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WELCOME

‘The challenge is what makes me feel alive,’ says California-based Jory Brigham, who loves to push himself beyond rules, genres and all other boundaries to create his strikingly eclectic furniture. Jory hates to make the same thing twice, and is always looking for ways to make something different and better, simply because he needs to challenge himself to keep himself interested.

He also loves to throw that gauntlet down to newer furniture makers, inviting them to the weekend retreats on his property near Paso Robles he calls ‘furniture camp’ and challenging them to learn and try something they have never done before. And he’s not the only one. In this issue Francesco Cremonini challenges himself to mass-produce 16 identical dining chairs; Jim Bennett designs an oak cabinet and bookcase that has to take a radiator, power points and mobility into account; and woodturner Colwin Way tries his hand at making a drop-leaf table.

We’re throwing that challenge out to you too. Go back to basics with mortise and tenon joints, French polishing and Mitch Peacock’s simple character coffee table, or try something tricky like making winding sticks, building Israel Martin’s Shaker-style frame and panel chimney cupboard or crafting Thomas Eddolls’ extendable family dining table.

In our profiles this edition, Dave Heller of Heller & Heller Fine Custom Furniture in Ontario, Canada, talks about the art in marquetry and veneers; Brian Boggs in North Carolina, USA, combines beautiful presentation with perfect ergonomics, and Nathan Day, based in western Australia, tells how he turned the privations of the Covid-19 pandemic into a roaring success.

‘It’s the detail that makes the difference.’

FRANCESCO CREMONINI

CONTENTS

F&C ISSUE 307

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For article submissions and editorial enquiries:
E: FCEditorial@thegmcgroup.com

EDITORIAL Karen Scott, Christine Boggis, Jane Roe

E: karens@thegmcgroup.com
T: 01273 477374

DESIGNER Claire Stevens
ADVERTISING Guy Bullock
gmcadvertising@thegmcgroup.com

PUBLISHER Jonathan Grogan
PRODUCTION MANAGER Jim Bulley
T: 01273 402810

MARKETING Anne Guillot
PRINTER Poligrafijas grupa Mukusal, Latvia
DISTRIBUTION Seymour Distribution Ltd
T: 020 7429 4000

Subscription enquiries:
T: +44 (0)1273 488005
E: pubs@thegmcgroup.com

To subscribe online go to:
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photographed by Ron Bez Photography

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



- | | |
|--|---|
| <p>1 WELCOME
Discover what's in store in the latest issue</p> <p>4 CHIMNEY CUPBOARD
Israel Martin explains the construction of a Shaker-inspired, frame and panel chimney cupboard</p> <p>12 EXTENDING DINING TABLE
Thomas Eddolls makes a family dining table in solid oak</p> <p>18 LIVING FOR THE CHALLENGE
California-based Jory Brigham loves to push himself beyond rules, genres and all other boundaries to create his strikingly eclectic furniture</p> <p>26 OAK CABINET AND BOOKCASE
Jim Bennett faced several challenges when he was commissioned to make a multi-purpose piece of furniture</p> <p>35 THE CLAXTON STEVENS PRIZE
Fernanda Nunez's Guilloché bedside tables were awarded the prestigious prize from the Furniture Makers' Company</p> | <p>36 A TRIUMPHANT RETURN
The 60th edition of the Salone del Mobile.Milano returned as a live event for the first time in three years</p> <p>38 MORTISE AND TENON JOINTS
Ralph Laughton shares his technique for perfect joints</p> <p>44 THE ELASTIC CHAIR – PART 1
Francesco Cremonini begins work on a set of dining chairs that have a supporting structure in solid wood and curved veneered laminations</p> <p>54 WINDING STICKS
Michael T Collins explains how to make and use these handy tools</p> <p>58 MAKE MY DAY
Based in south-western Australia, Nathan Day fought the odds and a tricky start to build a thriving business inspired by the integrity of the English Arts & Crafts movement</p> <p>64 TURNED DROP-LEAF TABLE
Professional turner Colwin Way tries his hand at furniture making with this easily customisable table</p> |
|--|---|

FURNITURE & CABINETMAKING

If you would like to be featured in *Furniture & Cabinetmaking* please email FCEditorial@thegmcgroup.com



74 CARVED TABLE LEGS

Dennis Zongker carves acanthus leaves on cabriole table legs

81 SUBSCRIPTIONS

Don't miss our latest offer for subscribers

82 BURL WALNUT CHEST OF DRAWERS

Kevin Ley builds a chest of drawers from an eye-catching piece of timber

88 CUTTING VENEERS

Follow John Bullar's expert guide to preparing your own veneers

90 THE WOODWORKERS INSTITUTE

Discover the new Woodworkers Institute website and find out how you could win in the tools giveaway

92 A FINE VENEER

Dave Heller of Heller & Heller Fine Custom Furniture went from hobbyist woodworker to exquisite marquetry maker and teacher

98 LEATHER TOOL ROLL

Amber Bailey picks up needle and thread to make a tool protector

100 UNDER THE HAMMER – GEORGE NAKASHIMA

We take a look at work by the legendary American furniture maker sold at Bonhams' Modern Decorative Art + Design auction

102 CHARACTER COFFEE TABLE

Mitch Peacock builds a simple coffee table from recycled oak and pine

106 FRENCH POLISHING

Louise Biggs take us step by step through this essential furniture restorer's technique

110 BEAUTIFUL AND USEFUL

North Carolina-based Brian Boggs blends ergonomics with an artistic presentation of the beauty of wood in his stunning chairs

116 A TABLE FOR THE NATION

We catch up on the final stages of the Fenland Oak Project as the spectacular table is unveiled

120 OMNIUM JOINT

Dom Dudkiewicz of Blue Wren Timberworks introduces a joint that's got everything





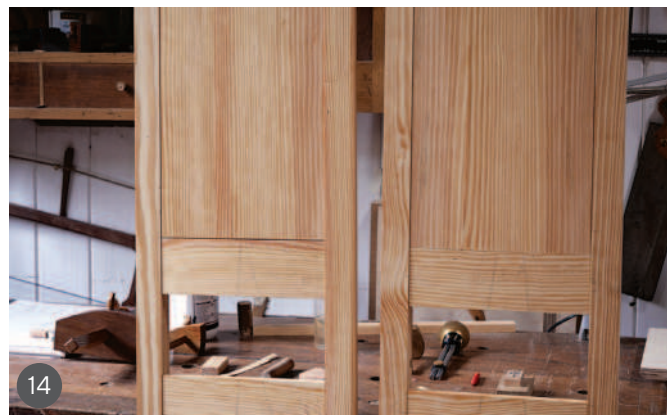
CHIMNEY CUPBOARD

ISRAEL MARTIN EXPLAINS THE CONSTRUCTION OF A SHAKER-INSPIRED, FRAME AND PANEL CHIMNEY CUPBOARD

I've always loved Shaker furniture, and whenever I have the chance I like to explore it, as in this project. Chimney cupboards are shallow, skinny cabinets, designed to fit into a narrow space next to a fireplace. Normally Shaker chimney cupboards are made in carcass structure, but given that I was only going to use hand tools, a frame and panel construction, although more complex in joinery, would make dimensioning the small components much easier. Also, the joinery is more fun to make than spending hours planing wide boards. The goal was to make this piece so that it had a carcass look, using the grain for that. Most of the panels are quartersawn and the vertical stiles are rift sawn to get straight lines. The project was really good fun.







1 The southern yellow pine boards for the project 2 Dimensioning the vertical pieces 3 Working on the aprons 4 Making the mortises
5 Testing the mortise and tenons 6 Testing two sides together 7 Making twin mortises 8 Dry fit of the drawer blades
9 Details of the twin mortises and tenons 10 Dry fit of the whole set 11 Making the grooves for the panels 12 Using the kerfing plane on the panels
13 Two panel boards after sawing 14 Testing the panels

MAKING THE STRUCTURE

After dimensioning the pine to get all the frame pieces, I used mitred mortises to join the rails and stiles. Then I made the grooves for the panels. It is very helpful if the mortises are wide enough so that all the grooves can be made with the plough plane.

To join the drawer dividers I used twin mortises and tenons. It is a strong joint in and it's also fun to make. The drawer dividers also have mortise and tenons to join the drawer guides and kickers.

PANELS

In order to get a carcass look, I wanted to match, as much as possible, the panels with the frame pieces. I sawed the boards, making first a kerf with the kerfing plane and then sawing with the panel saw.

I then made a tongue to fit into the rails' grooves. This takes more time than just making a bevel but this way I got the look for the piece that I was aiming for.



15 Making the rebates (tongue) in the panels 16 Trying the panels as I make the rebates 17 Dry fit of the two sides 18 Dry fit of the entire piece 19 Making mortises for the doors after the grooves were made 20 Working on the tenons for the doors 21 Dry fit of the first door frame



23



24



25



26



27



28



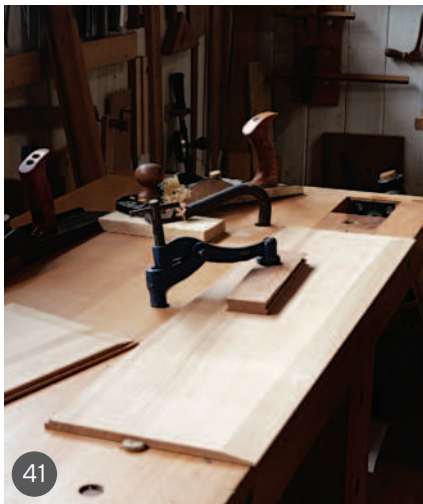
29



30

22 Gluing up one door 23 Adjusting the door with the plane 24 Testing the door 25 Installing knife hinges in the door 26 The doors are now done 27 Details of the hinges and doors 28 Testing the drawer fronts 29 The joinery for the drawers 30 Testing the drawers before glue-up





31 Gluing up the drawers 32 Details of the drawers, dovetails and red cedar bottom 33 Applying shellac 34 Gluing up one side
35 The workshop in the middle of the glue-up 36 Detail of the legs 37 Detail of the drawers section frame with the pegs
38 Gluing up both sides together 39 Detail of the drawer blades glue-up 40 Preparing the back boards
41 Bevelling the sides and the top of the panels 42 Fitting the middle holder 43 The back is already installed

DOORS

I made the doors with the same frame and panel construction. Once the structure was made and after preparing all the pieces, I made haunched mortises and tenons. First I made the grooves for the panels and then the mortises. After a successful dry fit, I glued them and then adjusted each door in place. Then I used offset knife hinges and installed the doors.

DRAWERS

I love making drawers. I started each drawer by making the front, then I adjusted it so that it was a bit bigger than its place. Then I prepared the sides and back, in this case also made from pine, and started making the half-blind dovetails for the front and sliding dovetails for the back. The drawer bottoms were made of quartersawn red cedar.

I finished the drawers with shellac on the fronts and dovetails only. This means that if I later need to adjust anything I can do so without worrying about the finish on the sides.

GLUE-UP

One of the challenges of frame and panel construction is the glue-up. I glued up the two sides first and then used walnut pegs to reinforce every mortise and tenon. Then I glued up both sides together, paying attention to the twin mortises and tenons. Gluing up in different steps like this is always less stressful.

MAKING THE BACK

I used more quartersawn red cedar to make the back panels. I used bevels to fit into the frame grooves, only into the top and the sides. The bottom lies on a rebate made on the back apron. To cover the middle I made a pine piece that holds the red cedar ones. This piece has one screw to fix it to the frame. This was faster and easier because it allowed me to add the back after the glue-up, and the look of the back from the front was very nice!





EXTENDING DINING TABLE

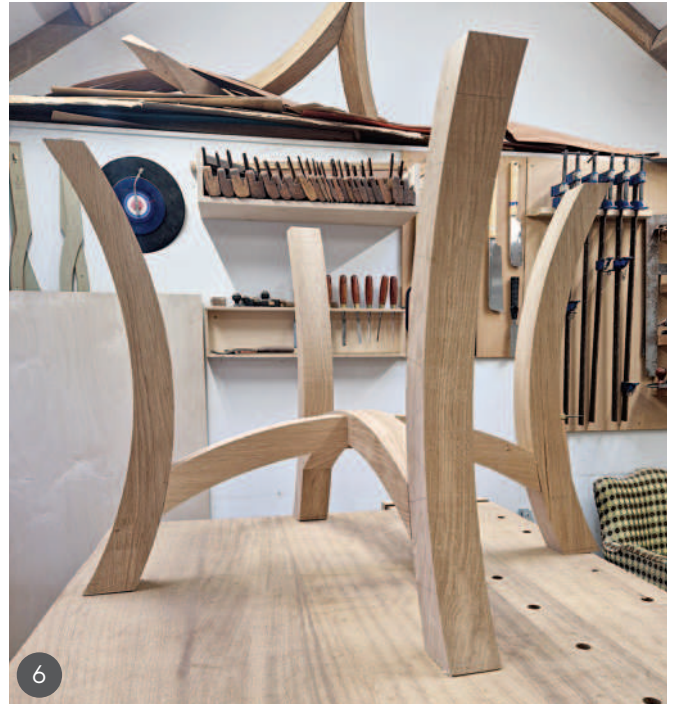
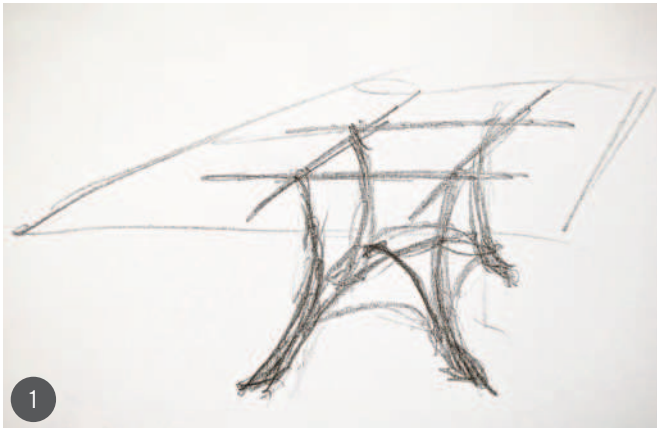
THOMAS EDDOLLS MAKES A FAMILY DINING TABLE IN SOLID OAK

I received an enquiry from a wonderful couple for a possible commission for a family dining table, preferably in oak. The brief stated there should be suitable leg room in the height and foot room underneath the table, it had to extend to seat an extra two place settings and be thick and sturdy while also visually appealing. I said I would be delighted to present some concepts.

DESIGN IDEAS

While searching through some papers I remembered a concept I had sketched out a few years back which never made it off the drawing board. After some minor adaptations, I re-sketched the idea out as the first concept to be put to the client. I never like to spend too much time on concept sketches, as a multitude of ideas could be quickly rejected by the client, so I keep a loose style to roughly outline different options. Once we have hit upon a possible solution to the brief I will often model the idea up to scale to give a better impression for everyone to visualise. Luckily on this occasion the clients were happy to explore my first proffered attempt, so rather excitedly I mocked the table up to scale using the client's given dimensions.

I sent the client digital photos of the design concepts, drawings and models, and we all quite quickly decided upon this design. Once we were agreed, deposits were settled and the project was set to be undertaken. I had to finish off a large commission already underway before I could make a start on this new piece, and thankfully they were happy to wait.



TIMBER SELECTION

When the time came to start work on this new adventure, my first port of call was my local timber merchants to purchase the solid oak. I am lucky enough to have a good relationship with the yard, where they are happy to let me select my boards from their stock.

On this occasion I picked out some waney-edged European oak for the table top; I selected two long boards from the middle of the tree, virtually with the pith running down the centre meaning the heartwood at either side of the ruptured centre was perfectly quartersawn in its grain orientation. This was my ideal choice for stability and also meant there would be plenty of beautiful medullary rayed figure to work with in the board match sequence.

For the underframe, I picked out a couple of boards of 75mm-thick European oak which I could shape up for the legs and stretcher rails.

With the timber back at the workshop, I left it all in stick for a while to condition before I began the making process.

THE UNDERFRAME

When the time came to begin work, I decided to start with the underframe first. I hand-shaped suitable templates for the legs and stretcher rails, all of which were formed from true radiuses. I used the templates to mark out the thick oak boards, which were nominally planed and thickened just over size to be reworked after the sawing-out stage in case they bowed or sprung out due to a release of tension in the material at this point.

When I was happy with my selection I set up my bandsaw with a new sharp blade and sawed the leg curves and rail works out. Once they were roughed out I let these settle for a couple of days before finish thickening and then shaping on the spindle moulder. Here I used a combination of a shaped base board for

working reference, a ring fence and, at the business end, a rebate block with shear-cutting orientated knives.

Working through the processes I was relatively quickly able to achieve visible results, and when I had spindled out my components, the full-sized outline of the piece was set up on my bench top.

I'd decided early on that, due to budget constraints and a timeline issue, I would joint the legs to the stretchers with the Festool Domino system, which I bolstered with a routed-in loose tongue.

The stretchers were going to overlap each other with a cross halving joint. I needed the footprint to match the slightly oblong table top outline, so I kicked the angle of this joint over by 3° to stretch the underframe out slightly. I cut the joints by hand, carefully marking out with knife lines before sawing and chiselling to where I needed to be.

Once the halves were opened up I relieved the sides of the stretchers with a hand plane down to a snug fit. This technique ensures a good fit and keeps everything flat and true. There was no need for sanding as the finish from my sharp No. 7 plane would be more than adequate.

Once this stage was accomplished, I assembled the underframe dry on the bench to get a look at it all.

The next job was to glue the leg frames together, pinching the legs on to the stretchers with Titebond 2. I then quickly cleaned the frames up before gluing the mating halving joint together, simply G-clamping the joint until cured.

When the glue was dry, I checked everything over to make sure it was level and true before concentrating on making the extending slider frames

1 An early concept drawing for the table 2 A scale model of the table 3 The solid oak timber was left in stick to condition

4 The pieces for the underframe were roughed out and shaped, then the outline was set up on the bench top 5 The legs were joined to the stretchers with Dominos and a loose tongue 6 A dry assembly of the underframe ... 7 ... was followed by a glue-up and clamping



THE EXTENDING SLIDER FRAMES

A simple and effective method I have used before on extending tables is to utilise two thick bearers joined with parallel stretcher rails, cut carefully and accurately to length to create a uniform opening in which my slider frames can glide back and forth in a bare-faced tongue and groove.

To fit them, I grooved the bearer on the spindle moulder or router, then mated the slide frame into these grooves by rebating them in to fit. It's worth noting here that I like to leave the slider frame proud of the bearers so the tops don't drag when opening the table up. I bolted through the top frame into threaded inserts which I let into the top of the legs. This means the whole project can be broken down for ease of installation.

The sliding frameworks were made up with parallel stretcher rails which, once assembled, were hand-fitted into the running grooves with shoulder planes for a smooth and even fit.

Once these were run in the full bases, I could move on to producing the table top.

THE TABLE TOP

I proceeded to open up the quartered oak on the saw and planers, cutting out any pith, splits and defects before roughly finishing the boards over size. With most of the mill marks machined away, I could get a good look at the figure and begin to match the boards together.

Once I was happy with my match and I was sure I could achieve the required sizes for each table leaf, I finish-sized the boards, before jointing them together over the surface planer. I always finish this process off by hand with a freshly sharpened No. 7 jointer, having two set up, one for any repetitive work and another set sharp and fine for finishing strokes.

When this process was complete I reinforced the joints with biscuits for strength and location, before clamping the leaves together with sash clamps.

Eventually, once the glue had fully cured, I used the panel saw to finish-size the leaves. I decided to saw off a bevel relief along the

outside edges – a simple detail which removes visual weight from the piece while retaining board thickness in the precious timber.

At this point I could drop the tops on to the leg frame to get a first glimpse of the completed dining table.

The table top corners then needed to be rounded off for usability. On this occasion I sawed round with an angled set jigsaw, finishing with a spokeshave, block plane and finishing papers. Now I could see the true outline of the piece.

The last thing to do before finishing was to create a mating joint between the leaves, which I did by routing grooves into the edges with an arbor cutter in a router and then letting in an oak tongue into the relevant grooves for the leaves to align nicely, making sure they did so in both of the usable sizes.

FINISHING

Then it was a question of tackling the final clean-up before applying an oiled finish. I worked over the top in its full extension, sanding through the grits down to 240 before applying the oil. I usually put on a couple of coats before cutting back with 320-grit papers before adding the last two coats.

Gradually working through the processes, I was able to build up the oiled finish over the course of a few days until finally I was happy to deliver the piece.

When the big day came round, it was beautiful and sunny. I broke the project down and squeezed it all into my car with plenty of blankets before setting off to the clients' home. After a quick chat I set about the installation with enthusiastic vigour, which went like a dream.

Once I had screwed the tops on to the sliding frames, which I had pre-drilled in the workshop, I just needed to fit some simple oak stops to the underside and we were over the line.

I was thrilled, as were the clients and I came away from the job satisfied in the knowledge that I had successfully fulfilled their brief and provided a functional family dining table that would last for many years to come.

8–10 The next task was to fit the extending sliders and their frames **11** The leaves for the top were prepared, matched, jointed and clamped **12** A first look at how the table was coming together **13** The table top corners were rounded off **14** The table was given an oil finish ... **15** ... before being installed in the clients' home

LIVING FOR THE CHALLENGE

CALIFORNIA-BASED **JORY BRIGHAM** LOVES TO PUSH HIMSELF BEYOND RULES, GENRES AND ALL OTHER BOUNDARIES TO CREATE HIS STRIKINGLY ECLECTIC FURNITURE

Whether it's appearing on a reality TV show, pushing the boundaries of the possible in his furniture-making or using tools to their full potential – even if that's not what they were originally intended for – eclectic California-based furniture designer and maker Jory Brigham is always looking for a challenge. 'When I'm doing the same pieces over and over it just drives me crazy, and I'm not as happy a person as I could be,' he admits. Luckily he has been able to hire someone to help him at his workshop in Paso Robles, far out in the countryside and surrounded by vineyards. Together they produce the pieces from Jory's striking portfolio – which makes up 80% of the business – giving Jory some space to focus on new things. 'It's not as much as I'd like, but that is where we are right now,' he says.

Jory grew up in Hawaii in a family, on his dad's side, mainly made up of architects and woodworkers. His great-grandpa was Frank Lloyd Wright's chief draughtsman. Jory was home-schooled up to the age of 14 and spent a lot of time working on construction sites with his dad, who studied architecture but dropped out and became a contractor. 'I was on the job sites from a very young age,' says Jory. 'I got to be part of clearing land and digging, laying foundations, all the way to finished kitchen cabinets. It was a really good way to see the process from start to finish.'

The family moved to California when Jory was about 18, and it was when he was building out his new room in his parents' garage that he suddenly found he wished for furniture that



meant more than mass-produced pieces, that would speak to his own style in the space he had worked so hard to create. Around the same time he started working with his uncle, who had a business making rustic furniture.

'It was a close call for me,' he said. 'I related woodworking to having to go to work with my dad, and I wanted to break away and be an individual. I really wanted to be a chef and go to culinary school. Building and finished carpentry were pretty much the last things I wanted to do, but the only things I knew how to do. So I started building furniture, and I wasn't absolutely in love with it – until one day I had an idea to do a new piece of furniture.'

The idea was for a cabinet that was a cross between a credenza and an armoire with a bowed front. Before starting, Jory asked

his uncle if he would be able to sell it, and the response was: it depends how it turns out. Jory spent his weekends building the cabinet, which ended up going on consignment into a furniture shop in Carmel. It was seeing it in the store's front window that changed Jory's feelings about what he was doing.

He says: 'It was so moving to think that something I had built had brought somebody that amount of joy. It sold pretty quickly, and I realised someone was going to put it in their house and it would be a part of their family. At that point it all kind of came together. That is when woodworking took on a whole new face for me. I went from just a woodworker to realising that I could design my own pieces, and something out of my head could become a tangible piece.'



The driving force of my design is something I want to live with, something that is part of me and that is going to tie in.



PHOTOGRAPH: RON BEZ PHOTOGRAPHY



PHOTOGRAPH: RON BEZ PHOTOGRAPHY



PHOTOGRAPH: RON BEZ PHOTOGRAPHY

GOLDEN OPPORTUNITY

Jory soon began to feel confined by the rustic style of furniture he was making. 'I didn't really have the patience for it. You could be somewhat of a hack and get away with it, because the wood is so beaten and cracked and you are driving nails through it and that is part of the look. That was frustrating for me, because I wanted to dial into woodworking a bit more.' Around a year after Jory had built his first original piece, some of his work was spotted in a local furniture store by the son of Fess Parker, a Hollywood actor best known as the star of Disney's 1954-55 TV miniseries *Davy Crockett* and the 1964 TV series *Daniel Boone*. Parker went on to run an award-winning eponymous winery in Los Olivos, California, which is now run by his family.

Parker's son loved Jory's work so much that he had a workshop built for him on the family's land and hired him as the family and business's on-site furniture-maker. 'They took me shopping and said: you can buy whatever you want. That was just amazing for a kid that was 19. I hit the ground running,' Jory recalls. 'I was completely winging it because I was self-taught and had a long way to go, and this gave me the opportunity to take risks.' This was the time before YouTube, when you couldn't just type a woodworking query into Google and come up with instructions. Jory stayed there for around four years, working on his own projects as well as for the Parker family.

'It was a really great way to establish my own style,' he says. 'These days, having YouTube and so much more information at

your fingertips, it could be a bit more difficult to establish your own style – you might find yourself emulating. I just dove into it.' He stresses that style can only be found if you develop the skills to realise the ideas you have in your head. 'You are only capable of creating as far as your skill will allow you,' he says. 'At that point in my life I was very naïve and had no fear, with nothing to lose – so I would just dig right into a project without knowing how to really do it.' During this period Jory moved away from the rustic style to more hand-hewn, newer woods and materials, and studied the styles of Sam Maloof and Vladimir Kagan, who have been big influences on his work.

COOKING UP A STORM

'I try to veer away as much as possible from rules, genres and styles,' Jory says. 'Genres go in and out of style. I don't want anything I build to ever end up in landfill – I'm hoping that whoever purchases it passes it on to their kids.' His approach to design sounds almost like the cookery he once hoped to make his career: 'I really like to pull from different cultures or time periods and see what a little bit of Danish with a little bit of organic with a little bit of Japanese will be like.' He puts the mid-century influences in his work down to his grandparents' house, which was in mid-century style, so the look still gives him 'that warm feeling'. He hopes his customers will have a connection to the ideas in his work. 'It is important to try and connect those feelings and make something that is part of a family,' he says.



When he is designing, Jory never draws anything out. Although he admits he is not a great sketcher and says 'my brain works in a different way', a more important reason for that is to leave himself open to changes and developments in a piece as he works. 'When you draw something out, one way or another you are committing to it – especially these days when we have these renderings that are so realistic,' he explains. 'You are not feeling open to all the changes and opportunities you see when working with it. You almost turn that part of your brain off. If you can give a client the most obscure idea of what it is going to be, and a vague sketch at most, you have all the freedom in the world to make those changes as it is happening.'

His favourite wood to work with is walnut, of which he can source several different species locally to process on-site in his own sawmill. 'It just has such a warmth to it. It is so distinct in its colour, and working with it is phenomenal: it sands so well, it planes well, all the way down to the smell. It takes on finish so incredibly well, and that rich brown colour goes so very well with so many other materials.'

Jory loves mixing in other materials, especially balancing the cold of metal with the warmth of wood to give pieces aesthetic completeness as well as extra strength structurally. He loves adding colours with powder coating and he has started brazing, which opened the door to welding and metalworking in general. When he was home-schooled by his mum, Jory was never far from a sewing machine, so now he loves adding fabrics and upholstery to his pieces. 'The texture and colours can give such variation – you throw in something like that and it changes the whole design,' he says. He also uses Danish cord weaving, notably for the nets in his striking Mackenrow ping-pong tables. His preferred finishes are natural waxes and oils, although his favourite oil has recently been discontinued so he's looking for a new one.

'Different materials always make something distinct and unique,' Jory says. 'As you add more in, you are really coming up with something that is different – something that gives you a trademark and that is also difficult to reproduce in China: the more complicated you make it, the more you become the only person that can pull it together.'

When it comes to tools, Jory is no purist. 'I love hand tools but I don't use them as much as I should,' he says. Brought up around construction tools, he is happy to use machinery in his woodworking and his favourite tool is the Festool Domino. But

so far he has stopped short of using a CNC machine. 'I always thought it would take the soul out of any project, but I'm slowly coming out of that,' he says. 'Any tool is just that – a tool. It is really the person behind it who can make it into something extraordinary or unexpected. I saw my dad use a tablesaw and a circular saw in ways that would blow people's minds. It is so important to take a tool and use it to its full potential, even if that is not what it was made for. The way you use a tool defines your style. If you use it to its full potential in a way that is really personal to you, you can achieve whatever unique look you want.'

RIISING TO CHALLENGES

Stepping out of his comfort zone in his tool use and mixing materials are just some of the ways Jory challenges himself and keeps himself interested. From the very start of his career he has hated repeating himself, so if a friend of a client loved a piece of his and asked for an exact replica, he would offer to make something a little different, a little better, but for the same price. 'It takes a lot in your early twenties to say: I don't want to do something just like it,' he says. 'There is that discomfort because you know you could make something you like and that would make the client happy, but you want to push that a little bit. You allow yourself to grow and be challenged. Over many years you are really going to establish your style, because each time you are picking a little bit but also veering away from your original designs. The years go by and you might be broke, but you have had a lot of different challenges.'

He believes that all adults should keep challenging themselves by learning new things in the way they did as children – and that's one of the reasons he runs furniture-making workshops. It started with an end table course, but now he also runs a stool course, a chair course and a bench course which involves a lot of welding, taught by a metalworker friend of his. 'I had always enjoyed teaching, although I'm not the best public speaker,' says Jory.

'I'm actually a terrible public speaker, but if you can get me on to woodworking, discussing my passion, it is exhilarating for me to talk about something I love.'

He adds: 'Just starting woodworking can be intimidating, it is made to be so scary. Newcomers are drawn to it, but there are so many things that scare them about it. For me it's trying to make woodworking approachable. I didn't go to school, I picked up things in a way I think is possible for anyone to do.' The courses







are run over weekends and have become a kind of retreat, which Jory calls furniture camp. 'These adults coming out here are doing something so challenging, and I realised that we as adults do very little of that,' he says. 'We used to do it all the time when we were younger, starting a new year of school or a new sport that forced us out of our routine and scared us. On Friday mornings when the courses start you feel the tension of all these adults dipping their toes into a new experience, not sure what they are getting into.'

On Friday evenings the students and teachers have a barbecue and sit around the campfire, but Jory says it's 'such a bummer when they have to leave and go back to their hotel room' that he is now building places on his land where people can stay, to make it even more of a retreat. 'The idea is to grow our own food here so people can come and they don't really have to leave.'

DREAM ESTATE

Jory found his current workshop in Paso Robles after being given the alarming news in 2015 that he had to be out of his previous workshop with just two months' notice. 'It is a really nice area – the grapes love it as it gets very hot and very cold, but for humans it's a bit harder,' he says. Jory wanted a place where he could live and work, so that he could eat more meals with his children but then go back to work if he wasn't finished for the day. 'I love working late nights,' he says.

'I also wanted to live in country with my kids picking up snakes and spiders and having a connection with nature.' He and his wife found the place advertised in a real estate magazine with lots of pictures of a characterless double-wide prefab home and just one shot of the workshop, which is on stilts overlooking the surrounding vineyards. Although the couple originally dismissed the estate as being too remote, when Jory saw the workshop his jaw dropped. 'I think my wife knew she had lost me at that point,' he says. 'I didn't want her to resent me, so I tried to play it cool, but I think she fell in love with the place too, and found a peace in it.' Now the family have 25 chickens, two cows, a horse, a donkey and a dog called Olive. It was this move that allowed Jory to launch his workshops.

The move came not long after Jory took on another challenge – a furniture-making reality TV show competition called *Framework*, which Jory describes as 'brutal – like *Project Runway*'. Having never watched a reality TV show all the way through, he now found himself in one, competing in 24-hour challenges with other makers, and it was during this show that he came up with and built his signature Mackenrow ping-pong table.

For Jory the most interesting thing that came out of the experience was the realisation that his creative process was not as fragile as he had feared. While he would normally sit down quietly, read design magazines and drink a cup of coffee, with the constant fear of getting writer's block at the back of his mind, during the show he found that, under pressure, he was perfectly capable of coming up with design after design. 'Those ideas are in you – you just have to go for it,' he says.

Winning the show didn't give him a huge sales boost, because most of its viewers were not his clientele. But the prizes of US\$100,000 cash and US\$20,000 in vouchers for hardware chain Ace Hardware gave him a period of freedom to be creative without worrying about cashflow. 'That was my most creative time ever,'

he says. 'We have so many concerns around money, especially when you have a family and kids. There are very few times you can just take off, create and have ideas. In eight months I came up with seven new designs. I was able to get my first lookbook catalogue made and did a whole bunch of photo shoots – it just gave me that freedom to be creative.' The third prize was to design for furniture store chain CB2, which Jory turned down. 'Everything is made in China, and the last thing I wanted was for my stuff to end up in a landfill,' he explains.

FEELING ALIVE

Inspired by architecture and nature, and often driven by necessity, Jory finds his favourite ever projects are those that have challenged him most. The Parker, a low console bench made from plywood, was one of the first pieces he ever made. 'It catapulted me into this fierce passion of being so excited once I pulled it off,' he says. 'It was such a growth spurt for me, and luckily it turned out good.' The most challenged he has ever been was by his Big Sur credenza, named after a rugged and mountainous section of California's Central Coast. The cabinet includes a live-edge section, and was so challenging that Jory couldn't sleep at night and even got to the point where he thought he would give up completely because he just couldn't make it work.

He says: 'That challenge is what makes me feel so alive. I remember leaving that thing half built in my workshop, and every day I was consumed by this brink of failure. Then one day I found a way out of it and it was a huge turning point for me. There is always a way out – you have to give yourself a bit of a break, remove yourself, but there will always be a way out of it. That gave me a new confidence that no matter how crazy it got, there is always a design answer. It might not be my favourite piece to look at, but I'm always reminded of so many things I learnt from it.'

Currently in his workshop are several game tables, which convert from ping-pong to pool, and a series of vanities made from trees which have been knocked down by bulldozers so their roots remain intact, with a basin in the root ball. Jory wants to combine live elements in the raw slabs with refined and chamfered edges, 'so it allows us to use these characteristics of organic material to pop through, but not relying on them completely to do all the work,' he explains.

What he really loves, and wants to do more of, is to design without money changing hands. 'The driving force of my design is something I want to live with, something that is part of me and that is going to tie in. Most of the pieces I have come up with came from looking at a space in our house or for a friend – to fit a specific need has always helped me to find that drive. Doing stuff for friends is the most fun: stuff where there is no money involved has such an effect on my creative experience. Money will sometimes infiltrate the whole experience, even if it is just a little bit, and it is fun to not let it do so at all, so I try to do projects where no money is exchanged from time to time.'

Whatever comes next, it's sure to be a challenge.

jorybrigham.com
jorybrighamworkshop.com
@jorybrigham_design

OAK CABINET AND BOOKCASE

JIM BENNETT FACED SEVERAL CHALLENGES WHEN HE WAS COMMISSIONED TO MAKE A MULTI-PURPOSE PIECE OF FURNITURE

It is always nice to have a call from a client you have worked with in the past. Some years ago I received a commission to make several pieces for someone who knew of my work. This included a large oak larder cabinet, an oak sideboard and a media unit. I had not long opened my workshop in Suffolk to work full time as a furniture maker, so the work was gratefully received, even if it took some time to complete!

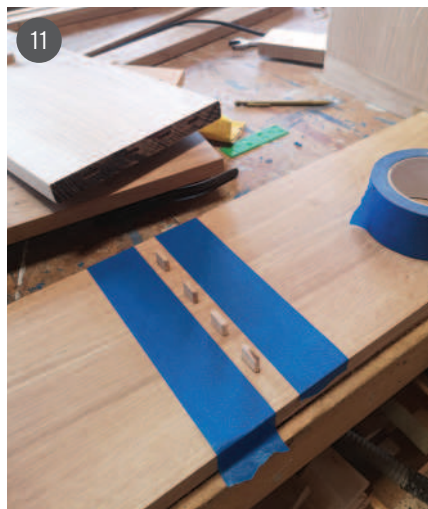
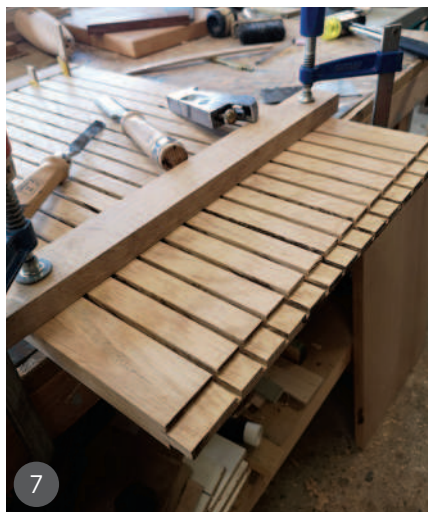
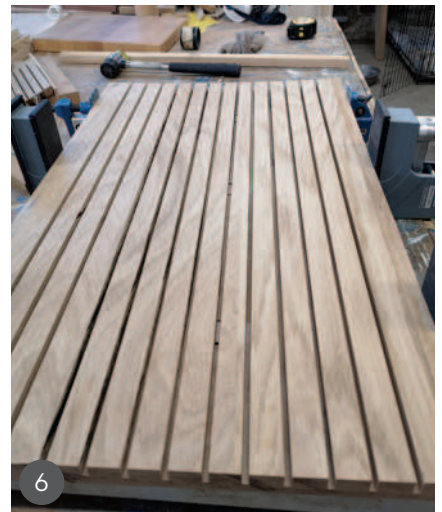
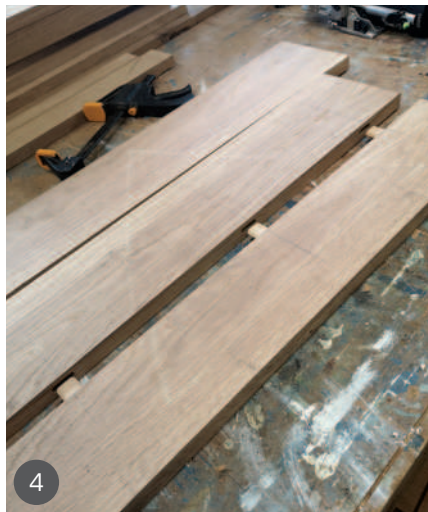
The pieces were all freestanding and were located in the new large kitchen and living extension to their house. As often happens with new extensions, the radiators are more often than not positioned by default where there are no built-in fittings shown on the plans. However, less thought is given to the positioning of freestanding furniture pieces. Previously the best location for the sideboard was in front of a large radiator. As a result it was designed and made with a deeper top and sides to cover the radiator and long slots were included as part of the design to allow for air movement and heat to escape.

This latest request was for a further freestanding piece – again in oak, but to complement rather than match the original work. This commission was originally for a bookcase – mainly for storing cookery books – as this is a large open-plan room which includes the kitchen. There was also a need for cupboards and drawers for storage of smaller items. Once again the unit was to be positioned to cover a radiator.

I had been very concerned about this detail on the original construction of the sideboard due to heat distortion to the timber, but it appears to have worked well – so well that the clients wanted to repeat the idea with the bookcase. There was one other requirement – the unit was to be situated in a large bay window which housed an existing dining table. On occasions when the table was extended, the new unit would have to be relocated elsewhere in the room and would therefore be visible from different angles and have to look right in both locations. This simple bookcase had become slightly more complex ...







DESIGN

From the client's perspective commissioning such a piece was a carefully considered combination of aesthetics, function, cost and sustainability. From the maker's perspective, in order to answer the brief, there should be an integrity to both the design and making of a piece and a quality that endures.

As we had previously worked together there was a trust between myself and my client and the design process consisted of a series of photographs of items and details they had seen and liked, and me translating these into a series of design sketches.

It is also often the case for a client to want a bespoke piece to do too much. Initially the idea was for shelving, cupboards and drawers. However, in this case due to the restricted depth the provision of drawers would be impractical and it would be better to have a larger cupboard with shelves. Sketches and models help to resolve these matters early on.

Due to Covid restrictions I was unable to visit to carry out a site survey for locating power points, radiator sizes, access to valves and so on, and to generally view the space. So working from photographs I was able to produce a drawing of the area, highlighting any critical dimensions required – trusting my client to measure these accurately – which she did and had her daughter carry out the same process as a check, taking the mantra 'measure twice – cut once' literally!

Armed with this information we were able to establish the overall dimensions of the unit. From there we looked at the size of items to be stored, the largest books and so on. Ideas were sketched and emailed back and forth, and when we were nearly there I made a couple of scale models in wood with some alternative details and photographed them to see what they thought. It turned out to be a really good way of explaining how the piece was going to look and work. I always find that taking the time to make 3D models early on resolves many issues both for myself and the client.

TIMBER

As previously mentioned, the unit was to complement other units I had made some years before, which were made from European oak. More recently, both due to cost but mainly sustainability, I had started to look closer to home for my timber.

My workshop is on a farm and apparently in the Burns Day storm of 1990 a lot of trees were damaged and the farmer had

felled them and stored them in a barn. He then had the foresight to have them slabbed and stickered – slicing the trees into long boards which are then stacked in the order of cutting with thin regular sized slats of timber sticks between to allow the boards to dry out – so they had been drying naturally for 30 years. By mutual consent I had been using some of the oak slabs. They were heavily figured – which is fine for smaller items but not to everyone's taste where larger pieces are concerned. Also, there are different schools of thought regarding the use of air-dried versus kiln-dried timber. The drying of the timber is crucial to how it behaves when used. However, as this had been drying for over 30 years I was less concerned. The air-drying process does cause more cracking and splitting to the timber so there is a fair bit of waste to get manageable useful pieces out of for practical furniture making. As a result some kiln-dried timber was used for the larger components.

METHOD OF CONSTRUCTION

As it was to be made from solid timber and placed directly in front of and covering a radiator, I was concerned about wood movement. Various ways of dealing with this were included in the initial design, including providing vents to the top – as in the sideboard – raising the unit off the ground on feet to allow air beneath, and consideration was given to providing a slatted back to allow air through.

The final design resulted in the top being made from three separate pieces – with gaps between to allow maximum air circulation. The unit was to be on feet to allow cooler air to circulate from a low level. The slatted back was abandoned as it was expensive and considered to be less effective as the bookshelves would be full.

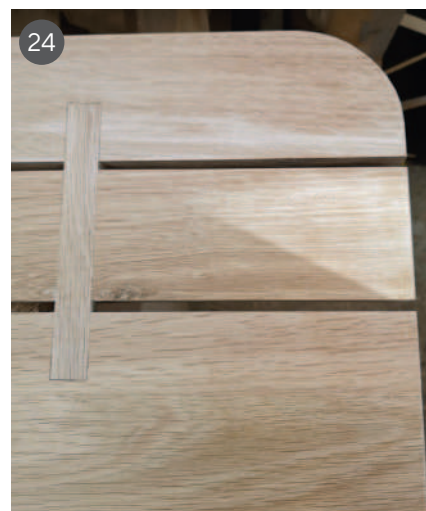
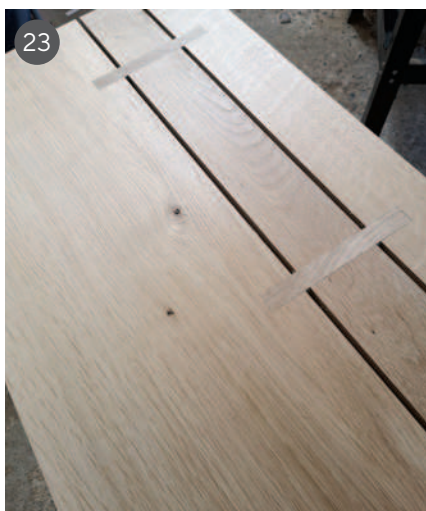
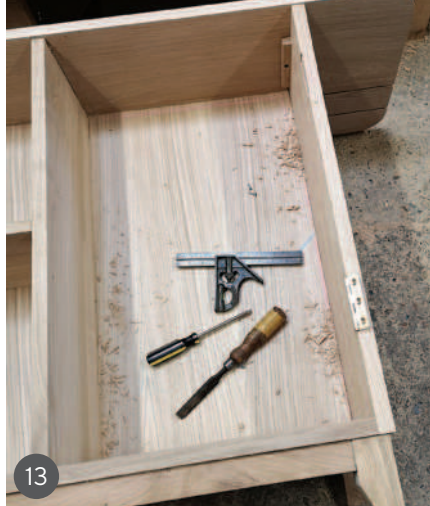
The design incorporated a fluted detail to the end gables and cupboard door. Because of site constraints such as access to electrical sockets and radiator valves, the main unit was restricted in length but the top could be longer. The solution was to cantilever the top at one end. As a result, the fluted detail to the gable here was omitted.

MAIN CARCASS

I love the excitement of making a new project from scratch.

I will have spent a lot of thinking time carefully considering the basic structure, details, joints, junctions and materials to utilise.

1 Scale model presentation with alternative finish details including drawer to top 2 Air-dried sawn plank of English oak in the workshop with revised model, showing fluted panels and revised overhang position and no drawer 3 Oak planks being cut down on the tablesaw 4 Planed oak pieces being jointed using dominoes for alignment to make larger panels for gables and door 5 Finished oak panels before fluting 6 Fluting to full panel using the tablesaw. This was the initial detail prior to adding the breadboard ends to prevent warping 7 Cutting full length tenon ends on fluted panels to receive end pieces 8 Breadboard ends fitted to fluted panels. Note the shadow gap left to reflect the vertical grooves to the panel 9 Workshop-made corner clamps for keeping the carcass square during glue-up. These are very useful when building large pieces single-handed 10 Solid oak side gable with dominoes in ready to receive the intermediate shelf. Note the top header introduced to match revised detail of the breadboard ends on the adjacent fluted panels. Also note the blue masking tape to prevent squeeze-out glue staining the oak 11 Carcass construction detail showing the dominoes to receive the shelf 12 Carcass construction in progress on the workbench. The cupboard door is dry-fitted for square



Having already made a scale model, some of the construction detailing had been worked out. Initially the height of the unit allowed for three shelves, with a cupboard at one end and the side gable ends extending down to the floor. The carcass was to be of solid timber sides, top and shelving with a recessed oak veneered plywood back, all sitting on a solid oak subframe with solid oak stretchers mortised into chamfered feet.

The main carcass pieces were planed on one side and run through the thicknesser. As the unit was to be moved around I didn't want it to be too heavy. The top was therefore the same thickness as the shelving at 20mm. Consideration was given to providing intermediate supports to the shelving as they were to accommodate some heavy books, but I decided that one solution was to increase the thickness of the back and fix through into the shelves. The carcass and shelving was built using dominoes and glue.

One of my concerns at this point was that the shelves were only part of the depth of the unit. I had worked out from the model that if the whole carcass was made the width of the shelving and an oversized top put on, the structure would have been unstable. It was decided therefore to have full depth top and sides and reduce the depth of the shelving with the back being recessed in to accommodate the radiator. However, the low-level subframe could not have its rear stretcher running between the rear feet because of the radiator. The answer was to increase the thickness and therefore the rigidity of the two gables and for the back panelling to act as a restraint. This worked well.

It is vitally important when building a carcass unit without the back panel in to keep it perfectly square during the glue-up process. The nature of a glue-up is to clamp the components together, the very act of which can distort the whole unit. This process has to be considered well in advance to allow any bespoke jigs or packing pieces to be made. In this case I cut some MDF accurately into right-angled triangles and drilled two large holes in them with a Forstner bit to enable them to receive the head of a clamp. By clamping one at each corner it ensures it remains at 90°. It's a fairly simple, low-cost but effective way of keeping everything square.

I have also learned the hard way to take some time at this point and apply good quality masking tape along the line of the

joints of the timber. This allows any squeeze-out of the glue to be easily wiped off the tape, or even left on until the tape is removed, as opposed to wiping it into the grain of the oak.

FLUTED PANELS

My original thought for the panels was to cut the English oak into strips and fix them to a plywood oak backing panel. I had concerns regarding the fixings – and getting the spacing exactly right.

Any slight imperfection would be obvious to the eye. I also really wanted to have the grain pattern continuous across the panels, which would have been difficult to achieve using this method.

I decided after some deliberation and trial and error to make a solid oak panel and cut grooves at set centres. I experimented with many variations of width of slat and gap, and decided that the best effect was a narrow groove with a wider slat. This was best achieved on my tablesaw. A wider end strip was left at both sides of the panel, both for visual balance and in case any trimming was necessary. Initially the grooves were to run the full length of the panel and door. However, having cut the grooves, overnight the panels started to curl – something I should have considered.

The solution was to trim the top and bottom of the panels on the tablesaw, forming a tenon. I then grooved out two lengths of oak the same thickness as the panels and formed breadboard-style ends. This solved the problem of the curling and in fact turned out to be visually better and stronger, if a little time-consuming. This was done to all three panels, including the cupboard door.

TOP

The top was made from 20mm-thick solid oak. The design requirements for this part of the unit were to be visually appealing and hardwearing, allow ventilation and hot air flow from the radiator and be securely fixed, as it was likely that if the unit were moved it would be lifted by the top.

The decision to introduce some of the older, more figured oak worked well and added to the visual appearance. As to the air flow – I was laying the pieces of oak on the carcass to get an idea of the grain appearance and, in moving them around, I left a gap between them. I instantly liked this, photographed it and sent it to my client, who agreed. I just had to make it work.

Having used bow ties in the past – dovetail ties to restrict

13 Door fitting in progress. Cutting out for hinges **14** Cupboard door fitted. Note breadboard end visible with fluted door panel tenoned into top piece **15** Lower subframe in construction. Stretcher and foot joint detail **16** View of the dry shelf fitting and door fitting. I always use MDF spacers when fitting shelves. If cut accurately they are not only a simple and accurate way to get even spacing and eliminate human error with a tape measure, but also support both sides **17** Test cut for router template and guide bush to cut out for spacers to top **18** Actual cut to the solid oak top. Note the use of solid spacers to ensure even gap along the length of the top **19** Using a chisel to square off the ends of the router cut prior to fitting spacers **20** Using my vernier callipers to measure the width of the inset spacer accurately **21** Inset spacers being fitted. Note the masking tape used again to prevent squeeze-out glue stain. The spacers are left proud to be planed down. Also note here the continuous spacer timber along the length of the top to maintain an even gap during construction **22** After planing, I use a cabinet scraper to carefully flush off the top of the spacer. This gives more control than sanding where there are two different grain directions **23** Horizontal permanent oak spacers in position. Temporary spacers between the boards have now been removed as they are no longer required **24** Radius ends to the top to soften the appearance and be less vulnerable



25 View of the top with spacers, now fixed to the lower carcass **26** Nearly there! The finished piece during final sanding seen with the original model. Note the grain pattern visible flowing across the door – the effect made possible by grooving the panels as opposed to fixing strips to a backing panel **27** The finished unit with feet and the model on top **28** Oak top detail finished in hard wax oil and polished **29** Full length view of the oak top finished and polished, showing spacer detail and the gaps for ventilation **30** Finished door detail polished with leather handle **31** Completed unit showing medullary rays to the end gable beneath the overhang **32** View to the rear of the unit showing the fluted gable and the recess for the radiator **33** Overhang to the top finished with radiused ends and door detail **34** View showing the full length shelving and fluted end gable



splitting in lengths of timber – the thought occurred to me that in this case, rather than keeping the pieces together I was, in fact, keeping them apart. The necessity of the dovetail in a bow tie was removed, so I came up with the idea of spacers. I quite like honesty in design, so thought that rather than have the spacer hidden on the underside, I would make a feature of it.

A template was made and the sockets routed out using a straight bit and a router template with guide bush. The oak spacers were inserted and glued and left proud. I then planed them down using a low-angled block plane and used a cabinet scraper to get them smooth to the top.

The top now comprised three separate lengths jointed with the spacers. Each of the timbers was fixed separately to the base unit with slotted timber blocks to allow for movement. The blocks were set back from the front so as not to be visible. The overhanging end was curved.

BACK

The back was formed using 12mm-thick oak veneered ply. Consideration was given to using a solid oak panel here, but as it was immediately adjacent to a radiator the length of such a panel could give rise to problems. The plywood would be more resistant to movement and I decided to fix it in three separate panels, which gave a symmetrical appearance. The back was terminated at the level of the lowest shelf to allow air movement beneath. Detailing of the back of the unit is as important as the front, as it is possible in this case that if the unit is relocated it could be visible.

SUBFRAME

The lower subframe was made from solid English oak. The stretchers were machined down to suit and four feet were cut out of the same oak and chamfered to reduce the visual appearance. Mortises were cut on two sides on the front feet using a mortising machine and finished by hand chisel to receive the front and side stretchers. The oak stretchers were then cut to length and tenons formed to the ends, which sit in the mortises for a really strong joint. To the rear the feet were cut slightly differently to fix to the side gables as previously mentioned, as there is no rear stretcher.

The subframe was made as a separate component and then offered up to the carcass, fixed with a slotted screw to allow for movement. After fitting, traditional corner blocks were added for additional strength.

FINISH

The top and shelves were finished using a cabinet scraper and random orbital sander. This is a time-consuming but vital part of the build process and great care should be taken. The majority of this work had been done to the pieces as individual components before assembly, as it is easier than trying to sand in corners.

The fluted panels were finished in the same way, except the use of the tablesaw for forming the grooves had caused some burning. I managed to wrap some sandpaper around a correctly sized former and sanded the grooves individually.

The whole piece was then finished with a hard wax oil. I applied some additional polish to the top to achieve a slightly more finished appearance, as the light reflects off it.

I was unable to deliver this piece personally, but had a trusted courier take it 250 miles to its new home and a delighted client.

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THE CLAXTON STEVENS PRIZE

FERNANDA NUNEZ'S GUILLOCHÉ BEDSIDE TABLES WERE AWARDED THE PRESTIGIOUS PRIZE FROM THE FURNITURE MAKERS' COMPANY

The Furniture Makers' Company, the City of London livery company and charity for the furnishing industry, has awarded bespoke furniture maker Fernanda Nunez the prestigious Christopher Claxton Stevens Prize for her Guilloché bedside tables.

The Claxton Stevens Prize – the ultimate accolade for designer-makers – is presented annually to the most outstanding design awarded a Bespoke Guild Mark in the livery year.

The Guilloché bedside tables were the 476th design to be awarded a Bespoke Guild Mark in the award's long, prestigious history. The tables represent Fernanda's first self-designed project – an endeavour that took six months to complete and over 100 hours of extremely detailed carving and sanding work.

The design draws inspiration from a once much used but now almost forgotten decorative technique for engraving metals, the Guilloché, which creates an illusion of movement on the tables. The effect of the Guilloché pattern is enhanced by the pale

beauty of the maple, evoking the rising sun. It is framed by the dark silhouetted shape of the bamboo scaffolding, conceived to create contrast through its black stained legs and rails.

Fernanda was presented the prize by Alderman and Sheriff Alison Gowman, who was representing the Rt Hon The Lord Mayor, Alderman Vincent Keaveny, at the Installation Dinner of The Furniture Makers' Company's Master, Tony Attard OBE DL, on 9 May at Mansion House in London.

Daniel Hopwood, Bespoke Guild Mark chairman, said: 'We were delighted to award Fernanda Nunez the Claxton Stevens Prize for her Guilloché bedside tables. Not only are they well made, but they also offer interesting techniques in shaping the drawer fronts to create the illusion of movement, as well as being a thoughtful, useful design. This was an early project for Fernanda and we look forward to seeing what she makes next.'

Fernanda said: 'I am honoured to have been awarded the prestigious

Christopher Claxton Stevens Prize for the best Bespoke Guild Mark of 2021. This is both a wonderful recognition for all the meticulous work that went into making the Guilloché bedside tables and an affirmation to continue creating unique and bespoke pieces. I hope my work provides inspiration for younger designer-makers to push boundaries and aim for the highest standards.'

woodchuckchick.com
furnituremakers.org.uk



Fernanda Nunez (centre) with Alderman and Sheriff Alison Gowman (left) and Master Tony Attard (right)

PHOTOGRAPH COURTESY OF THE FURNITURE MAKERS' COMPANY

A TRIUMPHANT RETURN

THE 60TH EDITION OF THE **SALONE DEL MOBILE.MILANO** RETURNED AS A LIVE EVENT FOR THE FIRST TIME IN THREE YEARS



The Salone del Mobile.Milano, Italy's premier furniture exhibition, was held as a live event for the first time since the Covid-19 pandemic and celebrated its 60th edition in style. An attendance of 260,000 smashed expectations, proving the resilience of the design industry. The Salone took place over six days in June and showcased the work of over 2,000 brands, including 600 young designers.

ONGOING CREATIVITY

The Salone aimed to show how furniture design has changed in response to Covid. While most of us were 'locked down' at home for almost two years, the pandemic accelerated the evolution of design and furnishing. Spending so much time at home caused many people to reflect and reassess what they want from the space. These constraints have, as always, broadened and amplified designers' powers of creativity, giving them clear aims: to make the available space more comfortable, convivial and functional, be it indoor, outdoor, small or large. The upshot has been a wide range of design solutions and looks, from 'fluid' furnishing to a return to classic style, from a quest for naturally inspired purity and lightness to quite the opposite, architecturally inspired,

right up to a conscious reflection on retrieving artisan skills and techniques. This rediscovery of traditional skills reflects a desire to blend craftsmanship and industry. For many of today's designers, it is the quality of the materials, the attention to detail and the cleverness of the processes that count most.

Sustainability was also a key theme of this year's exhibition and a green, respectful approach to materials and the environment could be seen from designers across the board, a concern that was also reflected in the management of the event. The Design by Nature exhibit presented concrete and feasible solutions for sustainable design using recycled and natural materials. The SaloneSatellite exhibit focused on sustainable and inclusive design for the future, featuring work by 600 promising young design talents from 48 different countries.

Other zones of the show were dedicated to furniture for the bathroom, kitchen and workplace. As well as the in-person exhibits and talks, the show maintained an active digital presence via its website, app and various social media accounts.

The next Salone del Mobile.Milano will take place in April 2023. salonemilano.it

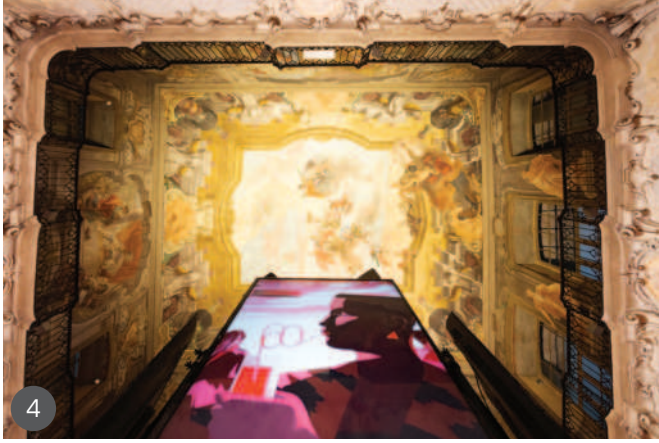
1, 2, 3 and 6 Designers from around the world exhibited their work 4 A party was held to celebrate the 60th edition of the Salone 5 Finnish designer Rasmus Palmgren exhibited his work at the Salone Satellite



PHOTOGRAPH BY ANDREA MARIANI



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MORTISE AND TENON JOINTS

RALPH LAUGHTON SHARES HIS TECHNIQUE FOR PERFECT JOINTS

The mortise and tenon joint, in all its various forms, is used more than all the other forms of joints grouped together. It can be an ultra-fine joint, used to assemble delicate fine furniture, or a massive lump of a joint in an oak-framed building. Regardless of size, it must be constructed with care if it is to be successful.

The techniques used to produce mortise and tenon joints are the same, whatever the scale – only the size of the tools will change. There are dozens, if not hundreds, of variations on the mortise and tenon, all with a common basic form: a cross-grain hole (mortise) into which a long-grain tongue (tenon) is inserted. The hole may go all the way through, or be ‘blind’; it may even be partially open at one end, in the case of a haunched tenon. A mortise completely open at one end has been known by many names – an open mortise or a slot mortise, to mention but two. I call it a bridle joint.

The tenon can be shouldered on one side (barefaced) or two sides, be reduced in width on one or both edges, have a step (haunch) formed in it to fit a groove or resist twisting, or be doubled or quadrupled. Whatever form the joint takes, the same basic cutting and fitting method applies.

PROPORTION

When the pieces to be joined are of equal thickness, the tenon (and therefore the mortise also) should be made one-third the thickness of the stock. Any wider than this, and the sides of the mortise will become too thin to support any sideways thrust of the tenon. Conversely, if the tenon is too thin there is a danger that it may break off at the shoulders when stressed.

When the mortise is to be cut into larger stock than the tenon, you can afford to make the tenon proportionally thicker, so long as the one-third rule is not broken in regard to the mortised component. Ideally, the width of a tenon should not exceed five times its thickness. If a wider joint is required, twin tenons are advisable.

The length of the tenon depends on the type of joint required, but in typical applications, a stopped mortise and tenon joint needs to penetrate the wood between half and two-thirds of its total depth, to maintain strength.

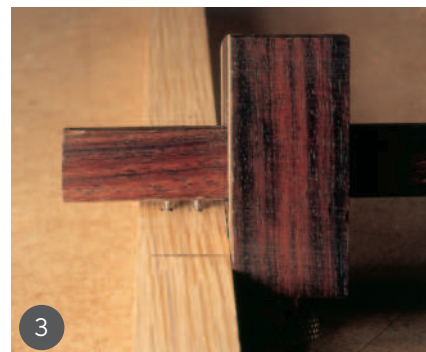
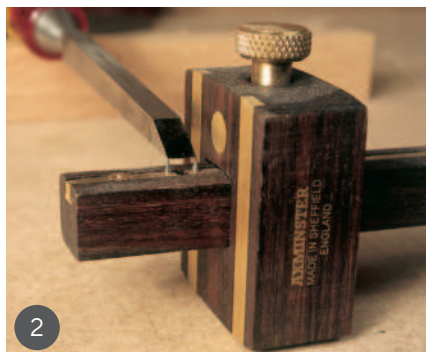
Following these rules of proportion is the ideal whenever possible, but it is not always feasible. If for some aesthetic or physical reason the recommended proportions cannot be adhered to, common sense must prevail.

MARKING AND CUTTING A STOPPED MORTISE

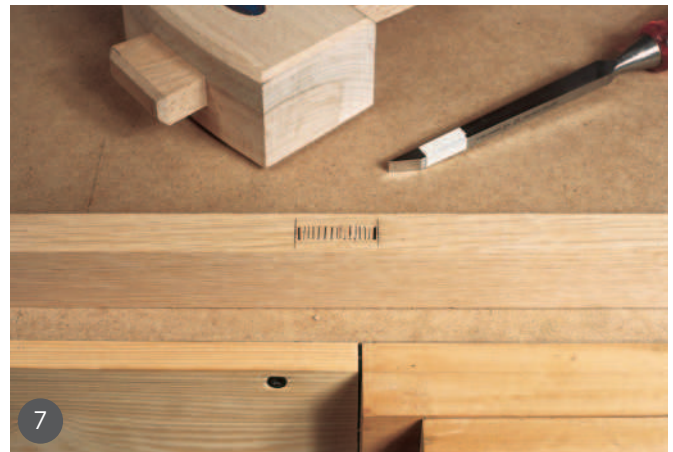
1 The first thing to do is to mark the position and length of the mortise, using a pencil and a square.

2 Select the mortise chisel that is closest to one third the width of the timber, and set the pins of your mortise gauge to the width of the chisel.

3 To centre the pins on the timber, set the stock of the gauge to where you judge the centre to be, and mark the timber from the face side. Then turn the mortise gauge around and mark from the other side. If the pins are centred, the marks will coincide. If not, adjust the stock of the gauge until they do.



STEP-BY-STEP PHOTOGRAPHS BY RALPH LAUGHTON



4 Once the mortise gauge has been centred on the stock, scribe a pair of lines to run between the pencil marks. Cut in the pencil lines with a knife to confirm the length of the mortise.

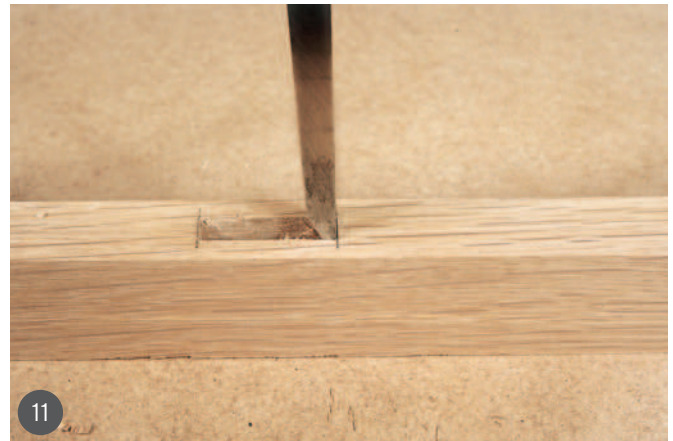
5 Mark the required depth of the mortise on the blade of the chisel using masking tape; allow a fraction extra for clearance beyond the end of the tenon.

6 Remove the waste material, starting in the middle of the mortise, by chopping small amounts of material at a time and moving back in stages towards the cut line. Stop short of the

line – the remaining waste will be removed in the final stages. Leaving it there until the bulk of the work is done will protect the edge of the mortise from being crushed as you lever out the cut waste.

7 Now turn the chisel round and repeat the same process for the other half of the mortise. Continue this process until the desired depth is accomplished.

8 The chopping action will tend to eject the chips as the chisel cuts deeper.



9 The remaining material is levered out.

10 Finish the mortise by smoothing the sides with a wide, sharp chisel.

11 Trim the ends back to the cut line with the mortise chisel.

12 Scrape the mortise chisel along the bottom to smooth out any remaining imperfections.

13 Here you can see the finished stopped mortise.

MARKING AND CUTTING THE TENON

14 Mark the position of the shoulders of the tenon with a pencil and square.

15 The points of the mortise gauge must be set to the same width as the mortise. Check that they are still centred – if the timber is the same dimension as that used for the mortise, they should be. Scribe a pair of lines around the end of the timber, from the shoulder line on one edge to the shoulder line on the other.



16



17



18

16 Use a marking knife to confirm the pencil lines. Hatch the waste with a soft pencil.

17 Set the timber in the vice at about 45° so that you can see the gauge lines on both side and end. Working on the waste side of the line, start to cut the cheeks of the tenon until you reach the shoulder line.

18 Then re-set the timber in the vice and cut down to the shoulder line on the other edge. It is best to use a backsaw with rip-set teeth. Take care not to overcut the shoulder, as any saw cuts that extend beyond the line will show when the joint is assembled.



19

19 Remove the timber from the vice and set it on the bench hook to cut the shoulders. Cut on the waste side of the line, this time using a crosscut backsaw. Once the cut has been started, drop the handle of the saw down until the blade is parallel and carefully cut down the shoulder line until the waste falls away. Square the shoulders down to the cut line using a chisel or shoulder plane.

20 The tenon cheeks are trimmed down to fit the mortise at the fitting stage.

Joints: A Woodworker's Guide by Ralph Laughton, GMC Publications, RRP £14.99, available online and from all good bookshops.



20

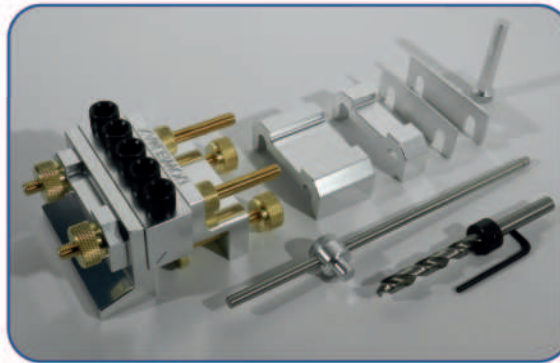


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THE ELASTIC CHAIR – PART 1

FRANCESCO CREMONINI BEGINS WORK ON A SET OF DINING CHAIRS THAT HAVE A SUPPORTING STRUCTURE IN SOLID WOOD AND CURVED VENEERED LAMINATIONS

Of all the furniture that can be built, the chair, especially if it has to be under a dining table, presents a unique challenge. It is not enough that it is sturdy, not too heavy and looks beautiful, it also needs to be comfortable and respect precise ergonomic criteria to allow the user to assume a correct posture. Even if you follow the design of one of the many models found on the internet, you still need to make sure that the chair you make does not force you to leave the table to stretch soon after sitting down. For this project, I chose to make the Rank chair by international furniture brand Sixay. However, I still needed to make a full-scale prototype to try out its comfort.

THE DESIGN

The Rank chair has an unusual structure, consisting of a solid wood base and two curved laminations that make up the seat and back of the chair. Flexible 5mm plywood (single layer for the seat, double layer for the backrest) provides the substrate on which the lamination veneer is applied. The seat sits on the structure formed by the crosspieces and is glued to it along the entire perimeter, the backrest is instead screwed to the rear crosspiece by means of two turned nut screws whose largest diameter is left visible. This type of fastening and, above all, the way in which the back is made, give an uncommon flexibility to this fundamental

part of the chair, which thus manages to accommodate the movements of the torso of those who are seated. The curves of the seat and back give support to the thighs and lumbar area of the diner. The elements that make up the base are joined together by means of inserted tenons; those placed in the straight crosspieces are arranged to intersect the tenons of the sides, a feature that guarantees the strength of the joints over time and makes the use of reinforcements at the corners of the frame superfluous. The fixing of the front crosspiece also makes use of an 8mm pin which compensates for the absence, for reasons of space, of a second tenon.

YOU WILL NEED

Materials (for one chair):

- 2 flexible plywood sheets: 65 x 40 x 5mm
- 1 sheet of flexible plywood: 50 x 45 x 5mm
- 10/10 120 x 45mm veneer
- 1 solid wood board: 850 x 360 x 40mm

Equipment:

- Bandsaw
- Planer/thicknesser
- Squaring machine
- Router table
- Domino
- Milling machine
- Pillar drill
- Vacuum press
- Airbrush

THE PROTOTYPES

With the simplest projects only one prototype is needed, but for this chair I made two: the first, assembled with some pins, was used to confirm the shapes and sizes of the individual parts as well as to calibrate the height and inclination of the seat based on the posture that the chair should have assumed.

With the second prototype, which used the various templates prepared for the first, I defined the final construction of the joints and, more generally, the assembly of the parts.

To obtain the first prototype I shaped the elements of the base one by one and only joined them together afterwards – this way of working is good if you are making a single piece, but exposes several errors when working on a batch of products: tightening the shaped parts of the sides when they are difficult to fit between the clamps does not guarantee the final uniformity of the arches.

Considering that in my case I needed to make a total of 16 chairs, and that, hopefully, they should come out identical, I decided to change direction with the second prototype by assembling three square pieces for each side and then shaping the entire arch in a single process. Although the second technique required greater attention in positioning the joints, the results obtained were better for mass production.





- 1 The templates were cut out using a bandsaw with a narrow blade 2 The templates were then joined together to form the arch
3 I trusted the router table to help me get an accurate edge 4 & 5 The bandsaw is an essential machine in mass-production projects like this
6 A stop at the end of the cut helped establish the position of the strips for making the ribs

THE BASIC TEMPLATES

To start, I printed out the designs of the required parts (the front leg, back leg and curved crosspiece) at full scale. These drawings were stuck on the wood and cut out with a small bandsaw equipped with a narrow blade; with this equipment it was possible to follow the lines with a continuous cut and therefore limit imperfections. In a mass-production project like this it's essential to obtain the exact shapes at this stage, so you don't have to correct lots of thicker pieces later on.

The different templates were then joined together to obtain the final shape of the entire arch from a sheet of MDF. The shapes were fixed to the MDF with

nails. I then moved to the router table to create an accurate edge.

THE SIDES

In mass-production construction like this, the work proceeds in blocks and the phases, at least initially, can take a long time. Sixty-four pieces were needed to make the bases of eight chairs; these needed to be cut out of rough boards and then planed, squared and cut. Just saying this, however, does not convey the idea of the amount of work that needs to be done before being able to fit them together.

No machine can replace the bandsaw in mass-production projects of this type. Each piece must be partitioned into many smaller pieces, and being able to include

or re-use the waste material is essential if the timber is valuable. In this case, some crossbars of the structure could be obtained from the leftovers from the thickness cut.

THE SEAT AND BACKREST

For the lamination of the seat and backrest with the vacuum press, two shapes were required. They were obtained by combining two pieces of 25mm ribs (17 for the seat and 15 for the back) with the same profile. To obtain these pieces, I initially followed the same process used previously (attaching the drawing to a thin base, then cutting and shaping by hand) which produced the two shapes.





7 The ribs could then be traced ... 8 ... ready for shaping 9 ... and then cutting the profile 10 The ribs could then be grouped and assembled for the seats and backrests 11 Each piece was marked to avoid confusion 12 & 13 With the template arranged on the wood, I transferred and marked where the ends would later be and then cut them on the mitre saw 14 & 15 The back legs required a precise cut which was best done on the bench saw; the pieces moved on a jig that presented them angled to the blade as it slid along the parallel fence of the machine 16 & 17 The frames had to be shaped after assembly and the joints needed be placed at specific points. To mark the centres quickly and accurately, I prepared two templates. The one you see used on the right in photo 16 allowed me to trace both holes required by the joint with a single positioning along the back leg

These profiles were then replicated on the opposite edges of a fairly wide piece which was used to create a routing template. A stop, screwed to it at the end of the cut, established the position of the strips from which the ribs were obtained and first allowed them to be traced for the following shaping and then to fix them with toggle clamps for cutting the profile. A base of adequate size with the stops screwed to it subsequently allowed the ribs to be grouped and clamped to assemble the shapes for the backrests and seats.

PREPARING THE TIMBER

With the prototypes and templates made, I could start working with the solid wood. Making the most of expensive wood can be a time-consuming process in itself. Just examining the wood and working out how to limit waste and how to reserve the best parts for the pieces that will be exposed to view can take more than a day. Of course, this depends on how much time you want to invest in production and how much you want to distinguish your work from industrially-made furniture; as usual, it's the detail that makes the difference.

As there are so many pieces, and many of them are a similar size, it was essential to mark each one before beginning any further work. I then prepared all the pieces with a couple of centimetres of margin on the final length. On three of

the shapes (the front leg, back leg and side crossbar), I centred the respective templates in order to determine the angles at which to cut off the ends to prepare them for the subsequent joining work. The cut on the back leg needed to be more precise and had to be done with the bench saw; the others could all be cut with the mitre saw.

MAKING THE JOINTS

The joints between the three components of the frames, as well as those with the front and rear crosspieces, which were made later, had to ensure the precise alignment of the pieces and the rigidity of the structure. Given the considerable number of joints, they also had to be quick to make. Therefore, the best way to make the joints was to use a Domino jointing machine and join the parts with inserted tenons. However, there was some preliminary work to be done.

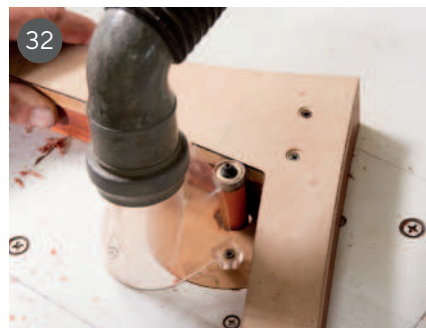
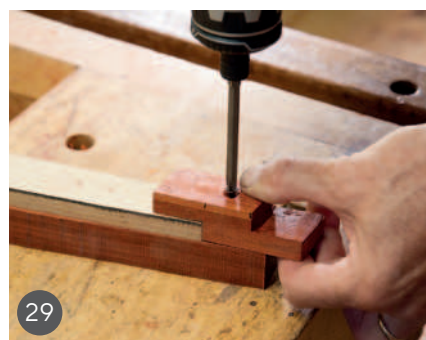
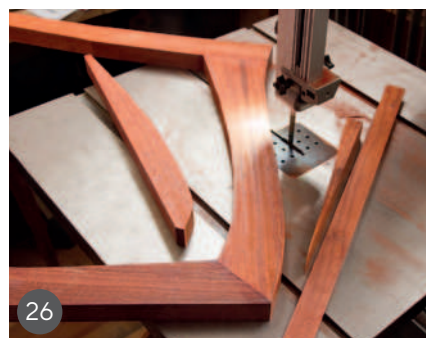
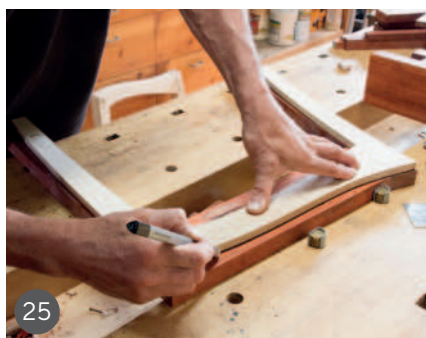
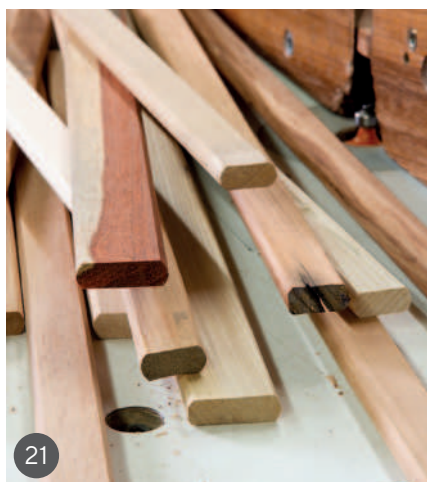
The precise shape of the pieces and the unusual angles with which they were joined meant the joints needed to be placed in precise positions, and as the sides would subsequently be shaped this did not allow the use of stops on the power tool. It was therefore necessary to trace and mark each piece in advance and cut the joints to the mark; doing this without making any mistakes or taking a lifetime would be impossible, so I used two templates.

CUSTOM-MADE TENONS

Although Domino dowels are available in different sizes, because I needed to obtain maximum strength and at the same time maintain adequate margins with respect to the final contour of the sides, I needed custom-made tenons. I made these from strips cut on the router table with a quarter-circle cutter; each piece was 10mm thick, and I needed two widths, 23 and 33mm, and two lengths, 45 and 50mm. By increasing the thickness by one or two tenths and squeezing the tenons in an iron vice immediately before gluing them, maximum tightness was ensured (the plug swells due to the moisture of the glue) and they could be easily inserted into the mortises.

SHAPING THE SIDES

Once all the sides had been glued together, I could start shaping them. The work was divided in half, between the bandsaw with which the shape was quickly cut out and the router table with which it was finished. The arch shape was determined by the MDF template created earlier. When it was used to trace the contours to be cut on the bandsaw, I paid particular attention to the template's alignment: the seam lines marked on the template had to coincide with those between the pieces on the sides. It would be horrible at the end of the work to see the consecutive parts





18–20 Jointing on the marks was achieved by using a work surface with stops and repositionable clamps. The pieces could be locked in pre-set positions and worked in pairs to increase the support surface and make the work faster **21 & 22** Both the jointing and the subsequent gluing of the pieces were mass-production operations that were standardised by arranging the worktop with stops and clamps arranged ad hoc. This made the work more precise and efficient and nothing was left to chance **23 & 24** To maximise the tightness of the joints, the glue was applied to all surfaces in contact inside the mortise, on the tenons and on the heads of the two pieces. In photo 24 you can see the wedge that restored the parallelism of the narrow surfaces between the clamps **25 & 26** After using the template to trace the sides, I quickly achieved the final shape by removing the bulk of the scrap on the bandsaw, keeping 2–3mm from the mark **27–29** The screw fixing of the pattern template affects the points where the holes for joining the front and rear crosspieces will be made. In photo 27, the side of the prototype provides the reference for establishing in which points to cut the shape, and in photo 29 you can see the lower fixing that uses a clamp and the extra length of the legs **30–32** Routing shapes produces lots of chips but installing a swivelling extraction hood can help to deal with this **33 & 34** The front crosspiece was trimmed on the upper edge at about 15°. This angle allowed the section of the piece to approximate the shape of the side at the junction between the front leg and the lateral crosspiece **35** The template for joining the rear cross member. On the side placed in the vice you can see the holes produced by the screws in the previous processing step; the tenons for the connection with the crossbeams were later inserted in those points

converge on an imaginary line that falls elsewhere than the actual join; basically, the eye should not perceive the side as if it had been cut out of a large panel but single shaped parts that, when joined, portray the final shape.

Once the contouring work was completed, the template was fixed on the sides so that it could guide the cutter on the router table. If you are working on a single piece, you can do that without deliberating on a removable fastening system that does not leave marks, using double-sided tape for example. However, in mass production this way of working would be inefficient and would soon become a nightmare. The clamping should take place on a large part of the perimeter and the metres of tape to peel, attach and detach repeatedly would be time-consuming. I developed a screw fixing system capable of fixing the template to the lower ends of the legs, which were left longer on purpose, and exploiting the positions of the joints not yet made to lock it at the top. The screws utilise the same points where the holes for the junction of the remaining crossbars of the frame will be made.

PROFILING WITHOUT SHAVINGS

Even with a minimal excess when roughing the shape, inevitably, routing shapes produces avalanches of chips. The extraction hoods that are usually used on router tables cannot be mounted, due to the obstacle that they would give while shaping the pieces. To overcome this problem, you can assemble a swivelling extraction hood using the circular inserts that come with almost all the insert plates for router tables. First you need to provide a minimum clearance between the seat and the insert and then screw one of the many commercial hoods on to it. A sleeve that allows the cap to rotate and a semi-rigid corrugated tube for connection to the shop vac will complete the retrofit. In use, the workpiece itself will orient the cap.

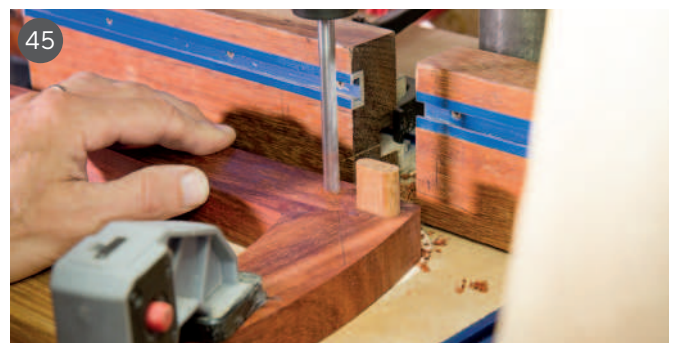
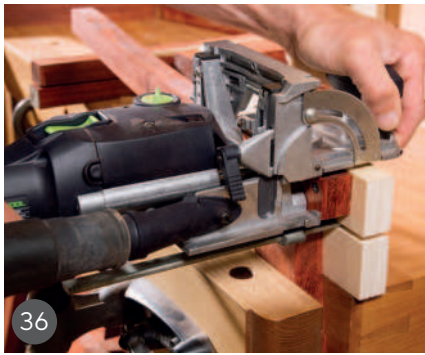
ASSEMBLING THE BASE

Once all the sides had been prepared, the work continued with the joints for the two crosspieces that complete the base of the chair, namely the front and the rear one. The main system was the same, with added tenons, to which an

8mm pin was added for the front joints. However, the real difference with respect to what had been done previously lay in the lack of straight surfaces on which to rest the Domino's folding guide when drilling the sides.

To guarantee a stable support it was necessary to make two more templates; equipping them with a stop that allowed them to always be positioned in the same way with respect to the sides and tracing the centres for the holes on them made it possible for me to use the Domino jointer without difficulties.

The template for joining the rear cross member was a plate in HPL laminate on which the references for the holes were shown (the first two lines on the right for the holes on the left sides, the other two for the right ones). The piece of plywood to which the plate was screwed, was equipped with a stop that allowed the template to be always centred in the same way, and its slots allowed the passage of the bars of the clamps for fixing to the sides. When alternating the holes on the left sides with those on the right sides, the stop was repositioned on the opposite side of the plywood.





36–38 The rear holes were made with the Domino jointer and template and side held in the vice **39 & 40** The structure of the template for the front was basically the same, the convex shape of the leg needed a wedge to be able to orient the plate correctly and to shape the stop to accommodate the profile of the surface against which it stops **41 & 42** The two templates made it easy to transfer the references for drilling the crosspieces. To ensure adequate support to the boring machine stop, when machining the front crosspieces, the pieces were doubled **43 & 44** The hole for the plug was drilled on the front crosspieces with a horizontal drilling machine, then with a marker, the centre was transferred to the sides **45 & 46** The side was drilled with a pillar drill, then the crosspiece could be assembled with the side **47** Attention to detail: the angle of the lower edge of the crosspiece complements the profile of the lateral crosspiece **48** The bases of the chairs were now complete. Next to them, the prototype highlights the many steps still to be taken to finish the project!

The template and the side were lowered into the vice until the plywood block rested on the bench. In this way the Domino jointer could be stable with its folding stop resting on the HPL plate. The choice of this material was not accidental – the plate had to be rigid but also as thin as possible in order not to limit the height of the cutting. In fact, the angular stop is positioned at the maximum distance from the tip (30mm).

The design of the two templates was essentially the same: the one used on the front part of the sides, however, incorporated a shaped stop, which reproduced the end of the leg in negative, and a wedge that arranged

the plate at the right angle with respect to the surface on which it was resting. In addition to providing a stable base and the necessary visual references, the two templates also made it possible to transfer the positions to the crosspieces, pieces that are cut regularly by working on the bench top.

Fixing the front crosspiece also required a pin to make up for the absence of a second tenon. The procedure for inserting it was not complicated but required a horizontal drilling machine or a guide for the drill to guarantee the perfect perpendicularity of the drilling with respect to the heads of the crosspiece.

Once the hole had been made, a marker for pins was inserted inside it, then the side was prepared with a tenon and the parts were joined to bring the centre back to the side itself. The work was then completed with a pillar drill.

The last job to be done before assembling the bases had only an aesthetic value and concerned the lower edge of the rear crosspiece; trimming it at an angle of about 40° visually complemented the line of the lateral crosspiece.

The bases of the chairs could now be finished, a time-consuming task that will be described in the next issue of *F&C*, together with the final assembly and production of the seats and backrests.



WINDING STICKS

MICHAEL T COLLINS EXPLAINS HOW TO MAKE AND USE THESE HANDY TOOLS

For most of us, if we are presented with a piece of wood we can sight down its length and easily see any twisting or cupping – I am forever doing this at the big box stores when looking for the straightest boards. But when we have rough-sawn long boards it is not so easy to do, as they are generally unwieldy.

Winding sticks are used to amplify the twist or wind in a board. In this article I will take you through the steps of making a pair out of straight-grained wood. I have a pair made of mahogany that are at least 100 years old. Having just finished a vanity top in walnut, I thought the offcuts would make a nice pair, but any hardwood will work.

MAKING WINDING STICKS

1 Take a piece of wood that is 450 x 50 x 30mm and on one end mark a diagonal 15mm from one side to 15mm from the other side. We are going to be making a pair, both tapered, and I find that having a slightly wider bottom makes for a more stable tool that's less prone to toppling over.

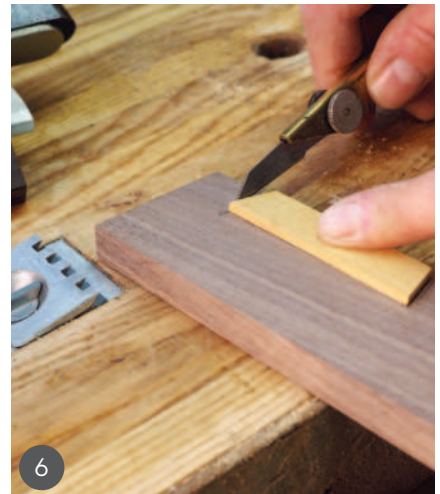
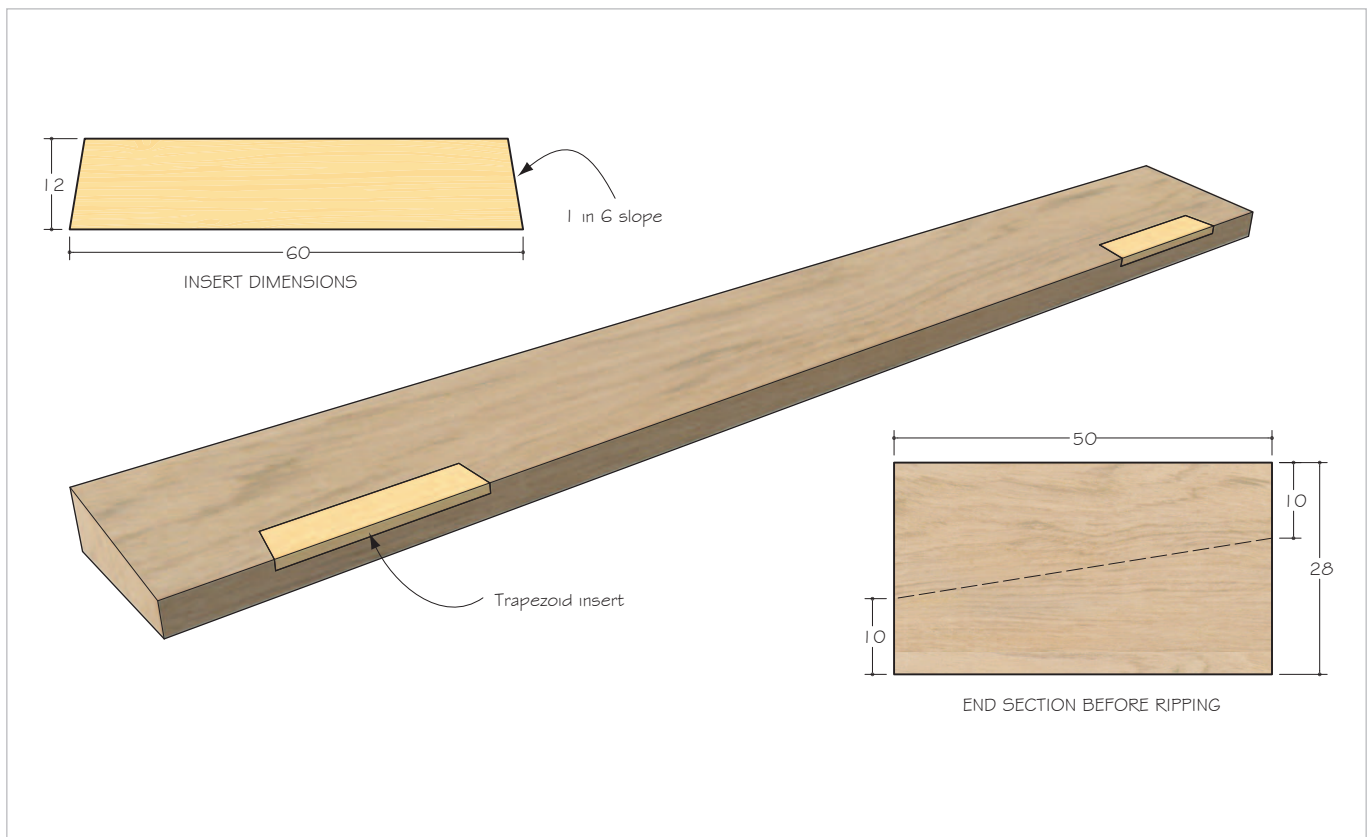
2 Join these lines together and proceed to rip the piece in two – try to split the line so that each half is almost identical in size.

3 Clean up the saw cuts with a jack plane, adding the sighting markers. Sight marks are a visual aid that emphasises the amount of wind in a board. It's a good idea to have a contrasting colour for these. On one of the sloping edges mark a 3 x 3mm rebate – this is going to house a darker wood (purpleheart) inset into a full-length rebate.

4 Scribe the location, then plane using a combination plane. Glue the inlay into the rebate and hold in place with masking tape. It's a good idea to make one stick in a dark colour and one in a lighter-coloured wood. If you want a really dark wood, you can try ebonising it. Here, I am using yellow heartwood, which will contrast nicely with the purpleheart.

5 Cut the lighter wood to the required shape. Here I cut them into trapezoids 12mm deep with a base 60mm long and 3mm thick. The slope edge was 1:6. I used a makeshift mitre box to cut the angle.

6 On the slope side, position the inlay pieces about 20mm in from the ends, and scribe around the inlay. You have now outlined the section that needs to be removed.



7 Make some relief cuts with a chisel and pare away the waste.

8 Set the depth of the router plane cutter just a hair under the inlay's thickness.

9 Finish off the removal of the waste with the router plane.

10 Glue the inlay in place.

11 Finally, plane the winding sticks so that the inlaid pieces are flush. You now have a pair of winding sticks that will serve you for many years, and no doubt last 100.

HOW TO USE THE WINDING STICKS

Now let's put the winding sticks to good use. In my stack of wood, I have many nice pieces that one day will be incorporated into a fine piece of furniture, but I also have several pieces that are equally nice, but due to poor storage have either twisted, cupped or warped. A beginner woodworker might be tempted to consign these pieces to the burning pile. But wait, not so fast! This is where our new pair of winding sticks comes in. The first step is to realise that one of the aims, when preparing wood, is to get the most useable wood out of a board.

It often pays to cut long and wide boards into more manageable sizes. Doing this will invariably remove some of the issues – for example, a board that is bowed along its length can be cut into smaller lengths with less bow.

So, let's look at a simple issue – a twisted board. Just a word of caution, this process works well on well-seasoned boards – if they are not seasoned there may be movement after the process and it will need to be done again.

12 Start by placing the winding sticks as shown here. You can clearly see that there is significant twist. Start by flattening one edge. If there is a bow, snap a chalk line the length of the board so that any bow in the edge is eliminated.

13 With a jointer plane, bring the edge down to this line and mark it as the face edge. Next work on one of the faces. If the board is cupped, place it so the convex side is uppermost – the board is more stable this way. If the board rocks, place small wedges under it to keep it steady.

14 Using a shoulder or combination plane, create a shoulder at both ends of the board to a depth that just clears any cup across the board and bow over the length. The shoulders must be at right angles to the newly planed face edge. Now take your winding sticks and place them, centred, in the shoulders

you have just created. Sight down the board. If a winding stick marker at the far end is occluded, adjust the rebate until you have the winding stick parallel. Once the winding sticks are parallel, snap a chalk line the length of the board on each edge from one shoulder to the other. Plane each rebate slightly lower if the snap line does not lie within the board's entire length. The idea is to have the two flat areas and the snap lines be co-planar and at right angles to the face edge.

15 Use a scrub plane (or smoother with a cambered blade) and work diagonally across the board (from the planed edge), bringing the surface down to the snap lines. It's a good idea to chamfer the exit side of the board so that tear-out is minimised, especially with a scrub plane that has an aggressive bite. Once the board is brought down to the snap line you can switch to a jack plane. Work in the opposite direction diagonally across the board – I skew the plane slightly so it slices across the fibres.

16 Check for flatness using the edge of the plane's sole. Finally, end with a jointer, planing down the length of the board. The jointer will bring the ridges down with each successive pass – once the plane is removing continuous shavings, stop. Check that this face is at 90° to the face edge and mark this as the face side.

17 From this newly planed face side, using a marking gauge, set the thickest dimension that can be accommodated in the board and deeply mark the thickness of the wood on all edges.

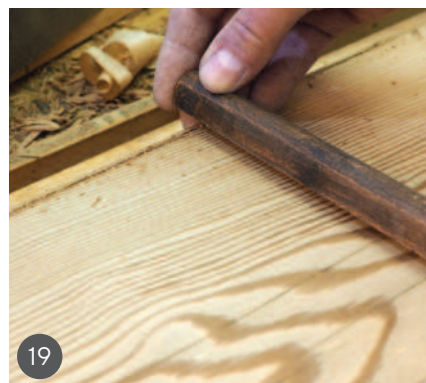
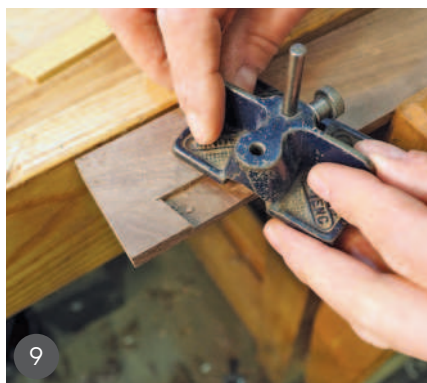
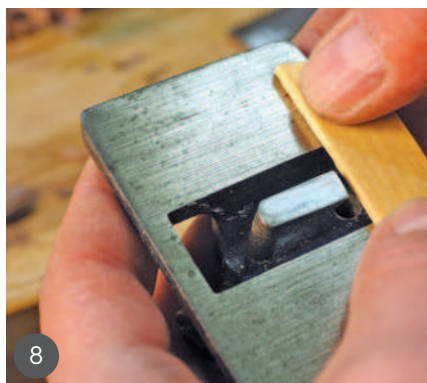
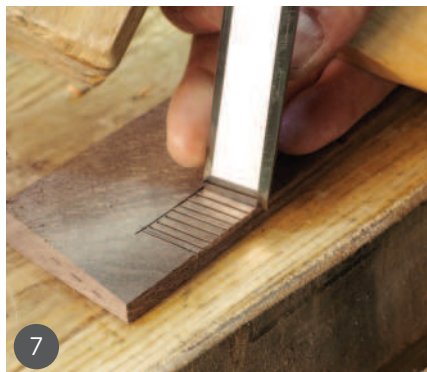
18 Repeat the planing regime on the opposite face. The gauge line will act as a stop and will be revealed as you plane down to it. A pencil line would be missed. Check for squareness.

19 Lastly, from the face edge, with a marking gauge or combination square, gauge the width of the widest board that will fit the entire length of the board ...

20 ... and plane down to this line.

21 You should now have a board that has a uniform thickness and is square. Once you have finished this process, sticker the boards and set them aside. If you have to remove a lot of wood, you may want to bring the boards to final dimension in two or more stages, as the wood may relax as you start to reveal wood with a higher moisture content.

So in future, don't get in a twist about warped boards, just reach for your winding sticks and straighten them.





MAKE MY DAY

BASED IN SOUTH-WESTERN AUSTRALIA, **NATHAN DAY** FOUGHT THE ODDS AND A TRICKY START TO BUILD A THRIVING BUSINESS INSPIRED BY THE INTEGRITY OF THE ENGLISH ARTS & CRAFTS MOVEMENT

Where are you based and how did you come to be there?

I live in the small coastal town of Dunsborough, in the south west of Western Australia. I was born in New Zealand but moved to Australia with my parents when I was six weeks old. I've lived in the south west my whole life, apart from a couple of years overseas. It's an absolutely beautiful part of the world. I grew up here and my daughters are lucky to be growing up here.

How did you first get interested in furniture making?

My interest started when I was 15 and started doing woodwork at high school. When I graduated I had been accepted into Fine Art at university, but my dad, who came from a trade background, didn't see how that was going to translate into an income that would support a family, so he asked a local furniture maker if he'd give me a job. I became an assistant to a team of furniture makers in Yallingup, and it ended up being my dream job.

How did you train?

I started out on basic tasks assisting the tradesmen, helping and observing. I made a lot of breadboards and other small items, mainly in [Australian hardwood] jarrah, that were sold in the gallery attached to the workshop. This progressed to bedside tables, consoles, desks and beds. After 15 months I was offered a formal apprenticeship in another workshop. The workshop was leading the way in technicality and design in Western Australia, and I was very excited to take my skills to a new level. The work was inspiring and we were sending 90% of it overseas.

After I completed my apprenticeship I was very interested in the work coming out of England, in particular John Makepeace's

workshop. I knew I needed more training, as I'd look at John's work and had no idea how I'd go about making it. That used to drive me crazy. So I went to find out – I travelled to England and rocked up at his house with a portfolio. My plan was to ask him for a job, but I chickened out and left without asking. I did end up sending him my portfolio and enquired about training. He turned me down, but gave me a couple of other avenues I could pursue. Thankfully the Edward Barnsley workshop offered me a traineeship, which turned out to be a career-inspiring experience and one that I'll be forever grateful for.

What was the first project you completed?

Not officially the first, but the one that was the catalyst for Nathan Day Design actually getting off the ground in 2010 was a Barnsley-inspired dining table and six chairs. I swapped it for a Felder full combination machine. If it wasn't for that stroke of luck and my client's generosity, I'm not sure how I would have done it. It took me three months to build and I was extremely broke afterwards, but thankfully they ordered two extra chairs which they paid for, and a beautiful West Australian sheoak console table to accompany it. That tided me over until I could book another job.

What made you decide to set up your own furniture business?

I always wanted to run my own business, and ever since my first job, I only ever wanted to design and make furniture. My focus early on was developing my skills as a maker: I needed to know how to make things and to make them properly. Once I had confidence in my ability to make things well, the next step was to start designing and start my business.



PHOTOGRAPHS UNLESS STATED: NATHAN DAY

How did you go about it?

Starting a business was tough. When I got back from England I rented workshop space with another furniture maker in Yallingup and started building a collection of products using various techniques and showcasing skills I had learned at the Barnsley workshop. This was in 2007-2008, right at the start of the global financial crisis. I had no contacts, so was just building pieces and putting them in the showroom at the front of the workshop, and after a few months I had pieces in some other local galleries – but neither avenue proved successful. I struggled for 12 months to even sell a single piece, and after a year I pulled the pin. I couldn't afford to keep going and was forced to get a job. I went into hospitality for a couple of years but was still determined to one day run a successful furniture business. After two years working in a local brewery, I pretty much begged my parents to let me set up a workshop in their garage. They backed me and moved their cars out into the weather. That was the start of Nathan Day Design. I set up in a 36 sq m garage in Yallingup in 2010.

Tell us about your current workshop.

It's kind of crazy how it came about, but the shortened version is that four years ago by some miracle we convinced one of Australia's large banks to buy us an industrial property and build us a workshop. The property is 1,400 sq m and the workshop is 400 sq m. We moved from a cramped 150 sq m in the back of a winery storage shed, so initially I thought I had all the room in the world, but the space did fill up and there's been many times over the past few years where it seems cramped and inefficient. But I can't see myself moving for a while yet.

It's a great workshop, with 6m ceilings and large doors on the north, south and east sides. It has great light and very good cross-ventilation. We have quite a traditional set of timber processing machinery, but it's been set up so we can do virtually everything in-house. New additions have come as the business would allow. We have a Martin planer and thicknesser which I'm very proud of. We have a new Format panelsaw, with dual tilt, an absolute game-changer for the workshop. It takes a D550 blade with cutting height of over 200mm. It's a beast and demands respect! We've got another Felder panelsaw and spindle moulder, and a stand-alone spindle moulder. The spindles get very well used. A membrane table press for veering and some custom vinyl bags which we can press up to 5m length in. We've got an old Wadkin radial armsaw which I love. It cost me AU\$400 and we use it every day for breaking down long lengths of timber. We have a resaw bandsaw for cutting our own thick veneer and we have a 1,350mm SCM wide-belt sander. I'm pretty stoked with the set-up we have. I've been working towards having a workshop like this for a long time.

Tell us about how you work.

The business is quite unique, at least here in Australia. I made a rule early on that I would only build what I had also designed, and it has proven to be really successful. We do private residential work as well as large-scale corporate commissions, but it is all custom-designed loose furniture. We also have some exclusive product ranges which we sell through select

retail outlets across Australia. We cover the full spectrum of furniture: dining tables, chairs, stools, beds, desks, coffee tables and credenzas. We make boardroom tables, meeting tables and outdoor tables and have a steam-bent twisted pendant light that we developed in collaboration with an architectural office in Perth, which was designed and made exclusively for one of their premium apartment complexes.

The majority of our work is made on machines, but everything is hand-sanded and detailed. Most of my hand tools I collected when I was in England. I've got a very nice set of tools, but my favourite is my Lie-Nielsen N°7. I'm still amazed at the level of perfection you can achieve with that plane when it is well tuned. I also really love my long-handled, Japanese paring chisels. The 25mm one gets the most use. I've got two beautiful Lie-Nielsen bronze spokeshaves which I love, and a couple of Auriou rasps that are the best. My love for rasps goes back to the time when I was making breadboards, straight out of high school. I've always loved shaping timber with a rasp and how the cut can be super aggressive or beautifully fine, depending on how you're holding it.

Are there any tools you avoid?

I only buy tools that I know I'll use. It's tempting – try not buying all of the Woodpecker tools, it's hard! But that's the difference between furniture as a business and woodwork as a hobby. In business you only buy what contributes to efficiency in your work or adds value. I did impulse-buy a beautiful roll of Japanese chisels recently though. I couldn't help myself. I found them on eBay and had to have them. Unfortunately they are under-used, mainly because I pretty much live on the computer rather than at the bench.

Which woods do you most like working with?

We use mostly American oak and walnut, classic hardwoods that sell themselves. I'm very fond of European oak as well, and we are starting to use more of that. There is a local timber company that is bringing in whole boules of French oak, which I'm always excited to use. We also use Tasmanian oak and blackwood, which is a rich and beautiful timber. We also use quite a bit of jarrah, or red gold as it is affectionately known here.

We specialise in ebonising timber, using the traditional iron acetate formula to blacken mainly walnut and jarrah. Some purists think we are crazy to ebonise such precious timbers, but the finish is absolutely delightful and truly unique. We've made more pieces in ebonised walnut over the past 12 months than any other timber or finish.

What sort of finishes do you prefer?

My favourite finish is hard wax oil. We've developed our application over many years, and it's been a tricky one to master. Traditionally solid timber furniture in the south west is lacquered, and that's how I learned to finish wood, with many thick coats of glossy lacquer. It's horrible! There's no place for that in my workshop. I prefer a hand-rubbed oil finish. If we do lacquer – and we do, mostly in a commercial setting – we limit it to two coats so the grain is still open, and we use a low gloss. It's actually a really nice, natural-looking finish, and I do appreciate the durability of lacquer.



What inspires you?

My main inspiration has always been from the Barnsley workshop and the story of the English Arts & Crafts movement. Once you've heard the story and had the opportunity to live it, if only for a short time, it's hard to get over. We are guided by the principles of the English Arts & Crafts traditions, where furniture was created with integrity by skilled craftsmen – it's as simple as that. Our work is built with integrity on every level.

I've still got books full of sketches from my time at the Barnsley workshop, and many pieces have been realised. I still just love woodworking – it's easy to see why millions of people do it as a hobby. I love joinery, I try and incorporate new techniques in my work whenever I can. There are still so many techniques I haven't tried. I'm 25 years in and there are still many avenues that need exploring. That's the exciting bit. And the ideas never run out.

How does your design process work?

When I've been commissioned by a client there is normally a brief involved. This is used as a guide or direction for the design. I really value this type of work, as it often involves being challenged or pushed in a different direction or being asked to do something I haven't done before, so it's exciting. If I'm designing a collection of products, I'll be looking for a broader concept. As an example, I did a collection a couple of years ago called the Quarterlight. It was a collection of tables with the leg shape based on the shape of the quarterlight window in the old Volkswagen Kombi camper vans. My wife's grandfather was one of the original designers and

engineers of the quarterlight window, and I lived in a Kombi when my parents moved out to Australia from New Zealand in the early 1980s, so there was a nice personal synergy with that collection.

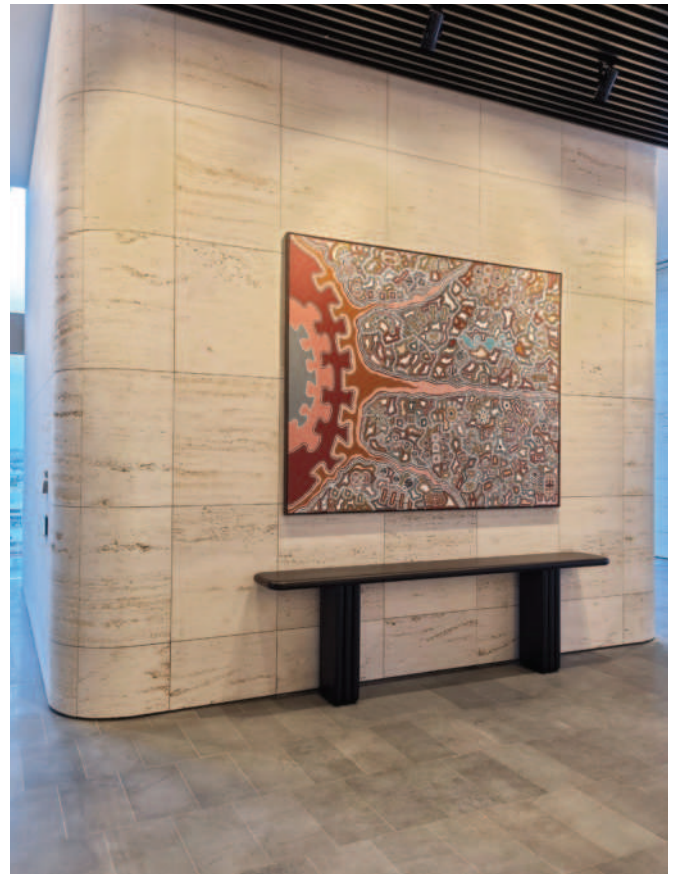
What is your favourite project you have worked on?

We have just finished an unbelievable project for [mining services company] Mineral Resources' new head office in Perth. We worked in collaboration with architectural designers Milieu Creative to create a collection of pieces for the executive area, all custom-designed and handcrafted in premium ebonised walnut. We made the chief executive's desk, a 5m meeting table and a coffee table. The desk had 180mm-thick solid travertine ends, with a hand-chiselled face. It was built from a single walnut log purchased especially for the job. Another beautiful detail was the hide leather worksurface, which rolled seamlessly over the front edge. We made a 7m boardroom table with a top that projected 1.5m beyond the base at each end, a beautiful 4.3m ebonised walnut credenza with a honed stone inlaid top, a boardroom lounge coffee table, a 5 x 1.8m credenza in the boardroom that housed Australia's first C Seed television. We did two sculptural console tables for the reception area all out of chunky 75mm walnut, and we made all the art frames for their private collection, all in the same beautiful ebonised walnut finish.

The same project was my most challenging one, because the scale of the job, the level of technicality in each piece and the level of finish really tested us. It took the collective knowledge and skill of our entire team to realise this project, which took place between June 2021 and June 2022. Even the install was



PHOTOGRAPHS: RUSSELL JAMES



challenging – the most nerve-racking part was installing the desk and boardroom credenza via crane and dropping it in through the roof on level 12. Nail-biting stuff.

Have the Covid-19 pandemic and lockdowns affected your business?

It's been a crazy two years. When it first kicked off it went really quiet, and we were all worried about what the future held for us. Jobs were cancelled and it was looking pretty grim. Financially, everything we have is in the business, so it was scary. Western Australia was essentially locked off from the world, so our experience was much different to a lot of places. There were no lockdowns and there was never any concern that we were going to get sick, because it just didn't exist here, and the government made sure it didn't get here.

But two months in things got crazy. The workload probably tripled pre-pandemic levels and in a very short period of time we were over capacity. People couldn't travel so they were investing in their homes and in beautiful furniture. They were supporting local businesses and many businesses were booming. We grew our team from three to six through the pandemic, which was really unexpected. It's been incredible to witness, and a really unique point in time. I thought it would have calmed down by now, but we still have a full schedule for at least the next eight months.

What are you working on now and next?

We have a great selection of projects coming up. We have just

started on three custom lecterns for the Australian Embassy in Washington DC. We are making an 11m reception counter for a new building in Perth, which will be in scorched jarrah with the timber salvaged from an old jetty, plus two boardroom tables in Tasmanian blackwood for the same project, one of which is a giant 9m wishbone-shaped table with a wave-like facade.

Where do you see your work going in the future?

I want to start doing more sculptural work. My dream is to be a wood sculptor. I'm well poised to pivot into this area, and actually the work is already heading in that direction.

What one top tip would you give F&C readers who would like to improve their furniture and woodworking skills?

Find the best furniture maker you can and get them to teach you, even if it is just a short course. If I had time, I'd do a few myself.

What do you do when you're not working?

I'm always working! I still surf, but I want to surf more. I am working towards a better lifestyle. I've also got a beautiful family. My daughters are still young and I really enjoy their company. I want to spend as much time as I can with them while they still think I'm cool. Ultimately though, I want to become a hobby woodworker, making furniture for my family and friends. Probably still a while off making that dream a reality.

nathandaydesign.com.au

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

TURNED DROP-LEAF TABLE

PROFESSIONAL TURNER **COLWIN WAY** TRIES HIS HAND AT
FURNITURE MAKING WITH THIS EASILY CUSTOMISABLE TABLE

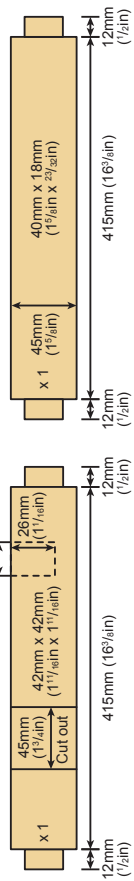
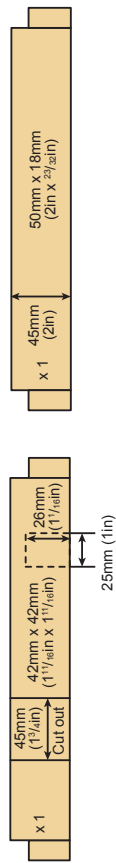
I'm no furniture maker, but I do mix with a lot of very good ones. This does a lot to inspire and encourage me to try new things and methods I don't use in my normal turning work. This is how I arrived at this project, a small table that can be customised to suit the space you want it to fit and instead of only one flap folding you can make a double drop leaf in exactly the same way.

YOU WILL NEED

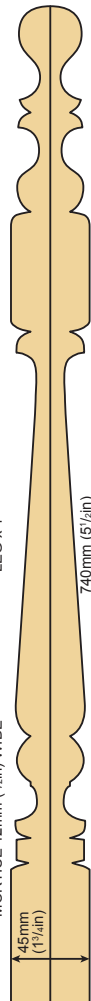
- Personal and respiratory protective equipment
- Spindle roughing gouge
- Spindle gouge
- Parting tool
- Skew chisel
- 12mm template guide for router
- 6mm router bit
- Marking gauge
- Square
- Router
- Mallet
- 12mm carpentry chisel
- 25mm Forstner bit
- Bowl gouge
- Faceplate
- Bandsaw, jigsaw or router
- Wood glue
- Sash clamps
- Trammel compass
- Faceplate
- Steel rule
- Polishing mop and fine abrasive metal compound
- Brass hinges
- Mallet
- Carpentry chisel to suit hinges
- Stain
- Oil, wax oil or lacquer finish



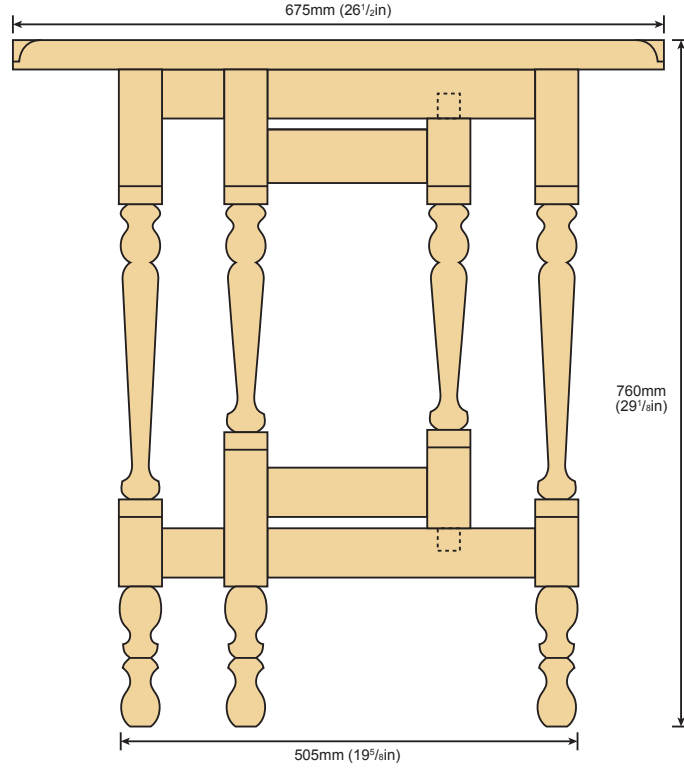
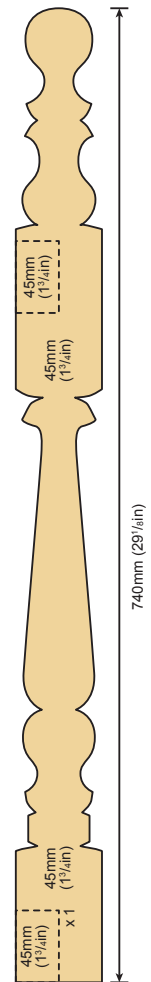
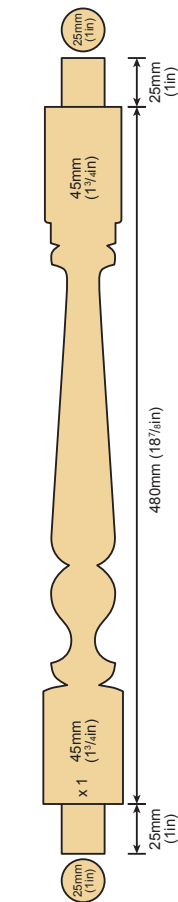
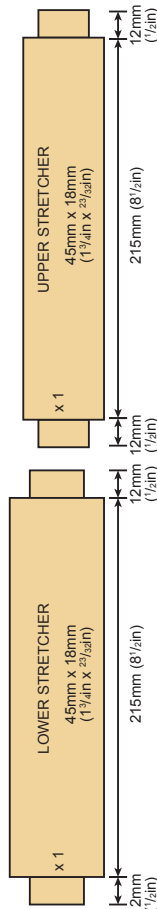
ALL TENONS 12mm (1/2in) WIDE



MORTISE 12mm (1/2in) WIDE



ALL TENONS 12mm (1/2in) WIDE





I would say, however, don't be too proud, and if there are some rough areas or tooling marks, so what? Just sand them away.

PREPARING THE TIMBER

1 The best place to start is with the timber. I wanted kiln-dried timber because the table's destination is my entrance hall, fairly close to a radiator. It's also worth noting that with kiln-dried timber you stand a better chance of getting straight grain to your boards, again giving you a bit more stability. These lovely boards are western red cedar, which smells amazing.

2 Your first job is to machine down all the boards for the first parts of the assembly. This comprises the legs and stretchers. I've added a cutting list on the line drawings to make this first section easier to follow. Surface-plane then rip the individual pieces, allowing enough extra to firstly edge, then thickness to the correct size.

3 It seems logical to start with the legs of a table, so machine these down to 45mm square sections. Then cut them to length. To give yourself a nice square cut when using the bandsaw, measure the length then make a small cut on your mark. Now turn the section over and use the cut line as a reference point to cut along.

4 You'll need five leg sections in total, with one being for the drop leaf support. Mark the centre on the ends. I use a marking gauge to do this and mark off all four sides to give a dead centre. This is very important as the square section, or pommel, must be dead centre to the turning.

5 Now mark your pommel positions. Place four of your five legs on a flat surface and use a square to draw a line across, marking the point at which you want your stretchers to be attached. See the dimensioned line drawings for the actual position. This can be customised to suit your design of table. The fifth leg

will be the support leg and has a slightly different design.

TURNING THE TABLE LEGS

6 Now you are ready to start turning. Make sure you spend time centring the leg on your marks. The timber is quite soft so I have set the speed at about 1,500rpm and will make gentle cuts. However, don't compromise your safety. If you are uncomfortable with this speed, turn it down. Start cutting in your pommels with a skew. This can be tricky if you are unfamiliar with the skew. It's worth practising on some scrap wood first. Start about 12mm away from your drawn line and make progressive cuts, working deeper and closer to your line with each one.

7 Ensure your bevel is rubbing and you cut with the longest point of the skew, which is placed down towards the toolrest. Keep the handle in line with the cutting edge as it is arcing into and slightly around the curve of the pommel.

8 After the pommels have been cut, rough the rest of the leg down to a cylinder. You may find, as I have with this timber, that the finish left by the spindle roughing gouge needs some tidying up, so move on to the skew chisel.

9 To clean up the roughened surface, rest the skew on the toolrest with the shortest point of the skew near the rest, and, using the bottom half of the cutting edge at 45° to the timber, rub the bevel and slide the tool along the surface.

10 Once the leg is smooth you can move on to the shaping. This time use the corner of the skew and roll it over to create the first half bead. If you get a catch here it will spiral up the bead. This is caused when straying away from the point of the shortest edge corner. If you

get it right you will end up with a nice, shiny, burnished bead. If you are afraid of using the skew, use a spindle gouge to shape the ends and then ...

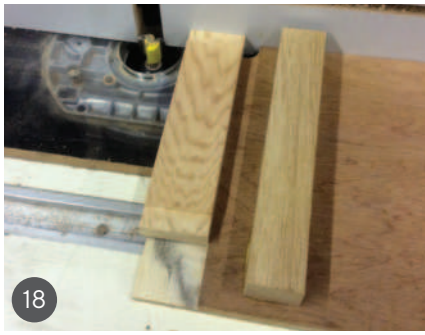
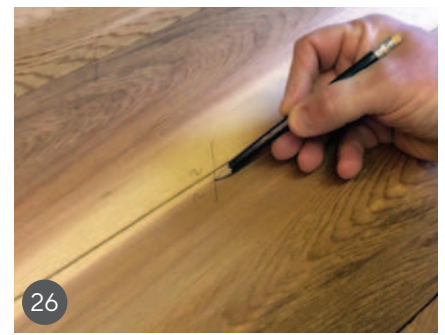
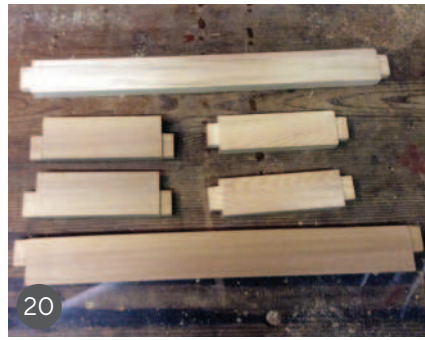
11 ... use a spindle gouge to shape the coves and concave sections. Make sure you get everything as even as possible.

12 Here's the finished leg. This timber was extremely soft and I had to support the length with a centre steady when turning to prevent whip or bounce. You may find on harder timbers you could sand straight off a fine cut from a spindle roughing gouge, avoiding potential vibration marks from the skew. I would say, however, don't be too proud, and if there are some rough areas or tooling marks, so what? Just sand them away.

MAKING THE MORTISE AND TENONS

13 With all four of the legs turned, it's time to cut the mortises for the side stretchers. I use a router to save time. As you can see, I have quickly knocked together a jig which can be dismantled after the job's done. Start by securing one of the legs down to the bench on some ply or chipboard, then tack scrap pieces of timber to the sides and each end to stop the leg from slipping.

14 Now, using another piece of ply or chipboard, cut a slot through the length around 75mm long using a router with its fence attached. It is fairly easy to find the centre cutting from both sides of the plywood. This slot is used along with a template guide attached to the router to guide the cutter centrally along the table leg. You can see from this picture that I've added a pair of stops to limit the length of the mortise. After cutting the first slot, mark the positions of the slot on the plywood so you can position the guide in the same place each time.



If you don't own a router and prefer to cut your mortises by hand, you could use a drill to bore initial holes, then use a chisel and cut them old-school-style.

15 Here are the finished mortises. The ply template is held centrally by two pieces of scrap wood running parallel, thereby sandwiching the leg. Everything is securely clamped to the bench. This was a quick way of fixing the leg in position, but if you wanted to repeat this joint many more times it would be best to make a router box.

16 If you don't own a router and prefer to cut your mortises by hand, you could use a drill to bore initial holes, then use a chisel and cut them old-school style. This is a very satisfying way of cutting mortises – its only drawback is that it's a bit more time consuming.

17 Now you've made the legs and cut the mortises, you can turn your attention to the stretchers and tenons. The picture shows a sled I made to speed up some of the cuts. It's very simple and comprises a few pieces of ply with a straight edge which runs along your rip fence and has a routed relief running along the front face at 90° to the rip fence. A push-stick is used as a handle. You can accurately cut all the short stretchers to length using this or a similar jig.

18 Here I'm using the same sled to run the stretchers along a router table to form the tenons. This leaves a really clean finish. You can do all the stretchers this way, including the long ones. Just take note that the tenons aren't always central, so refer to the line drawings for exact positions.

19 As an alternative to the router you can also use your bandsaw or a hand

tenon saw to create these tenons. I'm using the rip fence on the bandsaw to accurately cut the tenon, first cutting the cheeks or length of the tenon across the grain, then ripping down to this line. Always set the rip fence of a piece of scrap wood rather than experimenting on one of your actual stretchers.

20 Here are the finished stretchers – note that the upper stretchers have an offset tenon. This doesn't have to be done but I wanted to have these stretchers flush with the table top and the cedar was very soft, so my intention was to offset the tenon, leaving more timber above the mortise.

21 This table is going to have a drop leaf, so you need to make a cut-out on the lower and upper stretcher to half the depth of the timber. This cut will be repeated when you make the support legs later on. Again, I'm using my sled jig to make a series of cuts which can be cut out easily afterwards. If you look behind the sled I've clamped a piece of timber to act as a stop so my cuts are all the same depth.

22 The front upper and front lower stretchers are thicker to allow for the swivel leg of the support structure. These stretchers need to be drilled out to 25mm. Here I've clamped the stretcher down to the table of my pillar drill to keep everything secure when drilling.

23 You can see the finished cut-outs and how they operate, slotting neatly into each other when the leaf of your table is folded down. Also note how the support

leg differs from the other four legs, but this is something we will look at later in the process.

24 All four legs and eight stretchers are now complete, so we can turn to the table top.

THE TABLE TOP

25 Start by preparing all the boards. Run them through a thicknesser to get all of them the same thickness. Now prepare the edges to be joined, either by hand-planing them or, as in my case, along a surface planer to achieve a nice straight edge.

26 When you've edge-planed all your boards, put them together dry and decide which way you want them to fit together, matching the grain for best effect. While you have them where you want them, mark the board edges so you don't lose your place.

27 When you're happy with the positioning of the boards, prepare everything for gluing. Position your sash clamps ready for gluing by dry-fitting to the correct open position to support the board widths. Glue the board edges ready for laying down. I use an old coffee-stirring stick to apply adhesive, which seems to work well.

28 Now you can lie the boards down ready to be clamped together, lining up your pencil marks in the same position you had when dry-fitted. Use a piece of scrap timber along any areas you wish to keep undamaged. This will save work having to re-plane later.



I wanted a certain look to my table so I chose brass second-hand hinges, which I bought online. When they turned up they had a nice antique look about them

29 This picture shows the boards glued together with a small bead of glue coming from the joint – this is a good indication that the glue has filled the entire length of the joint. This glue can be wiped off now to save work when it dries hard.

30 Check to make sure the boards are straight and true and haven't risen with the clamps. Notice I haven't glued all the table top in one go; this is to prevent cupping. Once the first joints are dry I will carry on and glue the rest of the boards together.

31 Once the whole table top has been glued and had a chance to dry properly you can start to mark out your circle. Once you've decided on the size of your top, make up a trammel compass with a piece of scrap timber, nail and a pencil, and then mark out your large circle.

32 You can now cut the table top out. I'm using a bandsaw but a jigsaw or router on a trammel guide would work equally well. Save all the scrap wood for the moment as you may want to use it for packing pieces when gluing together later. When cut out, sand down the back of the table as this will be difficult to get to later. Once cut, the top can be turned. However, turning the table top requires a lathe with the capacity to do so. Many people might not have that lathe capacity. The alternative method is to use a router on a trammel. You can cut the top, fit a different cutter and create the edge profile with this method too.

33 Fix this newly sanded side to a faceplate, checking the length of the screws through the faceplate first to make sure there's no possibility of the screws coming through and ruining the table

surface. If you use the side you marked the circle on you should have a small centre hole for centring the faceplate.

34 If you don't have a lathe large enough to do this, don't worry – you can hand-sand the edge with a block and, if you own a router, rout a profile on the edge.

35 Here you can see the top turned and sanded. The profile was added with a bowl gouge before sanding down from 100-grit abrasive to eliminate any residue glue from the joints and level off the surface with the help of a sanding block, which helps to keep the table flat.

36 With the top complete, we can move on to the table top support frame. We have two pieces to turn and two rectangular stretchers to make. The measurements of these components are shown on the line drawings, but this photo shows the turning of the pivot spindle. This spindle has a round tenon either end which acts as a hinge when assembled into the rest of the stand.

ASSEMBLY

37 So here are all the support sections turned and machined ready for assembly. All the square tenons have been made to the same thickness of 12mm to keep things easy. You can also see the round tenons on the pivot leg and the cut-out on the main support leg, which will allow the structure to tuck into the main table frame.

38 I've used a PVA-type glue to assemble my table, but use your favourite type of glue. I don't think there should be too many problems with the joints failing on this project, as long as the glue is in date.

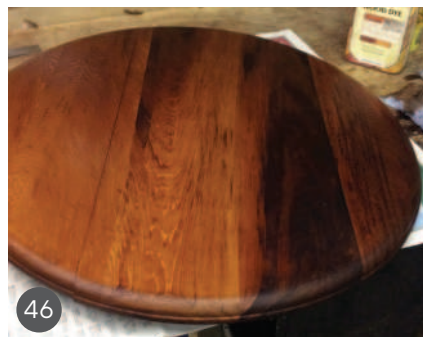
Once again, the coffee sticks come into their own for this process. Take your time here, double-check everything and, of course, make sure you fully assemble dry before the final glue finish.

39 Start by assembling the side with the cut-outs. This will be the side you'll need to get right, as it contains the unglued pivot turning and the cut-outs for the support stand. Look at this picture when assembling and you'll see the mortises are facing the opposite direction to these cut-outs. Note the pieces of scrap wood protecting the legs from being marked by the sash clamps.

40 The stand now needs time for the glue to dry, so let's continue with the table top. Decide where you want the top to hinge and scribe your line across with a straightedge. Go with the grain of the timber to keep the strength along the join.

41 How you cut the top is up to you but I'm using a bandsaw, which gives a nice narrow cut. This is important because the timber removed here will show as a difference in width on the edge of the table when re-joined with the hinges. When you have the two parts of the table, plane each edge straight and lightly sand.

42 I wanted a certain look to my table so I chose brass second-hand hinges, which I bought online. When they turned up they had a nice antique look about them. However, I wanted them to shine a little more so I used a polishing mop on my lathe with some metal polishing compound, just to take a little of the grime away.



43 The hinges need to be sunk in, so first position your hinges in place and mark around them with a marking knife. Remove the hinge and deepen your marks with the same knife and a metal rule. It's now back to a mallet and sharp chisel. I used a chisel to match the size of my hinge – 30mm – but you could use a smaller one and make several cuts.

44 To keep the depth of cut the same throughout the hinge, make a series of cuts along the surface of the hinge joint with a single mallet tap on each, then lay the chisel flat and gently remove the waste. Make sure you have the table top rested

on a soft surface, such as a piece of router matting, to stop damage occurring. Here's how the fitted hinges look.

45 After the table stand has been finished and allowed to dry, turn the stand upside down and operate the support leg. Bring it out to where you want its most open point to be and make a mark. This is where we need to create a stop block. The picture shows the stop block I made – it has a slight wedge shape and is glued and screwed into position.

FINISHING TOUCHES

46 I love the look and smell of the cedar I

made my table from but it was just a little too light in colour for where it was going to be placed, so I darkened it with a medium oak wood dye. This immediately made the grain jump out and looks really striking.

47 Now all the surfaces are treated you can fix the table top to the stand. To make a secure fixing, make up some wooden fixing blocks. I've kept the natural wood colour here so you can see them more easily. Notice they have one hole going through and into the stretchers and two screw holes into the table top. Screw these blocks in but don't glue them – this will allow small movement in the timber.

48 So there we are – the completed table all ready for the finish you want. I used a wax oil on mine, which leaves a lovely finish and is easy to repair.

I darkened it with a medium oak wood dye. This immediately made the grain jump out and looks really striking.

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CARVED TABLE LEGS

DENNIS ZONGKER CARVES ACANTHUS LEAVES ON CABRIOLE TABLE LEGS

When designing this cabriole leg I needed to bring in a decorative element that would help balance the lion's foot into the 18th century. The goal was to fit the shape of the leg so I designed an acanthus leaf with the upper leaves having a wing shape. Carved acanthus leaves were commonly used to decorate furniture during the Queen Anne and Chippendale periods and the cabriole leg has certainly taken its place in the world of beauty and design.

A note on the carving: when carving on furniture, always take care not to go too thin on any section. You can still carve good detail without going too thin, which will keep the carving durable.

YOU WILL NEED

Gouges:

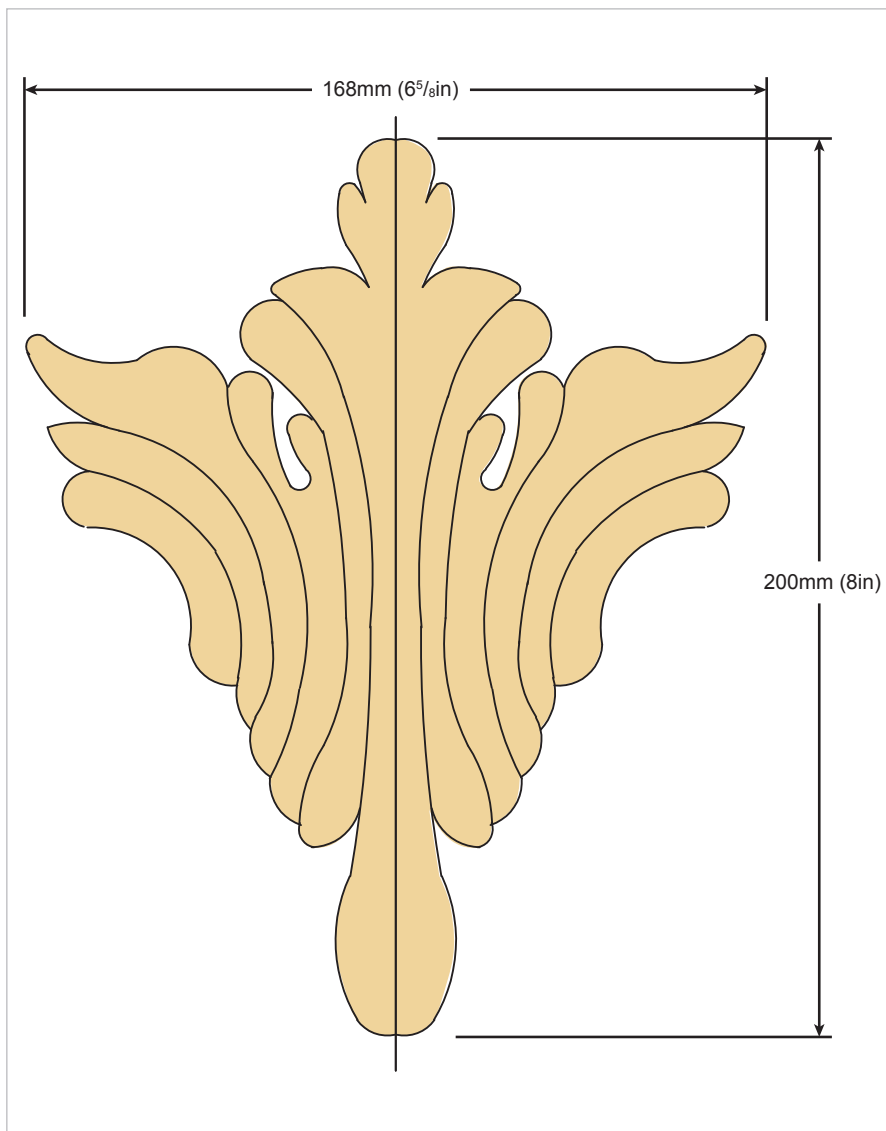
- No.2, 12mm
- No.2, 14mm
- No.2, 20mm
- No.3, 5mm
- No.3, 8mm
- No.3, 12mm
- No.3, 16mm
- No.3, 25mm
- No.5, 8mm
- No.5, 12mm
- No.5, 16mm
- No.6, 5mm
- No.6, 12mm
- No.7, 4mm
- No.7, 6mm
- No.7, 10mm
- No.7, 16mm
- No.8, 3mm
- No.8, 4mm
- No.8, 7mm
- No.8, 18mm

Other tools:

- Medium wood rasp
- Fine rasp
- Fine-tipped needle files
- Detail riffler files
- 150-grit sponge block

Wood:

- Mahogany



CARVING THE LEG

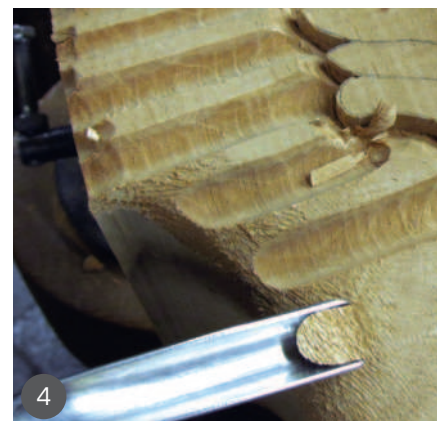
1 Print a photocopy of the acanthus leaf (scaled to the required size) on to the corner of the cabriole leg. Cut out the centre of the leaf and the remaining five sections to the left or right of the template. The cut-out pieces can be used on either side by flipping them over. To draw the acanthus leaf on to the wood, place the centre cut-out template equally centred on to the front corner of the cabriole leg with the top of the template 50mm down from the top of the leg. Hold down the template and trace around the outside. Place each of the five remaining paper templates and outline around each one on both sides of the acanthus leaf.

2 Start by stab-cutting around all the outside edges using various carving

gouges. Stab-cut at a 90° angle approximately 3mm deep around the entire outside edge of the acanthus leaf.

3 Starting 6mm away from the outer edges of the entire acanthus leaf, keep the gouges at a 35° angle and remove the waste wood. Repeat steps 2 and 3 until you have cut in 10mm deep.

4 Remove the waste wood around the leaf using a mallet and a No.8, 18mm gouge. Start at the outer edges where the aprons and the inside corners of the legs are located and carve towards the leaf on both sides of the legs. Carve these depth cuts 25mm from each other. These cuts will give you the depth needed to be equal to the thickness of the acanthus leaf.





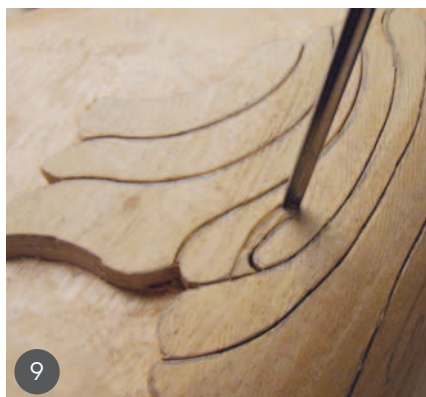
5 Use a mallet and a No.3, 25mm carving gouge to remove the remainder of the waste wood between the depth cuts. As you get closer to the acanthus leaf, tap your mallet more lightly so that you do not carve into the edges.



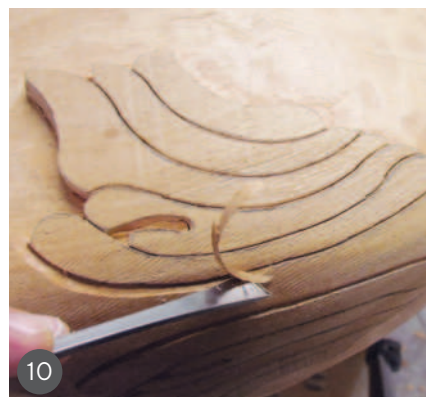
6 Flatten the leg around the acanthus leaf and lower ankle section of the cabriole leg using the No.3, 25mm carving gouge.



7 Use a medium wood rasp to smooth out all of the carving marks. Blend together below the acanthus leaf and ankle of the leg.



8 To give the leg its final size and shape, use a finer rasp to smooth out all the coarse cuts that are in the wood on both sides, back and front of the leg.



9 Follow the pencil lines that make up the acanthus leaf by using various carving gouges. Use a mallet and stab-cut into the wood at a 90° angle, going about 1.5mm deep into the wood. On the smaller eye of the leaf use a No.8, 3mm and a No.8, 7mm carving gouge, making sure you tap more lightly than before.

10 Starting with the centre leaf and using the corner edge of a No.3, 12mm carving gouge, follow the stab-cuts by shaving off a little at a time to separate each leaf. Gradually carve a small arch on to each edge of the leaves.

11 With the same No.3, 12mm carving gouge, carve in a gradual sweep into the lower face of the centre leaf.

12 Shape the centre leaf to have an arch on its face, the two opposing leaves will also have opposing arches. To radius the corners, use the No.3, 12mm gouge upside down to form the arches. Once you have carved down to the depth of the stab-cut, repeat the stab-cuts on both sides of the centre leaf, then repeat the carving of the radius into the edges of the centre leaf.

13 Once you are satisfied with the shape of the centre leaf, you can then draw two lines spaced 3mm wide down the lower centre to form the lower stem.

14 To carve in the sweeps on both sides of the stem use a No.7, 6mm gouge. Start by

slowly carving just above both opposing leaves with a shallow sweep. Then carve deeper as you get closer to the bottom of the stem.

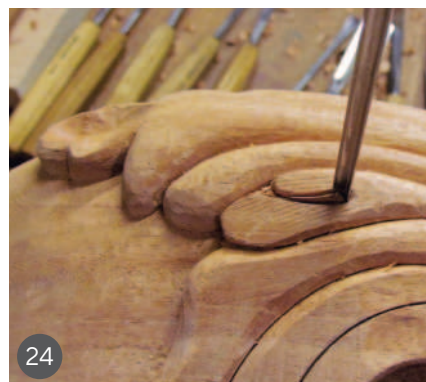
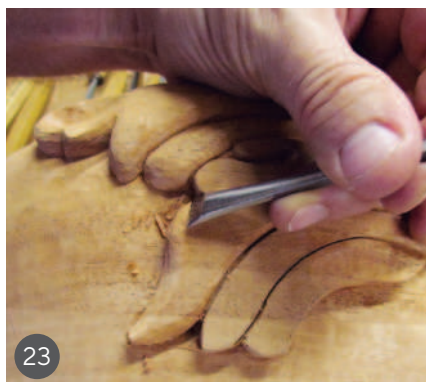
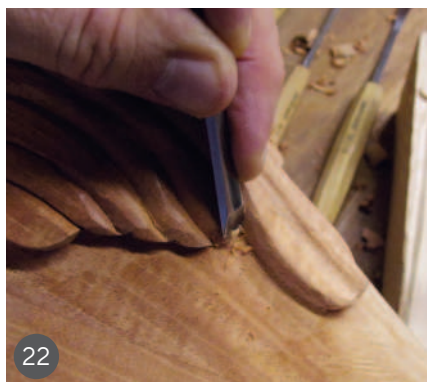
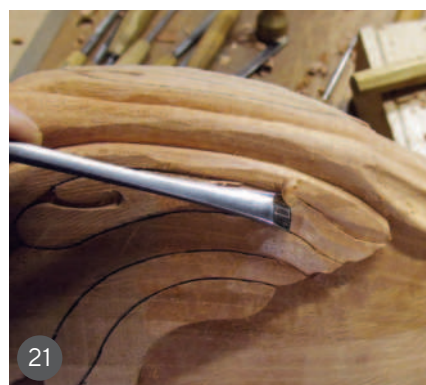
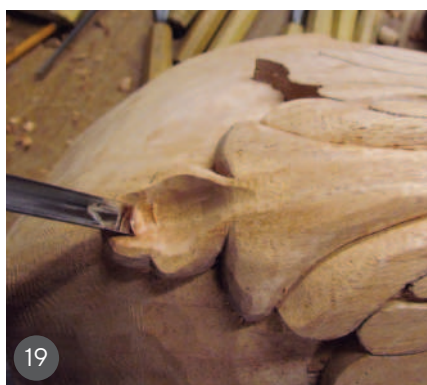
15 Carve into the sides of the stem with a No.8, 4mm carving gouge. This cut will give a sharper sweep at the base of the stem.

16 To blend the stem to the lower sweep, use a No.3, 5mm carving gouge to shave off any carving gouge lines or high and low spots. Then flip the gouge upside down and radius the outside edges of the lower leaf.

17 Start carving the top section of the centre acanthus leaf by arching the top edge on both side petals. Use a No.3, 12mm carving gouge upside down to shape the arch until it blends to the legs.

18 To carve the top bud, start with a stab-cut into both sides and shape the small petals using a No.6, 5mm carving gouge upside down. Then radius the edges around the top bud with the same gouge upside down.





19 Hollow out the bud using a No.7, 6mm gouge. Angle your gouge to a 60° angle and cut straight into the wood. You can change direction to blend the centre of the stem into the hollowed-out bud. Carve around the edges leaving a small 3mm ring. This will give the bud edges good detail while keeping the carving durable.

20 Use a No.3, 16mm carving gouge to carve a gradual slope from just below the mid-section to the lower tip of the five leaves on both sides.

21 Next, re-stab-cut into the same cut lines. Then, use No.3, 12mm and No.5, 12mm carving gouges turned upside down to carve the arches into the lower section of the leaves.

22 For the very tips of the leaves use No.3, 8mm and No.5, 8mm carving gouges to round and clean up the edges.

23 On the upper part of the wing or leaf use a No.3, 12mm carving gouge upside down to radius the top closest to the centre. Then flip the gouge back over to carve the concave section of the wing.

24 To carve the detail into the eyes of the acanthus leaf, start by stab-cutting the smaller inside radius with a No.8, 3mm carving gouge. Then, on the larger radius just above the eye, use a No.8, 7mm gouge and on the two straight sections use No.3, 12mm and No.5, 8mm carving gouges. Repeat the stab and relief cuts to remove the waste wood until you have reached around 6mm deep.

25 Use a fine-tipped needle file to help clean out the waste wood in smaller areas.

26 Next, use a No.3, 5mm carving gouge turned upside down to shape and radius the outside edges.

27 On the outer ends separate the leaves from each other as in step 10 by using a No.3, 12mm carving gouge upside down and carving arches on the faces of the last two remaining leaves on both sides. Then with a No.5, 8mm carving gouge, radius and clean up the top and bottom ends of the leaves.

28 On the very last leaf, carve a concave cove into the outer edge of the leaf using a No.5, 8mm carving gouge.

29 Clean up all the carving gouge marks left on the leg itself. Use No.2, 14mm and No.2, 20mm carving gouges to shave the wood as flat and clean as possible.

30 Use an assortment of detail riffler files to clean up all the carving gouge marks in the acanthus leaf. This is a great way to smooth the carving and also gives the project crisper details.

31 After all the carving marks have been cleaned up, sand the entire leg, foot and acanthus leaf with a 150-grit sponge block. I only sand enough to smooth and blend the wood evenly, this way I do not remove any detail, leaving the carving clean and crisp.

32 Here is the completed coffee table showing the corner view of the top edge and carved acanthus leaf on the cabriole leg. To give the table and carving a deep rich look, I used an alkaline dye wood toner then applied a dark reddish brown stain. Then I used a pre-catalysed lacquer finish for the clear coat to protect the wood.



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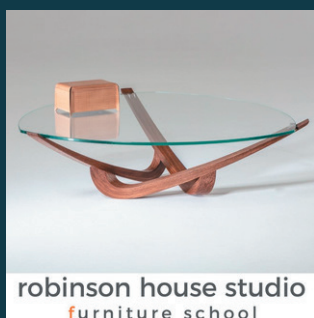
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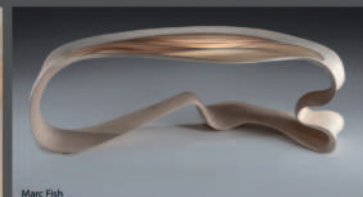
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BURL WALNUT CHEST OF DRAWERS

KEVIN LEY BUILDS

A CHEST OF DRAWERS
FROM AN EYE-
CATCHING PIECE
OF TIMBER

The order for this build came after the clients saw some of my display pieces in burr elm at a show, so they contacted me to discuss ideas about a chest of drawers they wanted. Displays like this are very successful in getting business, and I try to make striking or unusual pieces to get attention and expand people's expectations. As the display pieces sell, I make more of them. I really enjoy making these speculative works from stock I already have in my store, using my imagination and some unusual timbers.

TIMBER SELECTION

1 Some time ago, I spotted a half butt of very interesting-looking walnut in a wood yard, while purchasing some elm for another project. I bought it and had it planked, sticked, air-dried, kilned and delivered to my workshop. There was burr and a lot of wild grain, though with a fair amount of soft sapwood waste; it was an exciting find and I went ahead and bought it.

2 I had the butt planked to my specification at the timber yard.

3 The planks were then stick-dried and kilned for me. Cutting revealed more waste than I would really have liked, along with some very distinctive burr and wild figure in the sound heartwood.

I had just had it delivered and felt it would be ideal for these clients with their discerning taste in timber. I prepared and oiled a piece and it was





PHOTOGRAPHS BY KEVIN LEY

a done deal – they loved it! The timber was ready seasoned and just out of the kiln, so it was moved into the workshop, ready to go. From this stock I was able to select burr for the top and drawer fronts and some plainer stuff for the carcass sides. I recommended a tung oil finish and, after seeing a piece of the timber I had prepared and oiled for them, they agreed.

TIMBER PREPARATION AND CUTTING OUT

The timber had been stored in my dehumidified wood store since delivery so was ready for use. I laid out the boards and chalk-marked the pieces for

the various components, a little over size. The side panels were the largest and were cut out first. The top came from a particularly highly figured piece of timber, but with the grain running – as far as one could tell in such wild grain – across the grain of the sides.

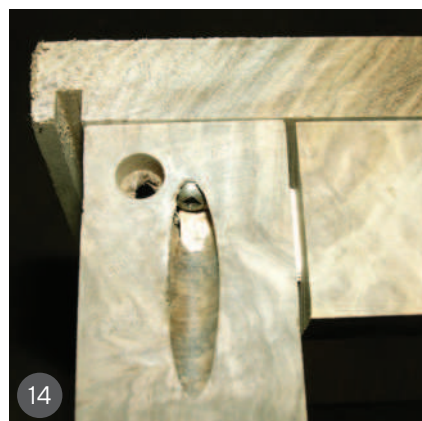
The drawer fronts came from small areas of pure burr. All the pieces were cut out, faced and thickened, still a little oversize, then stuck and stacked in my warm, dry workshop to settle and condition during the making. They would be finally dimensioned to exact size as required during the construction.

THE SIDES

4 The sides were made up from two butt-jointed narrower boards. Biscuits were used to reinforce the joint and prevent slippage when clamping up. Once set, the sides were cut to exact length and width. Remember to keep an eye on the grain and any imperfections which can be lost when cutting to final size.

5 In this design, the drawer rails are fixed to the sides with biscuit slots, so I cut the slots with the jointer, using a straightedge to work against.

6 A housing was cut for the ply back using a router, straight cutter and fence.



7 Next, double countersunk holes were drilled in the bottom edge to fix the plinth to.

DRAWER RAILS

8 The frame components were cut to exact size, the side rails being cut 3mm short to allow a gap for movement in the sides.

9 Domino slots were cut for the joints. The slots in the side and the front rail ends were glued up (the back rail slots were left dry to allow for movement). Dominos were inserted and the frames clamped up, diagonals measured to check for square, adjustments made, then left to set.

10 Once set, the pockets were cut for reinforcing screws in the top face of the top rail and the bottom face of the bottom rail. Biscuit slots were cut to correspond to the slots in the sides, and double countersunk holes drilled in the top rail for fixing the top.

11 The frames were then sanded down to 150 grit with a random orbital sander.

TOP

12 The top was cut to exact size and the edges finished using a sanding block and sanding belt.

13 The edges were then rounded over

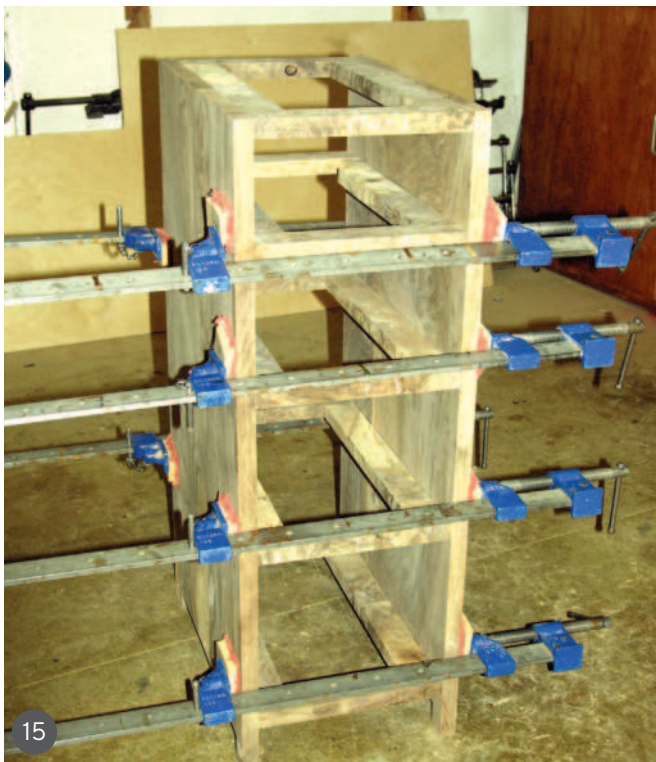
with a 19mm radius cutter on the router table. The edges were finished with a palm sander.

BACK

A back was cut to size from 5mm ply and sanded to 150 grit with the sander.

ASSEMBLY

The inside faces of the sides were finished to 150 grit and glue applied only to the front biscuit slots in the drawer frames and sides. Biscuits were inserted in all the slots, and the rails fitted to the sides, lining up carefully to the front. The dry biscuit joints in the middle and at the back supported the drawer frame while



allowing movement in the side.

14 The dry joint at the back was used to line up the rear frame rail to the back housing, leaving space for movement.

15 Clamps were applied, the carcass checked for square and the screws driven through the pockets in the top and bottom rails. Once this was set, the housings in the rear of the sides were glued up, the back inserted and pinned to the drawer frames.

The top was then clamped in position and the screws driven through the double countersunk pre-drilled holes in the top frame. The double countersinking allows

for any lateral movement between the top and sides while holding the top down flat on the top frame and sides.

PLINTH

16 The plinth pieces were cut to size and the mitres cut on the radial arm saw. The mitred ends were offered up to the carcass and adjustments made with a block plane.

17 A moulding was cut on the top edges using an ogee cutter on the table router.

18 The cut-outs to form the shape of the plinth were done on the bandsaw and finished with a scraper and sanding

blocks. A backing strip was cut and glued to the under face of the bottom rail.

FITTING THE PLINTH

19 The front piece was glued to the backing strip and glue applied to the mitre joints. The side pieces were placed in position and a strap clamp applied and tightened up.

20 The blocks inside the clamp were pulled up to the mitre corners to apply local pressure. The carcass was then turned upside down and the screws driven through the double countersunk holes in the sides to fix the plinth to the sides but allow for movement.



DRAWERS

The drawers have burr walnut fronts, oak sides and backs, and oak-faced MDF bases. The fronts were cut to exact size as a push fit using the radial arm saw and a jack and block plane. This allows for reduction to a running fit after the drawers are assembled. The inside faces of the drawer fronts were given a couple of coats of oil so that they would be the same colour as the front faces.

21 The backs were then cut to the same size as the fronts using the fronts as templates, and the sides were cut to length and width.

22 The dovetail depths and lengths were marked on the sides, fronts and backs with a cutting gauge. Housings were cut in the sides and fronts to take the ply base and the sides were taped together in pairs.

23 The front and back tails were marked on the sides in fine pencil using a 7:1 dovetail square. Most of the waste was removed on the bandsaw and then the tails were cleaned up with a paring chisel.

24 Using the sides as a template, the pins were marked on the fronts and backs and the majority of the waste removed from the sockets with a router; these, too, were

cleaned up with a paring chisel. The bases were cut to size and all the inside faces of the drawer components sanded to 150 grit. A light coat of glue was applied to the joints and the base housings and the drawers were assembled.

25 The joints were pulled up with a sash clamp, the drawers checked for square and wind, and the bases pinned to the backs.

PULLS AND DRAWER FITTING

Drawer pulls were turned on the lathe using a sizing tool to ensure all were the same diameter, and fitted to the fronts with double-ended screw dowels. When

cured the drawers were planed and sanded to a running fit. A light rubbing of candle wax on the runners ensured a smooth action.

FINISHING

I have long wanted to finish a piece of burr walnut with tung oil. The depth of finish and patina are wonderful, but the drying time is up to four days per coat!

First the surfaces were prepared; burr is beautiful but does tend to have pin knots and small faults which must be addressed. Blemishes were scraped and sanded out and filler used to fill knots and faults. I used a two-part neutral filler and coloured it with earth pigments to the correct shade. It sticks well, dries in minutes and does not shrink. The faces were carefully examined with a powerful light, at an angle, to highlight any faults, which were dealt with. The surfaces were wet with clean water to raise the grain and, when dry, finally hand-sanded to 320 grit.

26 The sides of the drawers were masked below the dovetails to give a clean line to the oiling. The first coat of tung oil was diluted 50:50 with white spirit, liberally applied, and worked in with fine wire wool – this fills the grain and gives a very smooth silky finish. When it would take no more, the excess was wiped off with kitchen tissue.

27 After a few days in the warm workshop another coat was applied with a soft cloth – this time 75% oil to 25% white spirit – and left to dry. The next two coats of tung oil were applied neat with suitable drying time between them, again with a soft cloth, and the excess wiped off with tissue. I left it a week and then did a final coat of finishing oil. This contains hardeners and driers that help the tung oil to finally set hard. It was then buffed with a soft cloth to a lovely silky sheen – a lot of work and time – but worth the result.

I really enjoyed making this piece, from selecting the timber from such interesting and unusual – but difficult – stock, to the lengthy tung oil finishing process. The oiled walnut was truly beautiful. My clients agreed and we were all happy!



CUTTING VENEERS

FOLLOW **JOHN BULLAR**'S EXPERT GUIDE TO PREPARING YOUR OWN VENEERS

It is extremely useful to be able to cut your own veneers and even a small bandsaw is quite capable of making impressively accurate cuts provided it is set up properly. The resulting surface finish varies with the type of blade used, but experiment a bit, as you get different effects with different species and densities of timber.

HOW TO CUT VENEERS

1 The key to getting the required accuracy is to use a blade that is sharp and there are many different types available. My preference is to use a $\frac{5}{8}$ in x 4tpi blade, but a thin gauge one, which allows you to apply plenty of tension to increase the beam strength.

2 Make sure the blade is set up accurately and that the thrust roller is adjusted so that the teeth cannot move back between the side guides.

3 Bandsaw fences have improved considerably over recent years, although many are still not tall enough to provide adequate support for deep cuts.

4 A shorter fence is easily overcome by screwing on a sub fence, preferably one with a polished surface to help the timber slide easily.

5 Make sure the fence is dead square to the table. You can usually adjust the fence guide rail to correct any inaccuracy here.

6 The table must also be perfectly square to the fence, as even tiny inaccuracies will be magnified over the deep cut. Set this carefully using a square.

7 To check that the result is spot-on, make a very shallow cut in the end of a piece of timber and then turn it over end for end

and hold it against the back of the blade, as this will magnify any inaccuracy.

8 Plane the face of the board and then set the veneer thickness required between the blade and the fence, rather than trying to slice the veneer off the outer edge of the board.

9 Feed it steadily, keeping pressure against the fence on the infeed side of the blade.

10 With care, it is possible to produce wafer-thin veneers which are 125mm or 150mm wide using only a very modest bandsaw.

11 However, always feed steadily, as every time you stop and start, the blade wanders slightly and leaves a definite mark in the surface.





PHOTOGRAPHS BY ALAN HOLTHAM

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A FINE VENEER

DAVE HELLER OF HELLER & HELLER FINE CUSTOM FURNITURE WENT FROM HOBBYIST WOODWORKER TO EXQUISITE MARQUETRY MAKER AND TEACHER

Hobbyist woodworker Dave Heller set up a business making fine custom furniture just to keep himself disciplined, after he left a career in the oil industry to devote himself to making. He explains: 'A customer requires that a project be

finished, so my preference for stopping when a project gets boring, about 80% of the way through, was countered.'

He adds: 'In the US, if you hang out a shingle saying that you are a furniture maker and someone is willing to pay you,

then you are a furniture maker. With my daughter's assistance I built a nice website showing some of my work, and I signed up to a website called Custom Made, which acted as an intermediary between buyers and sellers. It was quite effective



I get great satisfaction from turning an enthusiastic beginner into someone that has made something very attractive and is confident that they can do it again, better.

at finding customers who were looking to have custom work done in 2009–12. I also made custom items for my neighbours and ex-colleagues. Eventually I started doing craft shows as a way of keeping busy between custom jobs. As my custom

base has increased, I do fewer and fewer shows. I started teaching marquetry about five years ago and that has added a nice cash flow stream as well.'

Dave was originally a chemical engineer who worked wood in his free time as therapy. 'I was good at my job and well compensated, but didn't find it satisfying,' he says. 'I needed to make things to feel complete, and my very sensible wife recognised this early, and would send me to my shop after a bad day at work, to recuperate.' He learnt his craft from books and magazines, but says this type of training was 'amazingly inefficient'. 'I got to make every mistake many times while I figured out what went wrong,' he says. 'That is one of the reasons I am passionate about teaching – to save some time for people so that they have more time to make fine work.'

Dave grew up in small-town Ontario, Canada, a place which, in the 1960s and 1970s, 'was not a place that celebrated craft', he says. When he was 20 years old, in 1978, he saw a carved letter S on the cover of *Fine Woodworking Magazine*. 'I foolishly believe that if anyone can make something, I can learn to do it. I bought the magazine and it opened my eyes to a whole world of craft that I had not realised existed,' he says. 'I began buying books and magazines to educate myself, bought some basic tools, went down in the basement and started making.' Later on he took marquetry classes from Craig Vandall Stevens and Patrick Edwards and began attending furniture symposia, but at the start he learnt purely from reading.

He started out with some kitchen cabinets made from 2x4s. 'Then I made a maple dining room table that promptly cracked when I took it from my humid basement to our extremely dry house mid-winter,' says Dave. 'It was a painful introduction to wood movement. If my wife had been less understanding that could have been my last furniture

project.' On the contrary, his wife Elizabeth is a key part of the business. 'I just make, she does everything else – and there's a whole lot of else,' says Dave.

LEARNING BY MAKING

The family moved around Canada and the US for Dave's work before settling in Charlottesville, Virginia. Dave learnt to work in veneer, which he says opened up a more artistic avenue of self-expression in his work. 'My love of patterns, precision and complexity drew me to marquetry,' he says. 'As I learned woodworking I always felt a desire to have the next project be more complex than the current one. That was my learning mechanism – I never knew all of the steps required to make the next item, but I had committed (to myself, mostly) that I would figure it out, and I did. When I got to marquetry, I felt that this was what I had been aiming for without really knowing it. I am still exploring the space and feel there is plenty more to learn.'

His favourite thing about marquetry is making complex patterns that wouldn't be feasible in solid wood. 'The inherent patterns in the veneer, from their colour, grain and figure, have to work with that imposed pattern for the work to be successful. I don't consider myself truly artistic, but managing the interaction between the manmade and natural patterns is very satisfying,' he says. The biggest challenge is finding suitable veneers. 'Commercially available veneer is 0.6mm and gradually getting thinner. This is right at the bottom edge of an acceptably resilient and robust material for handwork,' says Dave. 'I have a large stock of this veneer, enough to last for my career if I wasn't looking for specific species. I have significant concerns about the medium-term viability of handmade marquetry, given the trend to ever-thinner veneer. Consequently, I am reconsidering my approach, and



whether I might need to reduce the size of my palette and make my own veneer for some applications. This would dramatically increase the cost of that work, though the quality and mechanical integrity would improve. The best path forward is not clear to me right now.'

His advice to *F&C* readers who would like to give marquetry a go is to find a teacher. 'There are a number of techniques which are easy to learn from an expert but challenging to learn independently, so a weekend class could move someone from rank beginner to basic competence,' he says. 'Then, practise and practise some more. Make small items so that the work in any one is limited, and errors don't feel as costly. There are fine marquetarians in many places who run weekend or week-long workshops. The only significant-cost tool for veneering is a vacuum press, which is not necessary if you make pieces the size of a standard piece of paper or smaller. In the US, Certainly Wood makes a marquetry packet, a box filled with "small" sheets of veneer. It is a great way to develop a palette of woods and see what is available at a modest cost. Once you have seen all of the options you won't turn back.'

PATTERN OF INSPIRATION

'I have always loved patterns and shape, and am always on the lookout for good ones,' Dave says of his inspiration. 'Doesn't everyone take hundreds of pictures of the floors, walls and ceilings in a cathedral or palace?' He adds: 'My older daughter is an architect and has improved my understanding of style and how good design draws these thoughts together. Since I usually make a piece to fit a customer's needs, I get a base objective and direction from a meandering conversation with the customer. I draw in stylistic references, then mentally page through a huge stack of shapes and patterns. I also have more books than are reasonable. I make sketches from the ideas, and show the best ones to the customer. We refine the preferred one until we are all happy.'

Dave also takes inspiration from historic styles, such as Federal and Arts & Crafts. He says: 'I am very drawn to rhythmic patterns, so both Federal and Art Deco are very attractive to me. I also love Art Nouveau – the flow and gracefulness of some designers

draw me. Arts & Crafts falls in between, and is very popular here, which makes selling those items easier. Although I like to make what I like, I do like some Arts & Crafts, so it works. I also find the Japanese aesthetic enormously appealing, and I think that may underlay some of the appeal of Art Nouveau and Arts & Crafts.' But he adds: 'I do not have formal art or stylistic training, so sometimes I make things that aren't stylistically pure. This may be from a customer request, or just from something I drew that I like.'

Dave's style continues to evolve as he grows his business, but if asked off the cuff he would say it involves patterns and decoration. 'Woodworking is to me an intellectual exercise,' he says. 'I am passionate about making but not emotional. I try to be respectful to my materials and my customers, and don't use materials that I think are illegally sourced. Looking at my work as a whole though in the past five years there are some threads visible. I went to a marquetry and inlay symposium at Winterthur in Delaware, and I believe I need to step up my game. I have been getting complacent, and I can do much better.'

HELLER'S CUSTOM WORKSHOP

'My shop is a beautiful building behind my house, and looks like a three-car garage with an apartment on top,' he says. 'It is 850 sq ft and has four large windows around the bench area and carriage doors to access the machine area and provide a breeze in spring and fall. Since the shop is full of veneer, I humidify in the winter and dehumidify in the summer.' Dave adds: 'We bought this house when my wife was about to retire and there was no shop but plenty of space to add one. It was built to my specifications: lots of windows, 10 ft ceilings, wood floors and the layout I designed. I will leave in a casket.'

In terms of tools, he will use 'the tool that will get the job done accurately and quickly and well'. 'I will not compromise the design for the tooling,' he says. 'Since I never make the same thing twice, I don't use a lot of jigs. I prefer hand tools to power tools. I choose not to use CNC or lasers – they do not fit within my concept of craftsmanship, although I also understand that many customers don't

care. I am fine with them being someone else's customer. One of the many reasons I like to work with veneer is that the tool density is quite low.'

'I don't make really large things, because I don't have the space and I work alone,' he goes on. 'I generally don't make large sets of things, since I get bored easily. My niche market is decorated cases, mostly jewellery cabinets, and there is enough work to keep me fully occupied and entertained, so basic power tools to dress the lumber and cut it to dimensions, then hand tools the rest of the way is my usual method. I do love my Domino though. Mortises and tenons are so fast and accurate now.'

He tries to source wood locally in the US Mid-Atlantic region, which he says is blessed with abundant high-quality lumber. 'For solid woods, black cherry and black walnut are local and excellent to work, though walnut prices have been silly for several years,' he says. 'I dislike working curly maple but love the results, so I use a lot of that too. Poplar is the local secondary wood. Sapele is an excellent choice for traditional furniture.' He also uses a lot of veneers: 'Birdseye maple, Karelian birch, walnut burl, sycamore, mahogany, curly maple, holly and dyed black anigre disappear quickly, but the palette available is wonderful and I indulge,' he says.

Dave has used mother of pearl and brass in inlays, and wants to try pewter and bone. He has also used enamels he made himself and wants to explore that further. Leather and handmade paper have been used on box interiors, and brass and steel are his go-to metals for hardware. 'I have also done some collaborative pieces with a local potter, where he makes lids and then I design a box to complement the lid,' he says. 'It is great fun and they have sold well. He is much funkier than me and I have to be a little looser than usual, which is good for my design skills.' He adds: 'I prefer wood to be the dominant element in anything I design, but other materials add colour or texture that wood can't, and that is great. I use these materials when I desire an effect that wood will not provide. I am a woodworker but am very comfortable using whatever material projects the feel and look that I am aiming for.'



PHOTOGRAPHS: JOHN HULBERT

Since most of Dave's work is marquetry-oriented, he looks for a finish that will minimise colour shift and let small pieces of wood sing. 'I use the palest dewaxed shellac I can buy, enough to get a rich depth but no more. If the item has a horizontal surface, I then coat that shellac surface with a colourless clear water-based kitchen cabinet finish, which protects the shellac from errant alcohol abuse. I know purists consider that a heathen approach, but I want my furniture to look good for many years and feel that my customers will appreciate it. I inform them of my plans and none have asked me to not put on the clear topcoat. I do not dye the woods I use unless there are tone differences between pieces in the case. When that happens, I use transtint dyes in the shellac to shift the colours. I do not stain wood – I educate my customers on why it is a bad idea. It takes a while sometimes, but I won't do it.'

STANDOUT PROJECTS

Asked what his favourite project is, Dave replies: 'My least favourite project is always the current one, since they always last longer than I'd prefer!' For his preferred project he points to a Japanese-themed jewellery cabinet he made in 2019. 'The customer wanted a cabinet for his wife and had no stylistic requirements,' he recalls. 'The wife collected bonsai, and we had just come back from a trip to Japan, so I was inspired to inlay a bonsai on the cabinet front, the trunk from various walnuts and enamelled inlays for the foliage. The cabinet was just a rectangular hemlock veneered box, and the stand was based on a small Shinto roadside shrine that had really appealed to me. I made a tansu-inspired interior in quartersawn oak, which I dyed black. The drawer fronts are golden quartersawn mulberry with sapwood inclusions. I had purchased the mulberry on a whim some years before, not knowing it was a favourite Japanese wood. I used blacksmith-made hardware and kitted out the drawers with different dividers for her specific jewellery collection. The customers didn't understand all of the Japanese references, but they liked the result, and I felt it was both technically and aesthetically solid.'

His most challenging piece has been an Andrew Crawford-inspired box he

made for his elder daughter's wedding in 2011, which was curved on every surface. 'Getting the amboyna burl book matches to flow across all of the surfaces was fairly demanding, but laying the edging borders on all those curved surfaces was very demanding and I hadn't allowed enough time to learn the new techniques I required. The wedding wasn't moving though, so I got it done.'

Dave works around 80% on commission and his design process has been intensely collaborative with his clients. 'My work tends towards certain technical areas, and customers who want my furniture want that "look". Since I don't have a strong aesthetic driving force, I want the customer's input to constrain the design process,' he explains. When he completes his current commission backlog next year, he plans to move towards a collection business model. 'There are avenues I would like to explore that I can't when driven by commissions,' he says. 'I have enough of a history now that I hope to be able to find customers for my work.'

PASSING IT ON

Dave shares his skills in a number of classes which range from two days to a week long. 'The objective is that the students learn to knife-cut veneer for geometric work, and cut with a scroll saw for organic and curved work,' he explains. 'All of my classes are process-driven: we are not making an X, we are learning how to make an X. There needs to be a result that can be taken home and admired, but the purpose is very much to learn the process.' His classes include geometric marquetry, packet cutting and chessboard making, and he is developing a course that teaches radial veneering. 'I teach these classes because it took me so long to develop the techniques I use, since there weren't many people teaching these topics when I wanted to learn them,' he says. 'I feel an obligation to pass on the things I have learned and synthesised from many talented people over the years, and hope to energise people to continue to develop this enjoyable area.' He adds: 'I get great satisfaction from turning an enthusiastic beginner into someone that has made something very attractive and is confident that they can do it again, better. Not every student fits

that bill, but more than half come back for a second class, which tells me they found it enjoyable and worth developing. I also learn a lot from students: they ask really good questions, and my methods have improved from their feedback.'

Currently in Dave's workshop is an Art Nouveau dining room suite of six chairs and a table in the first phase and two vitrines and a buffet in the second. 'It is heavily carved and is taking much longer than I had expected,' he says. 'The table top is very complex marquetry and I am very much looking forward to it, once I finish the carving.' Next in line is a Japanese-inspired headboard. 'Dogwood branches flow across the tripartite headboard, with a random spray of flowers across all three panels but mostly in the centre and right portions. The design is an expansion of a marquetry picture that I sell, which I designed from the tree at the end of my driveway.'

Looking forward, Dave plans to narrow his portfolio to small cases, mostly jewellery cabinets. 'I hope to be able to incorporate more enamels into the cases,' he says. 'The colours and textures available from enamelling are another opportunity to explore patterns with colours that are not possible in wood. I also intend to make a reasonably true version of both the Oeben small rolltop desk in the Musée Nissim de Camondo, and the Ruhlmann Etat rectangle cabinet in amboyna from the Musée des Arts Decoratifs, both in Paris. My hope is that I can spend several months each year on those pieces and the remainder of the year making jewellery cabinets and still stay cashflow-positive.'

So what does he do when he's not working? 'I occasionally ask myself whether I am working if I am doing what I would most like to do. That being said, carving is working. When I left corporate life I began exercising more, and felt better. I now try to bicycle five or six days a week and lift weights a couple of times a week so that I retain my strength as I get older and lose muscle mass. It also allows me to eat more, and my wife is a great cook. I greatly enjoy not having to watch my weight. I read widely and try not to get stuck on the computer all evening after spending the day in the shop.'

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LEATHER TOOL ROLL

AMBER BAILEY PICKS UP A NEEDLE AND THREAD TO MAKE A TOOL PROTECTOR

Any good craftsperson will know tools require a lot of care and maintenance – hundreds of hours can be spent polishing blades so they are cut-throat sharp. But there is no point putting so much effort into the efficiency of tools when they are in action if there aren't the measures in place to ensure they are protected when resting on the workbench.

Tool rolls are readily available for purchase, but once in a while it can do you good to stretch your creative muscles and try your hand at a new skill. Sewing may be completely different from woodwork, but stitching together a tool roll isn't quite the daunting task it may seem – in fact, it is suitable even for novice stitchers. All the materials and equipment you'll need should be available from any well-stocked haberdashery.

YOU WILL NEED

- Leather needles
- Waxed or thick thread
- Scissors
- White pencil or chalk
- Ruler
- A buckle
- Eyelets and hole punch
- Leather hide

WORKING WITH LEATHER

1 Leather needles have a robust and sharp nib to help pierce the tough fabric.

2 However, the leather may be too thick to pierce even with a leather needle. It can help to pre-pierce holes to feed the thread through. When working with any type of thick material or fabric there is always a danger that the back of the needle will penetrate a finger or thumb. Use a thimble or leather glove for protection.

3 A leather hide will provide more than enough material for a tool roll, but a cheaper substitute will work just as well. Make sure the fabric is thick enough that sharp tool blades will not slice it open when pulled in and out.

MAKING THE TOOL ROLL

4 Begin by cutting the leather out to the dimensions shown in the diagram. You may choose to alter this depending on the purpose of the tool roll. Fold over a section of the fabric to create one large pocket and stitch along the edges to seal it together securely. Fold the fabric out the correct way so that your stitching is now neatly hidden inside.

5 On the front of the large pouch, mark up a series of dividing lines with a ruler and white pencil or chalk.

6 Using these lines as a guide, stitch up the length of the pouch to create a series of narrow pockets.

7 To create the strap, cut a narrow strip of leather the width of the buckle and slightly longer than the length of the tool roll itself.

8 Attach the buckle at one end by cutting out a central gap no more than several centimetres long to fit around the buckle pin. From behind, stitch the two pieces of leather to the central buckle bar and neatly trim away any excess.



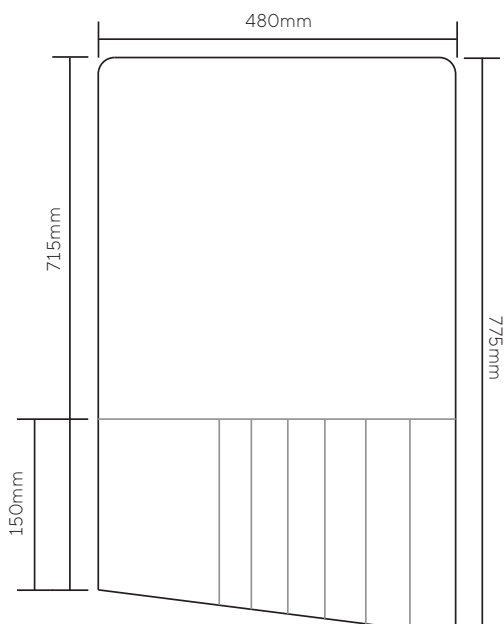
9 On the other end of the strap, round off the leather and mark up the positions for the buckle holes between 2–3cm apart. Hole-punch these marks and finish off with eyelets of the same size. The metal ring of an eyelet is an effective way to ensure the leather does not fray and withstands long-term use.

10 Stitch the centre of the strap to the back of the tool roll to create a means of keeping the roll closed when not in use.

11 Personalise your tool roll with a name label to make a great gift for a fellow woodworker or to simply ensure your own tools don't mysteriously go missing!

LEATHER POLISHING STROP

12 To make use of any scrap leather, a polishing strop is an extremely quick project to accompany your tool roll. Cut out a rectangle of wood to the dimensions of your choice and round off the corners to avoid catching your hand during polishing. Apply contact adhesive to an oversized piece of leather and to the face of your wooden block. Leave both until the surfaces feel tacky, then press together. Cut away any excess and repeat the process on the other side of the wood so that your strop becomes double-sided. If your leather has a smooth and a rough side, ensure that you are gluing down the smooth side. A rough surface is needed to help dislodge any burrs created on your tools during the polishing process.



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◀ **LOT 85 •**
US\$151,575 (£123,815)

Minguren II coffee table, made in 1972 from Persian walnut and American black walnut. It features free edges and fissures, and one butterfly joint made from East Indian rosewood.



◀ **LOT 82 • US\$40,695 (£33,238)**

Case made in 1972 from Persian walnut and East Indian rosewood.



▲ **LOT 80 • US\$50,775 (£41,430)**

Set of eight Conoid chairs, made in 1972 from American black walnut and hickory.

▼ **LOT 87 • US\$30,600 (£24,998)**

Kevin end table made in 1973 from Persian walnut, American black walnut and East Indian rosewood. It features a butterfly joint, fissures and a free edge. George Nakashima originally conceived this table design for his son Kevin in 1970.



▲ **LOT 79 • US\$101,175 (£82,570)**

Conoid free-edge dining table, made in 1972 from Persian walnut and American black walnut. It includes five butterfly joints made from East Indian rosewood. This table was sold along with the original design drawing.



▲ **LOT 83 • US\$31,875 (£26,030)**

Kent Hall floor lamps, made in 1972 from English burl walnut, holly, laurel and fibreglass. The lamp design was originally conceived for Columbia University in 1963.



▲ **LOT 86 • US\$63,375 (£51,764)**

Pair of Kornblut cases, made in 1972 from Persian walnut and East Indian rosewood, with English burl walnut handles.





CHARACTER COFFEE TABLE

MITCH PEACOCK BUILDS A SIMPLE COFFEE TABLE
FROM RECYCLED OAK AND PINE

A request from my daughter Katie for a coffee table for her new home was all it took to help me find a use for two broken oak fence posts and some old pine boards. The materials and urgency, together with other commitments, influenced the simple design and joinery, making this an easy weekend project.

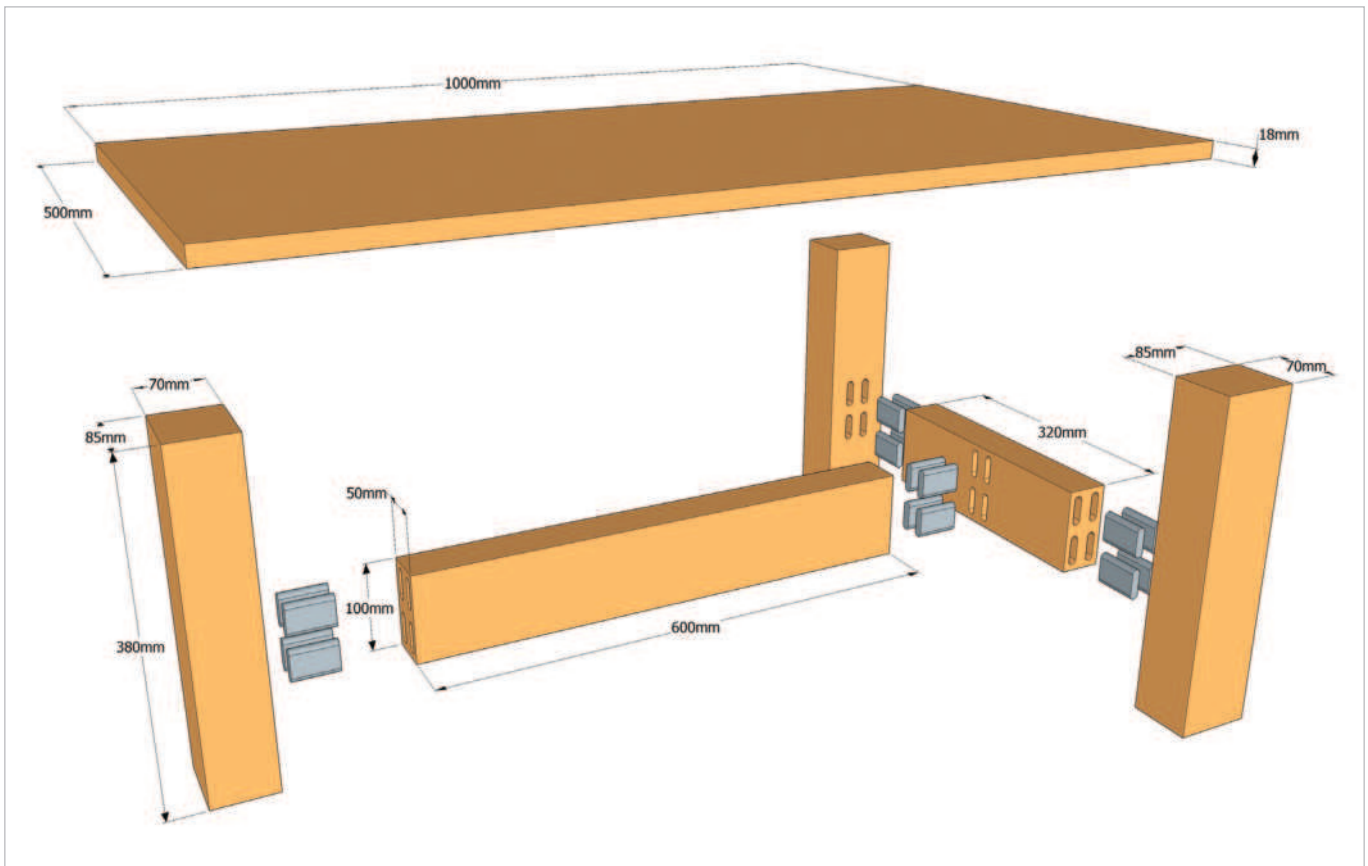
PREPARATION

1 The fence posts quickly yielded three stout legs and the two joining rails, which were planed straight and square. Large knots were retained, while small areas of beetle-affected sapwood were stripped using a drawknife. The ripped surfaces of the rails were lightly textured by overlapping, diagonal, scrub-planing.

2 Breaking down and planing the floorboards provided plenty of material to build up the table top. The surfaces were smoothed, and the edges planed square to the sides.

3 The boards for the table top were selected, before jointing and gluing up as an oversized panel. Once cured, the panel was sized accurately, the edges smoothed and the sharp edges broken.

4 The ends of the legs, which were far too large to prepare on the shooting board, were planed square in the vice and smoothed ...





5 ... before chamfering the edges. This will prevent any splintering when the coffee table is no doubt pushed around on the floor. Doing the same on the top of the legs prepares them nicely, should the pine table top be replaced with a piece of glass.

THE JOINTS

6 In the interest of speed, I chose to use loose tenons. Four 10 x 50mm tenons were used for each joint.

7 Alternatively, multiple dowels could have been used. As a rough guide, one 10mm dowel per 25mm (or part thereof) in each direction. For example, joining the 100 x 50mm rails requires eight 10 x 40mm dowels.

THE GLUE-UP AND FINISH

8 Gluing up was simple, but care was taken with clamps to ensure all the loose tenon joints closed up with no gaps. All the base parts were first finished with lacquer, which is both easier, and makes clean-up of any glue squeeze-out a breeze.

9 My preference would be for a thick glass table top, allowing the base to show through, remaining stable, and requiring no mechanical fittings. To allow for that in the future, I resisted the temptation to permanently attach the pine top into the top of the legs, fitting stabilising battens against the inside faces of the legs.

10 The screw holes in the legs can easily be invisibly filled if needed.

11 An application of stain gave the table top a pleasant contrast to the oak base, and was protected with three coats of wipe-on lacquer.

IN CONCLUSION

12 I await my daughter's verdict at the time of writing, but I'm more than happy with the result. This design, with its simple construction techniques, should be within the capabilities of relative newcomers to woodworking. The biggest challenge might be finding the character timber that sets it apart.





FRENCH POLISHING

LOUISE BIGGS TAKE US STEP BY STEP THROUGH
THIS ESSENTIAL FURNITURE RESTORER'S TECHNIQUE

French polishing dates back to 17th- and 18th-century France and became a widespread way of finishing from around 1720–50, more commonly known as the Georgian period. It is not generally used on open-grain timbers such as oak, but is very well suited to close-grain timbers such as walnut and mahogany. Providing the surface is sound, French polish will create a sealed barrier against moisture and dirt that is pretty resilient if treated with respect. That said, moisture trapped within the wood will cause problems, and dust, of course, the greatest enemy, will quickly ruin a surface that's being polished.

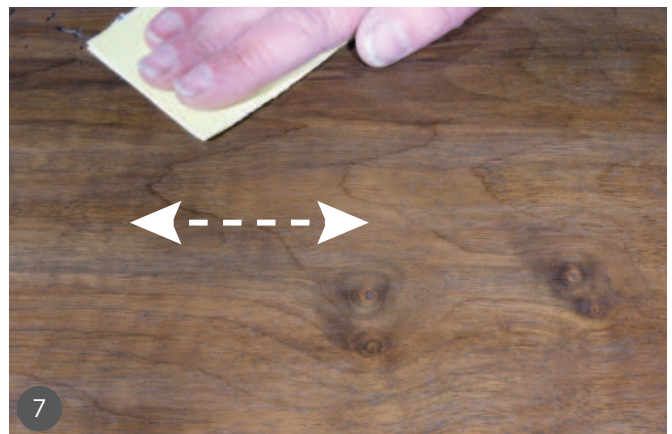
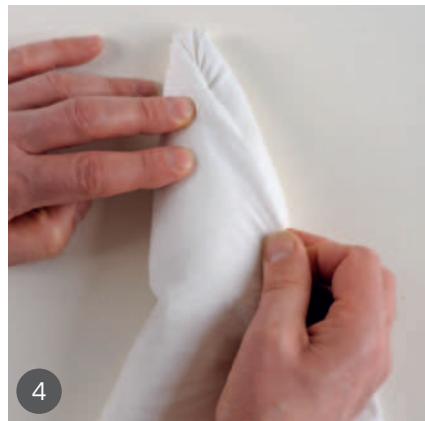
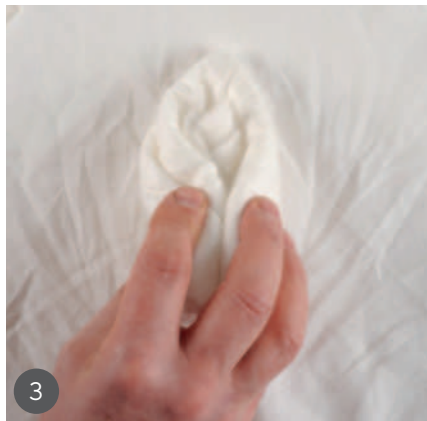
As with any form of finishing, practice makes perfect, and there is more than one way of polishing. The best way to improve your French polishing skills is to

take a prepared piece of timber or even a veneered board offcut and go through the stages. Test pieces give you the opportunity to try the variety of polishes available and to see the different tones they create on alternative timbers.

I learnt many years ago, while still at college, that this quickly highlighted the flaws in my technique – but it has also, over the years, given me the chance to try out different techniques and tips from polishers I have met along the way. It is still something I try to do, time permitting, especially when I have read something new, as I can go for long periods without polishing, depending on what type of projects come through my workshop. The terminology and stages that follow are the best way I can describe the way I was taught to French polish, and hopefully they will help you on your way.

YOU WILL NEED

- Oil stain
- Shellac sanding sealer
- Plaster of Paris
- Boiled linseed oil
- Pale polish
- Red and black polish
- Earth pigment
- Methylated spirits
- Tinted wax
- Polishing mops
- Fine artist brushes
- Grey skin wadding
- Fine cloth
- Muslin
- Glass containers
- 0000 wire wool
- Soft towelling rag



PHOTOGRAPHS BY LOUISE BIGGS

MATERIALS AND EQUIPMENT

1 Here you can see the kit you will need, as listed opposite. One of the greatest benefits of French polishing is that you do not require any very expensive equipment, unlike spray finishes. With the exception of some good quality polishing mops and artist or pencil brushes, once you have the products, most of the equipment consists of wadding and cloths.

MAKING A FRENCH POLISHING RUBBER

2 Fold a square of white wadding over to form a triangle sandwich.

3 Pull the sides in to form wings so you can see the shape needed.

4 Unfold, wrap the cotton over it, refold as in the previous step, twist the spare material to tighten the rubber and grip firmly.

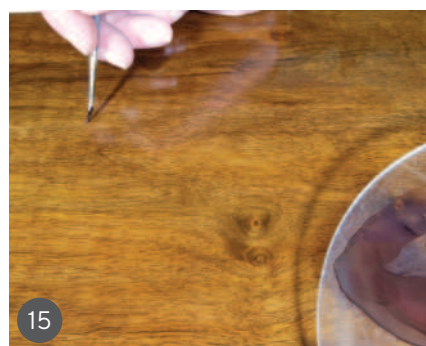
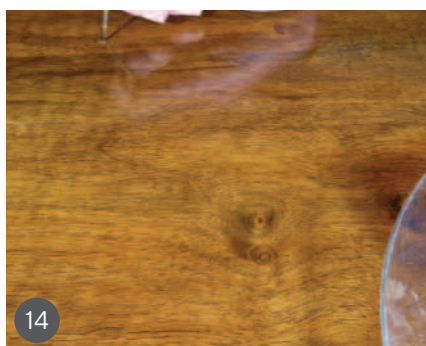
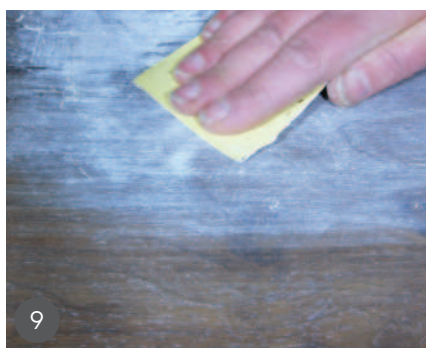
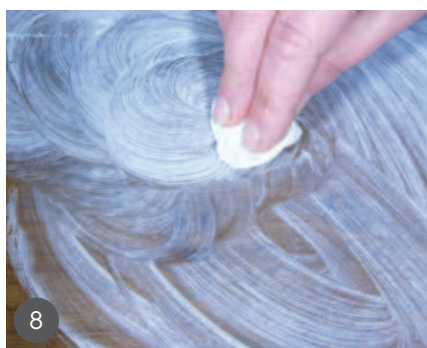
THE FRENCH POLISHING TECHNIQUE

5 Prepare your timber for polishing down to 240 grit. Using a piece of grey skin wadding, stain the timber with oil stain – you can also mix the stain colours. The wadding, available from polishing suppliers, tends to hold the stain without

soaking it up and drying, which allows the stain to be applied easily with an even coverage. Suitable protective gloves should be worn, and allow 24 hours to dry.

6 Decant some shellac sealer into a jar and, once the stain is dry, apply two coats of sealer using a polishing mop. You don't need to denib before applying either coat of sealer, but you need to allow the first coat to dry thoroughly before applying the second.

7 Next, you need to denib the surface using 320-grit abrasive, going across the surface with the grain direction at all



times. You also need to be careful and aware of any corners and edges, so as not to cut through the sealer and stain. In general, the surface can be denibbed between coats if required using 320 or finer grit paper, which will also flatten the surfaces. Extreme care must be taken not to cut back too heavily or to overwork any single area. Where edges and mouldings are present, be very careful not to cut back aggressively on these edges as you can very quickly cut through the layers of polish.

8 To fill the grain, proprietary grain fillers are available, but the traditional method is to use plaster of Paris, and this is the way I grain-fill restoration pieces.

Put some plaster of Paris in a suitable container and, using some wet muslin cloth dipped into the plaster, apply into the grain in a tight circular motion until you achieve an even coverage.

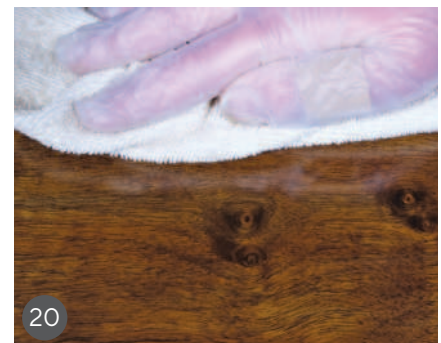
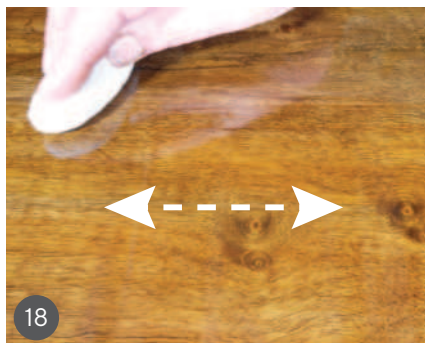
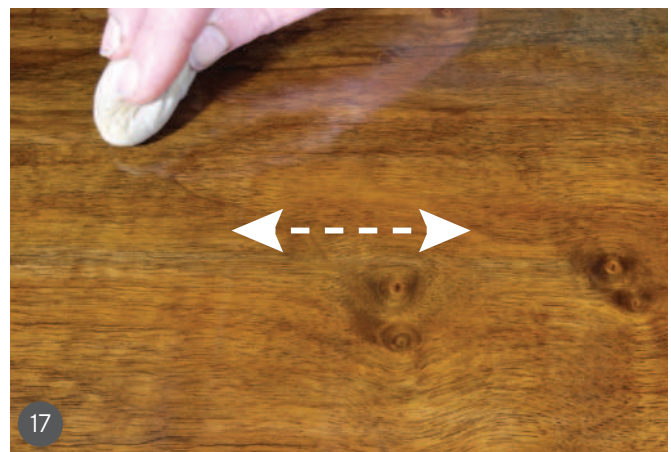
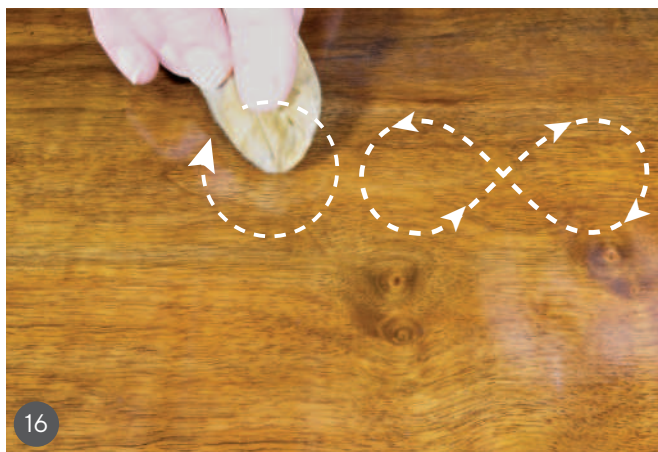
9 Leave the plaster of Paris to dry for 24 hours before carefully cutting back with 320-grit abrasive in the direction of the grain; this will allow for the excess plaster to be removed without cutting into the sealed surface and creating a patchy surface.

10 Remove any remaining dust from the plaster with a tack cloth; this will leave a clean surface with the flecks of plaster

within the grain. Tack cloths are effective as being impregnated with a resin means they collect all the dust without depositing it back on to the surface you're working on.

11 To colour the plaster, wipe over the surface in a circular motion, with a pad of muslin soaked in boiled linseed oil. This is used in preference to raw linseed oil as it has a drier additive, which helps to speed up the drying process.

12 After leaving it for a few moments, remove the excess oil using a piece of cotton cloth wiped with the grain direction. You can then leave the work to dry.



13 Brush the first coat of polish on using a polishing mop. In this instance I used pale polish, but different-coloured polishes can be used to obtain different results, depending on whether the timber is light or dark.

14 The surface I was working on had a small amount of worm damage that had been filled when the surfaces were prepared for polishing. To deal with this, use localised colouring out, which is also referred to as 'picking out', using a fine-tipped artist brush with a blend of red and black polish and a small amount of earth pigment; this will give the mix the yellow tone required.

15 Areas where the stain has not taken quite so deeply will need to be toned into the surrounding areas in the same way. The colour can be mixed on a piece of glass as shown, or in a small glass container, depending on how much is required.

16 Once the colouring out has thoroughly dried, body up the surfaces using a polishing rubber – a fine cloth over grey

skin wadding – and pale polish. Work the surfaces in a circular motion, although a figure of eight motion can also be used. As the layers of polish are built up, gradually move the rubber round to run in the same direction of the grain until you achieve your desired depth of shine. If desired, white mineral oil can be used at this stage to aid the smooth flow of the rubber and increase the depth of shine a little quicker. When using the polishing rubber, it is best to come into the work with a smooth action, preferably away from any edges. Starting at the edge of a surface will cause runs down the edges as the rubber is taken over the edge. Start a pass over the work before smoothly bringing the rubber down on to the surface, then lift the rubber off in the same manner.

17 Once you have achieved the desired depth of shine, it's time to carry out the 'stiffing' stage. This involves mixing 50% pale polish with 50% methylated spirits, making several passes over the surface with straight strokes in the grain direction. The aim of this stage and the next is to slowly lift any white mineral oil from the surface if you used any.

18 You need to carry out the 'spiriting off' stage in the same way with a cleaned-out old polishing rubber, but this time it will be charged with 100% methylated spirits. You must take care not to cause any lines on the surfaces where the pass across the surface overlaps with the previous one or to have the rubber too wet, as this will lead to burning the polish off the surface. This stage should also lift any remaining oil from the surface. If mineral oil has not been used on the surface, then the stiffing and spiriting off stages are not so critical. I tend to follow through the stages completely, regardless of whether I've used oil or not.

19 Once the surface has hardened off, it must be wired and waxed. I used a tinted wax on a pad of 0000 wire wool, which was taken over the surfaces in straight strokes with the grain with an amount of pressure to slightly cut back the shine.

20 When the wax has dried for 20 minutes or so, you can buff the surfaces up using some soft cotton towelling, still working with the grain.

Beautiful **AND USEFUL**

NORTH CAROLINA-BASED **BRIAN BOGGS**
BLENDS ERGONOMICS WITH AN ARTISTIC
PRESENTATION OF THE BEAUTY OF WOOD
IN HIS STUNNING CHAIRS



Guitar legend Steve Vai is among the fans of Brian Boggs' chairs. Steve says his Sonus Guitar Chair is like sitting on wooden butter, with his spine kept straight in perfect comfort. 'In all my design work, I try to honour the beauty of the tree my material comes from and use its strength with good engineering artfully rendered,' says Brian. 'I do my best to avoid wasting time or material, but don't let that box me in too much. All of my work considers ergonomics at its core. I think of how people use and experience this thing and how each detail addresses fluid function, beauty, strength and general market appeal. It is important that my work moves visually when looked at, fluidly through the making process, profitably out the door, and warmly into the hearts of its new owner.'



So how do you make a wooden chair both ergonomic and comfortable? 'I start with a set series of points in space. These are the centre points of the arcs that make up the ergonomic balance,' explains Brian. 'People are always asking me if I customise chairs to fit all sizes of people. The answer is yes, but only once or twice a year. Nearly everybody finds our curves fit. Even couples that come in where the man is 6ft4 and the woman 4ft10, both find our chairs fit. The key comes with the points in space, not lines and angles.'

This focus on ergonomics led to Brian working with guitarists to create the Sonus Guitar Chair. A low round seat allows full freedom of movement for instrument, arms and elbows; thick leather feet protect the floor and stay

silent during recordings, and the carved seat and back promote an ergonomic, upright posture which reinforces the lumbar curve of the lower back and sits below the shoulder blades. Brian builds the chairs to a height customised for each guitarist, and the chairs also promote good circulation by placing legs at a comfortable angle. 'It's like my butt was moulded into wooden butter. This is my go-to chair for sitting and playing,' says Steve Vai. The chair has also been endorsed by Def Leppard guitarist Phil Collen, who calls it 'stunningly gorgeous', adding: 'It's hard to describe the comfort.' And Men at Work lead singer Colin Hay simply says: 'Nice chair.'

Brian's celebrity clientele is a far cry from a humble beginning when he had just US\$50 to set up his first workshop.

Originally planning to become an artist, Brian took art lessons from the age of eight, and didn't think of woodworking until he was 19 years old, when he stumbled upon James Krenov's book *The Fine Art of Cabinetmaking* in the local library. 'It struck me as such an oxymoron, I had to read it. His words about the use of wood grain as an art medium and traditional cabinetry as art turned on my creative imagination in ways that I had not felt before,' says Brian. Later he read John Alexander's *Make a Chair from a Tree*, which helped him find a way into the profession that truly fit.

The first piece of furniture he ever made was a footstool built from pieces of firewood using just six hand tools, and he learned by reading, trying things out, running ideas past professionals and



having an apprenticeship with Vermont-based Windsor chairmaker Dave Sawyer. Forty years ago a local gallery owner overheard Brian talking about wanting to make chairs. 'He wanted to see one, so I went home and made my first chair,' Brian recalls. 'After seeing my work, he ordered a set of six dining chairs for his gallery. I've been filling orders ever since.'

On a shoestring budget, Brian set up a workshop in his backyard and a small storage room. 'Options for what tools to buy were few, so decisions were easy,' he says. 'It wasn't long before I was making a chair in 10 hours with no electric tools, including making the hickory splints and weaving the seat. That humble beginning keeps me grounded in the real economy of time, materials and workflow. Also, knowing what it is like to make do with so few tools and such a poor workspace makes it easy to be grateful for the fabulous shop we have now.'

GROWING AND THRIVING

Brian is now based in Asheville, North Carolina, after living and working in

Berea, Kentucky, until 2008. 'I had wanted to move to Asheville for over 15 years,' he says. 'Watching how the creative community here was growing and thriving, I knew I wanted to be a part of that. The economic slowdown of 2008 and my divorce from my first wife shrank my business and my life to a more portable size. Moving to Asheville was an easy decision.'

He is now based in an 11,000 sq ft workshop, of which around a quarter is office and gallery space, and the big bay door at the back is kept open as much as possible for a view of the Biltmore Estate's forest. 'The space is more than adequate, and my legs get a workout every day just getting around the place. In fact, according to my Fitbit, I log five to six miles a day inside the shop on average,' says Brian. There are several bench rooms in an air-conditioned part of the building separate from the machine room, for quiet work.

'I learned early on that the more skilled a craftsman, the less he or she needs,' says Brian. 'But as we depend increasingly

on hard-to-find employees, our need for increasingly complicated tools grows. I have always thought long and hard before adding any new machine to our shop. During that time, I often learn how to manage new challenges with our old machines. A Yates American 30in bandsaw claims the heart of our production. We have the usual complement of jointer, planer, lathe, tablesaw, wide belt sander and so on, and we currently even have a 25 ft-long, 5 ft-axis CNC router sitting in the back of the shop. This machine belongs to a sub-contractor who makes many of our parts now.

'Even with all that, I know that it will always be important to focus on getting the most out of a small machinery kit that will keep our shop fit. My preference is for versatile machines. That preference has historically put bandsaws and routers at the top of our priority and the centre of my thinking about furniture design. I use a lot of hand tools as well to refine details. I enjoy that quiet work, as do our employees. I avoid poorly made tools of any kind, and any tool that cannot be



quickly assimilated into our routine.'

Commissioned work makes up around half of Brian's business, although he would like to bring that proportion down closer to a quarter, as he prefers working on his own collection. 'The repetition and development over years allows me to refine every detail and improve the design overall to levels one-offs don't reach,' he explains. When working on custom designs he works closely with a client, listening to exactly what they want and gathering information about the space for the piece. 'More often than not, I already have a design somewhere in my sketchbook that is close to what they need. I try as often as possible to bring life to ideas I have already thought through, and sometimes the idea is simple and clear enough that I can build a model of the piece while the client talks to me,' he says.

When he is designing to fill a space in the company's portfolio he will imagine needs, preferences and the price-to-value balance. Brian also designs more recreationally in his free time. 'It is often

on vacations, when some new experience opens up my imagination to let in a new idea. In this case, I just run with what seems to have a life of its own, like something trying to be born through our shop,' he says. 'These designs often take years to find the right opportunity to be made, and most still wait in dusty sketchbooks.'

He adds: 'While that may seem like a waste of time, these exercises create nodules for other ideas to grow from when I am talking to a client. In all these design efforts, I allow a certain amount of free thinking and buffer that with a knowledge of shop realities and limitations and what we are really good at. We have the ability to do just about anything here – the client's budget sets the limitations. Unfortunately, many clients don't know enough about what things they are looking for should cost, so they don't know their budget until they feel sticker shock. Then we look at simpler ideas. There's nothing wrong with simple – simple can be beautiful. But we like making things

as artfully and creatively as a budget allows, so I tend to start at the top and find out how far we need to simplify. We don't always find alignment, but we do often enough to keep cool stuff moving through the shop.'

THE MAGIC IN WOOD

Brian still gets excited about all sorts of woods, from pine and hickory to walnut and quilted maple. 'Every species has its own magic, and I love the variety we get to work with,' he says. We generally buy wood in the log form and have it custom-sawn and dried for us. This ensures the best material available, and having it cut specifically for the product being made with it allows us to easily create beautiful pieces fluidly.' His preferred finish is Conversion Varnish for indoor furniture. 'It's one of the most durable finishes available and dries quickly,' he says. The business also makes some upholstered chairs, although the upholstery is not done in-house, and uses stainless steel in its Sunniva outdoor line. For these pieces, he prefers not to use a finish



PHOTOGRAPH: RYAN THEEDE

and let the wood grey naturally. 'Lately, we have been using quite a bit of hemp composite in our Cio chairs. It's amazing how integrating plant fibre to enhance strength and stability opens up design possibilities,' he says.

Dining furniture is the creative focus of the business. Brian says: 'I love cooking and serving fine dinners, as does my wife and business partner, Melanie. We have fun dining with family and friends, and as such, the dining room is the second-most important part of the house, number one being the kitchen. I have a lot of creative energy to apply there. In fact, a lot of my design ideas emerge while seated at the dining table. My very first chair was a dining chair, and in my first years, dining chairs made up 80% or more of my production. Now they are about 45% because we make so much custom casework.'

The business website features a number of rocking chairs, although these only make up around 5% of the company's output and are not as popular as they were in the 1980s and 1990s. While making rocking chairs is just like making any other chair, designing rockers poses extra challenges. 'I have a formula, or map, worked out for making a chair comfortable, so getting a good sit is not that hard now – making the chair balance is the trickiest part,' says Brian. 'I play with refining how each part relates to the other visually and how to make the joints as strong as possible.'

The totality of rocking chairs – and any chair – is seriously complex. Computers are complex too, but broken down to their basics, it's all ones and zeroes. Chairs are like that. Once you have the foundation of what works, you can break the process of design down to what is akin to a computer's ones and zeros. Then each thing is simple. You just have to keep stepping back to look at how all these ones and zeros relate to each other. That relationship is where the magic is.'

His advice to budding chairmakers is to start simple, and don't add rocking in until chairmaking feels like second nature. 'In my apprenticeship with Dave Sawyer in 1985, I insisted on making a rocking chair as my first Windsor,' he recalls. 'I had made a lot of chairs by that point, and I felt like I could pull it off. I did. The chair came out fine. But I missed out on a lot I could have

learned about technique had I chosen a simpler chair. The apprenticeship would have been a lot less stressful as well. In learning chairmaking, too often the focus gets put on the product. If you keep the focus on mastering techniques and line up the projects to push that development naturally, chairmaking will be a lot more fun, and you'll learn faster and better. Less energy gets caught up in the treachery of what you are doing, and you can have time to grasp the nuances each lesson has to offer.'

INSPIRATION OLD AND NEW

Nowadays Brian simply loves what he does. 'I enjoy chairmaking over any case work in general. That is largely because we make a single design for years, giving me time to develop it gradually as my sense of what it is and what it can be matures,' he says. 'I am inspired by people who work from the heart and have mastered their craft, whether that is cooking, writing, surfing or packing groceries. Any time I experience folks doing their absolute best, I am inspired to do the same. Ideas come from our whole history of furniture and all forms of nature. Old ideas help me stay grounded in what is expected. New ideas just seem to drop into my imagination often when I am not really trying to think of something. Most of the designs I make come from a hybridisation of what others have done but assembled in a new way or altered in a way that seems to be more effective.'

Forestry conservation is extremely important to Brian. 'Everyone I know in the furniture industry or the studio woodworking field holds strong values





supporting forest stewardship,' he says. 'Our collective consciousness in that regard leads us to make supply choices that support sustainable forest management. Groups like Forest Stewardship Council, Greenwood and the Sustainable Furniture Council grew from a shared vision of stewardship of our planet. Because we consume wood in our work, we share the belief that we have a responsibility to purchase, design and build in ways that support forest health. Some of us are led by consumer-driven pressures, others lead by example. In our shop, we use only wood from well-managed forests.'

Brian co-founded Greenwood in 1993 and has been supporting it ever since. Greenwood trains artisans and teaches and practises sustainable forest management in Honduras, Peru and Puerto Rico, building community-based economies in support of forest health. 'I am proud of the work we have done there and enjoy reading about how some of the youngsters we taught nearly 30 years ago, now with adult children, are continuing to build on what they learned from Greenwood. Every woodworking professional has opportunities to support organisations like these, and many do,' says Brian.

He is currently refining his Cio line and developing a new upholstered chair called Herron. The Cio chair is the most challenging project he has ever worked on. 'The leg bending has been

treacherous because of the bulging shape around the seat being so close to the bend,' he explains. 'But the seat itself is the most challenging aspect. I have never heard of or seen a combination of wood and composite like what we are doing, so I cannot find any historical or current information on how to do this efficiently. We have been successful with this, but it has challenged every skill I have and forced me to develop some I did not have.' His next plan is to work with Melanie to get his work into more stores and showrooms, and going forward he hopes to work with a manufacturing partner, allowing him to focus more on design and marketing.

The past couple of years have been tough for the business. Brian says: 'During the lockdown we sent most of our staff to work in their home shops, with a core crew at the shop supplying parts they could finish by hand. That

was as inefficient as you can imagine, but kept us going, kept work getting to our customers and kept our whole team on board. Nearly half our staff got Covid over the past two years. In the second year of the pandemic, we suffered huge employee turnover. This had nothing to do directly with Covid, but odd and unrelated issues took them elsewhere. We never did find replacements with the same level of craftsmanship. The impact of two tough years in a row will certainly impact our business strategic thinking. How it will impact us directly in the future we don't know, but we will certainly be keeping our eyes and minds open.'

As well as making furniture, Brian occasionally writes for woodworking magazines and used to teach. 'Writing forces me to question why I do things the way I do and helps develop my thinking about my work,' he says. 'Teaching did some of that as well, plus I always learnt new things from my students, who were mostly middle-aged professionals who had been very successful in their fields. Being exposed to well-honed minds like that always opened up my own thinking, allowing new ideas to form or be shared. Both writing and teaching have been key to my development as a craftsman and designer.' When he's not working Brian loves to cook – especially outdoors on a wood fire – and he also enjoys hiking and fishing. 'Wherever I am, I keep a sketchbook to hand to capture ideas that occasionally drop in unannounced,' he says.

brianboggschairmakers.com
[@brianboggschairmakers](https://www.instagram.com/brianboggschairmakers)
greenwoodglobal.org



A TABLE FOR THE NATION

WE CATCH UP ON THE FINAL STAGES OF THE FENLAND OAK PROJECT AS THE SPECTACULAR TABLE IS UNVEILED



Regular readers will remember the Fenland Black Oak Project (see *F&C* 284 and 293), the incredible undertaking to build a table from a 5,000-year-old black oak tree. This giant 13m-long table, large enough to seat 50 people, was unveiled in Ely Cathedral in May.

The story behind the table is as remarkable as its size. The black oak was unearthed in Wissington Fens, south-west Norfolk, in 2012 – Her Majesty, Queen Elizabeth II's Diamond Jubilee year. As the table was put on public display in 2022, the Platinum Jubilee year, it has been dedicated to the Queen in commemoration of her long reign on the throne.

The table was the brainchild of Fenland black oak specialist Hamish Low of Adamson and Low, cabinetmakers in Kent. As lead craftsman and chair of the project, Hamish has called upon much support over the past 10 years. Key sponsors are Peter and Clare Shropshire, John and Trish Shropshire, Ely-based Malco Freight, Logosol UK, Sackville Oak Frames and Kent and London-based furniture designer-makers Steve Cook and Mauro Dell'Orco, all of whom have supported the project from day one.

The project was entirely funded by private individuals and some charitable foundations and trusts. Full details of sponsors



PHOTOGRAPHS BY FENLAND BLACK OAK CIO



are available on the project website and display panels at the cathedral. Other support has come from the Building Crafts College (BCC) in Stratford, London, which allowed the use of its workshop facilities and encouraged students from its cabinetmaking and woodworking courses to become involved.

The table made its journey, on board an articulated lorry due to its size, from workshops in Kent to Ely, Cambridgeshire, on 9 May to be installed in readiness for its residency in Ely Cathedral, where it is now on public display. The public unveiling was attended by HRH Princess Anne.

- 1 HRH Princess Anne attended the unveiling event at Ely Cathedral on 9 May
- 2 A view of the table with its leaves up
- 3 Putting the table together for display at Ely Cathedral
- 4 A final buff up before the unveiling





WHERE IT ALL BEGAN ...

In March 2012, an astonishing black oak specimen was unearthed from the Fenland peat. The farmer who discovered it while ploughing immediately contacted cabinetmaker and black oak specialist Hamish Low to assess the viability of its preservation.

At 5,000 years old and over 13m long, this Fenland giant was spectacular. The Jubilee Oak, as it became known, is a very rare and special example of black oak. The sheer scale of this tree is what led to its extraordinary degree of preservation. It was so vast that its apocalyptic descent would have smashed and crushed everything in its path, burying it in the silt of the forest floor, which then formed an airless 'grave' around it, and there it lay for thousands of years.

This rarest specimen provided a unique opportunity to give a fascinating insight into the majesty and grandeur of the ancient high forests that covered much of Britain thousands of years ago. We had to preserve the full length integrity of this tree. To cut it into more manageable lengths 'was unthinkable', says Hamish.

PRESERVING THE TREE

To preserve black oaks they must first be converted into planks in order to manage even rates of water extraction. Once dry, the planks are preserved in perpetuity. It is impossible to predict what any tree will yield before it is opened up, but the Jubilee Oak yielded 10 magnificent, breathtakingly beautiful consecutive planks quite unlike anything seen before.

Black oak must be dried artificially as traditional air-drying is too aggressive. The milled planks were transported to the BCC in east London – the road outside the college had to be closed while the planks were carefully loaded into the dehumidifying kiln, which was designed and built specifically to dry the Jubilee Oak planks.

In order to dry planks of this length, the 15m kiln had to contain three dehumidifiers and 11 additional fans. Complete control over air flow, moisture extraction, temperature and relative humidity was essential. Eventually, after nine months, the dehumidifiers were switched off for the last time. The planks had shrunk by over one-third of their sawn thickness, a quarter of their width and even 150mm in their length, and yet were flat and true for over 13m.

THE TABLE DESIGN

For this challenging project, the design team came up with an innovative, creative solution that remained sympathetic to the integrity of the Jubilee Oak. The planks were retained full length and techniques developed to enable their individual shapes and character to be used and highlighted. The team called this technique the river joint, which, while reflecting this most prominent Fenland feature, also enables the true story of the ancient high forests to be told at a glance.

The table understructure is made from patinated bronze enabling confident and multiple dismantling in stages to facilitate various functions. Bronze is also appropriate in this instance, as the age of the Jubilee Oak corresponds to the early Bronze age. To mitigate the liability of size, the two outer planks can be folded down, reducing the width of the table to just 900mm. The entire table can be pushed to the edge of a space and used as a serving table or for display.

The finished table, the result of many years' hard work by a talented and dedicated team, is truly deserving of the title 'a table for the nation'.

thefenlandblackoakproject.co.uk

[@fenlandblackoakproject](https://twitter.com/fenlandblackoakproject)

5 Where it all began: the 5,000-year-old tree was discovered in the Norfolk Fenlands in 2012 6 The tree was carefully removed from the earth before being preserved as planks 7 Four quartersawn planks were selected for the table top 8 Work on the table was carried out at the BCC in east London 9 The making team produced a spectacular table fit for a queen





PHOTOGRAPH BY DOM DUDKIEWICZ

OMNIUM JOINT

DOM DUDKIEWICZ OF BLUE WREN TIMBERWORKS
INTRODUCES A JOINT THAT'S GOT EVERYTHING

Do you enjoy your burgers with the lot? If so, then this twin, mitre-shouldered, draw-bored, wedged and haunched through mortise and tenon joint may be for you. I call it the Omnium, because like that burger we love, it has a bit of everything. While definitely having multiple levels of redundancy, each element also adds value. Twin haunched

tenons maximise glue area and torsional stiffness while the wedges add both strength and visual interest. Shouldering the joint reduces the already long tenon length and the mitre provides for a more pleasing transition between the curved leg and rail. Draw-boring tensions the joint and simultaneously alleviates the need for clamps during glue-up. The

joint requires precise layout to ensure the numerous reference surfaces come together tightly. A chisel and jig are used to pare the mitres to fit and hand planes are used to tune the tenons. Other than furniture, I've used this joint for exterior applications like very large doors, where I don't rely completely on glue and want maximum stiffness and strength.



MASTERS OF WOOD

TSPS450 & TSPST450 BENCH TOP WORKHORSES

Triton's two powerful benchtop oscillating spindle sanders offer versatility and outstanding performance for a precise finish to woodworking projects every time. Now you just need to decide which is best for your workshop!

TSPS450

450W Oscillating Spindle Sander

Rotating & oscillating spindle action increases sanding efficiency & minimises burn on the workpiece

On-board storage keeps all accessories neatly to hand

Large 370 x 295mm cast-iron table for stability & enhanced material support

Dust port connects to an extraction system for a cleaner & safer working environment

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Supplied with 6 x 80G sanding sleeves 13-76mm dia & matching drums

Powerful 450W motor for demanding sanding tasks

TSPST450

450W Oscillating Spindle & Belt Sander

Dual action rotating & vertically oscillating spindle for faster sanding, improved work rate, & reduced burn to the workpiece

Large 430 x 410mm cast-aluminium table with 220 x 410mm tilting front for chamfering & edge work

Double configuration with fast, easy changing between spindle sander & belt sander minimises used workshop space with two machines-in-one

Stable work stop acts as a belt sander guide, which can be removed when spindle sanding

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On-board tool storage for drums, sleeves, belt unit, throat plates, washers, & spanners to keep accessories close at hand

Supplied with 5 x 80G sanding sleeves 13-51mm dia with matching drums & 1 x 80G belt

Watch the comparison video here!



Dimensions (L x W x H): 390 x 330 x 450mm

Weight 12.9kg

Dimensions (L x W x H): 435 x 470 x 450mm

Weight 12.9kg



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VIDEO

FELDER GROUP UK Ltd.

Unit 2 Sovereign Business Park, Joplin Court, Crownhill, Milton Keynes,
MK8 0JP | **Tel. 01908 635000** | **uk.felder-group.com**