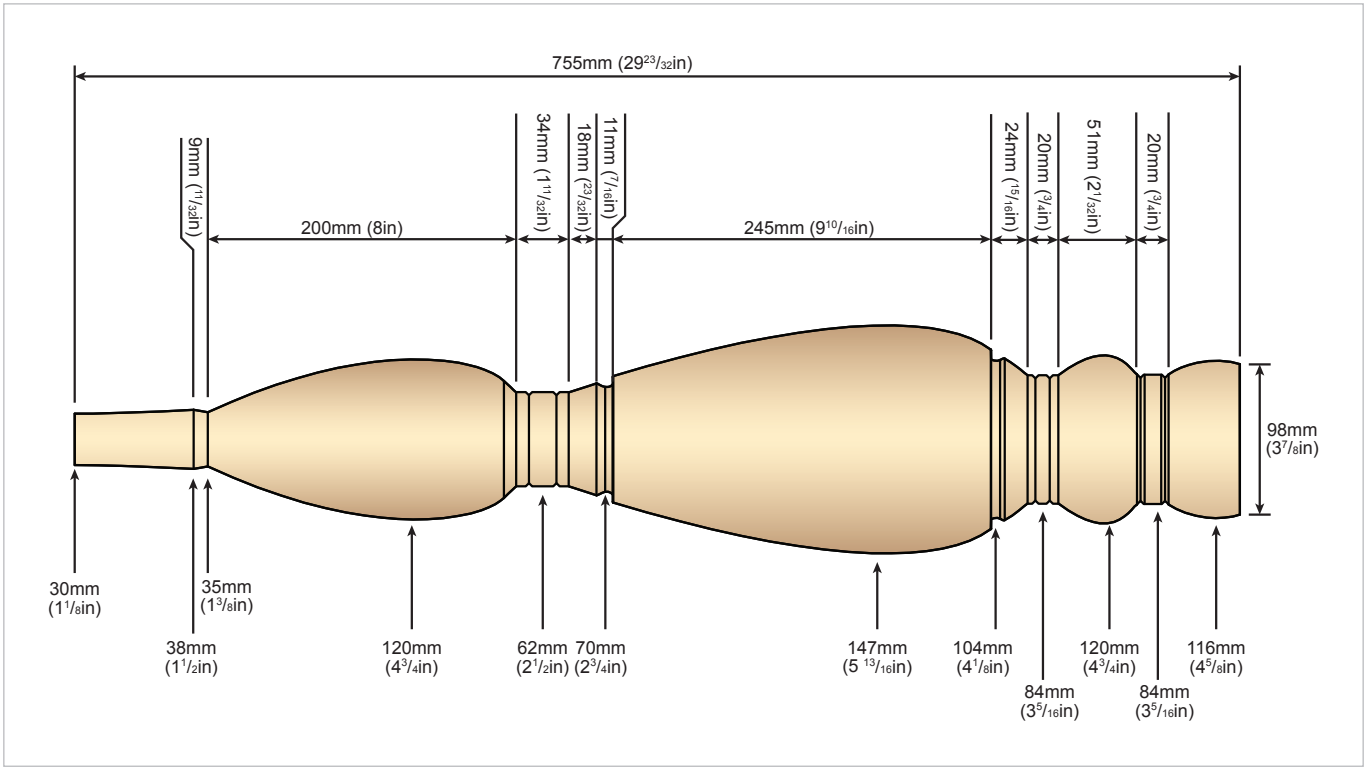
RICHARD FINDLEY EXPLAINS HOW HE TURNS A BATCH OF LAMINATED OAK LEGS

One of my regular customers is a furniture maker and orders sets of white oak legs most months. The design occasionally changes a little, but the basic shape is pretty constant. The thing that makes these legs more of a challenge than most is the sheer size of them. In a recent effort to reduce the cost, they have reduced the diameter of the legs so they are now not as large as they were on the first order, but at 147mm diameter and 755mm long, they are still a fair size. This means that they can't be made from a single piece of timber but need to be laminated from three layers of 50mm-thick material.

Laminating is a simple process but you need to be methodical to ensure good joints, otherwise the entire leg is ruined before you have even touched it with a gouge.

Out of interest I weighed the leg before and after turning, and was surprised to find that the laminated block starts out at 12kg and loses 7kg during the turning process, finishing at 5kg. That is almost 60% of the original wood that finishes up on the workshop floor!

It was for jobs like this that I bought my Wadkin lathe: with around three-quarters of a ton of cast iron used in its construction, it can handle chunks of wood like this with ease and this allows me to turn them at a higher speed than many lathes could, speeding up the turning process. That said, care still needs to be taken to ensure the leg is held securely and that the joints are sound to make this safe.



YOU WILL NEED

Tools & equipment:

- 12mm bowl gouge
- 12mm spindle gouge
- 10mm beading and parting tool
- Spring callipers
- Power sander – electric drill – with 75mm sanding arbor
- Abrasives: 120-240 grit and 600 grit Nyweb pad
- PU adhesive
- Sash clamps

Timber:

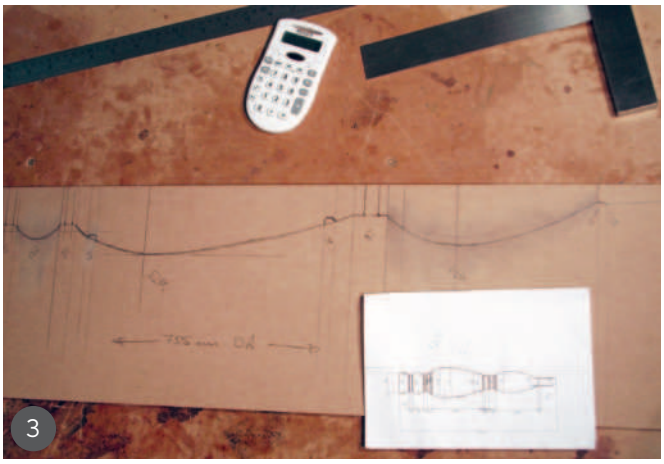
- Kiln-dried American white oak is a good quality timber and usually a little cheaper than European and English oak. It tends to be a little plainer in the grain but is still an attractive timber

PREPARING THE TIMBER

1 I buy boards of timber, cut blanks over size by around 40mm in length and 12mm in width, and plane them smooth on both faces.

2 With the timber planed smooth I glue them into the finished leg blanks. Three layers of timber are needed and I use PU adhesive to bond them, which gives a very strong joint. I have enough sash clamps to glue two legs at a time.

I like to use PU for this type of joint as it is incredibly strong and fast drying. As it dries it foams and expands. That is fine for a job of this size, ensuring good contact area in the joint, but makes it less useful for smaller, more delicate gluing jobs. On these legs I use eight or 10 clamps for each leg to make the joints as tight as possible and ensure that I apply lots of pressure evenly over the boards.



PHOTOGRAPHS BY RICHARD FINDLEY

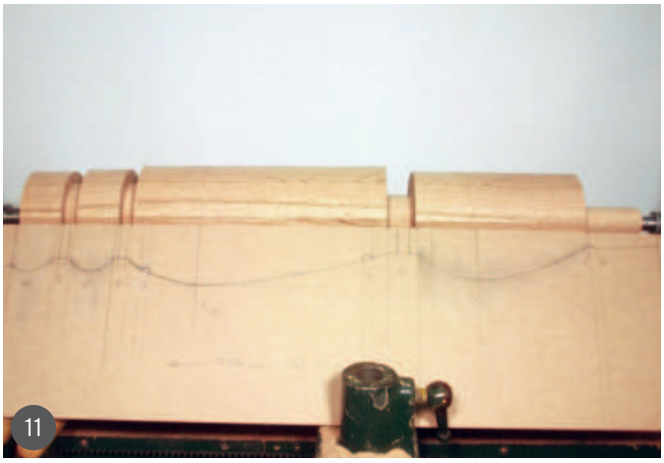
3 While the legs are drying I make the copy template from the drawing supplied. You can see that they seem to have given good detail and lots of measurements, but I still found it lacking in important information. Having dealt with this customer for a couple of years I know that they trust my judgement, so I was able to use artistic licence to fill in the gaps.

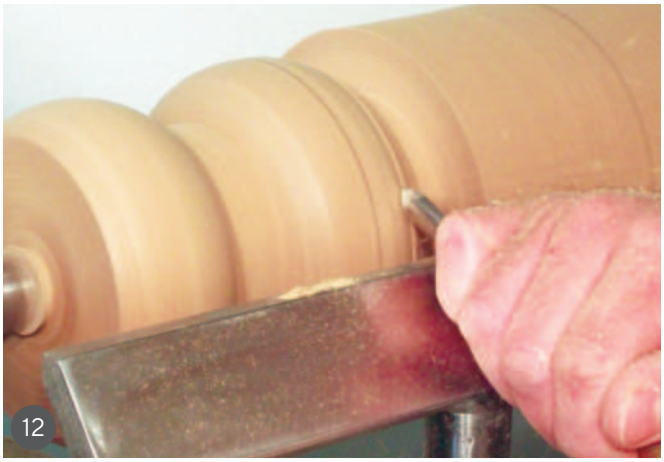
4 Once the legs were dry I trimmed the ends flush. Although I can achieve a pretty good cut on the bandsaw it is far from perfect, so the legs are still around 10mm longer than required.

5 With the centres marked I hammer in the four-prong drive using my dead blow mallet, and mount the leg between centres. For most of my work I favour a ring centre at both ends but for large, heavy work like this I need a very positive drive to handle the heavy cuts I will be taking.

TURNING THE LEGS

6 With the lathe running at 960rpm I rough the blank down with my 12mm bowl gouge, then, having removed most of the waste, I can move the toolrest closer to the work and smooth it to





a cylinder. I tend to get all of the legs to this stage before moving on to the shaping phase. You could use a large spindle roughing gouge for roughing out if you prefer, but I find I have better control with the 12mm bowl gouge and can quickly remove the waste and produce the smooth cylinder I'm looking for.

The lathe speeds I used were 960rpm for roughing and 1,440rpm for shaping. I was able to use these speeds because of the mass in my lathe. If you plan to try a project like this, I recommend, as always, that you start slowly and build up gradually until you find a speed you are comfortable with and that suits your equipment.

7 Using the copy template, I then mark the positions of the major parts and details on the legs.

8 Using these marks I am then able to trim the leg to size using my 12mm spindle gouge. I leave a small area which will be trimmed up at the end for the drives to do their work.

9 I will need callipers for step 10. My usual preference is to use Vernier callipers for sizing spindle work, but I find they are only accurate to around 65mm because of the length of their measuring legs. Above this size I use my large spring callipers. The main problem I have with these is that they can vibrate open in use, which is frustrating to say the least! I have found that gripping them in such a way that you hold the adjustment screw when using them eliminates this problem.

10 Working with my 10mm beading and parting tool and callipers, I then block out the shape of the leg.

11 Here you can see the design blocked out, ready to begin shaping. Using this method helps to reduce tool changes and so speeds up production.

12 With my 12mm spindle gouge I begin shaping the leg, working from left – the top of the leg – to right, the bottom.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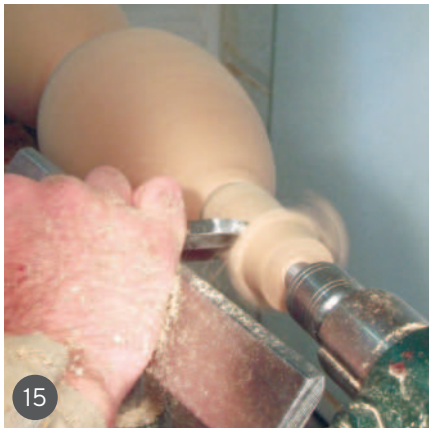
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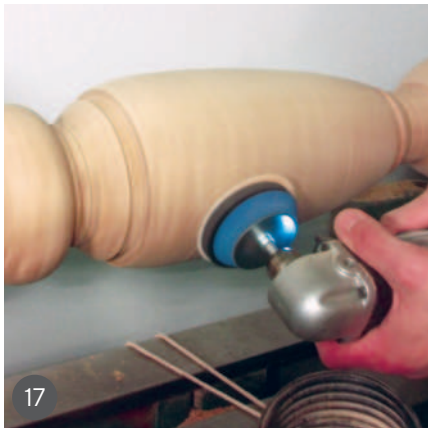
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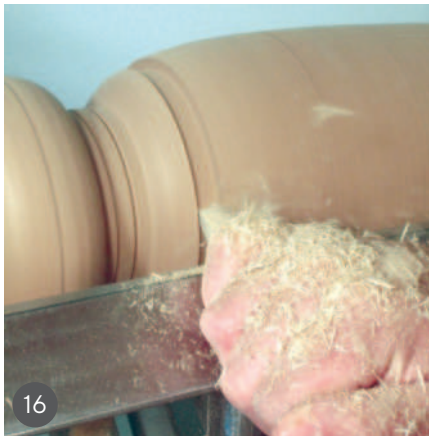
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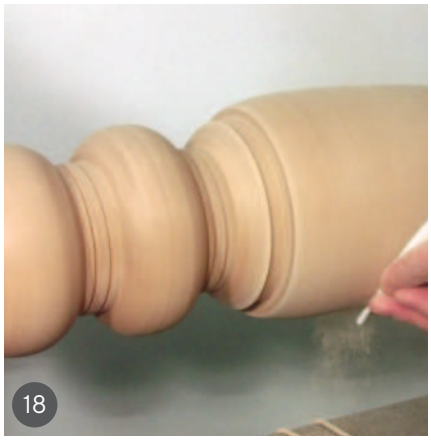
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13 The two large bulbous vase shapes on the legs take the most time, both in the amount of wood that needs removing and developing the best possible curve. I will often tweak this at the end of the job to ensure the best match between the legs.

14 Next, I switch to my 10mm beading and parting tool to add the fine details. The drawing showed these to be rather ill-formed beads, so I chose to make them as crisp 'V' cuts instead.

15 Using the same tool, I then shape the foot area of the leg into its slight taper and add the shallow V-shaped detail.

16 The final part of the shaping is to cut the square 'notch' detail which personally I felt added nothing to the design, but was clearly marked on the client's drawing so was cut, finishing with a slicing cut down the end grain to ensure a clean finish.

17 With all the legs turned and any adjustments made to ensure the best match, I begin sanding, initially with 120 grit then 180 grit, on my 75mm power sander. The lathe is turned down to 350rpm to allow the abrasive to do its work.

18 I then hand sand to 180 and 240 grit to get right into all of the details. I finish off with a red 600-grit Nyweb abrasive pad.

19 The finished laminated oak table legs, ready to be sent out to the client.


19

UNDER THE HAMMER – MODERN DESIGN

FINE EXAMPLES OF 20TH-CENTURY FURNITURE WERE AMONG THE LOTS AT BONHAMS' MODERN DESIGN & ART AUCTION IN LOS ANGELES. WE LOOK AT THE BEST-SELLING ITEMS HERE

LOT 78 • US$56,562 (£40,982)
Flora Cabinet, constructed from mahogany and printed paper. It was made around 1950 by Austrian architect and designer Josef Frank (1885–1967). Frank was the co-founder of the Vienna School of Architecture and was a pioneer of Modernist design.

LOT 194 • US$35,312 (£25,585)
Chair-table sculpture in mahogany, made around 1970 by American artist Jack Rogers Hopkins (1920–2006). Hopkins was known for his dramatic, expressive sculptures, which made furniture into art.

PHOTOGRAPHS BY BONHAMS

LOT 85 • US$9,562 (£6,967)
Pair of kneeling stools made in the 1950s by American woodworker George Nakashima (1905–90). The stools are made from walnut with woven silk upholstery, and one of them has the client's name – Fischer – inscribed on the underside. One of America's best known and most celebrated furniture makers, Nakashima was a founder of the 20th-century American craft movement.

▲ **LOT 12** • US$35,312 (£25,585)

Set of six oak dining chairs made in 1903 by American architect Frank Lloyd Wright (1867–1959). These chairs were made for the home of John W Ayers, a furniture manufacturer whose company produced many of Wright's early furniture designs. The design of these dining chairs is thought to be the prototype for the slant-back chair design that Wright conceived for the Larkin Company Administration Building in Buffalo, New York, later in 1903. This version of the design differs in that it has one fewer leg stretcher and an extended backrest.

▼ **LOT 121** • US$6,120 (£4,457)

Teak chest of drawers made in the 1960s by Danish furniture maker Svend Langkilde.

▼ **LOT 192** • US$8,925 (£6499)

Reclining armchair in walnut, made around 1972 by furniture designer Sam Maloof (1916–2009); the matching ottoman was made by David Potter, the original owner of the chair. Maloof is one of America's most renowned furniture makers and helped create the studio furniture movement, where artisans created custom pieces in strictly limited numbers.

SCALLOP SHELL DOORKNOB

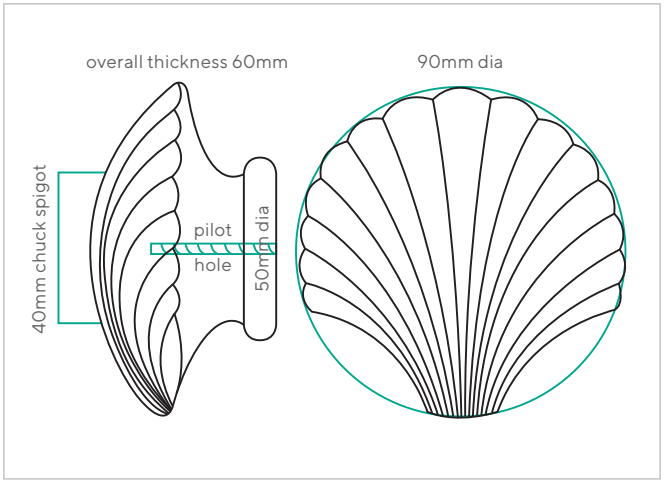
STEVE BISCO TURNS AND CARVES A SCALLOP SHELL DOORKNOB IN SAPELE MAHOGANY

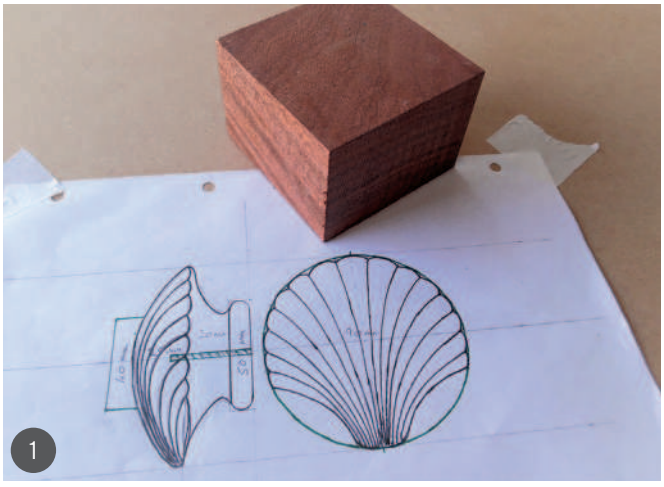
Knobs and handles are an essential feature of doors and drawers. You can buy various types and styles but they may not suit the particular piece of furniture you are making. Bespoke projects often need custom-made accoutrements to finish them off, so it is worth knowing how to make your own.

In this project I'll tackle a doorknob in a classic scallop shell pattern. The scallop shell has been used as a decorative motif since ancient times and, in its mainly round stylised form, it works very well as a handle. I have made this one 90mm in diameter to suit the door of a large cupboard or cabinet, but it can also be scaled down to fit a drawer or smaller cabinet.

A doorknob project usually starts on the lathe, as the door side of the knob usually needs to be round, with mouldings splaying out to hold the forward part of the handle away from the door so you can grip it. While on the lathe the round parts of the outer handle can also be shaped to create the base surface for the carved details. With this scallop shell pattern, it is a fairly straightforward process to carve the ridges of the shell fanning out across the forward surface of the handle that was prepared on the lathe.

If you are making just one doorknob you don't have to follow the measurements and shape exactly, so long as it looks good. However, if you are making a pair or more, it is important to stick to exact measurements and follow the exact same shape, otherwise they will all look noticeably different.

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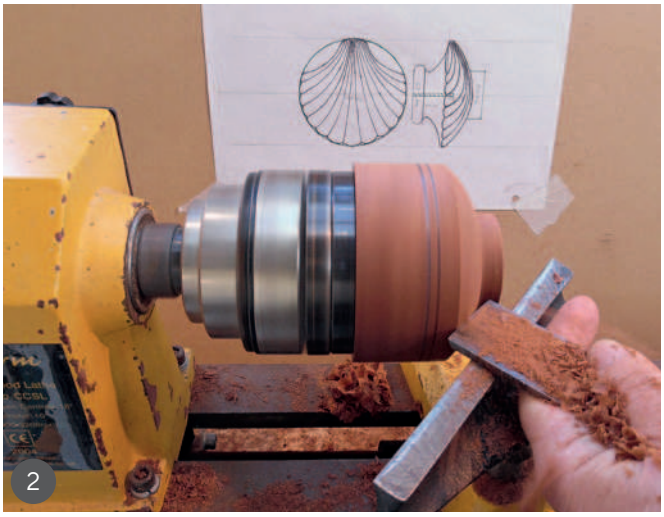
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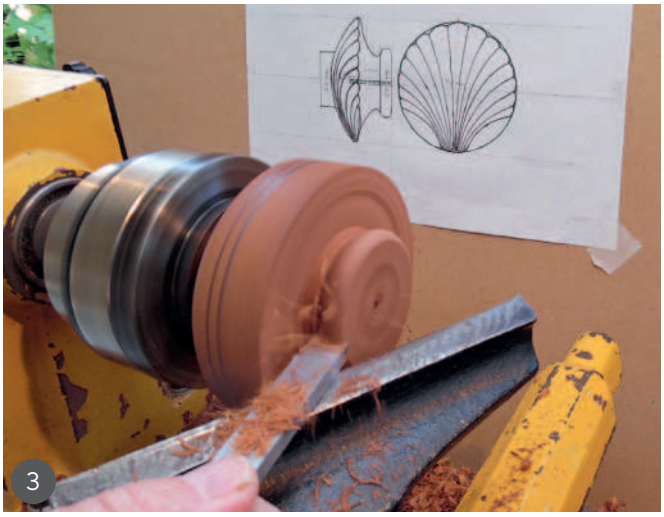
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PHOTOGRAPHS BY STEVE BISCO

SAPELE MAHOGANY

You may have a specific wood in mind for your own project, but for decorative effect on this example I have gone for a mahogany-type finish using sapele. Real mahogany can be difficult to obtain from sustainable sources, but sapele is the main sustainable substitute. Sapele gives a highly decorative finish, but it is not without its difficulties in turning and carving. It is quite hard and brittle with an unpredictable grain, so care is needed to prevent tearout and splinters breaking off. In awkward sections it is often safest to carve across the grain or by using skew gouges. Sapele has a moderate blunting effect on tools, so frequent honing is needed. All mahoganies produce a beautifully rich period effect when finished with French polish, which is what I have used for this project.

YOU WILL NEED

Woodturning tools:

- 30mm flat scraper
- 13mm flat scraper
- 10mm bead former
- 13mm bullnose scraper

Woodcarving tools:

- No.2 gouge, 25mm
- No.3 gouge, 10mm
- No.3 fishtail gouge, 10mm
- No.5 gouges, 7mm, 5mm
- V-tool, 2mm straight
- Flat chisel, 20mm

Materials:

- Sapele, 90 x 90 x 60mm

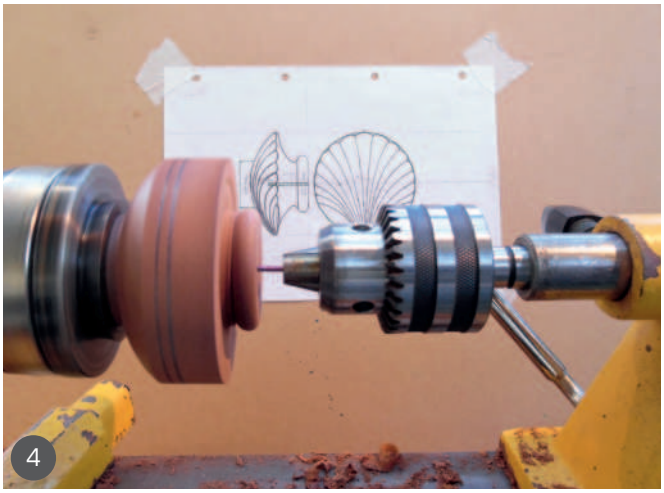
PREPARATIONS

1 Get a piece of sapele (or any wood of your choice) at 90 x 90 x 60mm. Make a full size copy of the drawing.

TURNING THE BASIC SHAPE

2 Fit a faceplate to the side of the block that will face the door, making sure the screws will not mark the finished surfaces of the doorknob. Mount it on the lathe and turn it to a 90mm cylinder. At the outer end of the knob, turn a spigot to fit your chuck (in my case 40mm diameter) and about 10mm deep. When you are creating a specific shape on the lathe, it helps to have a life-size drawing pinned up behind the lathe so you can sight up on it as you turn the shape. Round over the rest of the outer face to follow the shape shown on the drawing and take your measurements from the drawing.

3 Remount the piece in the chuck by the 40mm spigot to work on the shaft end of the doorknob. Turn a 50mm diameter x 10mm half-round bead where it will meet the door.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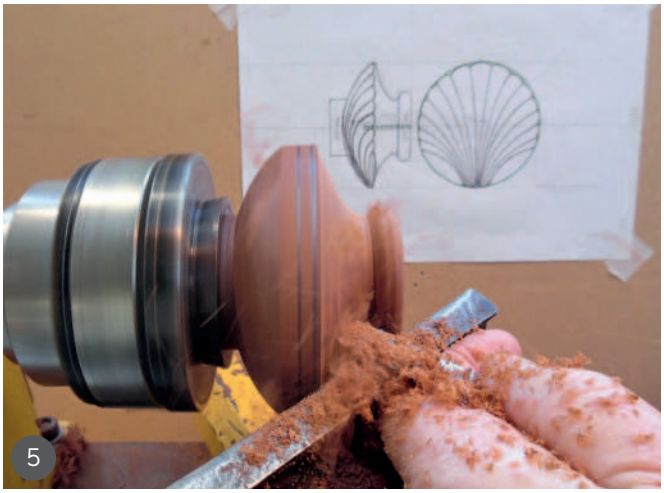
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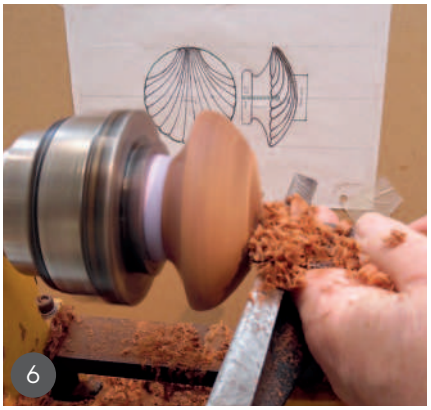
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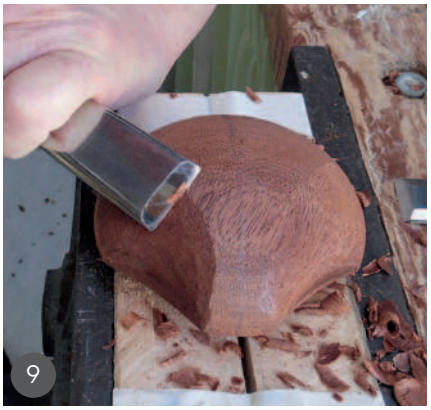
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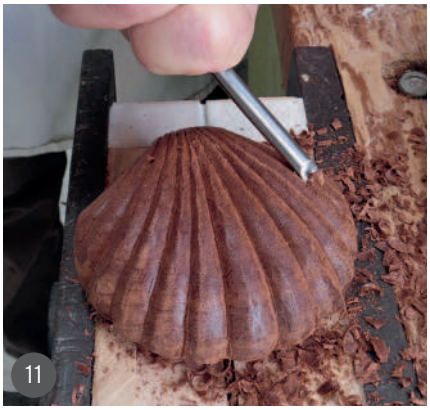
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Rustins
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4 Drill a pilot hole for the mounting screw using a 2mm drill. The pilot hole should be about 35mm deep so the screw penetrates into the widest part of the knob when fixed to the door. It is best to use a Jacob's chuck on the lathe if you have one, rather than a hand drill, as it will ensure the hole is straight and central.

5 Turn a widening curve from the 10mm bead to the outer edge of the handle part, taking your measurements and following the curve from the drawing. Finish the shaft end of the handle by bringing it to a smooth surface with abrasives while on the lathe.

6 Turn the piece around in the chuck and carefully mount it on the 10mm bead. Wrap masking tape around the bead several times to protect it from being marked by the chuck jaws. Now gently cut away the spigot and round over the outer surface of the knob. Do not use abrasives on the outer face as embedded grit may blunt the carving tools later. The turning phase is now complete and the piece can be removed from the lathe for carving.

CARVING THE SHELL

7 To hold the doorknob firmly for carving, make a collar to hold it in a bench vice. Prepare two pieces of softwood with semicircles cut in them so they can be clamped around the shaft of the doorknob without damaging it. Now mark out the two segments that are cut out of the handle to form the shell shape. It helps if you trace the pattern onto OHP acetate film so you can see through it to draw on the shapes.

8 Carefully cut out the segments, making sure they are both exactly the same.

9 Use a broad shallow gouge to reshape the surface of the shell so that the edges of the cut-out segments are sloped down to blend in with the rest of the shell. Blend the shape by eye to create a stylised shell shape.

10 Carefully draw on the pattern. Pencil doesn't show up very well on the dark wood, so a white crayon works better. When the pattern lines are correct, mark them in with a fine V-tool.

11 Shape the individual convex ridges of the shell using two or three sizes of gouge to deal with the different widths. Get the surfaces as smooth as you can with the gouges and take care with the grain direction on the upper surfaces. As you get nearer the outer edge, the downward slope makes grain direction less of a problem.

12 Clamp the piece sideways in in the bench vice, with some non-slip matting to protect the carved face. Round over and refine the edges of the convex ridges.

FINISHING

13 Use fine abrasives to refine the surface so it is perfectly smooth. Rifflers (small shaped files) are also useful for sharpening the grooves and smoothing the curved surfaces.

14 Now put on your chosen finish. I used French polish, which suits mahogany woods very well. Put on the first coat very thinly by brush to get into all the crevices. When that is fully dry, give it a very light sanding with 400-grit abrasive to smooth the surface, then put on three or four more coats by wiping them on with a cloth. French polish dries very fast so don't linger with the brush and cloth or it will stick and smear. It is alcohol-based, so clean brushes and wipe off smears with methylated spirit.

15 & 16 Here you can see the finished doorknob from the side and front. You can now fix it to your door by screwing through the door from the back into the pilot hole drilled in step 4.

MAKING INLAY BANDINGS

ALAN HOLTHAM FINDS OUT THAT THE KEY TO SUCCESSFUL INLAYS LIES IN PATIENCE AND METICULOUS WORK

Many years ago I used to sell bandings for inlay and often wondered how their intricate designs were created, particularly in large quantities. With a bit more time on my hands these days, I decided to investigate the technique and try to create some of my own.

There is actually very little information on the subject, but during my research I stumbled on some work by a maker called Mark Arnold and I have reproduced some of his techniques. He uses a router to build up the repetitive detail, a method that has immediate appeal to an impatient man like me.

As this was my first attempt it was something of a learning curve, but I got there in the end. What I did not appreciate at the start was the degree of accuracy needed, particularly at the glue-up stage. Any tiny variations in alignment are magnified when you later come to cut up the blank and start planing the cut surfaces.

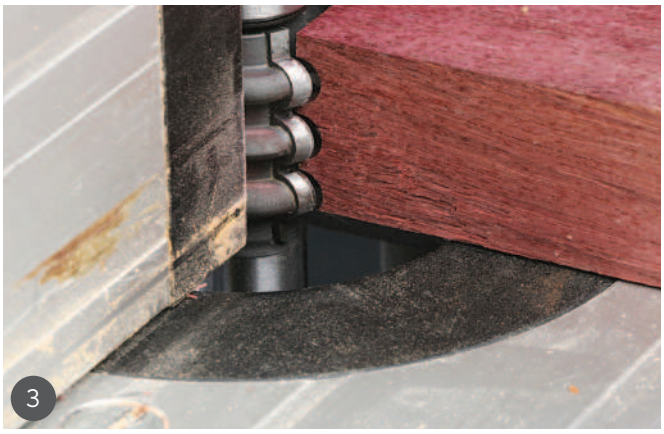
Sticking on the edging veneers tends to highlight the inaccuracies, particularly if the detail is very fine. Over-clamping causes distortions as well. They may only be small, but a 0.5mm bend in the blank means a marked variation in the accuracy of the pattern along the length of the finished banding.

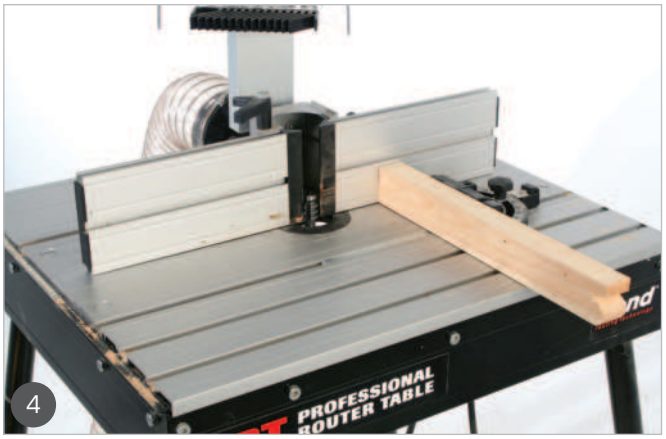
You need sharp tooling to get really crisp machined surfaces as there is very little scope for cleaning up later. Because of the number of gluing stages, assembly takes several days. The only answer is to work really carefully and take your time.

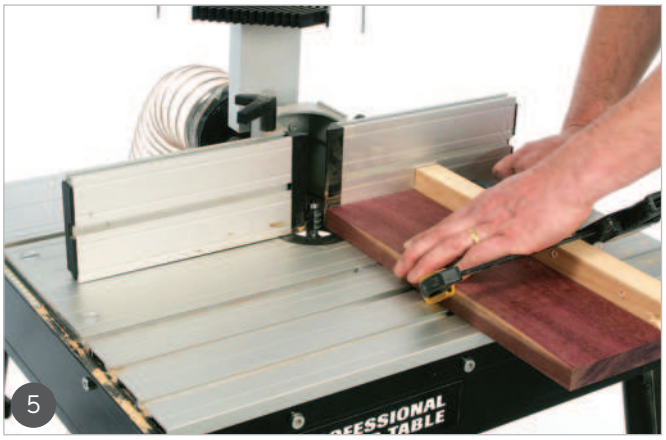
CUTTER AND TIMBER CHOICE

For this style of design you will need two router cutters with mirror image profiles. Their shapes will obviously determine the shape of the detail and you will have to do a bit of lateral thinking to try and work out how it will end up; I made a few scale drawings to get my head around it.

I used Trend cutters 8/30 and 9/76. You will also need two contrasting timbers and some veneer to form the outer stringing; I chose maple and purpleheart. In retrospect, both of these species were bad choices as they are quite brittle and tend to break up in the thin sections you finally end up with, as I found to my cost. Softer, more flexible timbers would be better, probably sycamore or holly for the light colour.







PHOTOGRAPHS BY ALAN HOLTHAM, UNLESS OTHERWISE STATED

1 Machine both timbers to exactly the same size, particularly with regard to the thickness. This step is essential.

SETTING THE CUTTERS

2 I set the bottom of the cutter to give me a slightly deeper cut than the finished pattern to leave some room for cleaning up, but don't overdo this – you don't want to be planing off vast amounts later, as just a light skim off the finished glued-up blank is real heart-in-the-mouth stuff.

3 I set it to run against the fence rather than just the bearing because this gives a more consistent cut, particularly at the ends.

THE ROUTER TABLE

4 A router table is essential, but it must have a decent crosscut guide, ideally fitted with a sacrificial sub fence to provide maximum support and to prevent breakout.

MACHINING THE TIMBER

5 Make sure the ends of the timber are machined dead square or the pattern will vary when you glue up. Carefully machine across the end grain of the board, keeping it held tight against the crosscut guide with a clamp to prevent any creep. Note: the guard has been removed for clarity in this photo.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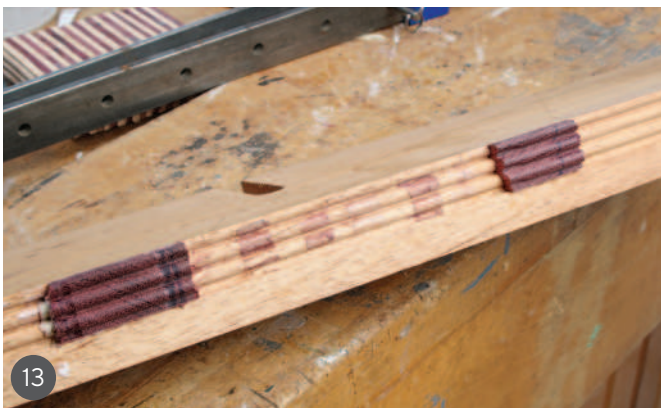
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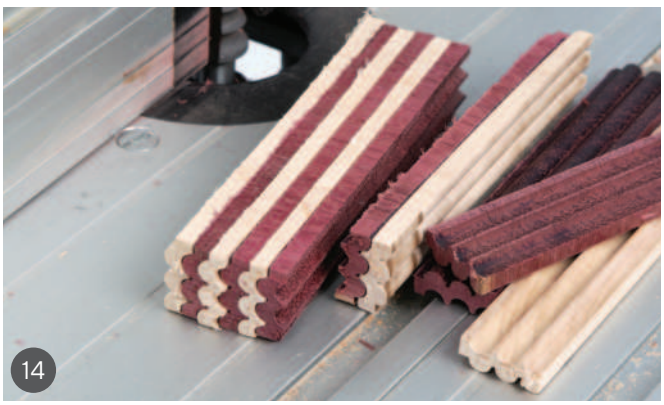
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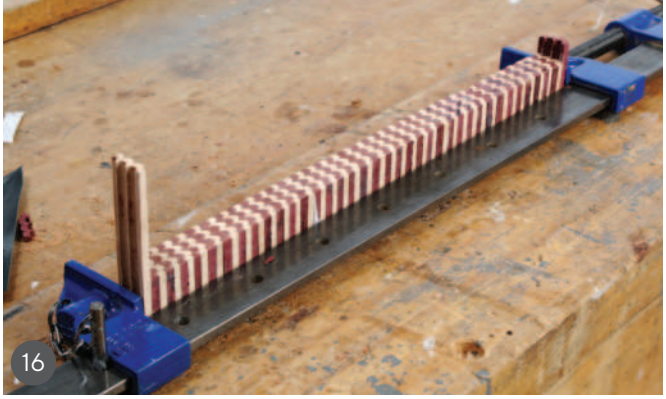
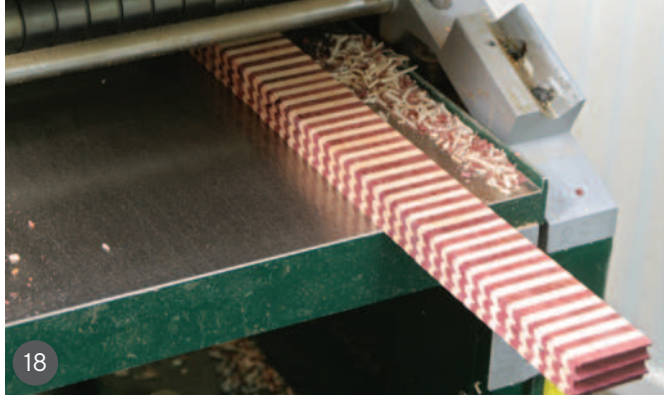
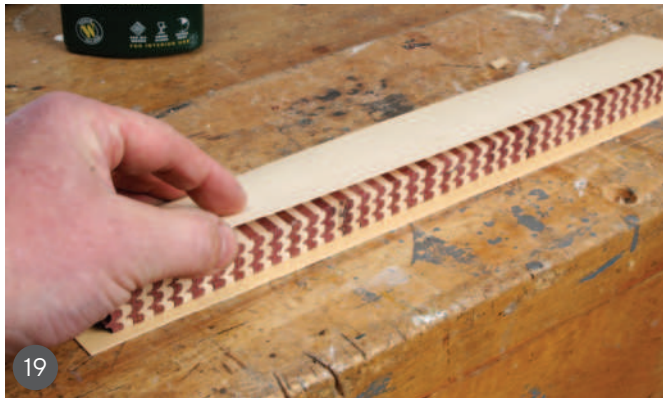






6 This moulded end-grain section now needs to be sliced off consistently thin. I used the circular saw after setting up a stop on the rip fence. Again, clamp it firmly during the cut. This stop ensures that the slice falls away clear of the blade as the cut is finished, and doesn't get chewed up or spat back at you.

7 Keep repeating the procedure for each colour of timber. Cut plenty because it is difficult to go back to exactly the same set-up if you need more later.

8 The flat back section of each of these thin slices now has to be machined with the opposing cutter – tricky. Where you set this cut in relation to the first determines the finished design and I set mine so that the bead and cove were perfectly aligned, but offsetting them by half the radius would have been interesting as well.

9 Holding these tiny strips is difficult, so make a carrier from a large piece of scrap. Use the first cutter to machine a profile in the edge of the offcut, but adjust the height so that the slices fit snugly into it, and finish with one edge flush with the face of the carrier.

THE GLUE-UP

10 Now glue some short pieces of the first profile on to the carrier as holding blocks that trap the slices tightly.

11 When the glue has dried, clean up any squeeze-out and lay in the first few slices for machining, then run the whole carrier past the cutter to produce the required profile.

12 Leave a short section of each of the glued-in blanks un-machined to provide a flat surface to run against the fence each subsequent time.

13 Be prepared for a few failures along the way as some pieces may become loose and vibrate into the cutter, breaking up with some force. For this reason always wear safety glasses or, preferably, a full impact-resistant face mask. I found that the glued blocks themselves eventually broke up, so I tried holding the slices with double-sided tape with mixed results. In the end I had to remake the carrier, involving some tricky cutter resetting.

14 If all has gone to plan the slices should now start to build up in an alternating pattern, a bit like a stick of rock. Clean up any ragging on the edges with fine abrasive.

15 When you have enough slices, start gluing them up in small sections to maintain the accuracy of alignment, starting and finishing each block with opposite colours.

16 Now bandsaw the block down into narrower pieces. I cut mine into three equal sections and glued them into a single 460mm length.

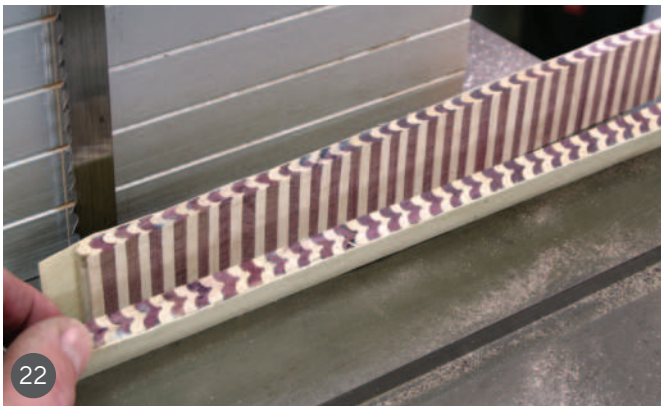
CLEANING UP

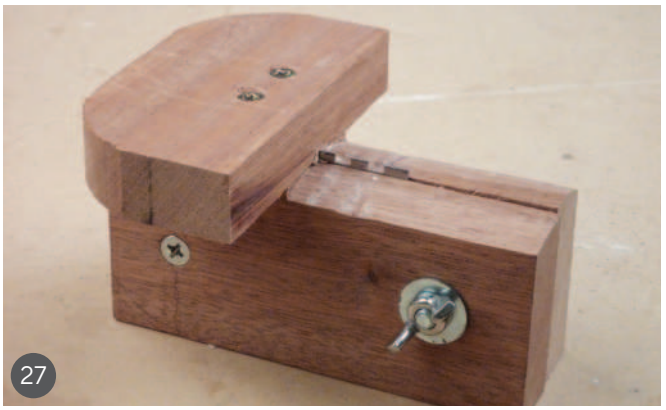
17 The faces now need to be cleaned up to remove any glue squeeze-out and maintain the flatness, using a plane to remove the worst and then a random orbital sander to finish off.

ASSEMBLY

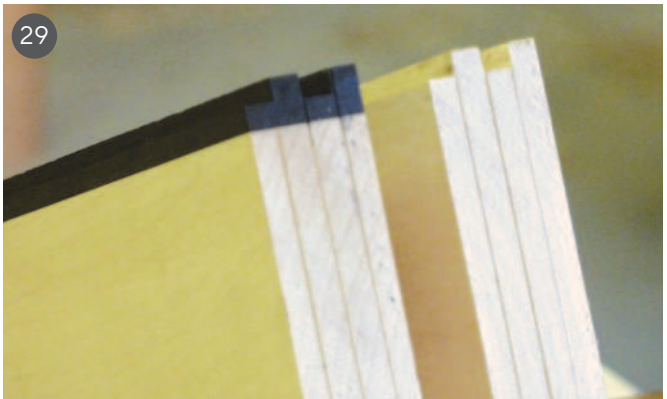
18 These top surfaces can now be planed down to height to produce the required design, using a thicknesser set to a very fine cut. Work alternately on both faces until you get the edge detail in the right place.

19 Stick the outer banding in the form of the contrasting veneer on each face, making it oversize at this stage.





PHOTOGRAPHS FROM 27-31 BY DEREK JONES & ANTHONY BAILEY/GMC PUBLICATIONS



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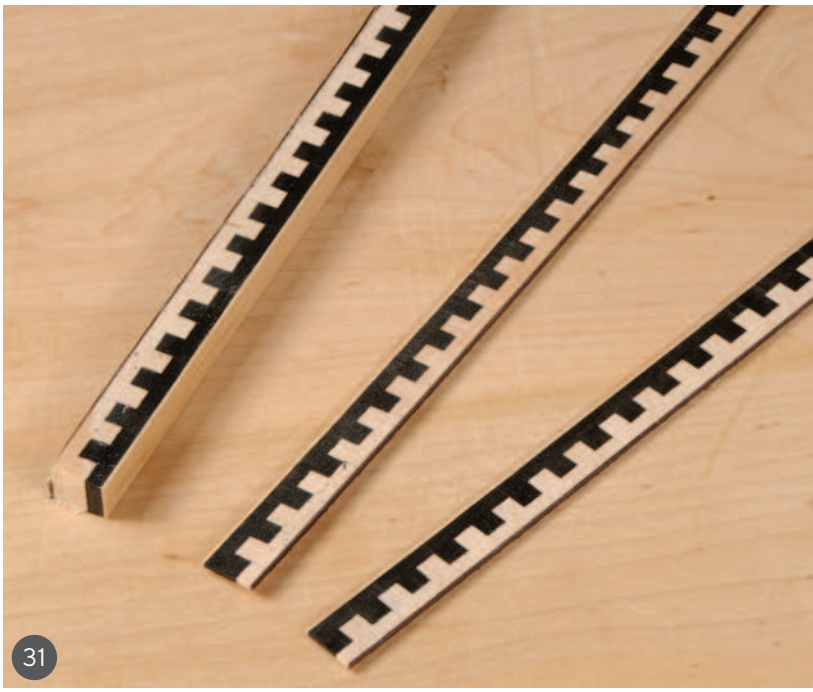
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20 Use some offcuts as clamping blocks to prevent damage to the profile and don't overdo the tightening. Eventually you can glue up the smaller blocks into one, which will hopefully be dead flat. It is the distortion in these faces that causes problems with pattern alignment later.

21 To get it pressed down evenly I used two offcuts of coarse chipboard as cauls, along with plenty of clamps.

22 When this is dry, slice it down the middle just clear of the edge pattern you want to end up with, then re-thickness the cut faces to final size and cut some more veneer to cover them.

23 Glue up as before, this time with another caul in the sandwich to prevent the two blanks sticking together.

24 Clean off the excess veneer and then plane a straight, clean edge on each blank.

25 Slice off your finished banding at the required thickness. Standard veneer is normally 0.6mm thick, but don't try to cut them this thin or they will break up, 1mm should be possible though. With a sharp blade in the bandsaw, I cut it with the bulk of the blank to the right of the blade and the finished banding against the fence.

26 These finished bandings show some slight variation in the pattern. Next time they will be better.

SCRATCH STOCK TECHNIQUE, BY DEREK JONES

For replicating inlay on a smaller scale, perhaps for a restoration project, it is possible to substitute router cutters for a simple scratch stock, the advantage being that you will be able to reproduce accurately the style to suit the project. The downside though is that an interlocking design like this dental pattern will only withstand one or two sharpenings before the cutter loses definition. Working the blanks along the grain results in an inlay made up of end grain.

A high-angled smoother or better still a scraper plane will be required to finish off this inlay. Using sandpaper would contaminate the maple with the ebony dust.

27 I made this simple scratch stock from an old scraper and odd bits of hardware found in the lid of my toolbox. It was ready to go in less than half an hour.

28 Small bits of stock can be fiddly to work so I glued the ebony to a length of maple to make dimensioning and shaping easier.

29 Lines from a cutting gauge helped to define the pattern across the ends and along the top edges. Once complete, split the maple board down the middle and glue the two halves together.

30 As in the previous technique, cut and reassemble the components to achieve the desired length of inlay. Curiously an 800mm length of stock (along the grain) made around 800mm of inlay at 20mm thick.

31 Final trimming of the stock needs to be as precise as possible if it is ever to match up when mitred. Once satisfied, a strip of veneer can be added to each side to complete the pattern. This will also help to hold everything together. Using a bandsaw, I cut these at around 1.5mm, removing the rough face each time.

MORTISE BENCH STOP

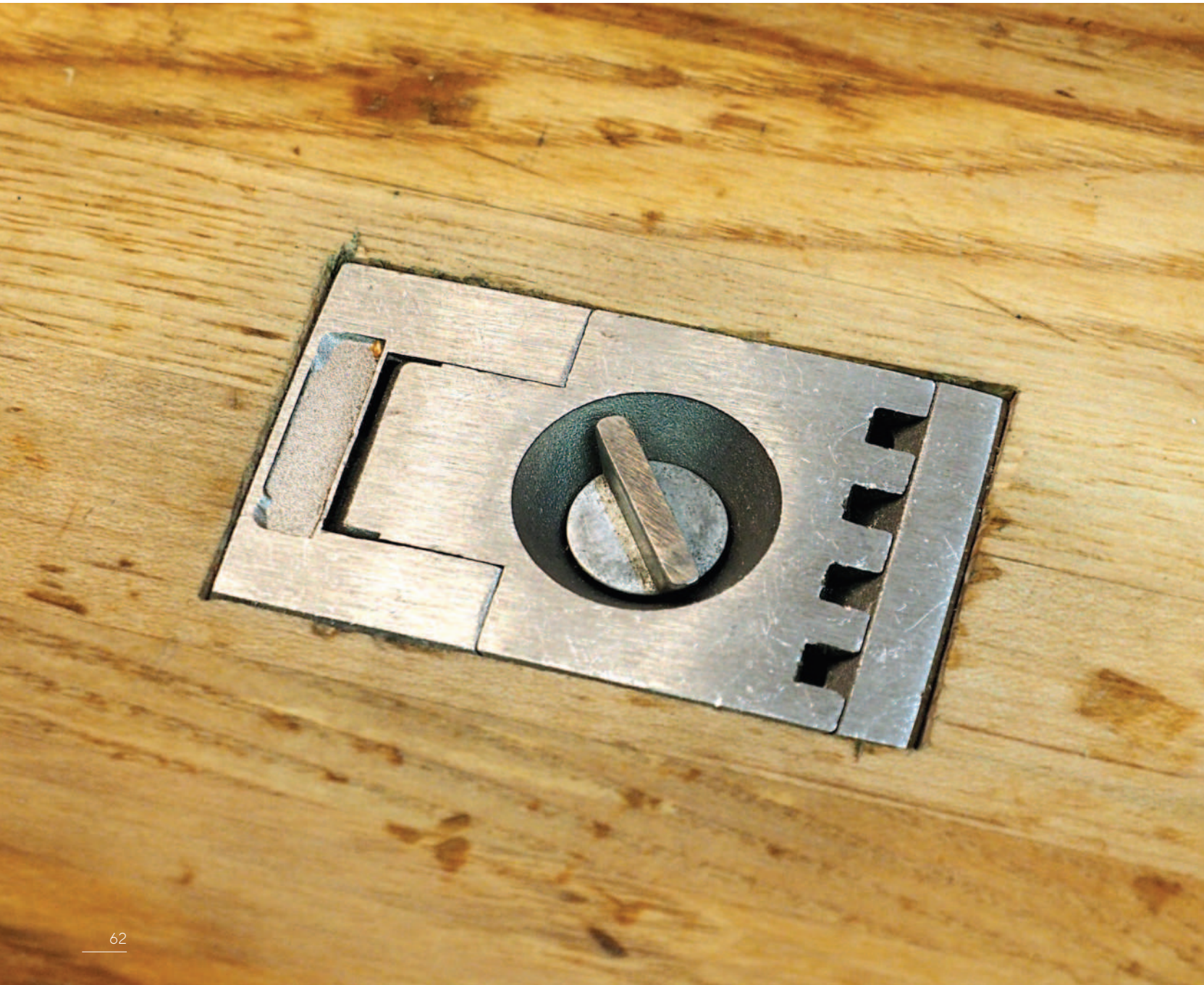
MICHAEL T COLLINS EXPLAINS HOW TO INCORPORATE A MORTISE STOP IN YOUR WORKBENCH

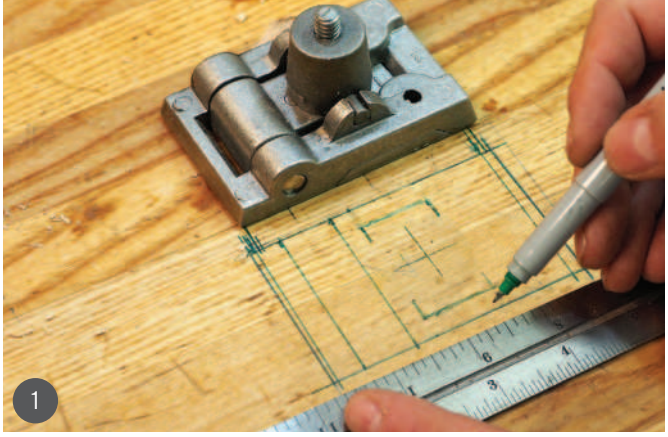
As a child, a device embedded in my father's bench always intrigued me. It had a row of teeth that rose almost dragon-like from the bench surface and, when you were not paying attention, could bite mercilessly. Years later, when I attended secondary school, all the benches had a similar device and I still managed to draw blood on their sharp teeth when I was not paying attention.

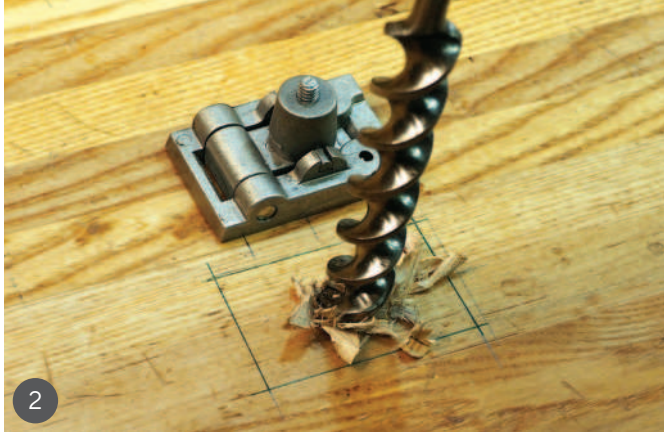
Recently, I was rummaging around an antique shop in New York and came across one of these stops or dogs. Naturally I had to buy it and install it at the end of my bench, for no other reason than nostalgia.

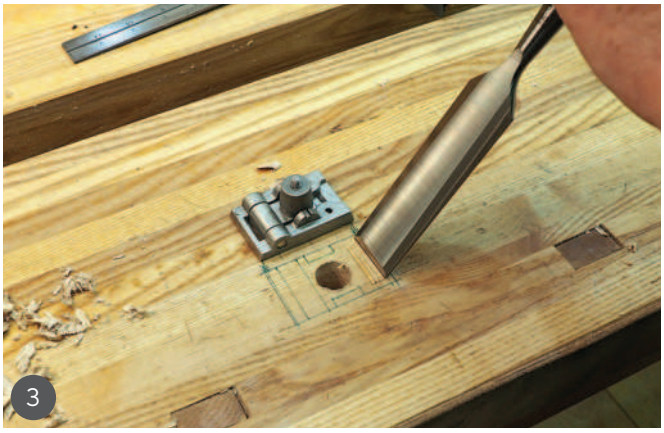
YOU WILL NEED

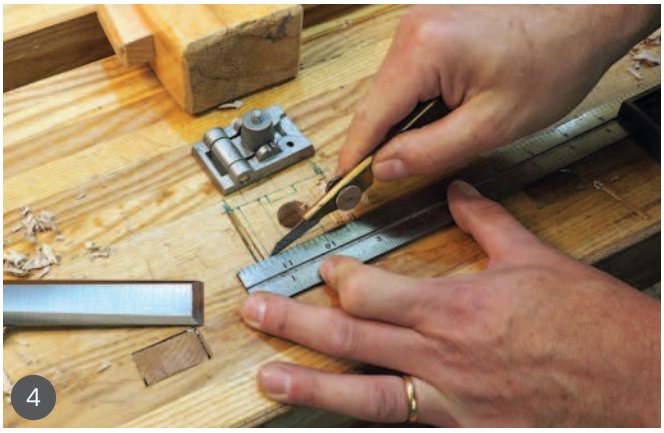
- 6mm and 25mm chisel
- Brace and 16mm and 6mm spiral bits
- 4B pencil
- A bench – it will need to be at least 50mm thick

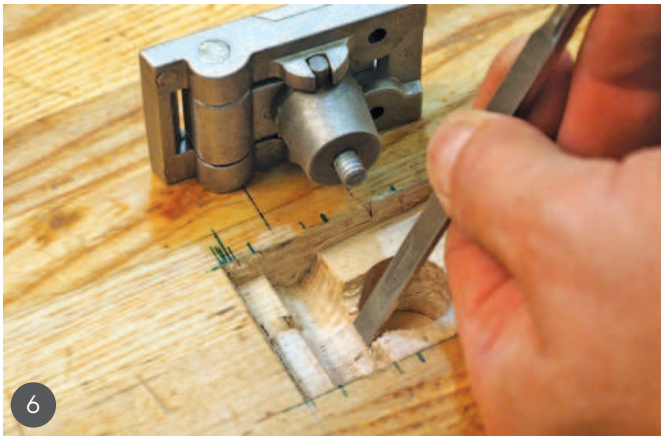












PHOTOGRAPHS BY MICHAEL T COLLINS

MAKING THE BENCH STOP

1 Clear your mind of the fear of chiselling deliberately into your bench surface. Decide on the location of the dog. This is a personal choice; most of the boards I plane are 200–255mm wide and up to 2,400mm long, so it's a good idea to place this dog about half the width of a typical board from the front of the bench, 125mm and far enough along the bench so you can place most of the board on the bench. Mine was 305mm from the end – your location will be different. If you are left-handed it needs to be placed on the right-hand end of the bench. Position the stop upside down in the correct orientation, left to right (don't mix this up). Mark the outline of the dog and key locations using a square – the two pivot points and spring holder locations, as well as the bevel angles.

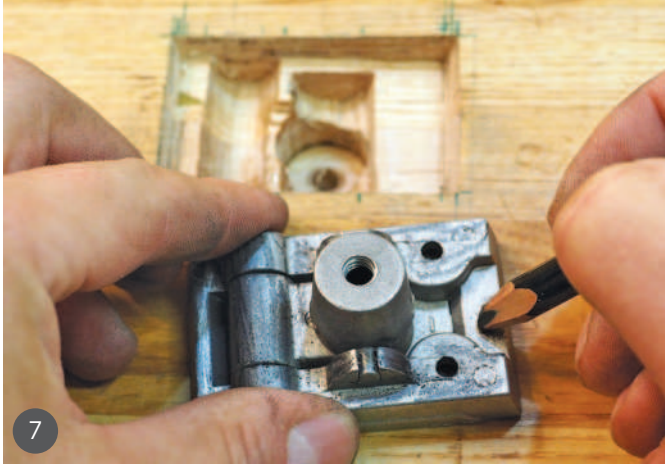
2 The spring holder must be able to move slightly, so drill a hole about 1mm wider than the widest diameter. Use a 16mm bit and drill to a depth of 25mm, then use a 6mm twist bit to drill an additional 6mm for the height adjuster screw.

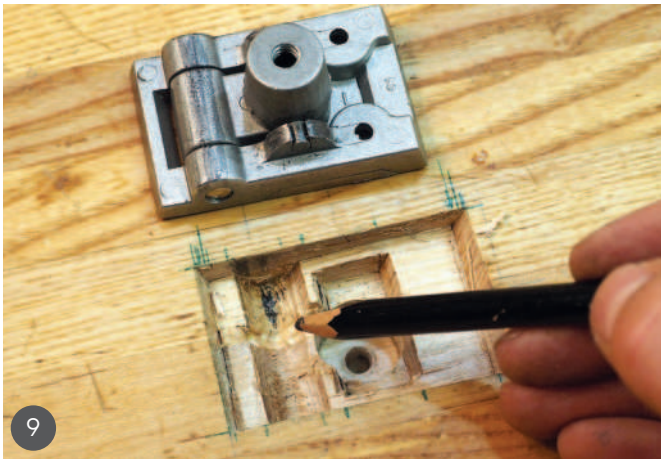
3 With a wide chisel, start to chop out the mortise. Make sure to go easy because one side of the dog is about half the depth of the other.

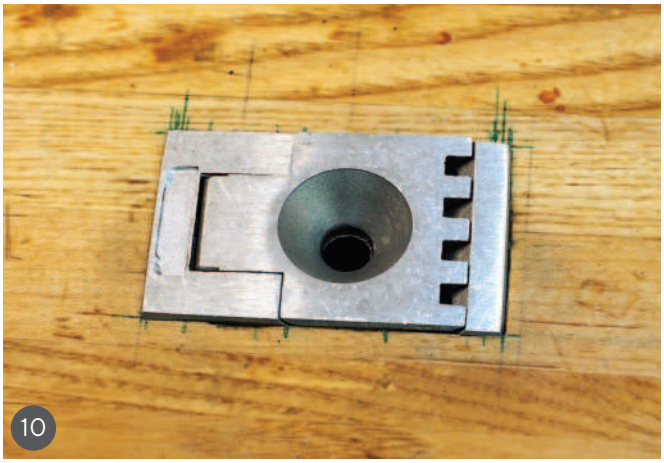
4 At this point, I decided to score round the outline with a marking knife to prevent chip-out. It's best to do this before you start any chisel work at all.

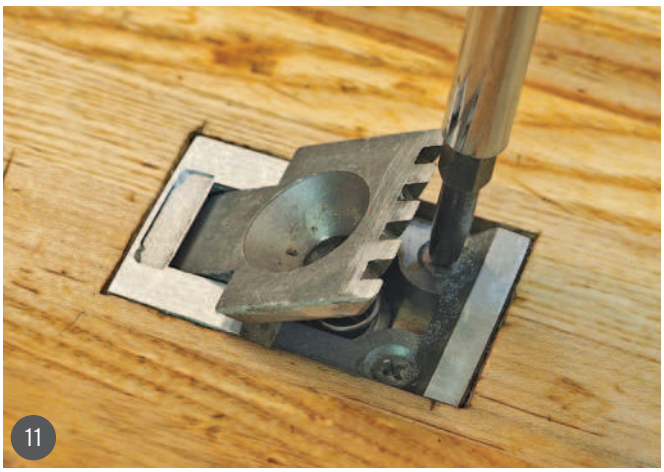
5 Work the section that will house the hinge. With the bevel down, make pivoting cuts from both sides.

6 Switch to a narrower chisel to fine-tune the recess with a shallow paring action.









7 Using a 4B pencil, scribble all over the underside of the dog.

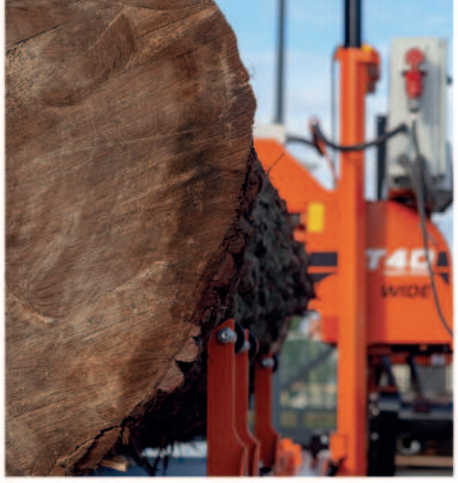
8 Place the dog in the mortise and gently tap it a couple of times with a wooden mallet, but don't pound. If your dog is made from cast metal, like mine, it can be quite brittle.

9 Remove the dog and look at where the graphite has been transferred in the mortise. These locations will indicate the proud locations and need to be pared away. Initially there will be lots of graphite deposits.

10 Repeat this process slowly until the dog fits snugly into the mortise. With the memory of 'bitten' knuckles, I wanted the dog to lay just slightly below the surface of the bench, I also didn't want this coming into contact with any workpiece slid across the bench. I used a small router plane to remove the last of the waste.

11 Place the dog in the mortise and mark the location of the screw holes. Drill pilot holes – the screws need to be small enough to fit into the counter sink holes, but long enough to stop them pulling out of the bench (there will be a lot of force pushing against this dog). I opted for stainless steel screws. Clean up the surface of the bench and reapply any finish you might want to use on your bench.

12 Now you have a tried-and-tested method of securing wood to the bench, but remember to let sleeping dogs lie and watch out for their bite!



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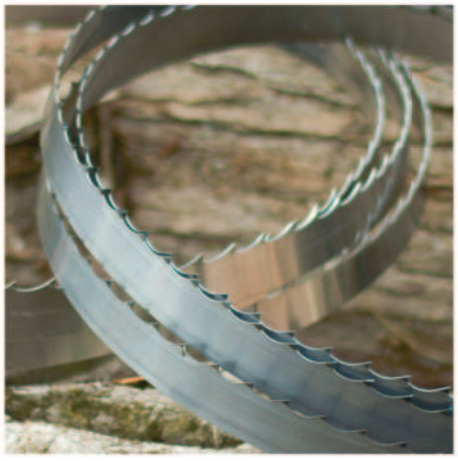

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BORN OF NECESSITY

A LACK OF FURNITURE AND READY CASH PUSHED **RYAN CHENEY** TO START MAKING HIS OWN

'In my early 30s, I took up residence in a tiny, one-room, off-grid cabin in the mountains in an attempt to pay off a great deal of credit card debt,' says Ryan D Cheney of the Mountain Top Joiner's Shop in Louisville, Colorado. 'The existing furniture wasn't really meeting my needs, but I couldn't afford to buy what I needed and I didn't have a car at the time. Instead, I bought lumber and some cordless tools at a local hardware store and hauled it all up the mountain in a bike trailer. I built a CD rack, a storage box and a table and, before I knew it, I was hooked.'

Ryan lived in the cabin for three years, and with limited electricity and plenty of reading time, he started devouring books and magazines on woodworking. 'Once I moved out of debt and back to civilization, I also started watching all the YouTube videos and woodworking DVDs I could find. From there, it was just a matter of building things and gaining experience. The material itself was my teacher at that point. It'll let you know if you did something wrong,' he says.

His first project was a CD rack – 'essentially just three boards with a series of dowels running through them,' Ryan explains. 'It was purely utilitarian, but it did give me a taste of the satisfaction that comes from making my own furniture.' It wasn't long before other people started asking him to make things for them and he spotted the opportunity to make a living doing something he loved.

He recalls: 'I was working in retail at the time so it wasn't like I was trying to replace the salary of a doctor or investment banker or anything. While it's still debatable whether I'm making money doing this, it's certainly more enriching than what I was doing before in a more qualitative sense.' He filed a trade name and a sales tax licence with the state of Colorado and drew customers through word of mouth and social media. 'The money I've allotted to an advertising budget has always been as close to zero as I could reasonably make it, and somehow I've always been able to find enough work to keep me busy, at least part-time,' he says.

PHOTOGRAPH BY DANJIEL DJUKOVIC

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PHOTOGRAPHS UNLESS STATED BY RYAN CHENEY

DOING THE HOMEWORK

'I've spent a great deal of time taking in all the furniture design I can possibly lay my eyes on,' says Ryan. 'I'm always on the lookout for museums, antique shops, flea markets, furniture stores, books, magazines, catalogues, the list goes on. Along the way, I've taken a keen interest in the work of the Greene and Greene brothers and Carlo Bugatti but, their influence notwithstanding, I've always endeavoured to find my own way. I often find elements of Art Deco creeping into my original designs despite the fact I'm not that into Art Deco. I actually like that that happens. I feed my brain with as much design as possible and what comes out in my own design process kind of takes on a life of its own.'

His research into designers has led him to believe that there are two approaches they can take when trying to create something original. 'There are some who actually avoid the influence of other furniture designers and fly completely solo,' says Ryan. 'Paul Theodore Frankl famously avoided the huge Paris Exposition of 1928 out of concern it would influence his work. Others, like Carlo Bugatti and Wharton Esherick, found their way to furniture making almost entirely from tangentially related fields like architecture and sculpture.'

Of his own work, Ryan says: 'I made a conscious decision early on to take the other approach. To find a new path forward, I thought it important to step back and see where the existing path originated from and let that inform my work. The benefit of that is twofold. The craftsman of old had an incredibly intimate knowledge of wood and its properties as a building material and developed joinery techniques that lasted centuries. To design furniture well, it helps to know how to build it well. From a design perspective, one can see how different design movements successfully reflected the culture and the times in which they were generated and try to carry the best aspects of that knowledge forward into new territory. In that sense, it's hard to overstate how much this research has influenced my work.'

So is there an ethos or a guiding principle behind his style? 'Questions like this are often met with what I call "art speak" from furniture designers, replete with lofty spiritual claims about connecting with nature and forays into metaphysics that very well may only make sense to the person speaking. I have moments like that myself, but simply put, my goal is to design and build furniture that isn't boring and doesn't fall apart. In our age of throw-away, flat-pack furniture, this very well may be tilting at windmills on my part, but that's how I feel. Make furniture interesting again and give it longevity.'

DRIVE FOR ORIGINALITY

Almost all Ryan's work is commission-based. 'If I want to work on a speculative piece, I typically have to fit it in wherever I can,' he explains. 'My burning desire to create original work has made it so that I very much prefer to work on my own collection. That's what really gets me up in the morning. That said, commission work both helps me build up my tool arsenal and provides me with design and construction challenges that I might not have taken on otherwise. Commission work helps grow the business and helps me grow as a craftsman. Ultimately, I don't think I'm alone in saying that I'd like for clients to come to me and say: "I'd like this type of piece for this particular space, I'd like it to be one of your original designs – something that will turn heads – and I don't mind the cost. Just do your thing and I'm sure I'll love it." One can dream. I would like there to be more overlap between my commission work and my so-called signature work.'

Ryan starts a commission by 'peppering' his clients with questions about their needs, practical uses for the piece, the furniture styles they like, the space it will inhabit and more. 'I usually narrow down the options for things like wood choice, finishes, drawer pulls and so on and discuss that with them as well. Armed with this information, I draw up a SketchUp model and submit it for their final approval. I'll make changes as necessary and come up with a price quote. If they agree to that, I get 50% down payment, with the remainder due upon delivery. If they want, I'll send them progress reports and some of them even follow me on Instagram and see their project coming along there.'

It's a different story when he is designing for himself. 'I often throw caution to the wind and design on the fly, designing each part of the piece based on the results of what came before,' he says. 'I've settled on a set of design principles that act as a set of guardrails, so to speak, so I have the freedom of the open road without driving off course and wrecking myself. My hand tool cabinet and wall mirror are both examples of this process. I'm a very visual thinker and often work out design ideas in my head while daydreaming, or in the shower, or in bed when I should be sleeping. I'm definitely at my best and most inspired working that way.'

ON THE SHOP FLOOR

Ryan's workshop is in an attached garage of around 500sq ft with insulated walls and floor, and electricity serving a 'machine island' at its centre. 'There's a thickness planer, dust collector, bandsaw and drill press there,' he says. 'My workbench sits under a large window close to my hand tool cabinet and the all-important stereo receiver. I've been there about five years and don't have plans to move at this time.'

Ryan loves working with hand tools best. 'This is in part because the cost of entry is lower, they take up less space in a small shop, and they're simpler to use,' he says. 'I've seen woodworkers spend a great deal of time and mental energy coming up with all manner of complicated jiggery to complete a task that requires little more than a saw, a chisel and a pencil line. They approach problems from a mechanical engineer's or a machinist's mindset, which is fine, but my brain just doesn't work that way. All that said, my tooling is evolving to include more machines where I can see it provides greater efficiency without affecting the craft value of the end product or ruining the experience for me personally. These are business versus values type decisions that allow me to get more of my ideas out into the world, and I probably fret about them more than I should.'

He admits he has little interest in having a tablesaw. 'This exposes me for the stubborn hand tool user that I am,' he says. 'I've heard a lot of horror stories from a lot of people involving tablesaws and I feel I can do what I need without one and with more quiet enjoyment at that. A good tablesaw is also a pretty penny, and with limited space in my shop, there are other tools I'd rather have in its place.'

His favourite woods to work with are cherry and walnut. 'Cherry in particular is readily available in my area, hand-tool friendly and just beautiful. Those are the main criteria I follow when choosing wood for a project, as well as taking stock of the environment the piece will be sitting in and making sure the wood choice plays well with that,' he says. But he also loves working with other materials, such as copper, leather and handmade paper. 'One thing studying the work of Carlo Bugatti has taught me is the wholehearted embrace of multimedia,' he explains. To finish he uses dewaxed shellac to bring out colour and chatoyance, followed by Vermont Natural Coatings PolyWhey, sometimes wiped on, but usually applied with an HVLP gun. Ryan says: 'Both are low-VOC finishes, which I very much appreciate. The one common exception is when I work with black walnut. In that case, I start it off with Danish oil, which I feel darkens and brings out the chocolatey tones in the walnut, followed by dewaxed shellac as a sort of binder followed by the PolyWhey for the extra protection.'

PROJECTS AND PLANS

'My wall-hanging mirror is easily the most engaging piece I've ever worked on,' says Ryan. 'It served as a kind of proof of concept for me. Could I design and build a piece on the fly and not be disappointed in the result? Could I design a piece that, by today's standards anyway, would classify as ornate without looking like a period reproduction? Would it be recognisable as my own work? Would I get any sleep while working on this thing? I had a lot of questions going into that project and it answered them for me in a way that has been a boost to my confidence, for sure.'

The most challenging project he has worked on was a hand tool cabinet, which he says was a kind of 'wall mirror before the wall mirror' – 'it too was designed on the fly,' he explains. 'What made it uniquely challenging was that I wanted to fit all these tools, disparate in form and function, into the cabinet so that they created visual coherence and practical convenience simultaneously. No small wonder it took me a good three years to complete, working on it on and off.'

He is currently making custom dining chairs to go with a large table with removable leaves he created for a Denver-based client last year. 'To this point, I've been content to leave the chairmaking to chairmakers, but now I'm really relishing the opportunity and the challenge that comes with, not reinventing the wheel, of course, but just trying to produce a different take on it,' he says.

But he has no idea where his work will lead him in the future. 'That is part of the excitement for me,' he says. 'I just hope that it includes more multimedia and more opportunities for creative expression. As furniture designers and makers, we're in a unique position to put something both beautiful and enduring of

PHOTOGRAPH BY DANJIEL DJUKOVIC

ourselves into people's everyday environments. The opportunity makes me feel a little bit humbled, a little bit honoured, quite privileged and enormously fortunate all at once, and I don't see that changing any time soon.'

If anything he has benefited from the Covid-19 pandemic and lockdowns. 'They caused all those people staying at home to take stock of their surroundings and decide they want better furniture,' he says. 'I'm just one guy who can only produce so much in a given year on top of everything else I'm doing, and there's enough people local to me deciding they want to upgrade their surroundings to keep me as busy as I want to be and then some.'

Furniture making is just one of the many hats Ryan wears. 'I'm a stay-at-home dad, work-at-home studio furniture maker, I grow a sizable portion of the food we eat in our ever expanding backyard garden,' he says. 'I used to play the drums professionally in Detroit and still practise regularly on the electronic drum kit I built in my shop. I moonlight as something of a property manager for several rentals. I try to mountain bike when I can. I work on various home improvement and landscaping projects. I tag along on my wife's business trips and check out museums. Also, the older I get, the more often I just need a nap. So, yeah. Never a dull moment.'

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PHOTOGRAPH BY DANJIEL DJUKOVIC

MIRROR RESTORATION

ANTHONY BAILEY REPAIRS A 19TH-CENTURY VENEERED DRESSING TABLE MIRROR

This antique mirror was rescued from a rubbish tip. It is a 19th-century dressing table mirror, known as a toilet mirror in the antiques trade. When considering antique restoration, each item needs very careful examination first.

PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS

ASSESSMENT

1 The table mirror in its original state, with a broken frame and some missing veneer.

2 The turned mirror supports were suggestive of the Georgian period in their style. The screws that tightened the mirror seemed to be original.

3 The bracket feet completely hid some small holes that could be found inside the carcass, which showed it started out with bun feet. It may be that the originals were broken and bracket replacements seemed more in keeping with the fashion of the time.

4 The drawer knobs were earlier rather than later Victorian as they were quite nicely shaped. Late Victorian styles tended to be rather bulbous and overdone. Examining it carefully under natural light, large circular dents in the veneer were revealed, where brass plate handles or knobs were originally fitted.

5 On the drawer reverse inside, small circular dents could be seen where the brass back nuts had been fitted.

6 The drawer dovetails were very fine and well executed, not suggestive of cheaper late Victorian mass manufacture. The drawer bottoms and sides were made of thin mahogany, again a sign of good craftsmanship.

7 The mahogany feather crutch veneer was laid over a simple pine carcass, which was perfectly acceptable. The ebony stringing around the edges appeared to be original. One end had a patchwork of five pieces of veneer and a lot more missing.

8 The thick mirror glass had a piece of coarse sawn pine behind it. It was dyed on the reverse and looked like a replacement piece. I wasn't convinced that the mirror glass was the original, as it hadn't deteriorated much and had typical Victorian orange paint over the back of it. The original corner joints were nicely executed, tapered tongue and groove joints, now a bit damaged.

SUMMARY

This appeared to be an unfussy design of a late Georgian toilet mirror that had been repaired and 'improved' in the mid-Victorian era. As the bun feet and brass plate handles were missing, I decided to restore to the last incarnation, as this was the least invasive way to treat it. However, it was a worthy restoration due to the level of repair and replacement needed.

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MIRROR FRAME REPAIR

9 The frame had some crude blocks glued in place to hold the mirror, which looked like replacements. These needed cleaning and re-gluing together using 'reversible' animal glue to facilitate any future restoration. The mirror was inserted and the frame closed around it and gently pushed together to leave until the glue was set.

10 One of the turned supports for the mirror was quite loose, so I dealt with this problem using some hide glue and a slip of veneer to close the gap at the side. Once dry, I needed to trim off the surplus glue and veneer on the top and inside the carcass.

VENEER REPAIRS

11 A piece of modern mahogany veneer with a curl pattern was selected as the replacement for the patchwork of existing veneers. This would look neater and the old pieces could be used for patching elsewhere.

12 A steam iron at full heat through a sheet of damped paper served to soften the hard glue, so the old veneer could be lifted with a chisel.

13 The next job was gently removing the bulk of the glue with a paring action, using a freshly sharpened chisel. After that, the chisel was used upright, in scraper fashion, to get back to bare wood.

14 The top of the mirror stand had a 'proud' bump where a nail or pin had distorted the veneer over time. I used a large, flat punch to administer a blow, just hard enough to flatten out the small bump.

15 A rather awful ill-matched thick patch had been put in at some point to cover a cigarette burn. Worst of all, it had sunk slightly, so it looked too obvious and had to go.

16 Fortunately, the modern knife-cut veneers were not much thinner than the originals. The replacement end veneer had to be cut to neatly fit between the bracket feet and the ebony line above. Apart from showing the curl shape, the position of the grain wasn't considered crucial as the original placement of grain seemed rather random.

17 Liquid hide glue was smeared all over the end, ready for clamping. As this was a ready-made liquid glue and the repair areas were small, hammer veneering with hot glue was not considered appropriate.

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18 Each repair was left overnight throughout this restoration, so in total the work was spread over about five days to ensure that the glue set properly each time.

19 The weight of the mirror had caused stress to where the side supports fitted into the top of the base. The veneer sections next to the supports needed re-gluing. One side required a piece of a business card to be glued underneath, to bring the veneer flush with the top.

20 I really wished the cigarette burn was still on the top because it could have been easily disguised. Instead, I was going to have to fit an equally dodgy patch because the edges would show at the very least. Pencil was used to show the area clearly, but I would normally rely on finger dent pressure to give an accurate outline.

21 First, I cut a patch, checked the fit and trimmed it lightly with scissors. Next, this was glued to two more thicknesses of veneer, left to dry, then cut around again. That gave me the three-thickness patch I needed to achieve a flush fit.

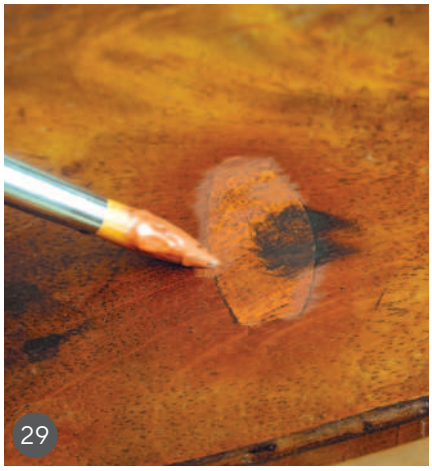
22 A deep reach mole-type clamp helped to add maximum pressure, ensuring the patch was level when the glue had set. This would minimise the chance of it looking uneven when the piece was viewed against the light.

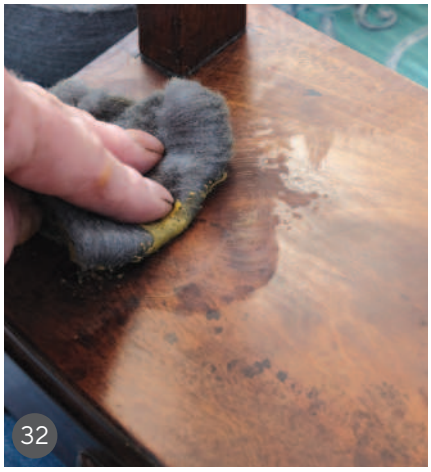
23 It seemed a little scary, but I had to sand the patch to get it completely level and to smooth the grain. This sanding inevitably reached the area around the patch.

24 A coat of sanding sealer revealed a rather sore-looking repair area, as any remaining old French polish plus the faded veneer surface was now removed. This would need some crafty disguising to blend it in. The acquired, aged surface is hard to replicate during restoration. Care is needed to avoid taking away too much of the original finish and causing lasting damage.

25 I cut a strip from a block of ebony to make the thin lines. These were simply glued and held in place with low tack masking tape.

26 A finely set, short bullnose rebate plane was used to trim the ebony flush to the veneer and rounded off to match. Ebony seems very smooth but it has a grain angle like any wood that must be respected. The direction of planing was dictated by the grain in the ebony lines.





27 The newly veneered end could then be sanded without using a sanding block, following the contours of the carcass underneath. Antique surfaces are rarely truly flat. A couple of veneer chips in the mirror frame were then glued back, supported on paper which had been pushed under the veneer edging. One drawer had a split, which was filled with a strip of veneer coated in hide glue.

FINISHING

28 Out came the acrylic paint kit. Unlike dyes, which give richer colours and allow some reflectance of light, paint obliterates grain and prevents any reflectance so it has to be used with great care.

29 The burn patch had some of its 'burn' reintroduced and the cut edges were blurred over with a brownish acrylic paint. After each light coat of paint, the repair was sealed by dabbing on clear French polish.

30 Next, a fantail brush and a semi-dry black-brown colour was used, 'touch-and-lift', to create tiny grain flecks. Then a light 'skeining' of a yellowy ochre shade was run across the area and dabbed with a fingertip to blend it in.

31 The new end veneer was repeatedly coated with French polish on a rubber. First clear, then brown and finally a touch of black polish were added to the mix to dull the veneer down.

32 The last two jobs were to wipe a couple of coats of clear French polish over the entire carcass and, when dry, rub it all over with 0000 wire wool and hardening wax. This finished what had proved to be a complicated but highly satisfying job.

'When considering antique restoration, each item needs very careful examination first.'

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ELM CONSOLE TABLE

OZ HASSAN MAKES A PIECE OF CLASSIC FURNITURE FROM ROUGH TIMBER

A console table can be a great addition to any living room or hall, but add to it the classic wild grain of elm, finished with a traditional French polish, and you have a gorgeous piece of heirloom furniture with real character.

TIMBER PREPARATION

1 Sometimes it's hard to believe that furniture can be made from rough timber – here almost all 50–55mm thick sawn. Although the finished thickness was 40mm, you'll need the extra if the sawing is inaccurate, or if there is the slightest warp or twist. I left the timber to acclimatise for well over a month in the workshop. While it settled, I planned the components to be cut from each plank and marked them up with chalk.

PHOTOGRAPHS BY OZ HASSAN

2 Eventually, I was ready to start. To prevent any damage to man and machinery, the first thing I did was to remove any labels, pins, screws or staples in the timber.

3 Some of the boards were wider than my modest 255mm planer and some of them had a waney edge, so I had to cut them along their length before I could plane them. The aluminium straightedge clamped to the board is invaluable for jobs like this. Any chalk markings were preserved across the planks.

4 With the planer-thicknesser in its planing configuration, the planks were first planed, cupped side down, to leave a completely flat face. Then, with the flat face against the fence, one side on each plank was planed square.

5 The machine was reconfigured to thicknessing and the planks planed on the other side a millimetre or two at a time. The finished thickness was 40mm, so I went down to 42mm and left the timber to settle for another couple of weeks before finishing off. With the planed edge against the fence, I then cut the timber to width on the tablesaw. The chalk markings were transferred to other faces so they were not lost. To help it acclimatise further, after the timber was planed I moved it all indoors, and only moved it to the workshop when it was being worked on.

FRAMEWORK

The most complicated part of this project was the internal frame for the drawer. It consisted of a set of horizontal and vertical guides, or kickers, all of which were jointed into the back and front rails.

6 To increase the gluing area, the lower rail was attached to the leg and side with a double mortise and tenon. The lower kickers were jointed into the lower rail and the back with full width mortise and tenons. Although the drawer wasn't terribly heavy, the full width joint offered more support and resisted twist.

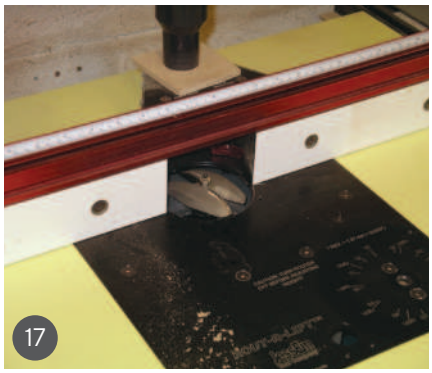
7 The vertical drawer guides were mortised into the back and had steps cut to attach to the rails at the front.

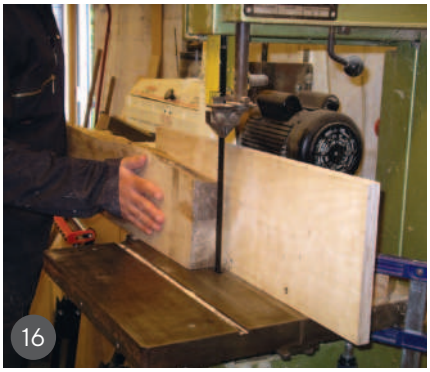
8 All mortises cut into the back were routed freehand and then tidied up with a chisel. The mortises in the rails, legs and sides, however, were cut on the mortiser.

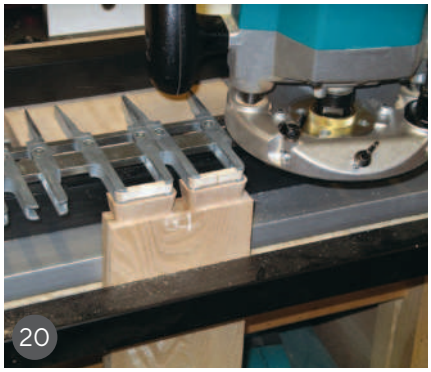
9 The top rail was dovetailed into the top of the legs and sides. The dovetail was first cut into the rail and then marked into the leg and side ...

10 ... before being routed out freehand and sharpened up with a chisel. The top kicker mortises were open at the top so the kickers could be dropped in once the top rail had been inserted.

11 The stopped finger groove was routed into the lower rail on the router table. The waste was removed over successive passes by moving the fence back, laying the rail over a core box-shaped router cutter, making the pass, and then lifting it off. Marks were made on the fence to know where to lay the rail on and off. This method leaves untidy ends, so a bit of sanding was needed to smooth the groove. The joints into the sides and legs were marked and cut before the glue-up, so the pieces had to be put into clamps when marking up. In hindsight, it might have been easier to do this after they had been glued to the legs.







TOP

12 The top was prepared from two lengths of the planed timber butt-jointed. After it came out of the clamps, it was flattened on the drum sander, then cut to size.

13 The top has a bevel running around all the sides. I calculated the angle from the drawing and set the circular saw accordingly. With the top held in the vertical position, a makeshift fence was clamped to it. Two fences are required – one for the short side and one for the long side. I determined the distance between the fence and the cut by making a test cut on a piece of scrap and measuring the distance between the kerf and the edge of the saw.

14 To avoid any tearout, the cuts were made across the top first and then along the length. Any ugly saw marks on the bevel, the sides and ends were planed off. On the ends, to avoid tearout, I planed in towards the centre to produce a fine result.

15 The top was attached with buttons. The glued-up legs and central framework were placed on to the inverted top to mark the positions. Holes were drilled and steel screws used to open up the holes to take the softer brass screws that were eventually used.

DRAWER

The drawer wasn't started until the internal framework had been constructed and glued up – it was then that I knew the final dimensions. The construction of a traditional solid timber base was identical to a fielded panel in a door, but in a drawer, the flat side is facing up.

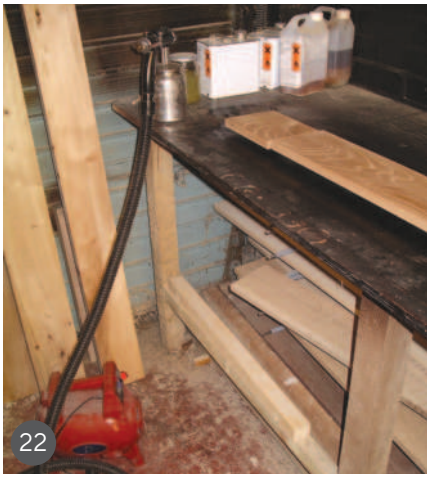
16 The drawer base was made from a small lump of timber, planed all round and resawn to get two pieces. When resawing planks on the bandsaw, I use a tall homemade fence clamped to the base for support. It was carefully set up square to the base and parallel with the blade before use. The sawn face was replaned and then the pieces were glued up – small biscuits were used here to reinforce the joint and to assist alignment. After the glue had cured, the panel was flattened with a hand plane and cut to size.

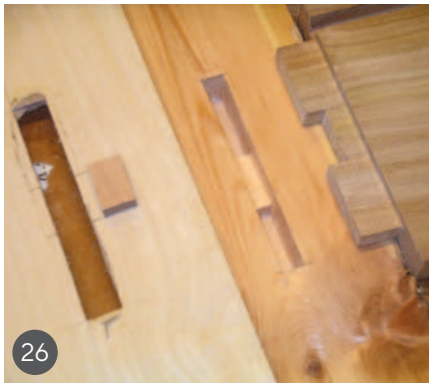
17 The edges were reduced on the router table. A panel raiser was used in this process, so the workpiece was slowly raised over multiple passes. When making the passes, always start across the grain and work your way around, ending on a pass along the grain. That way, the final pass will tidy up any tearout. The drawer front and two small adjacent panels were cut from the same plank. This continuity of grain improves the overall look of the finished piece.

18 After the pieces were cut, the position of the half-blind dovetails were marked out ...

19 ... before being cut on the jig. You can, of course, cut them by hand if you prefer.

20 The drawer sides were cut to size from a separate piece and dovetailed to fit. The slots for the drawer were cut on the router table. A simple stopped housing joint attached the back of the drawer. I used the bandsaw to notch the two ends of the back piece and the router freehand to remove the bulk of the waste before finishing off with chisels.





21 The drawer construction allowed for the solid panel bottom to expand and contract, by sliding under the back of the drawer. It is held in place with a screw.

MATCHING THE GRAIN COLOUR

22 Wood of the same type naturally has different tones, colours and grain patterns. With this project, the piece for the front had an attractive grain pattern but was much lighter in tone. It had to be darkened to better match the rest of the timber. I mixed Van Dyke crystals – a traditional brown water-based stain – in warm water and sprayed the front piece, front and back, a couple of times. Water raises the grain so a little light sanding was required after the front had dried, to denib the surface.

LEGS, BACK AND SIDES

The legs were cut to size from the prepared planks. For a consistent grain pattern, the front legs were cut from the same section of the plank and then marked and kept together as a pair. The same was done for the back pair. The sides and back were cut to size and the groove routed into which the buttons would fit.

23 The legs were jointed to the backs and sides with haunched double mortise and tenons. The tenons were marked and the shoulders cut on the chop saw.

24 The bandsaw was then used to cut the notches, and a chisel used to tidy up.

25 The central waste was removed with a coping saw.

26 The mortises were altogether more complicated. A jig was made with a removable centre. The size took into account the width of the router bit and the guide bush. It was tested before use on the legs.

27 It was attached to the legs with double-sided tape without the central piece. The waste was removed with a router set at a shallow setting. The centre piece was then inserted and the router depth changed to its deep setting to remove the deeper waste. Notice the marks on the jig to allow it to be correctly lined up. After removal from the leg, the tape was removed with alcohol – white spirit would do the trick but it tends to leave a greasy residue.

28 The mortises were left with rounded corners and needed to be squared off with a nice, sharp chisel. After several uses, the jig centre can become a little loose so to make sure it remained tight, I put a piece of masking tape on it.

29 After the mortises were cut, the recesses for the shelf were marked and cut with a router and a jig – a pair at a time – and then carefully finished off with a chisel.

30 The angles on the front two legs were cut on the bandsaw and then planed flat. Finally, a small chamfer was planed on the ends to prevent any possible splintering.

SHELF

The shelf was cut to size from a single prepared piece. Because it will expand and contract with changes in humidity, it was loosely fitted into the recesses cut in the legs. I didn't want any gaps appearing when it shrinks, so I cut a notch out of each corner so that it overlapped the legs slightly.

GLUE-UP

To reduce stress, it is a good idea to plan your glue-up as soon as you can. I had the following sequence mapped out during the design stage.

31 The legs were glued to the sides. Because clamps were applied only at the top, a couple of scrap pieces of the correct size were temporarily inserted to ensure the legs remained parallel and also, because the joint was off-centre, it was important to make sure the legs didn't twist in under the clamping pressure.

32 The middle internal drawer framework was glued to the back. The top rail and top drawer kickers were left off at this point. All joints were checked with a square.

33 The sides with legs were then glued to the middle, ensuring the loose fitting shelf was correctly oriented, and the top rail and top drawer kickers were inserted.

34 No glue involved here, but part of the sequence – the internal drawer kickers were levelled off with a shoulder plane to ensure smooth running of the drawer.

35 The drawer was assembled, lightly clamped and glued.

36 The two small front panels on either side of the drawer were the final components to be glued in place.

SURFACE PREPARATION

The pieces were prepared for finishing before they were glued up. The pieces were planed, then scraped with a cabinet scraper and then sanded, first with 240 grit and then with 320-grit garnet paper. The pieces were then wiped with a damp cloth to remove any lingering chalk marks and to raise the grain. When they were dry, they were given another rub down with 320-grit paper. After assembly, I left any lingering dust to settle in the workshop for a few days before I started applying the finish. I vacuumed the table all over and then wiped off with a tack cloth.

FRENCH POLISH

French polish has a limited shelf life, so I freshly prepare what I need for each project. In a jar with a lid, I mix one part of a clear, non-wax, flaked shellac in two parts denatured alcohol, also known as wash spirit. It takes regular shaking over a few hours before all the shellac has dissolved.

Before the French polish was applied, I gave the table three coats of a shellac-based sanding sealer, which I applied with a polisher's mop. Between coats, the piece was rubbed down with 400-grit Lubrasil and wiped with a tack cloth.

37 The drawer sides were masked off. The top, drawer and table body were finished separately. The table was put on to homemade spikes to lift it off the floor. The polish was then applied with a polisher's rubber. The polish is decanted into a squeezy bottle through a funnel so it can be squirted into the back of the rubber, charging it for use. A further squeezy bottle is required for meths.

38 The piece was finished in sections, but the sequence is identical. The rubber was opened up and polish squirted into the back. The cloth was twisted tight and the polish applied in straight lines across the section. You know you have the right amount of polish in the rubber if you press the base of the rubber and see a small pool around your fingertip. Returning to the start of the section, the polish was rubbed in circles quickly moving across the surface. This ensured the polish got into the grain. It was then finished off with straight lines once again. This process is known as 'bodying up' and was repeated three times. The polish took around 30 minutes to dry between coats.

39 The final stage is known as 'pulling over' and involves partially melting the top layer of finish and rubbing this into the wood surface. The rubber was charged, this time with meths, and then used in the same way as with the polish. The top, drawer and table were then left overnight, before being brought indoors and assembled. A plastic airtight container is required to store the rubber when it is not being used. You have to religiously protect it from any dust.

40 For a final layer of protection, I applied soft beeswax mixed with a hard carnauba. It is sparingly wiped or brushed on, and then left for 30 minutes to an hour. Finally, it is vigorously rubbed to a sheen. This can be repeated a couple of times. I don't put too much on at one time as the carnauba will set very hard and will be exceedingly difficult to buff up.

ELM COFFER

JOHN GREENE USES THE DOWELMAX JIG TO CONSTRUCT A MODERN VERSION OF A COFFER OR BLANKET BOX

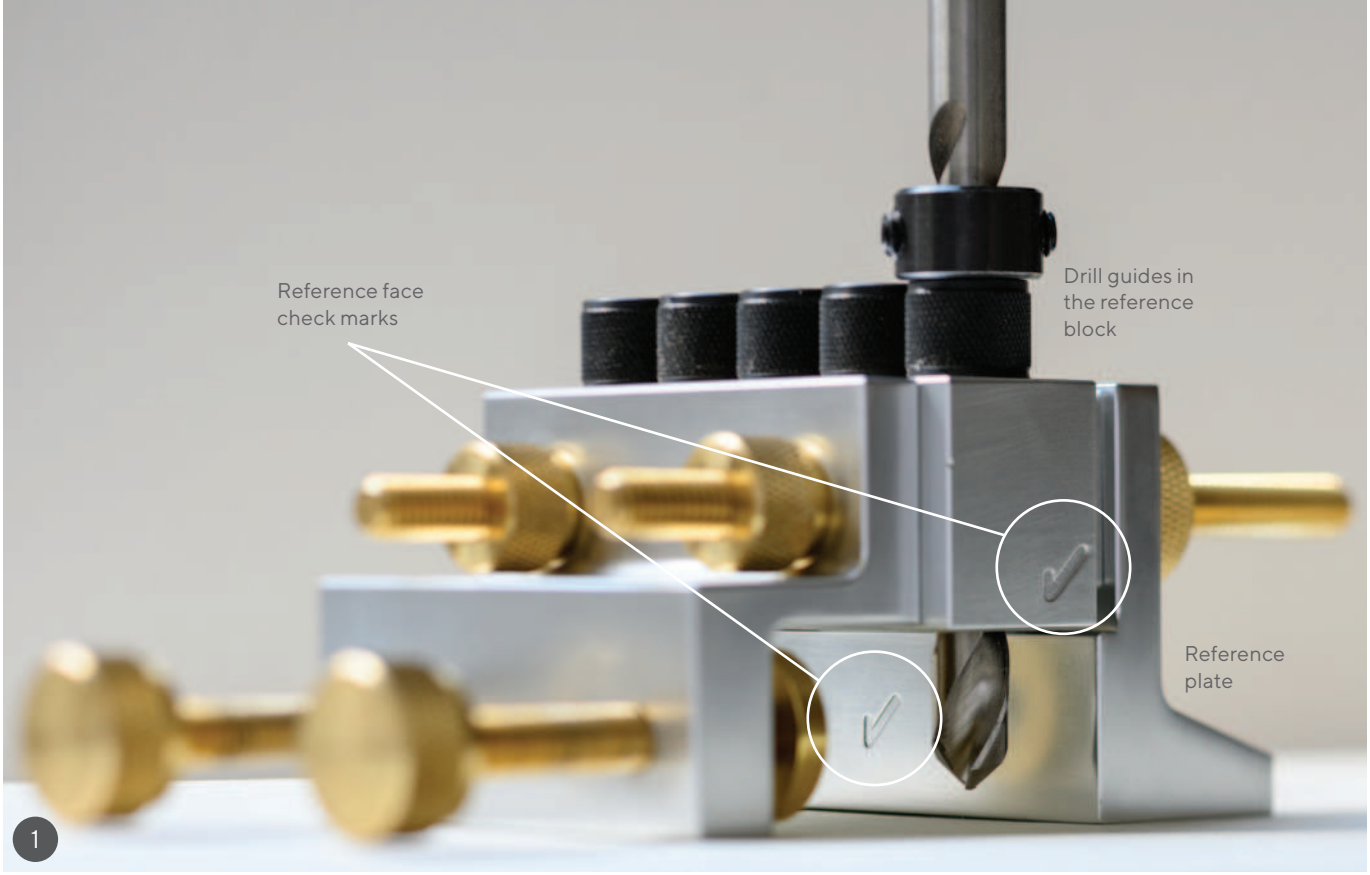
I very much enjoyed the article about the Dowelmax dowelling jig in issue 296 of *F&C*. So much so, that I bought the jig and used it to build a coffer that employed an unusual asymmetrical frame and panel construction to give the piece a modern and rather sleek appearance. The Dowelmax jig appealed to me because it uses reference faces rather than absolute measurements to position the dowel holes. As a hobbyist, I rarely have to make things to exact sizes and have the freedom to make adjustments during construction to account for mistakes or changes in design – it doesn't matter how many dimensional changes are made during a build because the reference faces are always there.

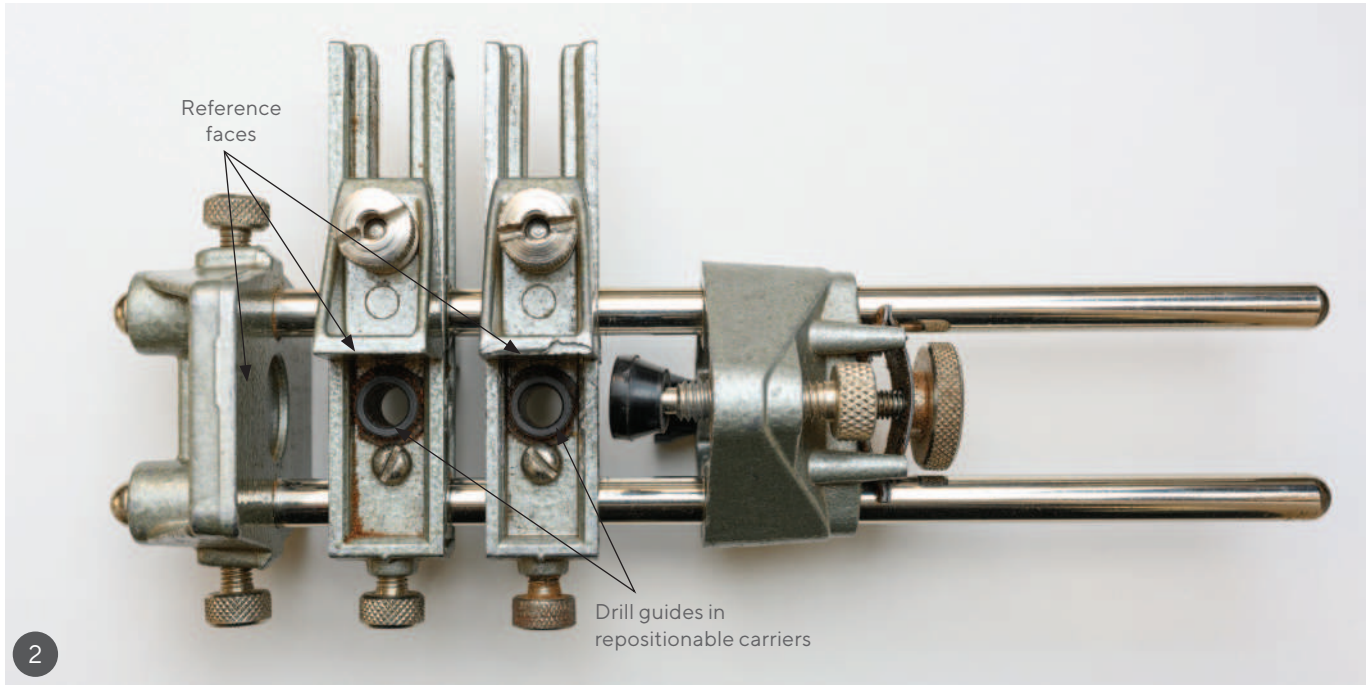
USING THE DOWELMAX JIG

The key to using the jig is to align the reference faces on the project with the reference faces on the jig. The latter are indicated by engraved ticks (referred to as 'check marks' in the manual – presumably because Dowelmax is produced in Canada) on the reference plate and the reference block (which holds the five drill guides). Two of the jig's reference faces are shown in photo 1. The third reference face is at the opposite end of the reference block to the one shown in the picture.

The arrangement of the five drill guides in the reference block introduces a second helpful feature of the Dowelmax: the guides are distributed symmetrically, and equidistantly, along the reference block so the holes that it produces are in the same place, regardless of which end of the block was used as the reference face.

These two attributes of the Dowelmax





PHOTOGRAPHS BY JOHN GREENE

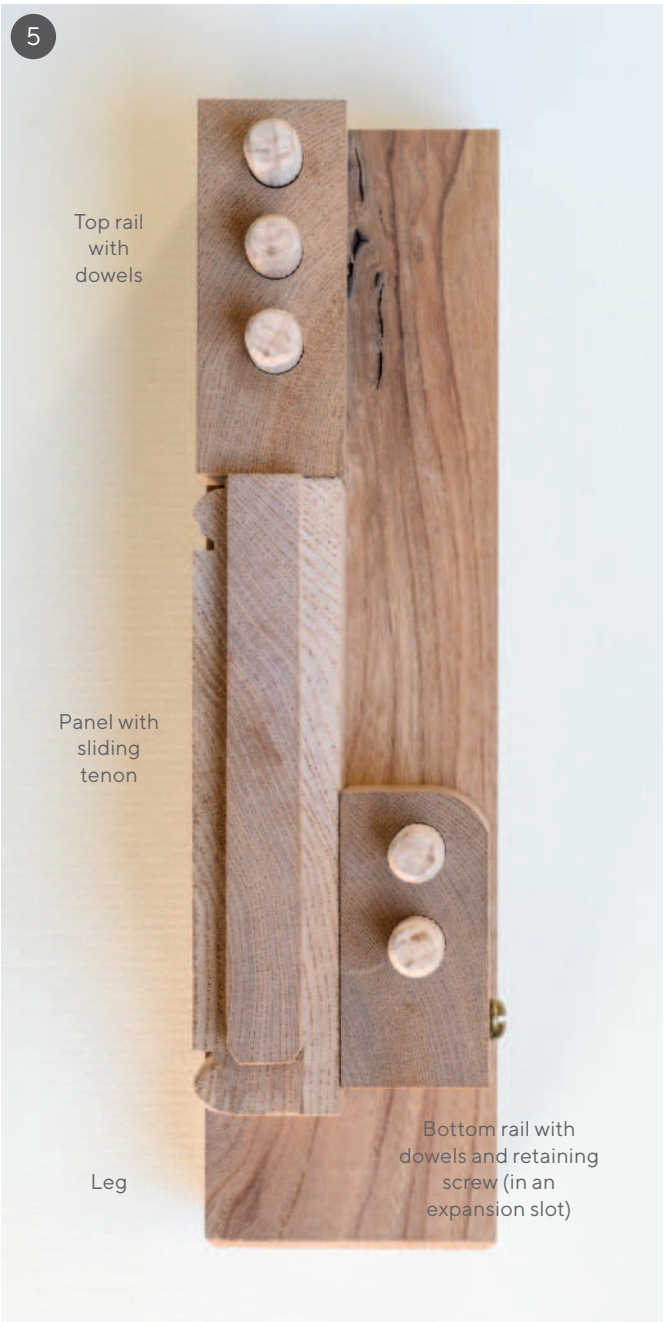
1 Location of Dowelmax reference faces and the check marks used to identify them **2** Marples M148 Dowel jig

combine to make it superior to the alternatives in some respects. The Festool Domino uses a loose tenon approach to jointing. It is a wonderful machine in many ways, but the centre of the single mortise that it cuts is not necessarily equidistant between the two stops on the machine that are used as reference points. There is a facility to make adjustments, but it's fiddly, and in my hands has not yielded a perfect result.

Many readers will also be familiar with the now discontinued Marples M148 dowelling jig shown in photo 2. This uses reference faces in a similar way to the Dowelmax, but its drill guides are held on carriers that can be repositioned anywhere along the support arms, and as such there is no in-built symmetry or predetermined relationship between the holes it produces.


3


4


5
Top rail with dowels
Panel with sliding tenon
Leg
Bottom rail with dowels and retaining screw (in an expansion slot)


6


7

3 & 4 Details of the intersection between the rails, panel and legs of the coffer. Note that although the top rail is visible, the bottom rail is inside the coffer and obscured by the lower edge of the panel in this view **5** Model showing the details of the asymmetric frame and panel construction in cross-section **6** Dry fit, showing a leg, two side panels and two bottom rails. The side panels can be seen overhanging the lower edge of the bottom rails, which have been rebated to accept the tongue and grooved planks that will form the floor of the coffer. The inside corner of the leg has been chamfered **7** Detail of the sliding tenon that locates the panel into a corresponding mortise in the leg. Halfway down the bottom rail there is an expansion slot for the screw that connects the bottom rail and side panel **8** Further details of the dowel holes in the lower rail to show the pencil marks that were used to align the part with the correct faces of the Dowelmax. The distance between the shoulders of the panel tenon is slightly (around 1mm) less than the length of the bottom rails. This is also true for the top rail and this ensures that the movement of the panel is not restricted as a result of it being pinched between opposite legs (the length of the tenon is also less than the depth of the mortises in the legs)

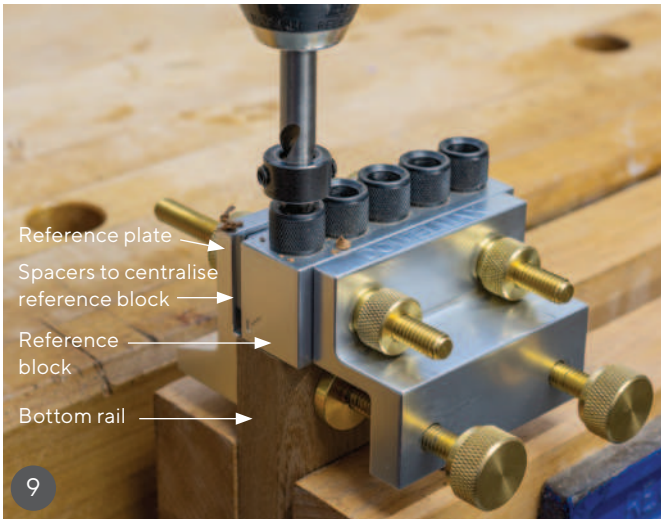
THE STORAGE BOX

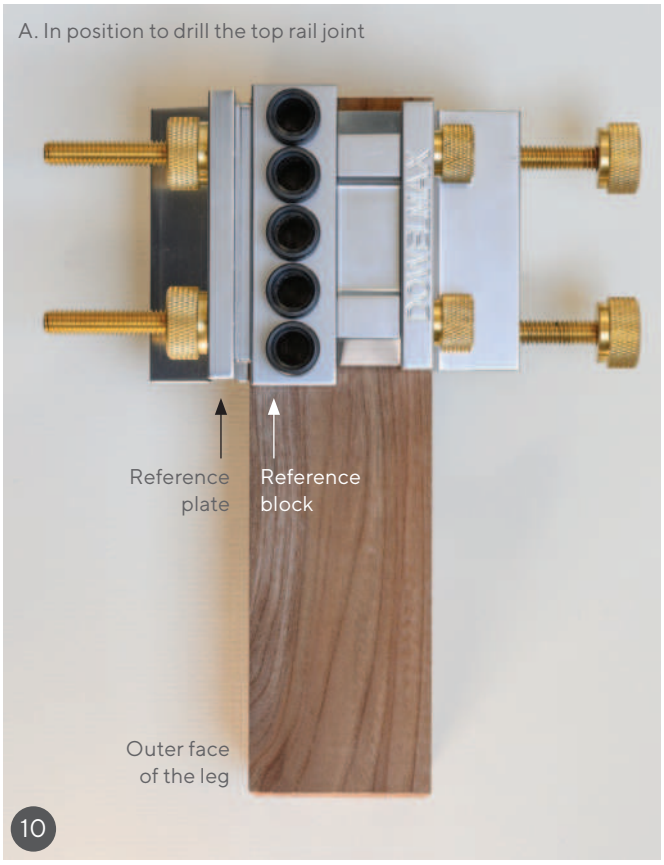
After reading the *F&C* article and thinking about how I might use the jig, I was sufficiently interested to place an order direct with the manufacturer in Canada. I was very pleased when it arrived because it is beautifully made and really inspires confidence. I was looking for a project that would put it to the test and my wife's lockdown-inspired interest in crochet, and the resultant collection of woollen and other threads that needed a home, provided a perfect opportunity.

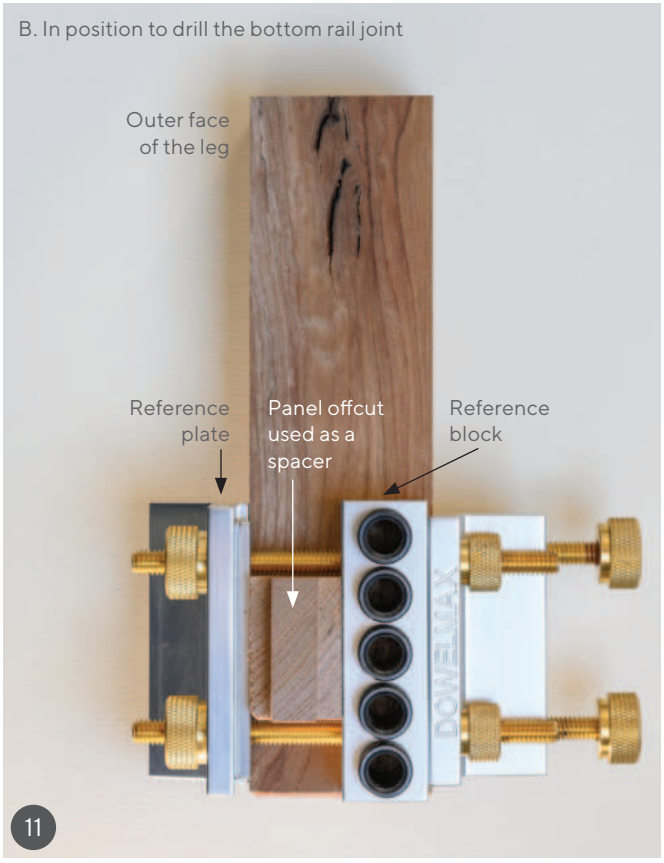
We decided on a large coffer or blanket box that could double as a worksurface or coffee table at the side of the sofa. We were keen to develop a slightly unusual design that would distinguish it from the many similar but cheaply built items that are available on the internet. Most of these use a standard frame and panel construction with either sheet materials or a heavily moulded solid wood to form the panel. We wanted a more contemporary and less fussy looking design with no obvious frame or raised panel.

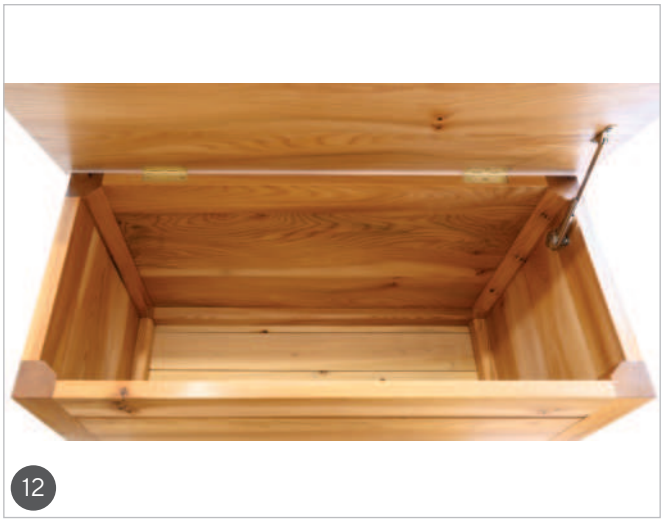
To achieve this design aesthetic and still allow for movement in the side panels in response to changes in humidity, I came up with an asymmetric frame and panel construction, where the legs of the coffer form the stiles, and the top and bottom rails are offset from each other so that the top rail is flush with the panel and leg, and the bottom rail is on the inside surface of the panel. This arrangement is shown as a model in photo 5 and as a dry fit on the full-size work in photos 6–8. In the model, you will see that the panel and leg are reduced in depth and length respectively compared with actual build. The top and the bottom rails are fixed to the inside face of the leg, using dowel joints cut using the Dowelmax. The top edge of the panel is glued to the underside of the top rail. The sides of the panels have tenons that can slide freely in mortises cut into the inside faces of the legs. The bottom of the panel is connected to the bottom rail by a screw that passes through an expansion slot.

Overall, this approach to construction keeps the outside face of the legs, the top rail and the panel all in the same plane while allowing the panel to move in response to changes in humidity. Construction was aided by design features of the Dowelmax. The positioning of the jig when drilling the holes in the end grain of the bottom rail was very straightforward and the same procedure was used to drill the holes in the top rail.









9 Drilling the dowel holes in the end grain of the bottom rail **10 & 11** Position of the Dowelmax when drilling the dowel holes for the top and bottom rails **12** Interior view of the coffer **13** The finished coffer

The Dowelmax accommodates different thicknesses of rails by providing spacers that fit between the reference plate and the reference block so that the latter can be positioned approximately centrally over the rail end. It was more complex to position the holes in the leg section because the top and bottom rails had to be offset from each other by exactly the thickness of the side panels. The approach taken is shown in photos 10 and 11. Here, a model is used to show the position of the Dowelmax and the location of a bespoke spacer to achieve the desired offset between the top and bottom rails (A). The jig is in position to drill the holes for the top rail. This position ensures that the top and the outer faces of the rail and the leg are both flush (B). The jig is in position to drill the holes for the bottom rail. Here the reference block, housing the drill guides,

has been moved across the inside face of the leg by precisely the thickness of the panel. This has been achieved by using an offcut of the panel as a spacer between the reference face and the reference block.

The use of the asymmetric frame and panel construction ensured that the outside edge of the leg, the outside edge of the top rail and the outside edge of the panel are all flush with each other, producing the desired flat surface to the coffer, but the panel is still able to expand and contract in response to changes in humidity.

The coffer was built from some fabulous native elm that was supplied by British Hardwoods in Keighley, West Yorkshire who really were most accommodating given the difficulties they were facing with Covid restrictions. The larger of the mouldings were cut on a router table but the finer bead around the edge of the lid was cut using a combination plane, which was also used to cut the tongue and groove joints between the base boards. These were made from cedar of Lebanon as is traditional for blanket boxes because of its moth-repellent scent.

The lid is a very simple construction from elm boards that were jointed with the aid of Festool Dominos. It is designed to overhang all sides of the coffer in the hope that if any liquids are spilled when it is being used as a coffee table, they run off on to the floor rather than enter the coffer to spoil the contents. The lid is quite heavy and is held open by a small but very effective stay. It is of the soft-close variety and strong enough to ensure that the lid closes at a very leisurely rate under its own weight once it has been given a nudge.

All in all, I was very pleased with the build. In hindsight I could have used a thinner panel and it didn't need as large a bead to disguise the joint between the panel and the top rail. The Dowelmax was a real asset during the construction and, as I predicted, it did allow me to make a few changes in the dimensions as I worked through the project. I should aim to be more accurate in my work in the first place but, for now, I appreciated the repeatability, ease of use and the flexibility of the Dowelmax.

THE ONLY CONSTANCE

FROM THE SORBONNE TO SCOTLAND'S CHIPPENDALE SCHOOL, YOUNG FRENCH FURNITURE MAKER **CONSTANCE GRAESSLIN DE MARE** IS MAKING A NAME FOR HERSELF IN CRAFTSMANSHIP, RESTORATION AND ART

What do you do if you decide you want to become a woodworker? How about typing 'best woodworking school in the world' into Google? That's exactly what Constance Graesslin de Mare did – and it set her on a journey to the Chippendale Furniture Design School outside Edinburgh in Scotland, and then on to building her own furniture-making business.

Constance started out studying Art History at the Sorbonne Pantheon in Paris, but was drawn towards furniture because of her love of wood. 'I loved studying Art History and I still enjoy the theoretical aspect, but I soon realised I needed something different,' she says. 'I wanted to part with the analytic approach and instead create and express myself using the knowledge from my years of studying.'

As she considered her options she found herself drawn to wood: 'The versatility of it, the beauty, the roughness sometimes, the almost never-ending possibility of creation. It is quite wild too, it moves, it has its own mind sometimes and we have to go with it,' she explains. 'I think furniture is a good compromise for me between art, my tendency to conceptualise everything and a technical aspect that makes it tangible and allows me to improve myself and produce something concrete.'

She sees her move to the Chippendale School as pure chance. She couldn't find a course she liked at home in France, so she simply Googled the world's best woodworking schools. 'I didn't especially want the best one, I was just looking at the options,' she says, 'and then it was just a case of choosing. Chippendale answered all my expectations. It is a school where a lot is taught in different fields, tutors come from many places and they all have different ways of teaching. Most people there are passionate, and there is a freedom in the creative process that I definitely needed. Plus you could bring your dog to school, which was a personal dream come true, and the fact that it's in Scotland, which is a beautiful country, definitely helped too!' And she hasn't looked back. 'It has definitely had good repercussions for my work,' she says. 'I got to learn so many different techniques that have proved to be valuable. I also

learnt how to work with people and learn from them, even from those who might seem insignificant. To my knowledge there is no similar school in France, so it's a strong point for me that distinguishes me from other makers.'

Constance's first completed project, apart from a bedside cabinet all the school's students were required to make, was an oak chair with dovetail joinery. 'It was very tedious but I learnt so much, exceeding even my expectations,' she recalls. After completing her course she returned to France in November 2020 to full lockdown, so she struggled to find work or her own workshop space. In September 2021 she moved into a shared workshop. 'I find these to be the best kind,' she says. Starting work on her own pieces and furniture restoration as soon as she returned to France, she has been building her business ever since.

RESTORATION STORIES

Constance says: 'I like restoration and it's a very interesting part of my activity, but designing and building my own is definitely what gets me going. Creating furniture has become a way to express myself, and the making is what is important to me, from concept to the finishing touch.' Her advice to *F&C* readers wanting to restore historic furniture is to thoroughly research the piece before they start work. 'Seek its story and respect the way it was made,' she says. 'You need to know the piece before you plan on doing something – its story, its time frame, its uniqueness or not.

'We have quite a few moral duties when we find ourselves in front of a historic piece. Loyalty comes first, as we need not to pervert the piece while working. As a rule for myself, I try and change as little as possible, and if I can avoid replacing a piece I will. The second thing is honesty: the result has to be aesthetically satisfying, but I do not completely hide my work, as it is then a part of the piece and allows future restorers to understand the structure and undo or redo things.'

She adds: 'We need not to forget that restoration happens for two main reasons that are linked: to stop or reverse the deterioration of the object, which will allow for current or future generations to access and understand it better. That said, sometimes we cannot avoid some modifications, but we need to be as non-invasive as possible.'

Constance's workshop is in an old military infirmary which later became a woodworking factory that closed down, and has now been given a new lease of life as a shared workshop. 'It's quite a cool building and I really like having all kinds of people passing by and bringing their projects, their questions and their ideas – it's very stimulating,' she says. 'Currently we are thinking about enlarging and creating new spaces, including a varnish cabin and a woodturning shop. It is a great place to work so I am planning on staying for a while.'

THE ART OF FURNITURE

When she is designing, Constance spends a lot of time thinking, then sketching and scribbling. 'I spend way more time thinking about how and why I am going to do things than actually doing them. I tend to forget about productivity, which is quite a foreign concept to my work. I find the quality and meaning of what I do so much more important. That is also why I do a lot of things by hand: I love to use hand tools, I find it soothing, and they need focus, time and practice to master.'

To organise her creative process Constance makes up little imaginary museums, collecting all the art pieces that have inspired her for a certain project into a folder to guide the process. 'I sometimes use it, sometimes not, but it gives me a kind of cohesion in my development,' she explains. 'Technically I start the rough drawing on paper, trying to get the shape I want and the approximative proportions, and when I have a proper idea of what I want I draw it in Fusion, which makes it easy for adjustments of all kinds and getting measurements.'

She sees herself as an artist and says that function is not a priority in her designs. 'One might think that furniture should be functional and respect [architect Louis] Sullivan's maxim, "form follows function". I quite disagree: the form is dictated by my imagination, and I'd like to think that the way people use my pieces is an interpretation of my concepts. On the other hand, if the piece is used as I thought it would be, then I conveyed my concept correctly.'

Constance adds: 'What's art and what's not is a big question. In furniture and the creative process, I don't think there is any distinction. That is for fine furniture, leaving industry aside. The design, the thought process, the preliminary works are there in both. Craftsmanship and art weren't always seen as separate. The main difference now is that there is a convention around art and what is allowed to be called art. The Arts and Crafts movement is a very interesting period in which this question was reevaluated. In the 20th century the notion of art was completely redefined: two simple examples are the ready-mades [of Marcel Duchamp] and conceptual art, of which Joseph Kosuth's One and Three Chairs is a great representation. To me there is no distinction between furniture and art if we do not want one. But pure technique doesn't seem to be enough: it is the will to produce art and the personal implication from the maker that makes the difference.'

TOOLS AND TECHNIQUES

Constance particularly enjoys using hand tools and working with oak. 'I find it very versatile and very pretty. It is simple but at the same time sometimes offers incredible figures and singularities,' she says. Oil and wax are her favoured finishes, giving a good compromise between protection and a natural look. The most challenging piece she has worked on was her dovetailed chair, which is also her favourite project so far. 'It was my first project, and also at the time it felt like a kind of crazy one. My mock-ups were not great, I went for dovetails because of the strength needed but also because I had stubbornly decided I was not good enough at this basic joint, so I was going to challenge myself to the extreme,' she says. 'It was such a long time working – it was hard work for me as I was very new to woodworking – and doubting myself, feeling like it was never going to end. But I ended up with such an impressive piece. I had never done anything like that before and it felt like I was blooming.'

Inspiration, she says, comes from everywhere. 'Art of course, but I am a very curious person and I like to observe things. Anything can trigger a new idea, it will just pop up. I link everything and try to make sense out of it, a bit like a mind-mapping. Then the real work comes with the design development and the need to justify and enrich the idea.' Because she works in such a creative way she prefers speculative projects, 'as I can unleash all my ideas'. But she also enjoys commissions. 'Having a restraining frame in which to develop the concept is a very good exercise, even though sometimes frustrating,' she says.

Her next project will be a bookcase and a drinks cabinet, and going forward her ambition is to get her work into museums, in shared exhibitions with other artists and art forms. 'Later I hope I get to keep sharing with other people, maybe by joining artists' residencies and entering an emulating centre of creation,' she says.

Constance is based near Liffol Le Grand, France, a region that was a centre for craftsmanship and 'meuble de style' furniture, and as a woman she is distinctly in the minority. But she says: 'They are slowly getting used to seeing females in the workshops. They like to be a bit patronising, but it's nothing I can't deal with. I've proved myself worthy as a woodworker so I am good. However, it is quite hard to find good overalls in my size, which is annoying and probably my biggest obstacle as a woman – the rest I can handle. The advantage of my shared workshop is that it gathers quite a young crowd, so the mentalities are definitely different than in the companies around us.'

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DRINKS AND MEDIA CABINET

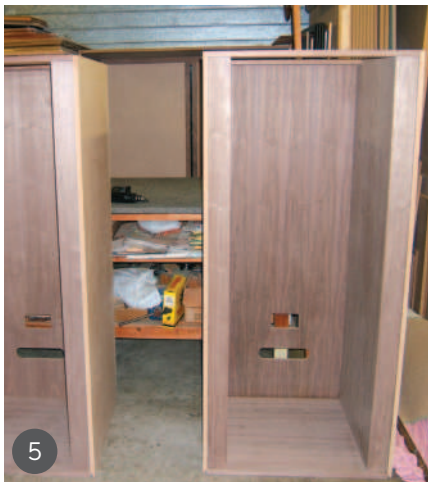
LOUISE BIGGS EXPLAINS HOW SHE MADE THIS BEAUTIFUL WALNUT CABINET TO HER CLIENT'S SPECIFICATIONS

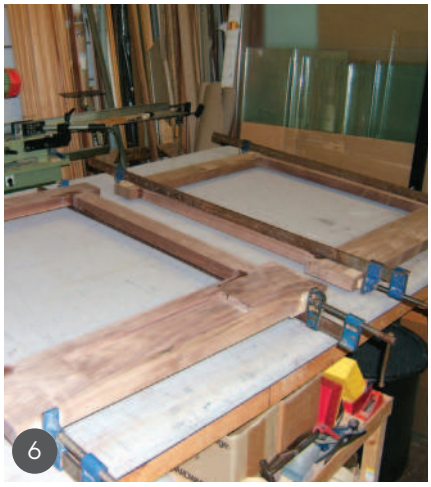
This cabinet complements the walnut fire surround described in *F&C* 301. The room that both pieces are in is panelled with traditional plaster moulding and the cabinet was to fit in a large recess. It had to be designed around some specific criteria from the clients:

- Panels on the doors had to match the height and position of the plaster wall panels.
- Mouldings used on the cabinet were to match the plaster mouldings.
- Upper side cupboards had to house metal racks that would hold the media and computer electrical components. These were to sit central to the tinted glass in the two side doors.
- There had to be sufficient access for the cables to come through into each cabinet.
- Upper side cabinets needed access to the air-conditioning system above.
- The bottom centre cupboard would be used to house a mini-fridge and a dishwasher.
- The bottom side cupboards had to store the maximum number of CDs and DVDs possible with complete visual access.
- Doors for the top middle cupboard should protrude the minimum amount into the room when open.
- The clients would install a level plinth structure for the cabinet to sit on.
- Top doors were to extend to the underside of the plaster cornice moulding in line with the wall panels.

The cabinet was built in sections for transportation before being fitted and finished on site. It is made from American black walnut burr veneer and timber and pre-veneered MDF, the inside carcass sides were plain MDF.

PHOTOGRAPHS BY LOUISE BIGGS





MAKING THE CABINET

1 The bottom centre section was joined at the bottom corners, using a tongue and groove formed on the MDF panels using a router. The wide top rails were dovetailed on both ends and cut into the top of each side. The side panels wouldn't be seen so the joints were reinforced with screws, which were kept in from the edges. Pilot holes were then drilled to prevent the MDF splitting apart on the bottom panels. The centre partition was recessed into a groove on the bottom panel and top rails. The back panel was rebated and screwed into the back edges. The cable holes for the electrical appliances were cut before assembling the carcass.

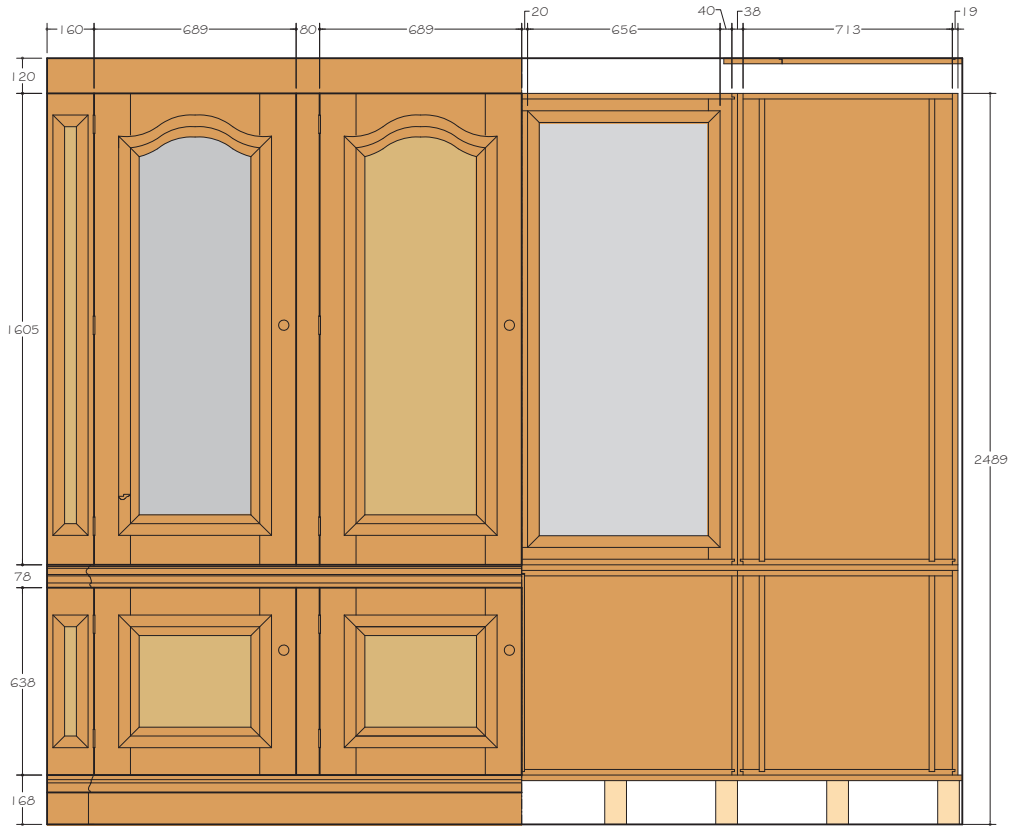
2 The top and bottom of the top centre section were tongue-and-grooved to the side panels, which were hand-veneered with a pattern of burr veneer panels and crown-cut veneer. Recessed bookcase strips were cut into the side panels using a router before the carcass was put together. The back panel (holding two pieces of mirror) was a timber frame with a central support constructed using mortise and tenons. The safety mirror was supported by two pieces of 6mm MDF, with a double rebate cut on the front side of the frame to accept the two thicknesses and the rebated moulding. This moulding matched the one used around the centre panel of the matching fire surround. A recess was routed into the central support to take a bookcase strip and extended metal shelf rests were made, which were recessed into wooden brackets to give a central support to long narrow toughened glass shelves.

3 The width of the top and bottom side units were based on the requirements of the metal racks. To centre the racks these units had to be double-sided to still create the full width of the unit. The inner sides recessed into grooves in the bottom panels were left long to take the outer side panels with cut-outs made to take the top rails. When put together a softwood spacer, planed to the correct thickness, was screwed into position on the sides with a secondary front tongue, and grooved into place.

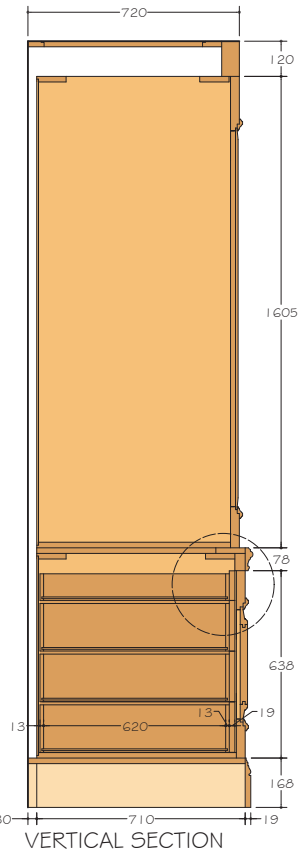
4 The top rails extended to be dovetailed into the outer sides. The inner sides and spacers were kept at 6mm, allowing for the back panels. The outer sides were rebated for the back panels, glued and clamped into position before screwing the back panels in place.

5 Top rails were used on the top side cabinets which allowed entry to the air-conditioning system access panels directly above. At the same time a false panel was made to be fitted to the ceiling to disguise the access hole.

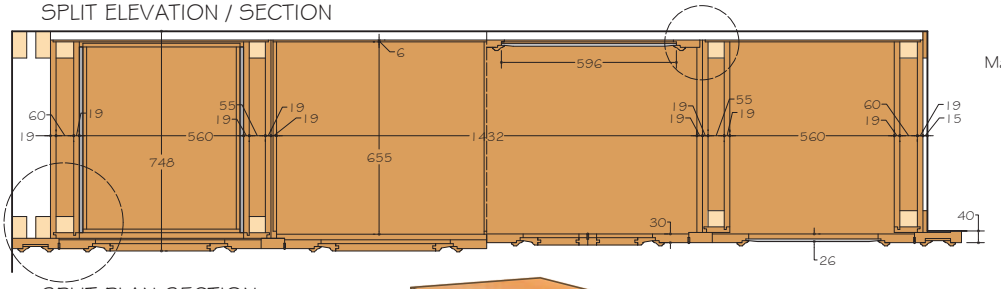
6 The front frames were made by joining the components with mortise and tenon



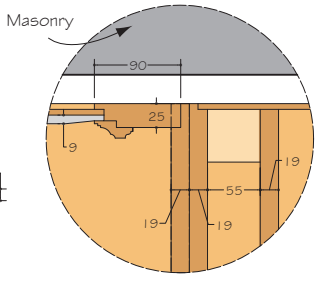
SPLIT ELEVATION / SECTION



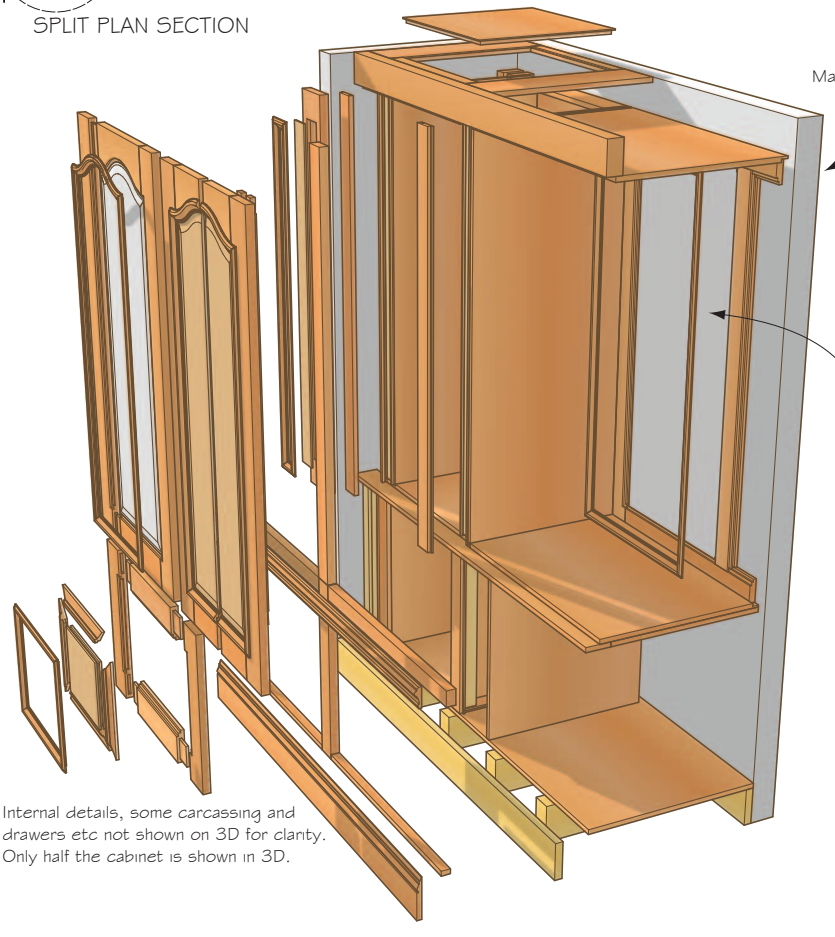
VERTICAL SECTION



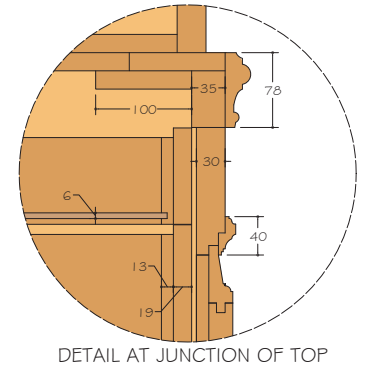
SPLIT PLAN SECTION



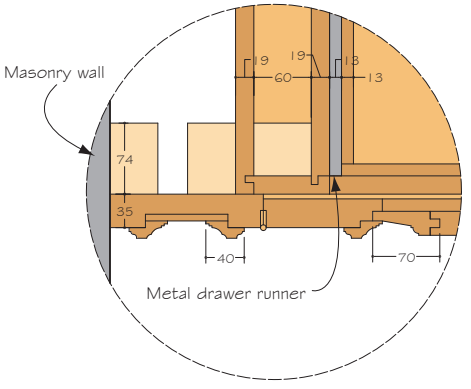
DETAIL THROUGH MIRROR FRAME



Internal details, some carcassing and drawers etc not shown on 3D for clarity. Only half the cabinet is shown in 3D.



DETAIL AT JUNCTION OF TOP & BOTTOM CARCASS



DETAIL AT JUNCTION WITH END WALL

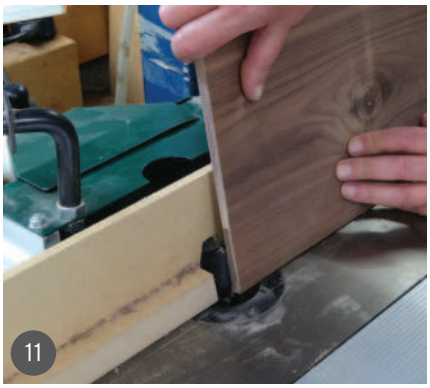
joints. The side frames extend past the carcass to eventually cover the join between the sections and the battens screwed to the walls for fixing on site. Recesses were cut into the far right and left stiles, top and bottom, in order to take a burr veneer panel.

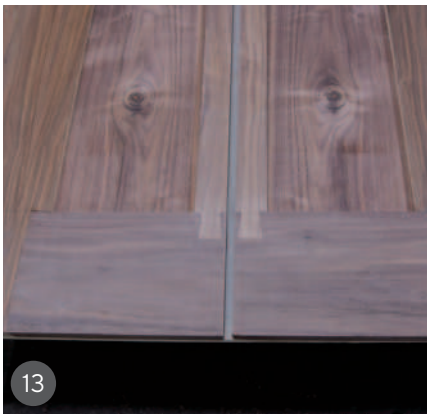
7 The frames were screwed into position and then covered by the skirting and dado mouldings and the recessed panels. A spacer board was positioned on the bottom units with a timber front edge piece, as this would be seen when the doors were opened.

8 The drawer boxes were made with machine-cut dovetails, the bottom panels fitted within a groove and fitted to double extending runners so the back of the drawer could be clearly seen. A secondary front, fitted from behind, should cover the front of the runners and have a drawer pull groove routed across each drawer front.

9 The door frames were made using mortise and tenon joints. The panels were fitted from the front of the door to gain the effect of the wall panels, so a double rebate was cut around the front inside edges. I used one rebate for the panel and the second for the rebated moulding. The frames for the centre top doors were formed 4mm wider, creating a flat in the shaped top rail to allow for a saw cut when they were cut in half.

10 The panels would be moulded to match the plaster fielded panels so would need a timber edging around the MDF centre. To align the grain on the top and bottom edges, short sections were glued between the longer side sections extending far enough to clear the moulded areas. They were tongue-and-grooved to the MDF, with the tongue on the timber section to avoid the mould profile. The centre top doors had an additional timber section through the centre of the panel 4mm wider than required, to allow for splitting the door in half.





11 A rebate was cut around the panels to create the step of the raised panel and remove waste material. The centre moulding was then routed using a panel bead cutter. A straight-edged vertical profile cutter was used to cut the raised panel chamfer. To hold the panel vertically on the router table, slightly tilting the panel to gain the client's required profile and work safely, angled support blocks were taped to the router table against the fence to support the panel between them and the fence edge.

12 Minor adjustments to the profile were carried out using a shoulder plane, before being cleaned up with abrasives.

13 With the centre top doors split so they can fold in half, an additional centre support was added to the back, being glued to the panels and dovetailed into the top and bottom rails. The panels of these doors were screwed into the rebate, making sure to keep the screws clear of the cut line.

14 The edges were veneered and the placement of the hinges established to keep them in line with those on the outside between the doors and frames. The outer edges of the mouldings set the top and bottom hinges with one placed centre of these two on the top doors.

15 Two marking gauges were set, one for the width and one for the thickness of the hinges, and these gauge lines were applied to each hinge setting.

16 Using a flush cut saw, the shoulder lines of the hinges were cut at an angle to the point of the gauge lines and squared up using a chisel.

17 There were two options available for removing the waste. The first was to make small cuts by hand across the waste area, cleaning out the debris and repeating until the required depth was reached. Ideal for cutting out a couple of hinges, but labour intensive when cutting 20 hinges.

18 The second option was to use a router, taking as much of the waste as possible before trimming the corners by hand with a chisel.

19 With the cut-outs made, the hinges were then fitted, drilling pilot holes for the screws. The screw heads were aligned on the final fitting with new screws. With the hinges and doors fitted, I realised that additional support was required on the split doors to keep the two halves of the doors flush when closed. Brass guide pins consisting of a pin and collar were judged to be the solution as these work very effectively in positioning table leaves on extendable tables and the principle was the same.

20 Once the positions were marked out, a depth stop was formed by drilling through a section of timber and cutting it to the right length. This stayed on the drill bit, forming the stop between the door edge and drill chuck.

21 Now that the hinges and guide pins were fitted, the folding doors were completed. The main door hinges were cut in exactly the same way.

22 The cabinet was disassembled, then transported and fitted on site. A corner of the fire surround can be seen here in the reflection of the cabinet mirror.

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TEN YEARS LATER

WE TAKE A LOOK AT THE LATEST COLLECTION FROM **ISHINOMAKI LABORATORY** AND **SCP**

Last year marked 10 years since the Great Eastern Japan earthquake and tsunami. The Japanese DIY furniture company Ishinomaki Laboratory was founded in the immediate aftermath of the 2011 disaster, in an area that had been devastated by the tsunami. The community-run company strives to promote the DIY concept, empower people and form a basis for collaboration and resourcefulness. Ishinomaki Laboratory has restored local shops, run design workshops with students and partnered with Herman Miller to run furniture workshops for locals.

In 2014, Sheridan Coakley of British design manufacturer and retailer SCP met Ishinomaki's founder Keiji Ashizawa, and since then a strong relationship has developed between the two companies. At the invitation of Keiji, SCP became the first company to produce Ishinomaki products outside Japan, as part of its Made in Local initiative. SCP now produces Ishinomaki products at its specialist factory in Norfolk, using the same techniques and skills as in Japan, but with locally available materials.

Sheridan and Keiji invited a list of UK-based designers to create new Ishinomaki furniture designs for the Ten Years Later collection, with a simple brief: each design should be made from stock board widths. All the designers worked to Ishinomaki's product guidelines, using materials efficiently to minimise waste.

Here, we take a closer look at some of our favourite pieces from the collection.

ishinomaki-lab.org & scp.co.uk

PHOTOGRAPHS BY SCP/ISHINOMAKI LABORATORY/COURTESY OF SEEN PR

PATIO ARMCHAIR
BY DANIEL SCHOFIELD

Patio is a lounge chair created through an intuitive constructivist approach to design. It takes the overlapping A-joint, seen in a number of Ishinomaki Laboratory products, as a starting point. The design has a purity and balance to it, perhaps evoked by the fact that the line of the front leg is followed to create the line of the seat back. Made from western red cedar, it is intended for use both indoors and outdoors.

FLW ARMCHAIR
BY SAMUEL WILKINSON

This compact lounge chair takes inspiration from the work of Frank Lloyd Wright and the idea of creating a floating Tatami mat chair. The design is formed of three vertical wooden pillars that are configured to support two upholstered cushions and two horizontal arms. In keeping with the Ishinomaki Laboratory ethos, the upholstery sections are made to be as simple as possible to manufacture, allowing for differing local production methods. They are essentially structured pillows with wooden internal panels. This version is made with fully sustainable materials: western red cedar, and for the upholstery, coconut mat with rubberised filling and needled wool.

BIRD BATH
BY REIKO KANEKO

This bird bath in western red cedar has been designed to be as simple as possible and seeks to encourage people to embrace the DIY aesthetic and attitude of Ishinomaki Laboratory. Two pieces of wood have been put together in an interlocking pattern to form the base for a bird bath. The design is available with a terracotta bowl, but works with any relatively shallow bowl. Low to the ground, this is ideally placed near some bushes in a garden.

SLIDE & HIDE COFFEE TABLE
BY ALEX HELLUM

Slide & Hide is a well proportioned coffee table with storage built in. In keeping with the original Ishinomaki Laboratory idea, the design has been created to be as simple as possible in terms of construction, allowing for it to be put together by people who are not makers. The design puts function before ostentation, with three movable boards acting as the coffee table surface. These can be moved to suit the user's preferred configuration and can also be removed and used as trays. It features powder-coated black steel legs and is made from western red cedar.

ISHINOMAKI CHAIR
BY SAM HECHT & KIM COLIN

This is a balanced chair that respects raw material dimensions. Made from western red cedar, its geometry is informed by the need for it to be stable, comfortable and secure. Wider than it is deep, the solid design keeps the centre of gravity closer to the front than the back, ensuring stability. An elegant single radius steel tube provides back support, while hinting at the rounded form of the human body. It has been created with small spaces in mind, ideal for nestling under a counter.

FRANK DINING TABLE
BY SARAH KAY

A dining table of modest proportions and elegant looks, this piece was designed to balance structural rigidity and good looks with the most minimal use of materials. The idea was to create something simple and easy to construct, which kept to the scale of the timber, reducing the need for sawing, cutting down and machining in the manufacturing process. Made in red western cedar, this is a perfectly proportioned table of ideal scale for urban living spaces.

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FORM, FUNCTION AND STRUCTURE

SPANISH CABINETMAKER **GERMÁN PERAIRE** IS PURSUING HIS CREATIVE DREAM TO BUILD FINE, FUNCTIONAL FURNITURE – AND TEACH OTHERS TO DO THE SAME

How did you start making furniture?
I have always been interested in the way home interiors speak of their owners. When I started living on my own I realised that the arrangement of objects and the lighting have a strong narrative content and that I could create moods echoing my personality. That early 20th-century modern-style apartment in Barcelona became a blank canvas, and one of my colours was furniture. I started building it poorly with construction lumber – and soon after that, I set out to make a career out of it.

How did you learn your skills?
My father used to repair musical instruments for a living in his home workshop. While he is not a trained luthier, he's always been resourceful and has skilled hands. As a kid, I watched him work with alluring precision and I still remember the smell of bone glue as he disassembled violins to repair. I don't think I have learnt a single woodworking technique from him, but he bears great influence in how I work now: his fondness for order and care at work, and the particular way he inhabited the workshop as a space of silence, among other things.

In 2014, when I decided to turn professional, I enrolled in the Escola del Treball, a 100-year-old Catalan vocational school. The woodworking programme was quite elementary and I was surrounded by 16-year-old kids who weren't very interested in the kind of fine cabinetmaking I had in mind. That is when I began studying on my own from books, magazines and the internet. I discovered the rich British woodworking tradition and I owe my cabinetmaking knowledge to people like David Charlesworth, Alan Peters and David Barron, even though I have never met them.

What was the first project you completed?
My tool cabinet. It was my graduation project and I poured myself into it, certain that it was going to be a lifelong companion and a very functional piece of furniture. I wasn't sure how many tools I would need to store in it, so I made it rather large – 180cm wide when fully opened. I took inspiration from David Barron's wall cabinet, which is a great example of refinement in simplicity.

What made you decide to make furniture making your career, and how did you go about it?
Like most woodworkers, my starting point was the sheer experience of working wood: when fully engaged in the practice you no longer have a history, concerns or rambling thoughts – you are just that hand feeling how a chisel drops into the knife line. I would describe it as a strong sense of personal freedom worth pursuing. The business side of it is only a means to stay close to that experience and reconcile it with the need for an income.

I left the city to live in the countryside, and an opportunity arose to build a workshop in a compound belonging to Irehom, the Montserrat holistic research institute, an association focused on self-sufficient ways of living, particularly in nature and rural areas. That took two years of hard work, from chopping the trees down to plugging the machines into the solar power system. Then I began to take commissions – whatever I could jump on – and I also began teaching hand tool woodworking in several spaces in the province of Barcelona.

What inspires you?
It could be summarised in three words: form, function and structure.

Form: I often find shapes or proportions that feel just right and am immediately drawn to them. They can be waiting for me anywhere: in other people's furniture – even in cheap mass-produced furniture – in paintings, architecture or any form of design. I am particularly inspired by Barcelona's characteristic modern style: Gaudí, architect Josep Puig i Cadafalch, Gaspar Omar's furniture and many others. Often I'll see a piece that speaks to me and wonder, how would I do that? This is an exciting starting point, and a fruitful one.

Function: A particular need to be satisfied is another excellent way to get inspiration. That function will undoubtedly restrict the design, choice of materials and so on, but it provides a clear direction to work to. A sewing chest, a tea-making station or art print containers are some ideas I have developed in the past.

Structure: How a piece is engineered and built to last is also a very attractive subject that can bring about new inspiration. I am always interested in trying new techniques or constructive solutions, especially the time-tested ones. At the moment I am working on my take on a Chippendale slant-top cabinet, which will have nothing to do with the original except for the method of construction.

Is there an ethos or a guiding principle behind your style?
I see pieces of furniture as beings with lives of their own. I am interested in those that become discreet companions, quietly enhancing one's life. In that sense, one could say that my furniture is understated but not unrefined. Small details will unfold to the discerning eye as one gets closer to the piece. A fondness arises from that intimate relationship in daily use, and that inspiring sense of beauty is what I strive for.

Tell us about how you work – what type of tools do you like to use?
I love combining hand and power tools. With stationary machinery, I can be very effective at repetitive tasks like preparing stock or cutting mortises, while hand tools can refine machine marks and perform the most precise operations. I deeply appreciate the quality of my tools, and do my best to have the finest available.

Are there any you avoid?
Cheap tools will hinder one's development as they can't match the finer sensitivity of skilled hands. They will also break eventually, making for poor, expensive and not very sustainable investments. Landfills are crowded with bad cordless drill batteries.

Tell us about your workshop.
I am fortunate: my workshop is a 76sq m space filled with daylight and it is located among nature. As it has become primarily a teaching workshop, it has seven workbenches of my own making, excellent to work both with hand and power tools. It is always clean and tidy at the end of every working day, and everything in it must have a function or use. The workshop, to me, is a space for silence in which personal development takes place – not just the work – and care tasks are just as important as dovetailing. I've been there since I finished building it in 2018.

How does your design process work?
I usually play around with ideas for years before they get into the building stage. This 'time filter' will refine valuable designs and discard poor thoughts. Life is finite and one quickly realises that building things as well as one possibly can is quite time-consuming. Therefore, I try to invest the time I have into making meaningful objects.

I begin every day with a coffee at home, and I either study the theory of woodworking or review my designs. Most of the time I draw on metric paper because I find it very convenient, and at the workshop I'll have every dimension simply by counting squares. If I need it, I'll make a 1:10 or 1:5 maquette just to confirm the appearance of the work. That is quickly done with scrap wood at the shop.

When I am sure of the design, I bring the wood into the workshop a few months ahead of the build and order everything I'll need.

During the building process, I am quite open to experimenting and tweaking the design. Some uncertainty will always be there, and I find that if I make some room for it, wonderful things might happen.

Which woods do you most like working with?
I work with European and North American timbers. That is a palette wide enough to do my work, and I am content not using exotic timbers which often have shady origins. But I make some exceptions now and then, like using ebony violin pegs as pulls.

I am fortunate enough to have a sawmill at my disposal. Some of my pieces come from trees I have milled myself. The beauty in it is that you become aware of the living thing timber once was, and the realisation that the cabinetmaker's work is found at that brief intersection between the long life of a tree and the long life of a piece.

Sustainability is becoming rather important to me, and I'd love to use more self-milled lumber, but there aren't many large and straight-grained hardwood logs in Catalonia. And I can't picture my work without some lovely American hard maple!












What sort of finishes do you prefer?
I have a preference for healthy and durable finishes, and I find that I can accomplish almost everything with shellac – in the Krenov style, oils (my favourite is Osmo Polyx Satin) and a shop-made blend of carnauba beeswax. Those are finishes that enhance the natural beauty of the wood without imposing much of their own, and they age gracefully.

What is your favourite project you have worked on?
My current project, a personal interpretation of a Chippendale slant-top desk, is my favourite so far, and it is a milestone: I've been preparing to quit commissioned work and become an amateur again, from this project on. I'm hoping to be free to explore new ideas, particularly studying French and English traditions and adapting them to a style of my own.

This is also my most elaborate piece, as it will have a spring-loaded mechanism and other whims that require careful planning. We'll see how it works out!

Do you prefer working on commissioned work or your own collection?
I have tried both, and I won't have either: commissioned work, in my experience, is building the client's dream, which seldom satisfies my creative needs. Working on my collection is slightly preferable, as the designs are my own, but I dislike the idea of endlessly repeating the same builds. I'm gambling that I could create unique pieces just out of my whims in the hope that someone would buy them, eventually. I have been working hard to bring myself to this position: I can make a decent living out of teaching woodworking and it still leaves me three or four days a week to pursue my shop dreams.

It might sound snobbish or naive, but to me there is no finer woodworking than the amateur, and now that I have a professional workshop, I'm ready to embrace the challenge of becoming an amateur again. The key here is not to get ruined in the process…

Why and how did you start teaching?
It was almost by chance, lucky me! Carlos from ArtallaBCN runs a small school of woodcarving and turning, and he invited me to teach some small weekend hand tool workshops at his space. I realised that I loved to share my knowledge but never suspected I could make a living out of it. Against all odds, this initiative grew and I started teaching at TMDC, an open-access workshop in Barcelona, and other places. Today I teach almost exclusively in my shop, which is the perfect spot – quiet, comfortable, heated, with abundant light and well equipped – and I am blessed with a constant stream of students, many of whom have become friends.

In case anyone is interested in a hand tool woodworking boot camp, I'll be offering the Level 1 course in late August 2022 over eight consecutive days.

Do you prefer in-person classes or online courses?
Since 2020 I have begun to teach through a streaming platform on my website, and I am quite satisfied with the results. While most students will benefit from having the teacher by their side, many, me included, will easily leap from theory to the actual doing at their own workshops. In streamed videos, the teaching is not limited by a schedule or the time students need to practise things. That allows me to explain things in a very thorough manner and all the feedback I have had is very positive. While all the courses are in Spanish, I hope to get them subtitled eventually. *Build Your Workbench* was recorded both in Spanish and spoken English and it was a lot of extra work. I have yet to decide if we'll do it again.

The live workshop experience is a beautiful thing and it can't be replaced by a computer screen. However, the knowledge transmission is every bit as good or better, as one can rewind and get back to forgotten areas. Just to make a point, I am still learning things that were taught by André Jacob Roubo in the 18th century thanks to his book *L'Art du Menuisier*, another form of timeless knowledge transmission.

What do you enjoy more, making or teaching?
Making, undoubtedly. But I'd rather teach than build for the money. Teaching also allows me to refine my technique and is a unique opportunity to celebrate the craft with those who are actually interested in it.

What are you working on now and next?
All the designs I plan on making are quite different from what I've done so far: the aesthetics will be the same, but structures will be more involved and challenging. After the Chippendale desk hopefully will come a French mid-century tambour file cabinet with a twist and then a corner cabinet, quadrant-shaped in solid cherry and maple.

Have the Covid-19 pandemic and the lockdown affected your business?
As mobility was restricted, I had to split groups, rearrange schedules and work very hard to maintain the business, but I've been lucky to have some commissions as well, so I could save the billing. I don't think it's going to affect me in a significant way.

What do you do when you're not working?
Not much, really! I still am in love with my good old Barcelona, and my girlfriend and I often enjoy visiting its wonders.

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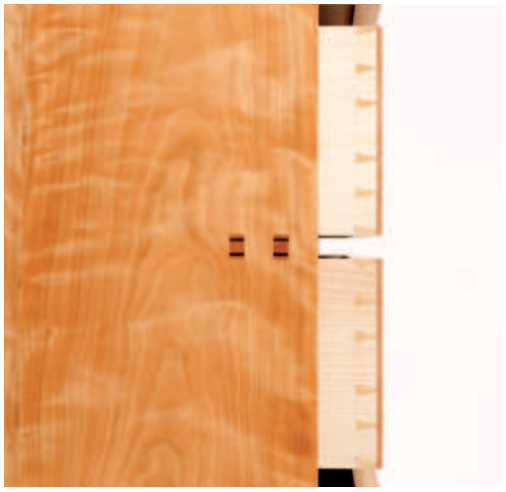

CURVED ASH LAMP

PAULO CAPUTO DESCRIBES HOW HE MADE HIS 'MEDDY ON THE BOOKS' READING LAMP

The Meddy on the Books lamp was born after I moved to the Scuola del Legno (School of Woodworking) in Viterbo, Italy. 'Meddy' is a diminutive of Medusa, the gorgon of the myth whose hair was made up of snakes, and the reference to books is because it is a reading lamp designed to look over a sofa, and equipped with a bookshelf.

The first version of this lamp that I built was a prototype made from cardboard strips and masking tape. This required metres and metres of material and the result showed innumerable complications. After this first not very encouraging test, I showed the watercolour sketch (kindly made by Liova Giovinazzi), to my friend Giacomo Malaspina and from there came the idea of creating the lamp with four hands instead of two!

The final version is made from olive ash and, given its size, it takes up a prominent place in the room and occupies a lot of space. The base is 360 x 410mm, the three arms widen up to 700mm and the lamp is 1,950mm high. The lighting is provided by three dimmable natural light LED strips.

During the construction we encountered two problems: the first, of a technical nature, was solved by changing the construction process. The second was of an aesthetic nature, and the classic 'patch' was done, which, fortunately, was invisible at the end of the work.

SAFETY NOTE

Check government guidelines for installing electrical components. If you're in any doubt, ask for help from a qualified electrician.

PHOTOGRAPHS BY PAOLO CAPUTO/LEGNO

1 The watercolour sketch of the reading lamp **2** The pieces for the arms were cut with the bandsaw, leaving an extra couple of millimetres on the thickness,then they were planed directly to thickness on both sides **3** The width of the strips had to be at least 10mm more than the final width of the arms because during the gluing phase the pieces slip due to twisting and will require trimming **4** The two central strips of each arm were routed in the centre to a depth of at least 1.5mm for the passage for the power cable. Even if the cable is only 5mm wide, the channel should be wider to avoid the power strip coming unseated when the twisting process is performed

THE CURVED ARMS

The curved elements in any project are the ones that hide most of the pitfalls and variables, therefore they must be done first. In this case, it was even more necessary since the central arm of the lamp fits into the thickness of the base. I needed to know its final thickness in order to calculate the overall width of the piece that houses it.

Each single arm is made up of four 3mm-thick strips. The wood was selected for consistency and regularity of the grain.

For the construction of the arms, we opted for a four-layer lamination; the two interior layers have a channel that runs the entire length that serves to house the cable that powers the LEDs.

Once the arms were prepared for gluing, we proceeded with this very delicate lamination process. The problem was obtaining perfect adhesion of the four strips that make up the arms. In this case, in addition to the layers sliding on the horizontal plane, some areas of the layers did not adhere perfectly to each other, creating unsightly joints. This problem can be triggered by the twisting of the pieces and by the water contained in the vinyl glue used for joining. The only way to remedy this is to use a lot of clamps. However, the weight of all these clamps could weigh down the arm, which could break and collapse... and this happened to us: a loud crack and a thud froze us during a break from work. Going to check, we saw that the situation was irrecoverable. Fortunately, we had prepared some extra material and so, by changing the type of clamps for self-made poplar plywood ones, we were able to continue the work.

Once the three arms were dry, it was possible to finish them which, due to the lamination, presented a stepped shape. Except for the lower parts, which were straight and squared so as to allow joining to the base, we did not want to give the pieces a perfectly rectangular section. We limited ourselves to a tie. The inclined edges in fact accompany the curves and give the arms a more organic shape. In this phase, scouring the material centimetre by centimetre, we discovered the need to make some small repairs (slight detachments and dents) but, given the nature of this work, it was the least that could be expected.


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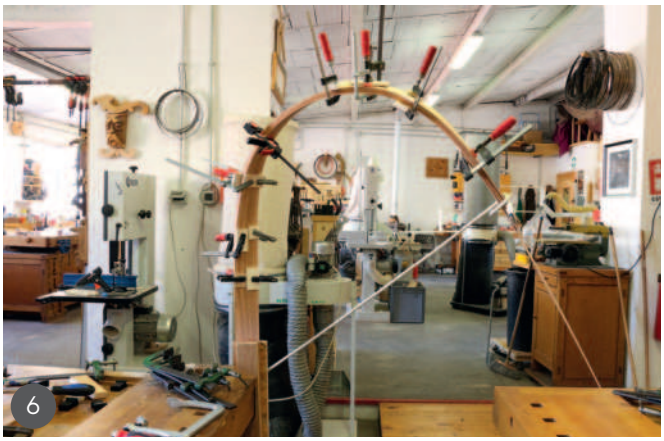
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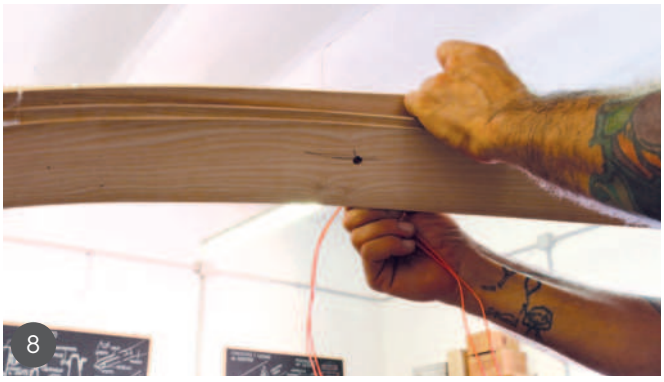
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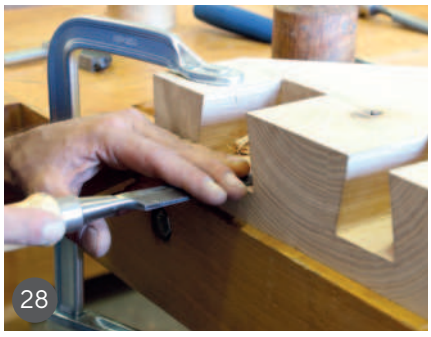
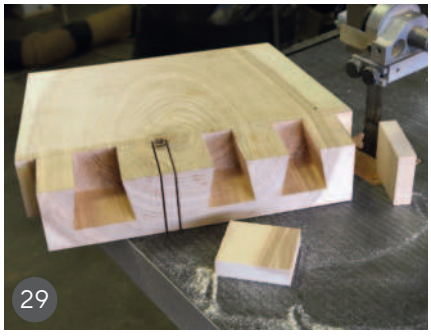
5 For the preliminary folding and shaping, the strips were left to soak for half an hour before being shaped until they were almost dry. At this stage we tried to model the pieces to look as close to the original concept as possible **6** Once a satisfactory form had been found, we tried, with all possible systems, to maintain the arms' shape until the moisture had completely evaporated **7** Before gluing, the LED power strip was positioned in the centre of one of the grooved pieces with thermoplastic glue **8** An outlet hole was also prepared at the end of the arm that will house the light source **9** After machining the arms, one of the exit holes for the cable was in a too advanced position. To fix this, we drilled an 8 x 25mm slot by placing several drill holes side by side, and cleaning out with a chisel. The operation was successful without damaging the electrical part **10** The first of the three arms collapsed under the weight of the numerous clamps. A predictable and irrecoverable event that would discourage many. But you should never give up – if there is a problem, there is also a solution! **11** We replaced the clamps with pairs of plywood clamps connected by a pair of screws at their ends to be tightened if necessary **12** Here you can see the first strip after it has been glued and is in the drying phase. The plywood clamps proved to be light and effective. Each plywood clamp replaced two heavy clamps whose use were reserved only for the most strategic points, namely the curves **13** While shaping the arms their faces can be left out at this stage. For the edges, the spokeshave was used to smooth the steps between layers. It is a handy tool; its short sole adapts well to the curves of the piece and leaves all the visibility necessary to complete the job. It takes a little imagination to hold the pieces in the vice but, proceeding one section at a time, it is not an impossible job **14 & 15** To repair a small gap, add some adhesive, then squeeze it back together with a clamp **16** Small dents can be fixed using wet paper and a hot iron to swell the wood fibre **17** The three arms were brought together and crossed to find the best combination **18** By calculating the dimensions of the bases and reporting the inclination of the cut, it was possible to obtain the two bases from a single piece. The two pieces were arranged with matching grain to give the illusion that it is a single piece **19 & 20** The surface planer was used to remove the marks of the bandsaw. We cut with the grain with the thickest part at the front of the cut, then on the tablesaw trimmed the end off where it is 3mm thick. Note: The guard on the tablesaw has been removed for clarity **21** The pre-assembly of these five pieces was necessary to check if the spacing was right, and also to verify the alignment between the pieces. The grain of the ash tends to be forgiving, but if the colour difference is too marked, it is rather difficult to match





22 The male dovetail pins were cut using an angled template against the bandsaw guide **23** The waste was removed on the tablesaw. Note: The guard on the tablesaw has been removed for clarity **24** The internal cuts were roughed out on the bandsaw **25** The pins were finished with a chisel **26** With three of the vertical pieces mounted in position (the central arm and half backs), we obtained the actual width of the assembly and transferred the shapes of the dovetail pins on the heads of the horizontal pieces **27 & 28** For the tails case a little manual work was required. The cuts are inclined and, given that the joint is semi-hidden, they do not pass through. You can make life easier by drilling a series of holes using the drill press. The rest is cleaned out with a chisel **29 & 30** After dry-assembling the pieces to test the joint, we transferred the position of the slot on to the top. Together with the central gusset, the same amount of material was removed on the sides. The cuts were made with the bandsaw and cleaned up with a chisel **31** Assembling the lamp revealed that the arms needed to be around a foot higher

THE SMALL PROBLEMS OF LAMINATION

When making curved pieces starting from several strips, the gluing surfaces are very difficult to control. In the case of slight gaps, however, it is possible to act while the glue has not yet fully cured. With a spatula, force the new adhesive into the gap where necessary, then squeeze together again with a clamp.

Another common problem is dents in the localised pressure points. In this case, the fibre can be swollen with a sheet of wet absorbent paper and a hot iron. Then it can be sanded together with the rest of the surface.

After making these repairs, the three arms were brought together and crossed to check which was the best combination. Based on the result it was then possible to calculate the various heights and the position of the central arm to obtain the width of the base and the partition of the vertical piece.

THE BASE

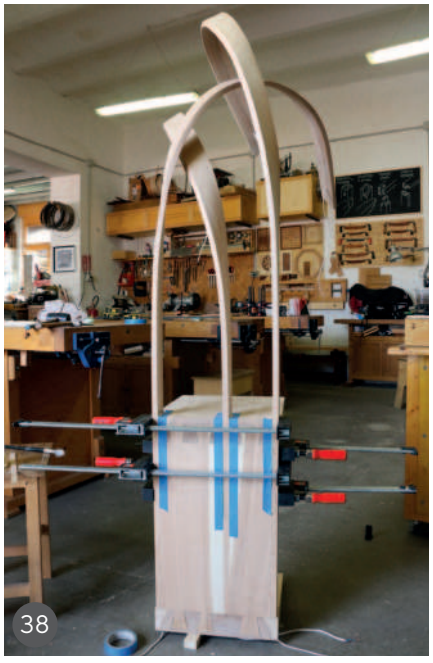
In order to support the three long projecting arms, the base of the lamp had to be quite heavy. We started with an 80mm-thick ash plank from which the vertical element (divided into two pieces) and the two horizontal ones were obtained. The latter have the shape of a rectangle trapezoid with a rather long oblique side, a kind of wedge. To reach the expected width, we joined two boards by arranging the heartwood, the darker part, towards

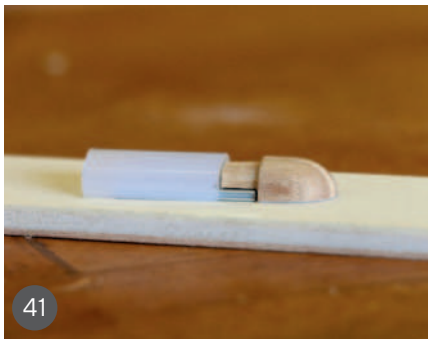
32 The three additional pieces came from boards grooved in the centre on the tablesaw to allow the passage of cables. The joints on the narrow side of the pieces were concealed very well, those on the wide side have been covered with thin strips of the same ash used for the rest of the base **33** Having reached its final dimensions, it was possible, during a dry assembly, to define the length and shape of the end parts of the arms. To visualise the final effect, strips of coloured adhesive tape were used

the inside. From this piece an oblique cut on the the bandsaw was made to obtain the two rough trapezoids. The rest was cleaning and finishing work.

Producing the vertical pieces turned out to be faster than the horizontal ones. Having calculated the measurements, it was enough to prepare a pair of simply squared pieces. In making them we tried to choose the grain so that it matched, as much as possible, with that of the two horizontal pieces and the central arm. It was not possible to make it match 100%, but the compromise gave a good result.

Once we checked that the final width of the back of the base was correct, we moved on to designing the dovetails





necessary to hold together the three pieces that make up the lower part of the lamp. We chose to use half-hidden dovetails to avoid interrupting the grain of the upper piece. Based on this calculation, we prepared the tails on the ends of the back piece.

MAKING THE DOVETAILS

On thick pieces like this it is not convenient to work by hand and male pins for the dovetails could be made entirely by machine. For the bevel cut, an angled template was used which ran against the guide of the bandsaw, equipped with a wide blade. The waste on the outside was eliminated with the tablesaw and a series of non-passing cuts. The internal cuts were roughed out by up to 99% with a bandsaw equipped with a 6mm blade. Finally, the finishing was carried out with a chisel.

Once the pins were made, we transferred them to the tops of the two ends. To make the tracing allow for the central spacing, we reinserted the central arm and then disassembled everything to work without clutter.

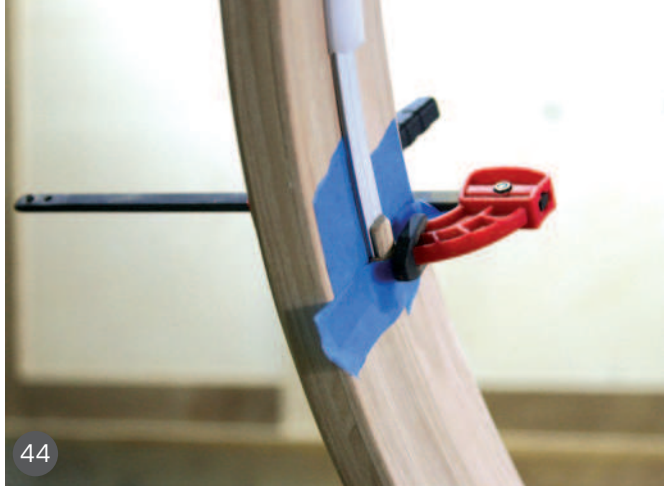
When we assembled the lamp for the first time, a big problem emerged: the arms would be much more functional and pleasant if they were placed at least a foot higher. This new position meant we needed to add material, with the serious risk that the joints at the base of the arms would be clearly visible.

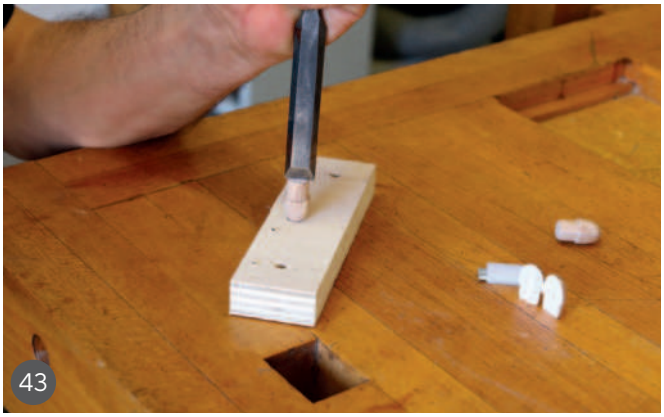
The solution was to make some simple additions, taking care of the choice of the grain and the cuts for the butt joints. Fortunately, both operations were successful. However, a problem remained: on the front and back the lines of the join were small and well executed, but on the hips they were entirely visible. We prepared very thin strips and glued them on to the sides to cover the join between the original arm and the extension.

THE FINAL ASSEMBLY

Once the change of design was completed, it was possible to proceed with the assembly of the lamp base. The first pieces to be glued were the vertical pieces: the two larger pieces with the base extensions inside and outside. If these last pieces had not been present, it would have been necessary to insert the arm directly in place of the central extension with great difficulty. From time to time benefits do come from mistakes!

The first assembly phase involved the five pieces of the back. Having all brought them all to their final thickness, we took





34 To make the final cuts, the ends of the arms were locked in a vice and cut to the desired length and angle **35** All the edges and wide faces were then smoothed. The cavities that remained visible on the end of the laminations were filled with wooden dowels to hide them **36** The first assembly phase: note the three clamps with blocks keeping the faces of the two largest pieces flush **37** The second assembly phase: the two ends were added to the back **38** The third assembly phase: the three arms were mounted **39 & 40** Holes and grooves were made for the cables and the power supply connector **41** We made bullnose-shaped ash terminals for the LED lighting strips **42 & 43** The ash terminals were shaped on the lathe and then separated into two perfect halves **44** The terminals were glued to the arms, the electrical connections were made and the cover caps were fixed **45** Finally, a container for the foot switch was made from ash

great care in aligning the ends and faces. Three clamps with blocks were arranged as a bridge between the two largest pieces in order to keep their faces flush.

In the second assembly phase the two ends were added to the back, using their semi-hidden dovetail joint. To avoid bruising the thinner ends we arranged the clamps vertically on the part resting on the bench so they functioned as 'shock absorbers', and placed foam pads on the top one.

In the third part of the assembly, the three arms were mounted at the same time. The internal one required more attention as it was necessary to slide it into the slot in the back. The external ones were simply applied above the extensions. The gluing areas were marked with blue tape to prevent the glue from staining the wood.

THE ELECTRICAL SYSTEM

Before assembling the arms we created the recesses for the cables in the base and prepared the LED strips for lighting. For the latter, it was also necessary to prepare ends in ash, in the shape of bullnoses.

For the passage of the cables from the back to the base, a double hole was made (a shallow bottom plus through hole) so it reached the centre of the areas prepared for the arms. The holes were then connected to each other with grooves and then to a box from which, on the side of the base, the power supply connector faces. After testing, the openings were closed by gluing a sheet of veneer as large as the entire base.

The LED lighting strips we used have an aluminum base that acts as a heat sink and a coupling for a plastic cover. Not being equipped with terminals, it was necessary to make our own in ash in a bullnose shape. The ash terminals we made are half of a turning, and to create them we started with a pair of strips glued together with paper between. After shaping them on the lathe, a chisel stroke was enough to separate them into two perfect halves.

We installed the LEDs after folding and screwing the aluminum bases into place. The terminals were applied by gluing them to the arms, the electrical connections were made and finally the cover caps were fixed. The electrical system was completed with a foot switch that was encapsulated in an ash container.

The 'Invisible Touch' finish by BORMA was chosen for this lamp so as not to alter the colour and leave the wood with a texture as natural as possible.

PHOTOGRAPHS BY CONSTANCE GRAESSLIN DE MARE

DOUBLE TENON CONSOLE JOINT

CONSTANCE GRAESSLIN DE MARE EXPLAINS HOW SHE ACHIEVED THIS TRICKY JOINT FOR HER CONSOLE TABLE

This joint was used to connect the top of the console to the intermediary shelf, on top of the legs. I needed enough space so that the user could store objects on the shelf but also enough strength so that the top would be securely attached.

The small poles were part of the design. I decided to put a tenon on both sides; considering the thickness of the top and the shelf, the joint was strong enough for the console to be stable even with the eventual counterweight on the sides.

The choice of making a double tenon was mainly aesthetic, but there was also the technical aspect: I wanted to challenge myself. The upper ones especially needed to be absolutely perfect, so that when they went through, no gap would appear on the top of the console. There is obviously no aesthetic reason for the tenon to be doubled on the bottom as well, as it is not seen at all, but it was a personal choice to add value to the whole piece – I wanted to treat what is seen and what is not seen equally.

It would have been technically complicated to do everything by hand and also too time-consuming, given the time frame I had to make this piece. So I started the tenons on the spindle moulder, using a circular saw blade and a jig. That made the pieces regular. I then carefully cut the shoulders with a hand saw and finished them with chisels.

The joint is both structurally correct and aesthetically satisfying. The hard part of it was doing the mortises by hand, as they were deep and needed to be very straight so that the poles weren't tilted. In the end they were a bit tilted, but it did not affect the structural part and the bottom mortises were made a bit bigger so that the tenons could take thick splines. That gives additional structural strength – especially when lifting by the top – and also allows room for improvement, which makes it a good joint for me!

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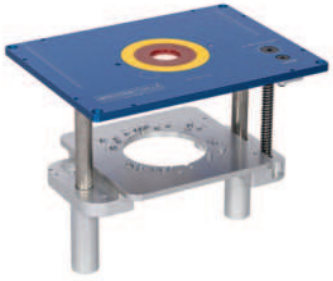

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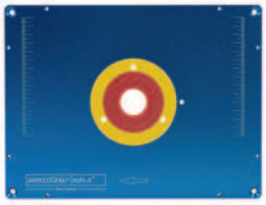

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