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WOODWORKING CRAFTS

Issue 67

WELCOME



In the UK, the clocks have gone forward, the days are longer, the bluebells are in bloom, temperatures are rising and your workshops are warmer. All good reasons to celebrate the changing of the seasons with a stint of woodworking. If you're heading back into the shop and looking for your next project, we suggest some ways to customise your workbench, explain how to use marking gauges and how to upgrade your plane blade.

With the much-anticipated easing of lockdown restrictions, you can now complete your chess set ready for being able to meet friends, and brush up on your game. Make elegant his-and-hers valet stands, a rustic side table, plus a pair of multifunctional footstools to enjoy the most of your time at home until June.

If you're preparing to be reunited with your grandchildren, we have the first part of a chalkboard play house and a scroll-sawn truck for fun afternoons reconnecting, and a beautiful pencil case, if your older ones are back to school.

Our picture frame, carved platter, key fobs and toolbox projects would make lovely gifts for family and friends you missed connecting with at Christmas, and a feature on our mobile garden house will have you pining for long summer days.

As always, we love to hear from you and see your latest work, so please contact us at WWCEditorial@thegmcgroup.com or on Instagram [@woodworkingcrafts](https://www.instagram.com/woodworkingcrafts)

Happy woodworking!

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

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WOODWORKING CRAFTS

If you would like to be featured in *Woodworking Crafts* please email wwceditorial@thegmcgroup.com

A woman's dress with a large red rose pattern and a man's suit hanging on wooden valet stands. The dress is white with large red roses and green leaves. The suit is dark grey. The stands are made of light-colored wood.

HIS & HERS VALET STANDS

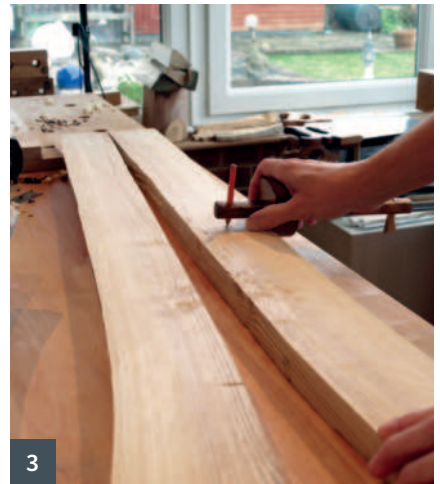
The Peacock bedroom will be much tidier now that Mitch has made a pair of silent butlers to keep their clothes off the floor

I've been making some items from ash recently, in celebration of the species that is under threat from chalarra (ash die-back, *Hymenoscyphus fraxineus*). I was lucky enough to harvest a little locally, before restrictions were imposed. As that stock diminishes, choosing projects that suit the character of the log becomes more difficult. My character timber has knots, twisted grain and noticeable flare at the root swell. It was that flare that inspired me to first consider a high-back chair, which eventually morphed into these 'his and hers' valet stands.



A different approach

While the majority of the furniture I make is carefully thought out and modelled, and I produce plans to work from, on this occasion I decided to work entirely from an idea in my head. There were no measurements of dimensions or angles, no finished sizes or cross sections, they would all evolve as the build took place (what's more, I wouldn't use rulers or protractors either). One of the main reasons for this was that I just didn't know what the rough timber would reveal as I broke it apart.



PHOTOGRAPHS BY MITCH PEACOCK

Initial preparation

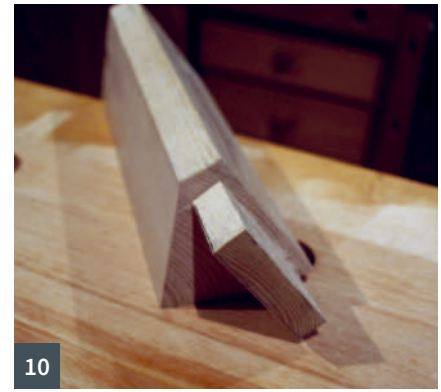
- 1 A draw knife and fore-plane were used to square two sides of the stock, which was then marked out to yield the four main uprights. The stock length was considered sufficient to support a lady's dress above the ground, seeing as one stand would be for my wife.
- 2 The uprights of the stands were made from a pair of bookmatched pieces, rip sawn at the bench.
- 3 Two pairs were 'nested' within the stock, and roughly marked out with a pencil gauge ...
- 4 ... and separated by sawing.
- 5 Most of this rip cut was straight and easy going, but to follow the flare I had to use my bow saw, which was slower progress.
- 6 The uprights were cleaned up, removing slight wind, but only eyeballed for symmetry in their pairs. The bookmatched figure is never quite symmetrical, and will reflect light differently, so a visual match is more reliable in my opinion.
- 7 The other parts were riven and sawn from higher up the butt. The wood was quite dry by now, not ideal for working with the froe, and neither of the top rails split as planned.



8



9



10



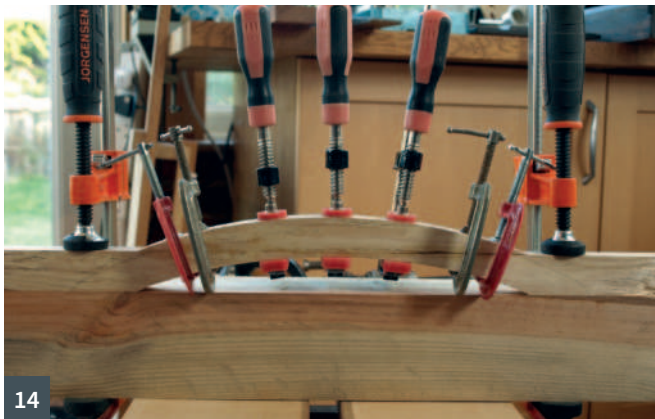
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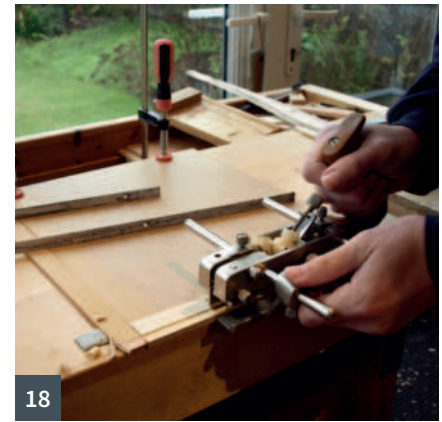
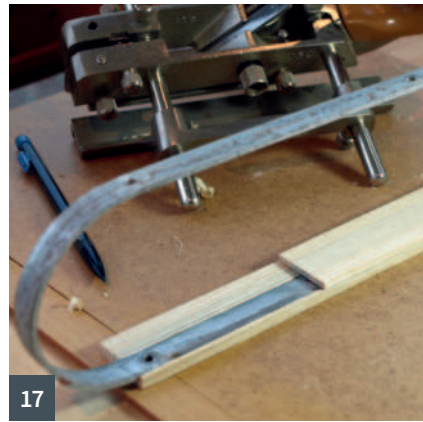
15

The parts

- 8** The central cross rail ties the main uprights and rear leg together. Its main face lies in the same plane as the uprights, but to receive a substantial tenon from the rear leg, it needs to have a somewhat triangular cross-section.
- 9** The length and angles were all judged by eye, while clamping the uprights to a board and leaning it back against a batten representing the rear leg.
- 10** Stout tenons were formed on the ends of the cross rails. These were left thick and long, and would be fitted once mating mortises were chopped.
- 11** With the maximum tenon size determined, mortises were chopped in the main uprights. It just so happened that a knot lay behind one of these, and, forgetting it was there, I managed to break it out and had to patch the rear – remember to look before you chop.
- 12** With the tenons fitted, after paring the cheeks, the assembly

was clamped together at a pleasing rake and the tenon shoulders scribed with a pair of compasses. These were then sawn and pared for a tight fit.

- 13** Tenons were next prepared on the top of the uprights. These would hold the top rails for the stands, and were cut plumb to ease assembly (if they were cut in-line with the uprights, then once the cross rail was fitted the tenons would be angled towards each other, and not line up with the top rail mortises).
- 14** Riving of the top rails hadn't gone so well, and there wasn't enough width to form a sculpted hanger. To overcome this, I created laminations for them both. One had a piece glued under each end, while the other had a curved section cut out from below and glued above.
- 15** Shaping of the top rails was mostly completed with a block plane and spokeshave, and files in the tighter areas.



- 16** Mortises were chopped in the cross rails, to receive tenons on the tapered rear legs.
- 17** My desire had been to prepare a bent lamination to act as the trouser rail, but the stock just wouldn't yield any straight grained material suitable to cut thin plys from that would survive such a tight bend. The solution I decided on was to form the rail from a length of aluminium flat bar, wrapped in the wood.
- 18** This took delicate ploughing and chopping to create the cavities ...
- 19** ... two separate glue-ups, and then careful shaping with rasps and files to complete.
- 20** After all that effort, it was very satisfying to slide it into the one through mortise and one stub mortise of the uprights.
- 21** The main glue-up was simplicity itself, with just the cross rail requiring clamps to keep everything in shape. I left the rear legs, and

the trouser rail, without glue; in use they hold themselves in place, and should we wish to move the stands they can be flat-packed.

Conclusion

Working with character timber throws up many challenges, and working with limited stock can make finding solutions difficult. Not working from plans can be daunting, but frees you up to best utilise the materials you have.

And what of the measurements? Angles were transferred from mock-ups and parts using a bevel gauge, and dimensions were transferred directly from part to part, or with dividers or pinch sticks. The next time someone asks which measurement system I use, I'll be pleased to say 'imperial, metric or none at all'.



HANDMADE KEY GRIPS

Charles Mak shows how you can make these one-of-a-kind wooden key grips over an afternoon – with hand tools only

For a small project like this, I love going full Neanderthal from start to finish – so can you as the method used is easy to master even for someone with limited experience using hand tools. All you need is a few house or car keys, some scrap wood and a few hours of shop time.

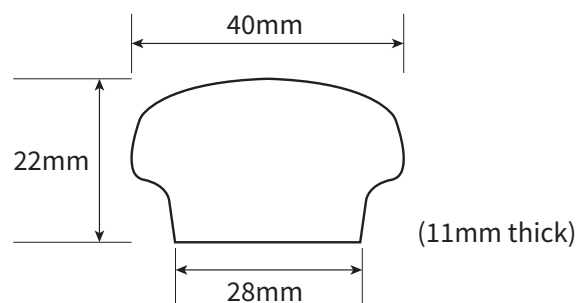
Using lamination

A key grip consists of two matching pieces with the centre hollowed out to house the key's shaft. While a router plane can be used to hollow out such a recess, the plane is not a common tool found in the average shop. I came up with a simpler solution: lamination. The grip is made of three pieces instead of two, with the middle piece cut out to fit the key's shaft (see the diagram to the right for the template). By stacking and working multiple pieces together, you can make several grips at the same time.

Selecting the wood

Any scrap hardwood lying around in your shop is a perfect candidate for this project. I like to mix types of wood, for example, using a different species for the middle piece.

My grips are about 7mm to 8mm in final thickness for a shaft that is 2mm thick. I start with blanks about 3mm thick and about 40 x 80mm in width and length.



Keygrip template (approx dimensions)



1



2



3



4



5



6

PHOTOGRAPHS BY CHARLES MAK

Preparing the pieces

- 1 Gather the blanks and trace the design on the top piece.
- 2 Use double-faced tape to hold the top and bottom pieces together, then plane the middle piece to the exact thickness of the key's shaft.

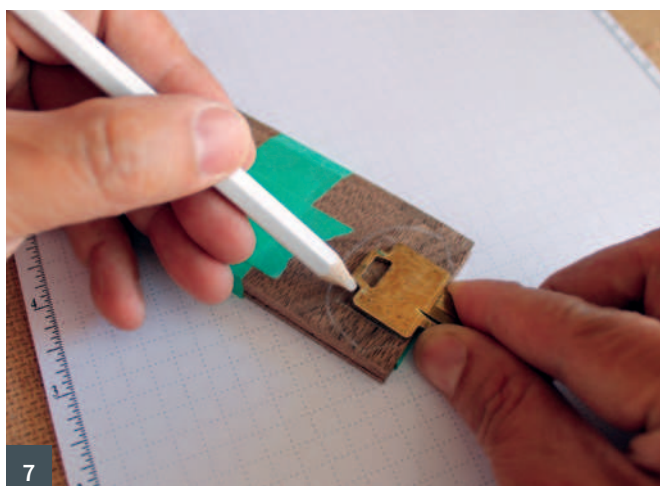
Cutting the top and bottom pieces as a stack

- 3 Clamp the stack of top and bottom pieces in a vice and use a fret saw to cut out the profile on the waste side of the line.

- 4 Leave the lower part of the waste on the stack as a handle for clamping. Finish the stack to shape with a rasp. Rasp the stack to the line in a side-to-side manner to avoid blow-outs.

- 5 For the arc, use a round rasp or file to remove the waste to the line.

- 6 Sand the stack smooth and cut the pieces out.



Cutting the middle pieces

- 7 Place the key's shaft in the centre of the middle piece and lay out the contour.
- 8 Cut out the middle piece along the contour line with a fretsaw ...
- 9 ... checking the fit of the cut-out with the key.

Assembling the pieces

- 10 To assemble, join the middle piece to the bottom piece with CA glue. Clamp together, paying attention to the alignment of the edges, and let the glue cure.
- 11 Apply CA glue to the middle piece, the key's shaft (on both sides), and the top piece sparingly. Clamp everything together.



Drilling the key-ring hole

12 After the glue is cured, drill a key-ring hole on the grip and countersink the hole.

Sanding and finishing

13 Sand everything smooth, putting a slight chamfer on the edges.

14 Finally, apply a few coats of an oil finish of your choice to bring out the grain.



You can find various ways to personalise your grips such as using a template that mirrors the shape of your car. There will be no shortage of keys for you to work on once family and friends know about your newly acquired technique. But, can you find enough afternoons to meet the demand?

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TURNED CHESS SET – PART 2

Richard Findley finishes designing and making his chess pieces



In the last issue I began the process of designing, developing and turning a complete chess set of my own design, making the knights and bishops. I looked at various sources of inspiration, and made sketches and sample pieces before turning the first couple of pieces. Now I will complete the set.

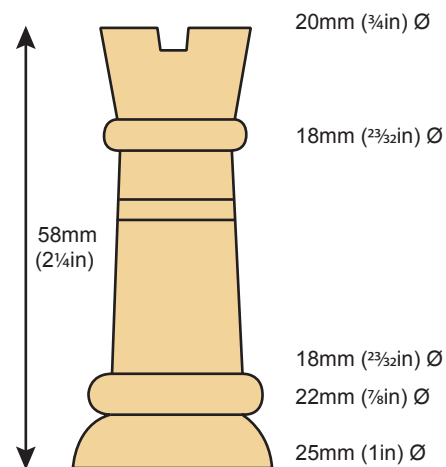
Design the rook

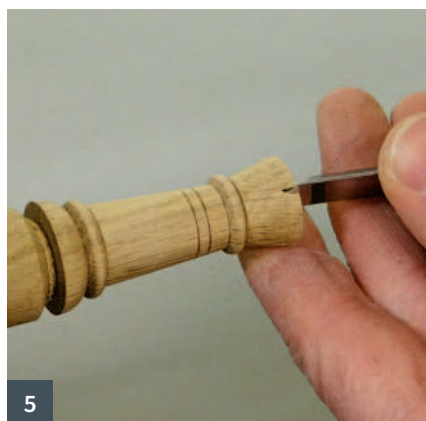
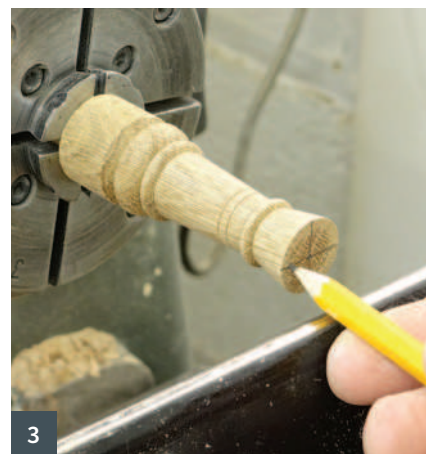
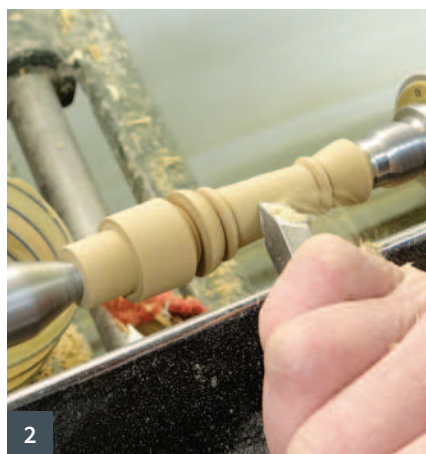
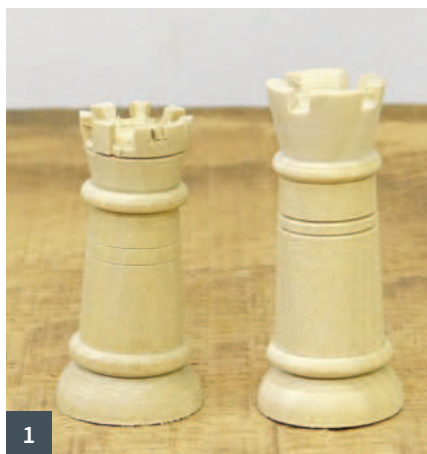
Like the knight, despite its distinctive appearance, this piece will never, ever be referred to by 'proper' players as a 'castle' – this piece is a rook. It is, however, almost always represented by a castle, or at least by a turret-shaped piece.

The base parts of each of my pieces look essentially the same, which gives familiarity and links them together as a set, rather than as a collection of random chess pieces.

The main decision I have to make is how exactly I will form the battlement detail at the top of the castle. I mull over options, which include using my bandsaw – but I rule that out on accuracy and safety grounds. I could use the piercing tool, which I recently experimented with for a different project, but rule this out too because I don't think my skills with the tool are good enough to do the job justice. I could

use my small router mounted on a jig, which I usually use to form flutes and reeds along spindle work, but decide this might be a little aggressive for such fine detail, especially on oak. I finally decide that hand tools are going to be the best option.





1 Rook samples in tulip **2** Turning the rook **3** Marking the crenellations **4** Using my dovetail saw on the crenellations **5** Enlarging the saw cuts with a chisel **6** Squaring them with a 3mm chisel

PHOTOGRAPHS BY RICHARD FINDLEY

Experimental designs

As I had for the other pieces, I make a sample of the rook in tulip. From my research, I found that the top section of the turret can either be dead straight or have a slight outward taper or flare to it. Some pieces have a subtle flaring, others are quite marked. Some have additional lines cut into them. All this needs to be taken into consideration. I decide I like the flared detail, so apply it to my first sample.

My next decision is how many crenellations, or cut-outs, I should add to (or remove from) my rook. Four is the easiest option, being a simple cross-cut in the top of the piece, but my initial feeling is that this won't be enough, so I opt for eight, which is two crosses cut through the piece.

Unlike the other pieces, which I had held between centres, it is obvious to me that the rook will need to be held in a chuck, which will allow me full access to the top. I turn the entire shape between centres, adding an 18mm-diameter tenon to the base, which fits my Axminster F-jaws.

It is easier, and arguably safer, to turn it without the bulk of the chuck in the way, although it could be done entirely in the chuck. Satisfied with my turning I secure it in the chuck and begin marking out the top detail.

It soon becomes apparent that eight crenellations will be too many. It leaves the remaining upstanding pieces too small and weak, making them hard to work, which tells me they won't last long term in play.

I always think that if something can withstand the rigours of being turned and worked, then it has a good chance of surviving

out in the wild, so I know that my second experiment would have just four crenellations.

Seeing the first sample in real life, rather than just in a sketch, also confirms that I don't need to add any further lines to the battlement area of the piece, but the flare looks good. I also want to increase its overall height somewhat. A second sample confirms the design and I can proceed to my four oak pieces.

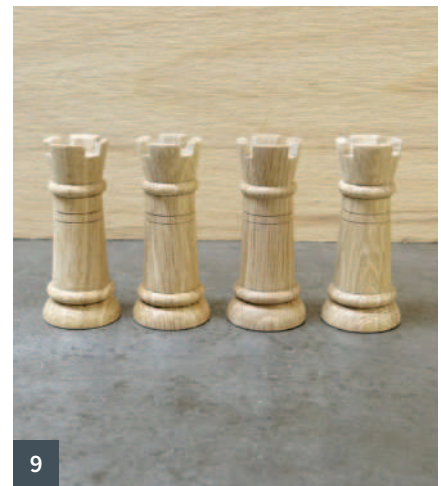
Turning the oak rooks

As with the tulip samples, I turn the oak rooks entirely between centres then mount them in the chuck. I found that marking out the top detail is a simple case of setting the toolrest just below centre height and using it as a guide to draw a horizontal line across the top of the piece. I simply eyeball the second line at 90° to the first, which I draw in the same way after rotating the lathe by hand.

Next, I use my small dovetail saw and cut along these lines. It can be tricky to make a start to the cut in oak, but once it starts the depth is reached within a couple of careful strokes of the saw.

To give the rook a realistic look, and to make the shaping easier, I hollow the top slightly, using a spindle gouge as I would to hollow a box, followed by a small, square-ended negative rake scraper to clean and crisp up the detail. However, I do leave the edges slightly thick at this point to give additional strength while I shape the crenellations.

I use a sharp chisel to enlarge and widen the saw cuts. I then use a very narrow chisel, just 3mm, to carefully clear the waste and square up the cuts. I am comfortable stabilising the rook with my hands as I



7 Cleaning up with a scraper 8 The finished crenellations 9 The finished rooks 10 Sample and finished queens

work, but it would be possible to lock the lathe in place with an indexer of some sort.

Despite being very careful here and only taking tiny cuts each time, there is slight breakout on the inside, but once I am satisfied the crenellations are even and square, I can once again use my negative rake scraper to slice the inside of the wall and clean up the slight breakout. I then sand, both under power and around the crenellations by hand before parting off the finished rook.

Designing the royal pieces

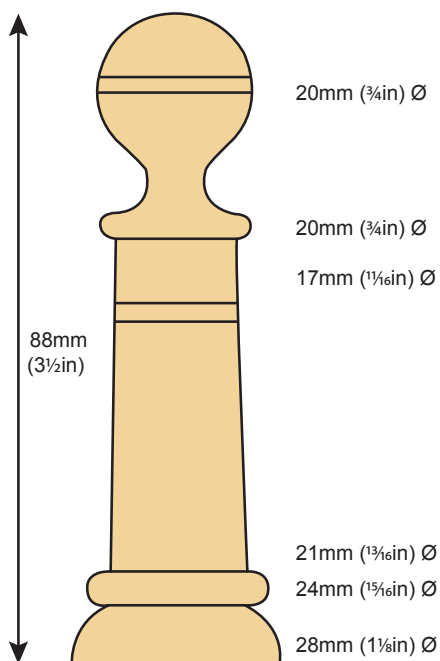
The king and queen are both reasonably simple to turn, but equally important as the more difficult to turn knights and rooks. As with all of the pieces, they need to fit within the set and be easily distinguished for what they are. The lower portions have the same half bead, smaller full bead and tapered column-like portion as the other pieces, before a necklace bead and the final distinguishing head or crown detail. As these are the tallest pieces, I decide at the sketching stage that the bases should be slightly larger than the others. So, rather than the 25mm bases on the knights, rooks and bishops, I opt for 28mm, which doesn't sound like much of a difference but is important for balance, both visually and physically. After lots of sketching I have my approximate designs set so, as before, I make tulip samples.

Making the queen

During my research, I noticed that the queen often has many similarities to the pawns, but is scaled up to the larger piece, so I begin with this as a starting point. The pawn will have a simple ball-shaped head on top of the necklace bead, so this is what I turn on the larger base of the queen. Looking at it, this is a solid start but it lacks a certain something. After some more thought and another flick through images I had collected during my research, I decide on the alteration. I lower the necklace bead and add a cove beneath the ball-shaped head, which appears to elongate it, making it more elegant and adding what would best be described as a neck to it, which I feel immediately gives my queen a more feminine and graceful appearance. Satisfied, I complete the two oak queens and move on to the kings.

Making the king

The king poses a similar issue for me, in that it is the head, or crown, that I have to get right. It seems kings often have a crucifix carved into the top of their crowns, but I want to avoid religious symbolism, so a more simplistic crown shape is the aim. I also want to make this a woodturner's chess set, with minimal carving involved, so a turned crown is definitely





11 Turning one of the oak queens 12 Sample and finished kings 13 Turning one of the kings 14 Setting the duplicating fingers

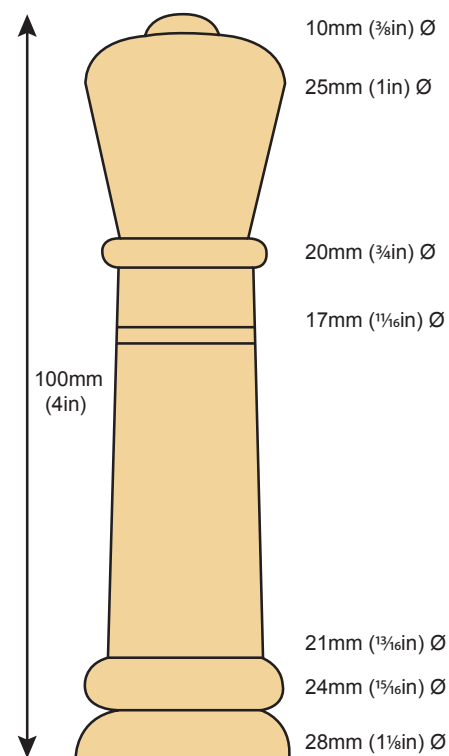
the order of the day here. After scouring many images online and in books I settle on a shape that forms the base of many chess kings' crowns. I turn the sample and feel that it kind of works, so I go with it.

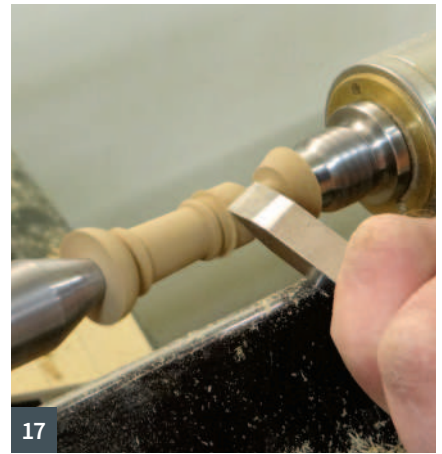
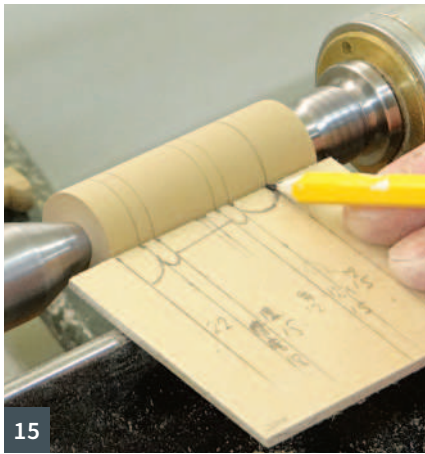
The problem here, though, is the word 'settle'. It disturbs me that I have put so much work into the rest of the set and I am so pleased with all the other pieces, so 'settling' for this king doesn't feel right. I would hate for the king to let down the set.

As I turn the first oak king, I realise the issue is that the shape of the head is slightly too wide and reminds me more of a baker's hat than a king's crown. I decide, completely on the fly, to adapt it as I turn. This is a rare thing for me – as a production turner, I have a design set before turning, and I know exactly what shapes I am forming before touching tool to wood. Designing on the fly offers new freedom but also a certain amount of risk. I always recommend during my demos that turners at least sketch out what they're making before launching into it, because designing as you turn often leads to poor shapes, yet here I am, doing just that. I console myself that these are small pieces of wood, so if I am unhappy, there really isn't much wasted.

As I reduce the diameter of the crown, the shape naturally alters and I find myself liking it more and more. Turning between centres leaves a small pip at the end of a turning and as I turn around the top of the crown, something about the remaining pip just looks right. I turn it into a small dome before finally sanding and parting it off.

This time, designing on the fly has paid off. I love the new king and feel like the slightly refined shape works perfectly with the elegant queen and the rest of the pieces, so I adjust my storyboard and set about making the matching piece.





15 Marking the details with the storyboard **16** The moment the duplicating finger drops and I reach the correct diameter **17** Rolling the ball-shaped head **18** The completed oak set **19** After dipping in the ebonising solution, the oak colour immediately begins to change **20** Oiling the piece

Making the pawns

I think that, apart from the knights, turning the 16 matching pawns is the job that most puts turners off making a chess set. Even I have mixed feelings towards them. On one hand, I am looking forward to getting my teeth into a bit of production turning, on the other, I have always disliked turning miniatures. Give me a set (or several sets) of table legs any day over miniatures. The problem with miniatures is that the level of accuracy required to make a matching set is extremely high. If a bead or other detail is a couple of millimetres out of place on a large table leg, it is barely noticeable, partly because table legs are spaced so far apart, even on a small table, but mostly because of the scale of the turning. With a pawn being only 45mm tall and the beads around 4mm wide, if anything is just a couple of millimetres out of place it really jumps out as being wrong.

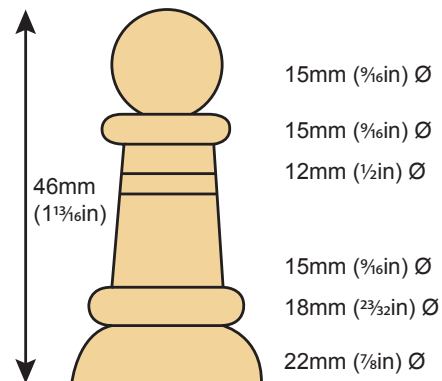
I had pinned down the design of the pawn quite early on in the process, so after turning the tulip sample, I am ready to crack on with the 16 oak pawns. I cut 20 blanks to give me some scope to pick the best ones.

Turning all of the other pieces, I had simply used Vernier callipers to set my diameters, but as there is now far more to do, I set up my duplicating fingers to make the process more efficient. The duplicating fingers are mounted on a steel rod, held in place with wooden brackets fitted to the lathe bed. The fingers are set to the diameters of the first turning and, as turning proceeds on the next pieces, they simply drop when the correct diameter is reached at critical points.

Once turned to a cylinder, the pawn is marked out using a

storyboard, as with all the other pieces. I have found chess pieces to be a good project for perfecting skew chisel use. Generally, my preference is for a 10mm beading and parting tool, which is a hybrid skew and parting tool, and works perfectly here. I set the diameters to my duplicating fingers and shape the beads. A planing cut smooths the column-like body and the tip of the tool scores the pair of lines which appear on all pieces in the set.

The ball-shaped head is the trickiest part to turn. My preference for turning spheres has always been a spindle gouge, but the tight detail between the ball and the necklace bead means a gouge isn't practical as there isn't space to easily fit the tool into the cut, so a skew of some sort is the best option. Small beads are always challenging to turn as the





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21 Buffing with my dome brush 22 The finished set with white and black pieces

same movements of the tool are required as for a far larger bead, but all compressed into a tiny space. A sharp tool is also vitally important, and it is worth remembering that oak can be very abrasive to the cutting edge, so even on these little pawns, regular sharpening is a must. Satisfied with the turning, I sand each with 240 grit, 320 grit and a fine abrasive pad. After much fussing and adjusting, I select the best 16 pawns and my set is complete.

What about the black set?

You may be wondering why all my pieces are made of oak, with no sign of the black pieces. My idea, and one of the distinctive features of my chess set, is that it is an all-oak set, but I intend to ebonise half the pieces, using an ebonising solution.

Ebonising solution is made simply by dissolving clean steel wool in vinegar over a period of time. I already had a jar full of it which I'd made some time before and had been sitting, unused, on a shelf since. I give the jar a good shake as it appears well settled and separated and it goes from a clear liquid with bits sitting at the bottom to a murky green, pond water-looking liquid. I run some through a paint filter into a second clean jar.

I cover my bench with brown craft paper and select half my set. I simply dip each piece in the jar, thoroughly soaking it, then lift out and set to dry. I am amazed at the speed of the chemical reaction. It had been quick last time, but the solution had only been sitting for around two weeks – it has now had around three months to fully ferment (if that is what it does?) and seems to be working far better. Within a minute each piece is almost jet-black. After dipping the whole set I dab the pieces dry with paper towel and, after leaving them to fully dry, I repeat the process, just to make sure they are fully coated. I am over the moon with the result.

Finishing

I happened to do this on a Friday afternoon, so left them over the weekend, although I am sure leaving them overnight to fully dry would be fine. I then oil them with three coats of my favourite hardwax oil. For the first two coats, I pour some oil into a separate clean jar to avoid any possible contamination from the ebonising solution, but for the third I am happy to work from the tin.

Each piece is thoroughly coated by dipping and brushing and allowed to sit while I oil the rest of the same coloured set. I then thoroughly wipe off the excess and allow them all to dry.

Around 24 hours after the final coat is dry I take each piece to my dome buffing brush and buff them. This process adds a subtle depth and lustre, without making them a full gloss finish. If I had wanted a higher sheen I would have buffed them with carnauba wax on top of the cured oil.

Conclusion

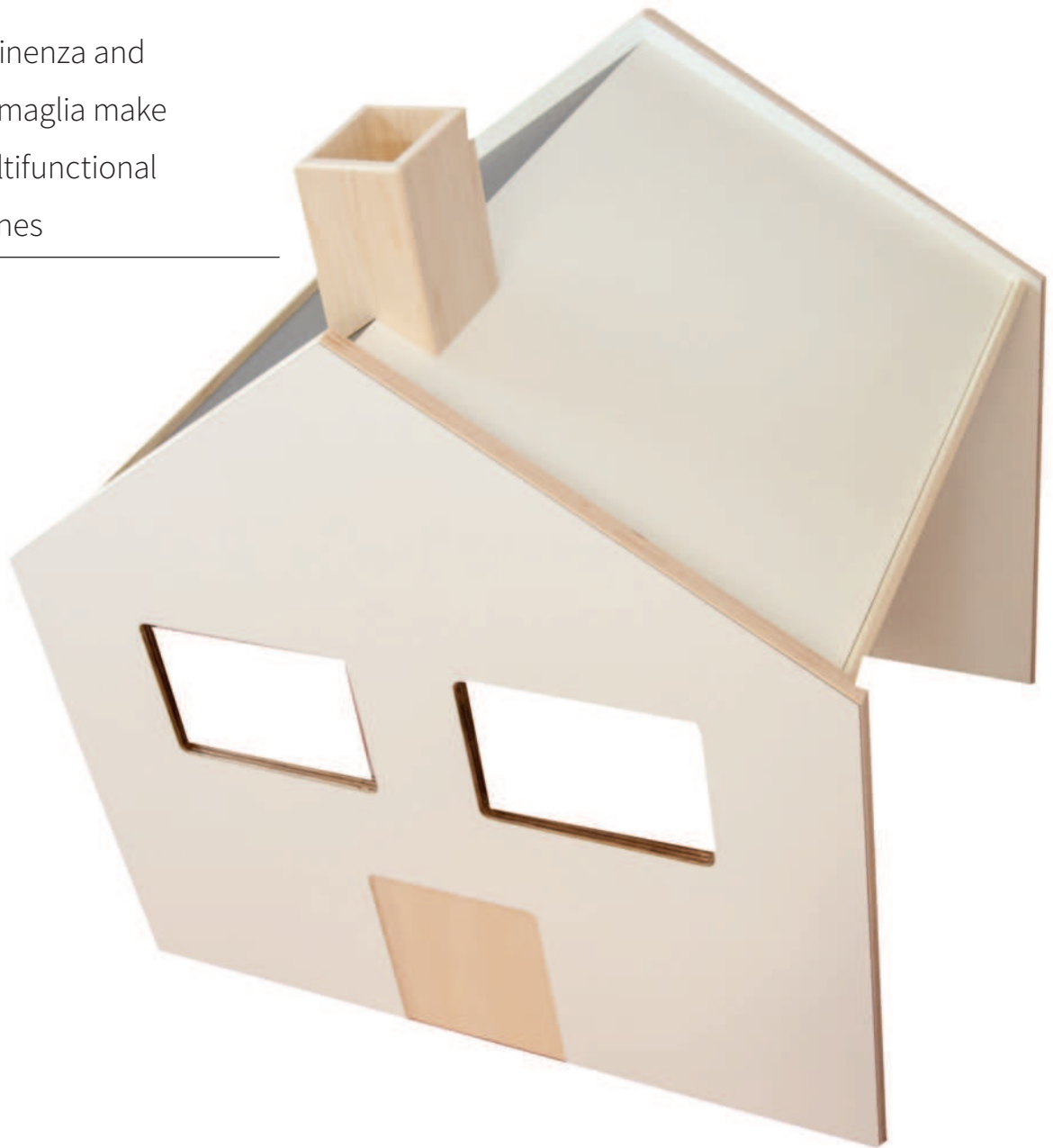
Making a chess set is something I have wanted to do for years, and I have thoroughly enjoyed every stage of the process, from design to turning, the challenge of the embellishments of the knights and rooks, watching the ebonising solution do its job, to the final buffing.

Some sets are weighted with lead in the base and have bases covered in baize, but I am happy with them as they are. I have even left the drive mark in the base, which is rare for me, but it seems in keeping with many chess sets I have seen and it doesn't concern me as it is neat and regular.

I guess all that is left for me to do is to make a games table to fully display the pieces because, despite being possibly the world's worst chess player, I have always enjoyed seeing a chess set, almost as a piece of furniture or sculpture or possibly even art.

CHILDREN'S PLAY HOUSE AND DESK – PART 1

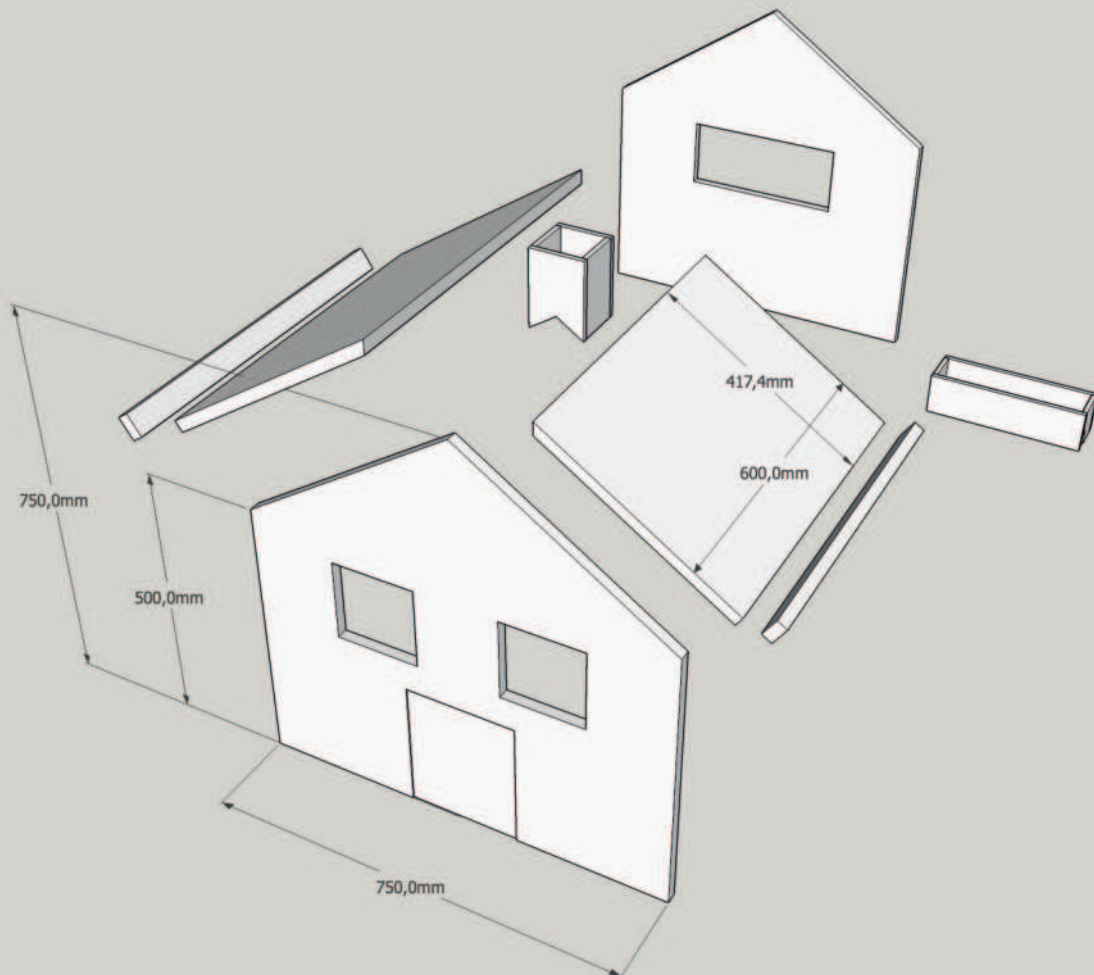
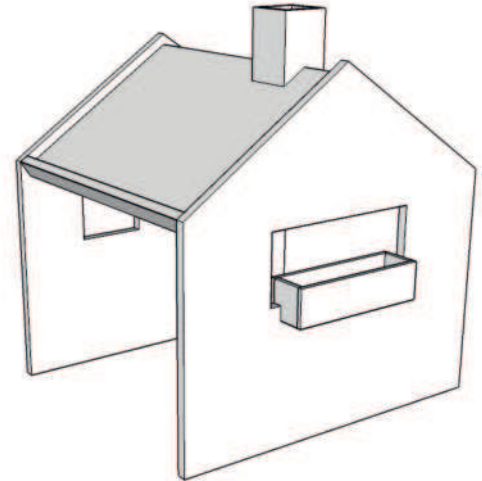
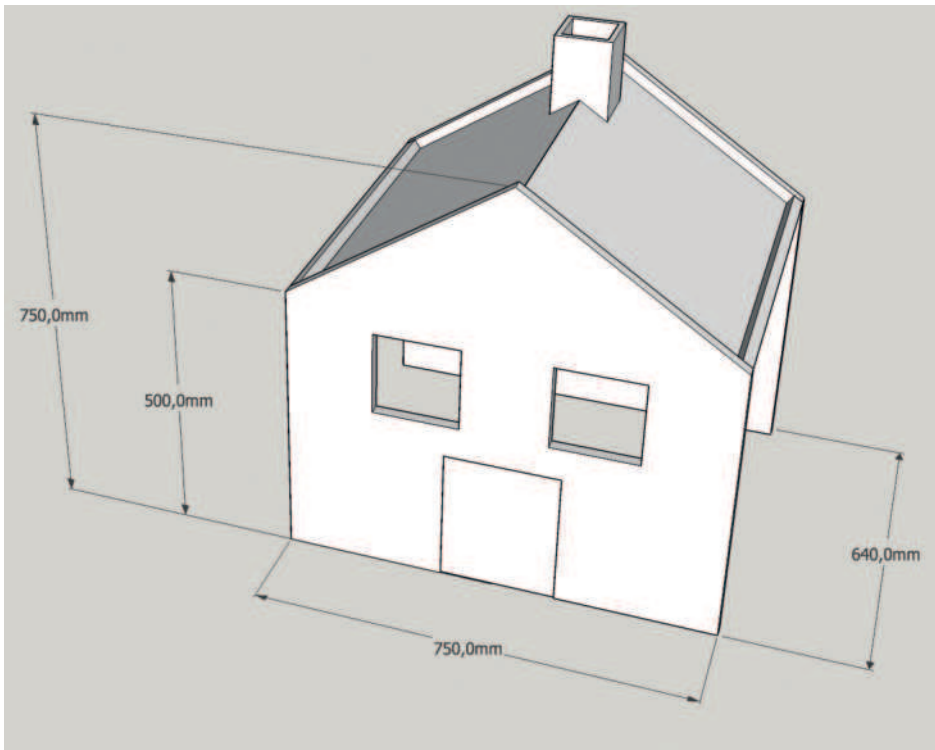
Alessandro Minenza and
Francesca Ramaglia make
a fun and multifunctional
gift for little ones

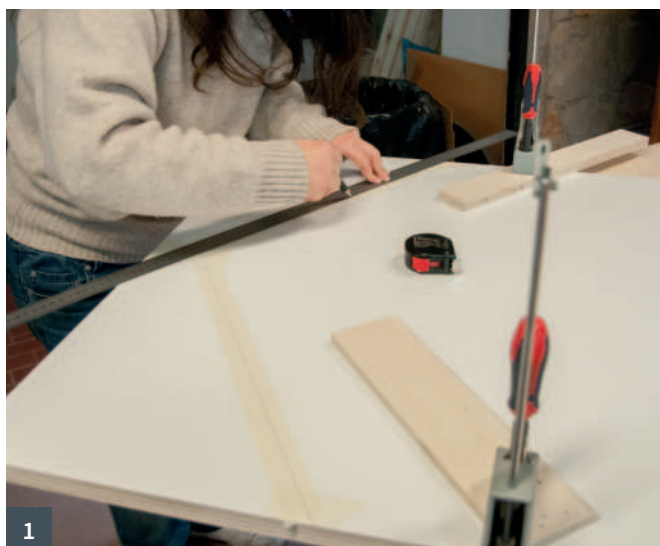


This project was conceived as a gift for our seven-month-old twin grandchildren. We wanted to make something that they could play with now, while they're just beginning to crawl, and also when they're older and want to do drawing.

Looking for inspiration on the internet, we took a cue from a fun-shaped desk, but we modified it to make it more suitable for small children who do not yet draw, and then added some extra details. We decided to create a house-shaped construction, whose roof could serve as a drawing surface and which was big enough for the little ones to go inside it and look out of the windows.

For the materials, we mostly used white bilaminate plywood panels, which is resistant to scratches and easy to clean. The exception is half of the roof, for which we used simple poplar plywood which we then painted with a blackboard-effect paint. Some details, such as the chimney/pen holder and the balcony/chalk holder placed on the window on the back side of the house, were made in solid poplar. The entire construction can be disassembled, so that it can be easily transported and stored when not in use. For putting together the various pieces of the house, we used joints with tie rods and barrels.

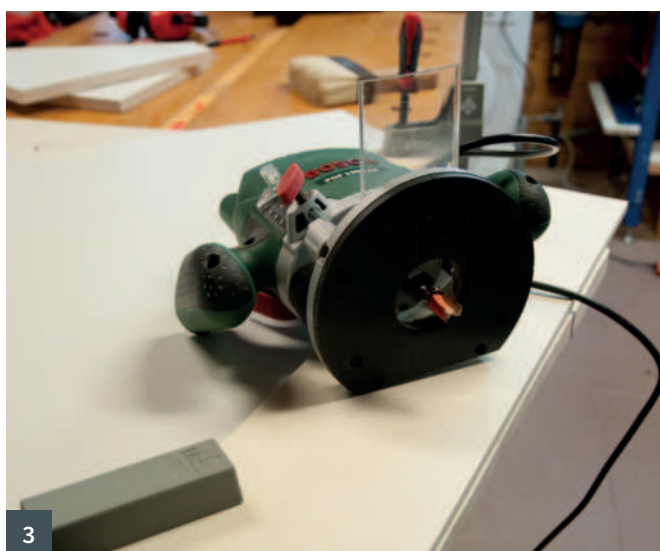




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PHOTOGRAPHS BY ALESSANDRO MINENZA AND FRANCESCA RAMAGLIA, COURTESY OF LEGNO

1 The larger panels of the pitched roof have a symmetrical point shape. Once you have found the centre of the side and the height of the angle, just adjust the two lines to get the final shape. To prevent the pencil marks on the laminate from erasing, we made the patterns using paper tape **2** Adhesive tape also reduces the possibility of the bilaminate chipping. However, when using the jigsaw you need a suitable blade and a smooth and not too fast cutting action **3** The final cut is performed with a router and a straight cutter with a bearing on the shank. Paying attention to the end cut, the one at the exit, you can obtain an edge without chipping **4** To calculate the exact angle of the junction between the pitches, an adjustable square is used, which is set on the bisector of the angle formed by the slopes of the front and rear sides of the house

Building the multilayered house structure

To build the structure of the house we used 20mm-thick white bilaminate plywood panels (only one of the two halves of the roof, as already mentioned, was made of poplar plywood of the same thickness). To avoid chipped edges, we had the pieces cut oversized then trimmed them to size to eliminate any chips. Some cuts, like the angled ones on the front and back panels of the house, were made by us in the workshop instead. To get clean cuts, we first roughed the pieces with the jigsaw and then trimmed them with the router.

Once the four panels of the structure were cut to size, we made the angled cuts on the tops of the two pitches of the roof, on the sides, where they are adjacent to each other. For this, we first measured half of the ridge angle with an adjustable square and then tilted the saw bench blade at the same angle. At this point we created the holes for the joints with pin and barrel that join the pitches to the two panels of the front and rear

sides of the house. The most suitable tool for this purpose is the dowel; alternatively, it is possible to prepare a template for drilling the holes. A third option, the one we chose, involves using the mortiser to make the holes on the edges of the two panels corresponding to the pitches (those in which the tie rods pass) and of the pillar drill for the holes on the internal face of the panels front and rear of the house and those on the inner face of the flaps (holes in which the barrels are housed).

After fitting the hardware and tightening the joints, the structural part of the house was now finished. Before proceeding with the next step, we slightly rounded the edges on the junction of the two halves of the roof with sandpaper. With such an acute angle, there is a risk of easily splintering, and even cutting the hands of those who have the job of disassembling and reassembling the structure.

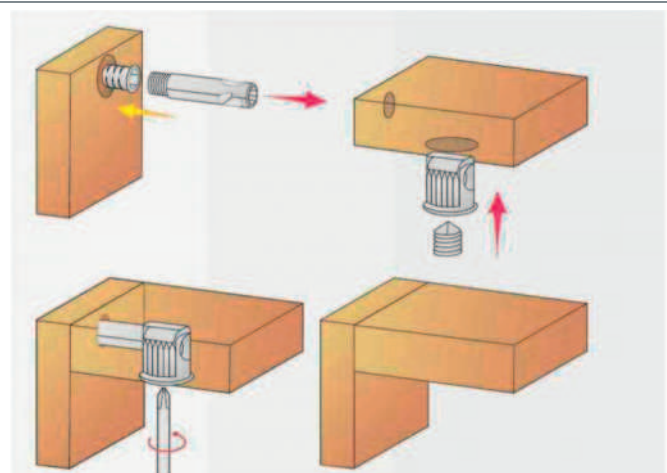
In the next issue, we'll work on the windows, balcony and chimney.

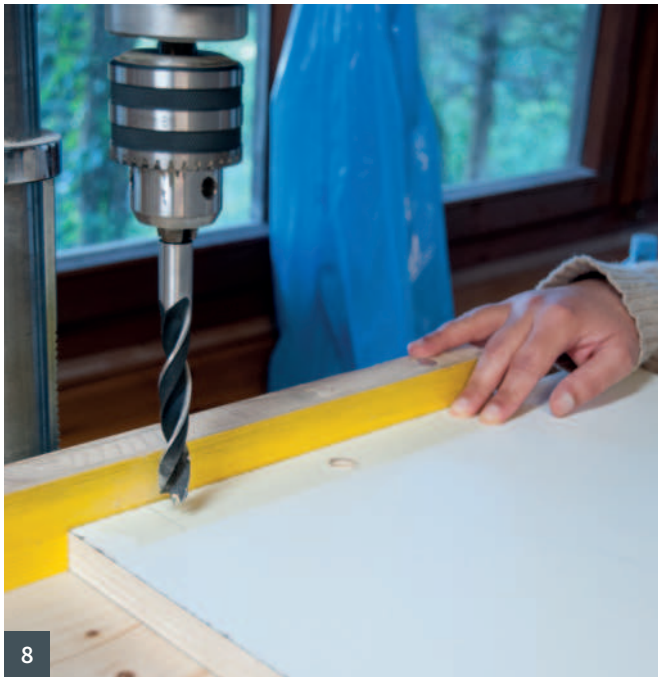


5 The tablesaw blade is then tilted by the same angle and the cut is made **6** Using a mortiser as a pillar drill, it was possible to make the holes for the pins on the edges of the two pieces used for the pitches of the roof **7** To transfer the position of the holes on the panels, metal dowel markers were used (visible on the edge of the left panel). An alignment jig with an end stop cut at the right angle was used to correctly position the flap (which is not flush with the side panel)

THE BARREL JUNCTION

This is a very popular type of hardware. It is invisible from the outside while inside the cabinet it reveals a single hole that can be covered with special plastic caps. This is the Trio model sold by Masidef and Würth. This system involves the insertion of a tie that comes out of the face of one of the panels to be joined. The tie rod can be screwed directly to the panel or inserted inside a bush with a special double thread. The second panel, shown here in a horizontal position, has a hole on the edge that allows the passage of the tie rod up to the locking element which, once positioned and screwed, exerts a traction that joins the two panels.





8 The panels with the marks produced by the dowel markers were drilled, for the barrels, with a pillar drill. Again the surface was protected from chipping by the masking tape. The holes were made on the internal faces of the flaps for the insertion of the locking elements **9** The hardware used allows the structure to be assembled quickly. Before disassembling it again, it is possible to check the squareness and take measurements for the placement of further elements **10** Despite being made up of only four panels, the house already has its own shape. Windows, balcony and chimney will complete it and give it its final appearance

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TREASURED WOODEN OBJECTS

Wood Awards winners share their favourite wooden items

Some of the most distinctive qualities of wood are its characterfulness and warmth. Unlike its more industrial counterparts, wood is a material to which people are drawn, and to which they can become attached. To celebrate this, the Wood Awards asked past winners, as well as architects and designers who use wood in their everyday practice, to share their favourite wooden object – a personal totem, knick-knack, objet d'art or tool to which they feel a particular connection.

Ingrid Petit, Feilden Fowles: Two chests of drawers

I was teaching at London Metropolitan University when it moved from its Whitechapel home and the architecture school auctioned off some of the creative workshop furniture and woodworking

equipment. Impulsively, I bid for two sets of wooden drawers. These now support a sheet of ply, comprising my desk at home.

The chests are not exquisite works of carpentry. But they are utilitarian pieces of furniture with drawers of varying depths and a door concealing adjustable shelves, pre-empting the size and organisation of stored contents. In contrast to the worn warmth of the wood, simple steel D-handles and tag holders enable access and a taxonomy of beholden curiosities.

I might have sanded and revarnished them, though to do so would erase the years of activity they have endured and facilitated. I am intrigued by their patina of craft, scarred through creative endeavour, discernible as I work. As I discover scratches, paint droplets and other marks, I recall the instrument-making course which sadly closed as the University moved.

Simone Brewster: A carved ebony bust

Wood has always meant home. Growing up in north London, my Caribbean parents built a home that sought to capture something of the lands they had left behind, through the collection of objects acquired during their younger years. This amounted to an ensemble of dark wooden carvings from the Caribbean and US, from little-known sculptors who sought to celebrate the Black Power movements of the 1960s and 1970s.

Large carved masks, small drumming figures, and cooking utensils – all these beautiful pieces carved from wood. Of all these objects, the one that has stayed with me the most is a female bust. Proud and strong, her features are hewn from one piece of ebony. On her bare chest lies a bold necklace, and in her ears hang the weight of large earrings. The texture of her hair is captured in the cross-carved lines on her head. The natural tone of the wood sits in perfect harmony with her features, acting as the smooth skin to her proud character. Dark wood will always be relevant to me. Not only is it home, it's the material that sparked my curiosity and pride in my culture.

Edward Barber, Barber Osgerby: Ethiopian stool, ca 1950s

I have been collecting utilitarian handmade objects for much of my life. The more rudimentary an object is, the more it appeals to me. I have a particular interest in bowls, stone hand tools and carved wooden artefacts.

This Ethiopian stool is one of my favourite pieces. The sculptural saddle-like seat has a clean, asymmetric geometry that has been worked with great precision into complex, compound curves. After years of use, the surface of the dense hardwood is well-worn and soft to the touch. In contrast, the feet have been cut roughly in both shape and finish, probably with an adze, powerfully illustrating the hierarchy of those parts of the stool that make contact with the body and those that touch the ground.



Darren Appiagyei: The Ashanti stool

The Ashanti stool is emblematic of Ghanaian culture. Known for its intricate design and curved seat, it's a cultural artefact.

Being of Ghanaian descent, but born and raised in London, I always felt disconnected from my origins. As a result, I decided to make a stool inspired by the Ashanti stool for my degree show at Camberwell College of the Arts, where I studied 3D design.

The stool represents me and my heritage, with the traditional characteristics of the Ashanti stool ever-present. I decided to use British pippy oak based on the fact that it's a wood found in Britain, but also because of its beautifully intrinsic clusters of small knots and durable nature. The stool has a constant presence in my studio, where it acts as a reminder of my dual nationality. It is a form of inspiration.



Alison Brooks: Maplewood scrolls

These carved maplewood scrolls, each about 30cm long, hang as a pair on a wall in my living room. They formed part of my mother's collection of 18th- and 19th-century 'Canadiana', which is the unassuming name for the art of Canada's early settlers.

My mother loved the graceful lines of these scrolls and the way they very faintly echo the work of Grinling Gibbons, one of her all-time artistic heroes. They seem to be baroquely modest, or modestly baroque, which is quite an achievement.

The scrolls are also a memento of a trip we made in 1985, while I was still a student, to visit England's historic chapels, National Trust houses, gardens and ruins. It was a pilgrimage to places where we could see Gibbons' thrilling work. Although the carving could be considered crude, these scrolls' lyrical forms and slight asymmetries hold treasured memories. They convey a kind of joy in making that no other decorative object in my house can match.



Anna Liu, Tonkin Liu: A mahogany tree fruit



The most beautiful wooden object I have is not an object: it is a mahogany tree fruit with its seeds still inside. It looks and feels like wood, and is warm to touch.

In our home-studio we collect objects from nature: seeds, shells, twigs and leaves. In terms of the things we use, we like things that we have made ourselves, or super functional objects that serve the daily rituals of washing, cooking, eating, sleeping.

This fruit was given to me by an elderly couple in Tainan, Taiwan, who run a place called the Qianqi Seed Museum. They collect seeds that have fallen from trees and lovingly sort them, sharing their love of their field with visitors. To enter their place is to enter a wonderland.

I love it because it is not an object – it is a part of nature, a story about time. When you look at how it is structured on the inside, you can see the most fantastical design of dense seed formations, packaged in protective layers in five perfect sections. The fruit is designed to float on seawater, before landing when conditions are suitable and releasing its seeds.

Alex de Rijke, dRMM: Tulipwood CLT sample

I am interested in materials. Who likes steel and concrete? Engineers and architects. Who likes wood? People.

One of the things that makes wood more interesting than other building materials is that it communicates its history and character. The tree species, age, climate and place in which it grew, its particular size, shape, colour and strength – all of this is evident in every plank.

A benefit of 'engineered' timber is that cheaper softwoods can, when laminated, match or outperform hardwoods. My special wood object is the first sample I received of cross-laminated sustainable hardwood, an invention revealing new potential for strength and beauty in timber architecture.



This treasured Tulipwood CLT sample was made by the American Hardwood Export Council and tested by ARUP on dRMM's Endless Stair project in 2013. This success led to our Maggie's Oldham cancer centre, the first laminated hardwood building in the world and a prototype for healthy architecture of the future.

THE WOOD AWARDS

Established in 1971, the Wood Awards is the UK's premier competition for excellence in architecture and product design in wood. The competition is free to enter and aims to encourage and promote outstanding timber design, craftsmanship and installation. The independent judging panel visits all the shortlisted projects in person, making it a uniquely rigorous competition.

For more information, visit: woodawards.com



MARKING GAUGES

Marking gauges take the maths out of woodworking, offer instant repeatability for laying out joinery and are helpful for dimensioning stock, as Anne Briggs Bohnett finds out

After the jack plane, marking gauges are my second favourite tool. There are many reasons for this, but the first is in the name: the tool is for gauging, not measuring. As much as I hate to admit I'm terrible at anything, I am absolutely rubbish at maths. No matter how many times I measure and calculate, it is inevitable that at least one piece in each of my projects will come out just a hair too short or too skinny. I once assembled an entire table top and somehow didn't notice until I actually tried to mount it to the base that it was a full foot too short. With the use of marking gauges, dividers and story sticks, I've all but eliminated maths and measuring from my projects, which has since saved me lots of frustration, time and money.

Using marking gauges

Not much needs to be said about hand position or technique when it comes to using marking gauges. The best advice I can give is to play around with your marking gauge of choice and decide for yourself what is most comfortable and effective. Holding your work securely will greatly add to your ease and effectiveness using a marking gauge. I have found that my bench hooks are excellent marking helpers. When marking, keep your eyes on the fence of the gauge, not the knife. Be very careful to hold the fence of the gauge securely to the side of the workpiece and do not wobble, tilt or skew the gauge as you move it along your workpiece or your line will wander as a result. Instead of making one strong, heavy stroke – force increases the likelihood of a wandering cut or marred workpiece – take three strokes to mark a nice,

deep line. First, take a light stroke to establish the cut; a second to deepen slightly and a third to make a good registering surface for a saw or chisel.

Having a range of gauges at your disposal, you will soon discover that some are more suitable than others for specific tasks. A small lightweight gauge might be better at marking baselines for dovetails, for example. Having more than one in your tool arsenal means you can set a critical common dimension for an entire procedure and return to it later without having to recalibrate the gauge, which helps to save valuable working time.

Why not just use a pencil?

Many beginners wonder why a sharp pencil and ruler won't cover all their measuring and marking needs. As the pencil dulls, the lines will become thicker. It will be difficult to determine just where your baseline starts. Pencils wander, rulers slip, measurements are misread and forgotten. A marking gauge creates a crisp line in the wood that doesn't vary in thickness and makes repeated measurements a breeze. Don't swear off pencils altogether, though, because tired and ageing eyes often find it helpful to fill in the marking gauge line with pencil. Propelling or clutch pencils are a good companion for your marking gauge. These are used extensively for drafting and can be bought with fine graphite leads. The indent of a marking gauge line is also very helpful for starting a saw cut or establishing a baseline into which a chisel can be set for consistent dovetail results.



1 Traditional 'pin' marking gauges **2** Hamilton Woodworks' wooden 'cutting' gauges are small and lightweight **3** Modern 'wheel' cutting gauges can often come with fine adjusters and multiple locking mechanisms **4** A relatively crude pin gauge can be transformed into something more accurate with the help of a safe edge file **5** A mortise gauge enables you to capture and translate key reference lines in pairs

Using a marking gauge, or at the very least, a marking knife and combination square, will save you many a woodworking headache. If you're on a budget, making your own marking gauge is a fairly easy option and there are many free resources to be found online. Lee Valley Veritas also makes a quality wheel marking gauge at a very fair price. With this tool, as with any other, buy the best you can afford.

Minimise waste, maximise thickness

To get the most out of your wood, instead of sticking with standard dimensions and cutting lists, try letting the wood determine your project dimensions. In some cases, you may find the odd millimetre here and there won't make a difference to the structure, but it could take a substantial amount of effort to remove.

Start by selecting the thinnest piece in the stack of wood set aside for your project. Plane one side flat. Use your marking gauge against the true face to find the thinnest spot on the opposite side of your board, set the gauge and mark around the whole piece including the ends. Plane down to your line, keep your marking gauge set, then start on your next piece. This setting will determine the thickness of all the boards in that stack. When finished, all your wood will be of uniform thickness and you've likely had to take away far less with the plane than you might have imagined, therefore saving wood, time and effort.

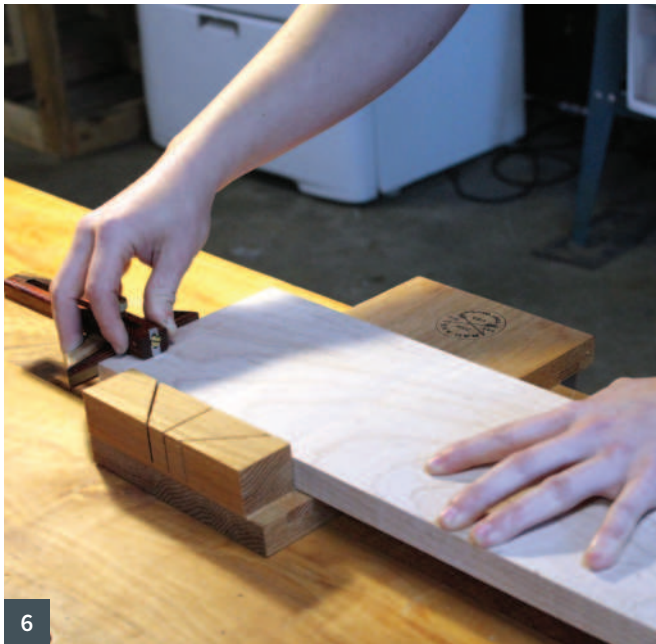
Apart from being a much quicker way of working it can sometimes be an advantage to have stock slightly thicker at the outset, which will allow for finishing or smoothing later on. In some cases, the most

important thing will be to have boards of a consistent size and not necessarily to a predetermined dimension. This habit transfers equally well to a cutting list prepared on a machine resulting in fewer passes and therefore less wear on the planer knives.

Two marking gauges in my collection

I first encountered Erik Florip on Instagram. Although he is a lover of a simple life, he is dedicated, driven and very hard working. With Florip Toolworks, he strives to make quality tools 'like they used to'. I was blown away by his ingenuity and the quality of his craftsmanship and I knew he would soon become a force to be reckoned with in the toolmaking world. 'When I was young I heard an old man say "when it comes to quality, heavy is better"'. Erik definitely took that to heart when making his marking gauge. This tool has some serious heft to it. Some things that set this gauge apart from its competition are the solid components, a wide fence – which gives a solid footing when pushing it against a workpiece – the square edges – so it won't roll off the bench – the micro-adjuster that can be used with one hand and a steeper bevel on the blade, which creates a larger registering surface as it cuts, resulting in deeper, easier to see lines.

I also have a 100mm Hamilton marking gauge in my workshop. Jeff Hamilton is passionate about making quality tools and is very eager to share information and techniques. The tools he makes are gorgeous to look at, feel like an extension of one's own hand in use and are dead accurate. The bodies of the tool are made of wood so they are warm and



6 A bench hook provides a sturdy support for marking out **7** A wheel gauge has less tendency to split out at the edge **8** The chisel registers within the knife line **9** Marking gauge in a pinch

smooth to the touch. They are light but solid and are arguably some of the best marking gauges on the market. The small gauges easily fit in the pocket of your apron and, despite their size, are very versatile. The wide fence allows plenty of surface area to be supported by the stock so the cut doesn't wander. The shallow fence lends itself well to laying out half-blind dovetails and the fingernail blade design keeps the fence pulled tight against the stock as you make your mark.

The wheel and wooden versions of these tools both have incredible value in any toolchest. I find myself reaching for one just as much as another. Price-wise, they are both on the higher end, but these are heirloom quality tools you will buy once and use for a lifetime. A marking gauge is easily one of the most used tools, so choosing one you will love is a must.

Sharpening a marking gauge cutter

Sharpening a pin gauge is done with a file by shaping the pin as you would with a knife. Cutting gauges usually have a removable cutter. This method can be used with a few easy variations to sharpen wheel cutters as well. First, rub the back of the cutter on a fine stone until you feel a burr appear across the whole bevel. I find I can easily do this with one finger. Then, you need to carefully hone away the burr on the bevel by using a strip of leather and honing compound. If your fingers are too big to grasp the small cutter, a pair of locking pliers can give you a bit more wiggle room.



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10 Plane to the line **11** Marking to maximise thickness **12** Florip Toolworks wheel gauge **13** Hamilton Woodworks marking gauge **14** Sharpening the marking gauge cutter: feel the burr **15** Hone away the burr

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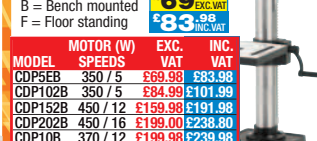
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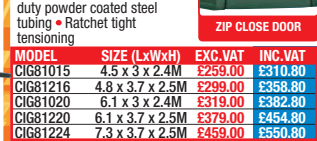
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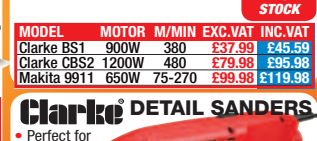
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PICTURE FRAME

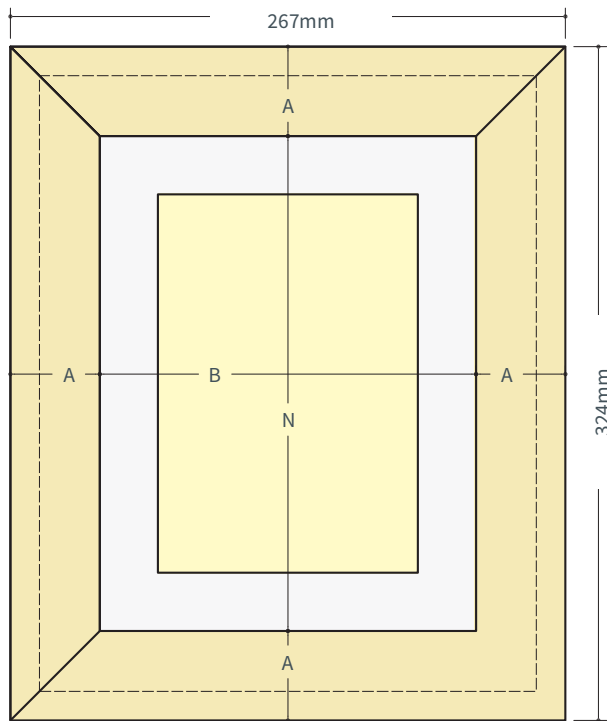
This simple looking frame requires perfectly cut deep rebates. Derek Jones explains how to get it just right



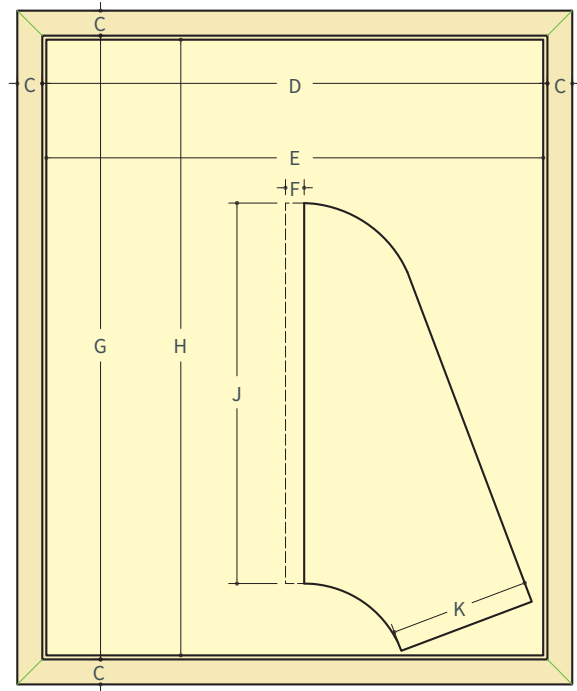
At first glance, a picture frame seems fairly straightforward to make. The eight identical mitres are generally considered to be the most difficult aspect to master. But when made out of solid section, the complexity of the item shifts to a feature that will never see the light of day and, if not executed accurately, will make perfect mitres virtually impossible.

Whether you use a spindle moulder or a router to produce

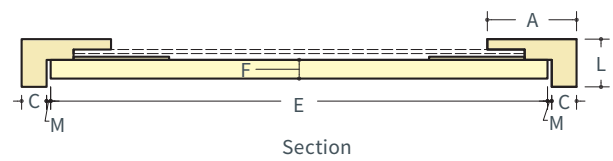
rebates, the problem remains the same when you remove more than half of the stock dimension in any plane; with less surface area making contact with either the fence or the tabletop, the stock has a tendency to lean and distort the profile. This can be extremely dangerous. Therefore, what looks like a project to make a simple picture frame is actually a guide to cutting deep rebates accurately and safely.



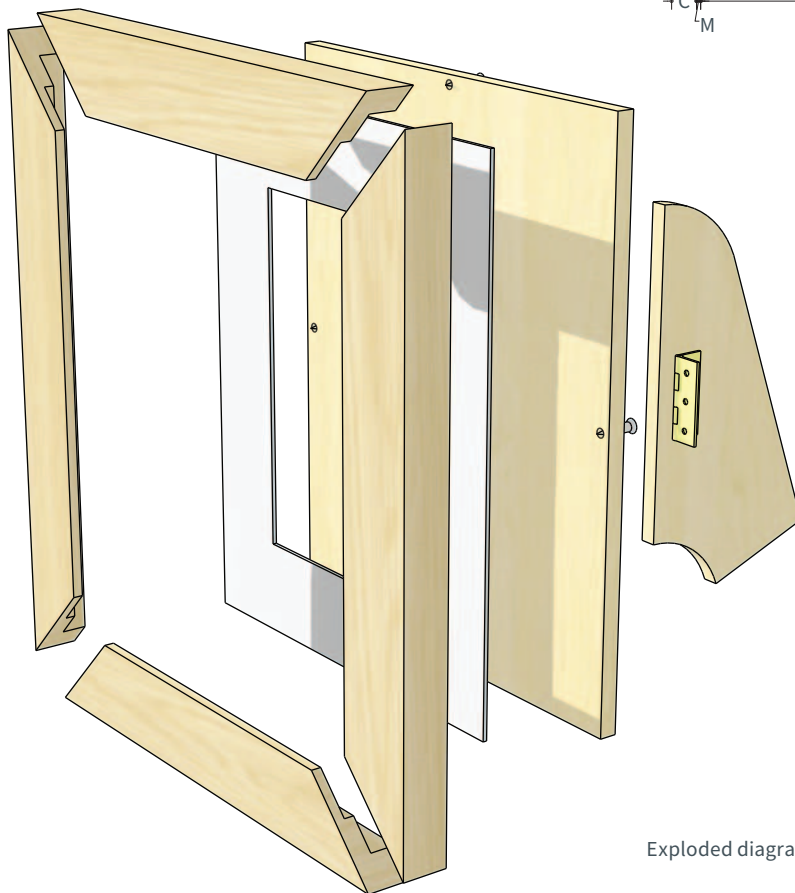
Front elevation



Back elevation



Section



Exploded diagram

- KEY
- A = 43mm
 - B = 181mm
 - C = 12mm
 - D = 243mm
 - E = 239mm
 - F = 9mm
 - G = 300mm
 - H = 296mm
 - J = 183mm
 - K = 67mm
 - L = 23mm
 - M = 2mm
 - N = 238mm



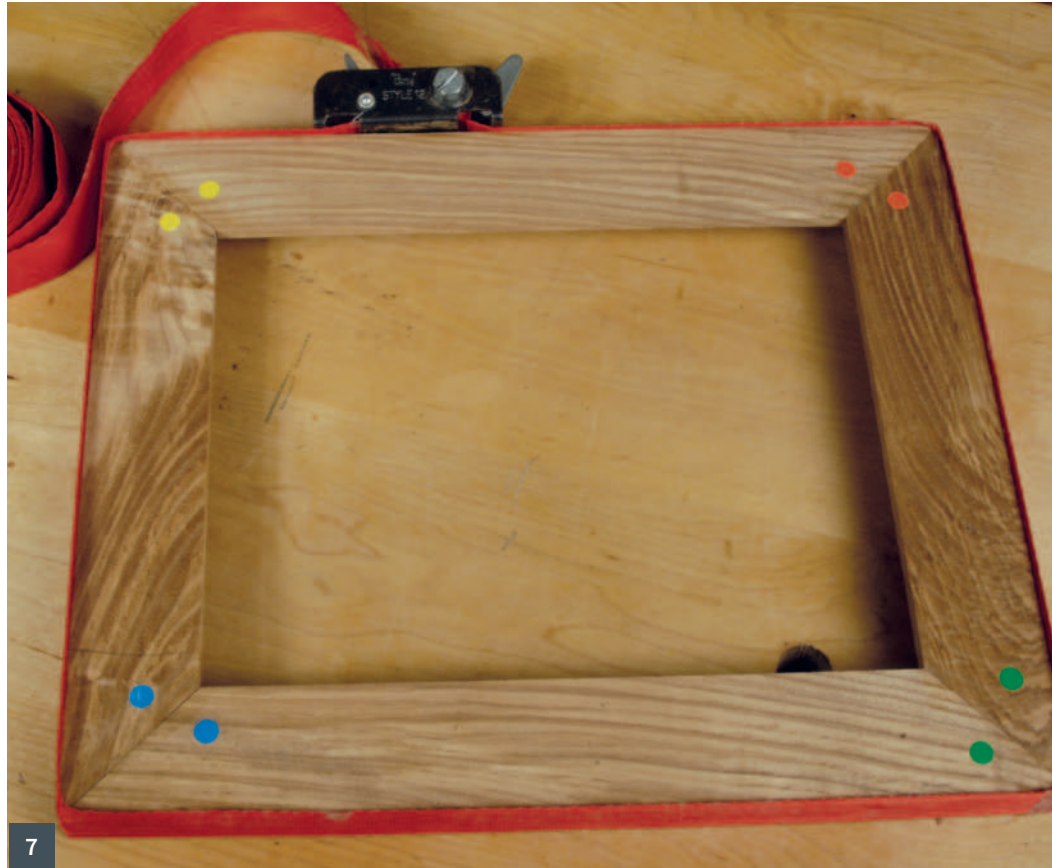
PHOTOGRAPHS BY DEREK JONES

Making the frame

- 1 Plane up a length of stock to represent the amount of material removed from the first rebate. Make an allowance for some double-sided tape along the face that will be parallel with the fence.
- 2 Apply the tape to the supporting block and press down firmly with a roller, avoiding any creases or contamination from wood chips.
- 3 Attach the block to the fence and not the tabletop. If you need to make adjustments, the block will move with the fence. Round over the leading edge of the block on the outfeed side. You are now ready to cut the second rebate, safe in the knowledge that the stock will remain supported throughout the operation.
- 4 To achieve perfect sets of mitres with a minimum of equipment, cut the sides in pairs slightly over-size and trim one of each pair to the finished dimension on a shooting board with the 45° insert.
- 5 Use the two dimensioned pieces as templates to mark the next two. To avoid any confusion, mark each mitre as you go when you are satisfied with the fit.



6



7



8



9

- 6 If you find the mitres still won't meet perfectly, try putting a strip of paper behind the back fence on the shooting board at the appropriate end to make a slight adjustment to the angle.
- 7 I find a strap clamp to be the most efficient means of clamping frames, as equal amounts of pressure are applied to all four corners simultaneously.
- 8 Fit a back in the frame and attach a T-support.
- 9 Your finished picture frame will look something like this.



**THE
WINNER
TAKES
IT ALL**



Ryecotewood Furniture
Centre student Charlie
Teager-Neale is already
reaching the top tiers of
national cabinetmaking
contests. *WWC* meets him

A young furniture maker has been placed third in a UK-wide cabinetmaking competition before even completing his training.

Charlie Teager-Neale is currently in the second year of a three-year degree in Furniture Design and Make at the Ryecotewood Furniture Centre at Oxford Brookes University, and 'loving every moment of it', he tells *Woodworking Crafts* magazine. He first got interested in furniture making while studying resistant materials for GCSE. 'This subject was the initial spark for my love of timber and creation of furniture,' he explains. Charlie went on to study for two years at Colchester College, completing his level 2 and 3 City and Guilds qualifications in Furniture Make and Design, before going on to Oxford Brookes.

'My first major project was at the end of my level 3 City and Guilds diploma, when we were tasked with designing and making a piece of our choice – with the only limiting factor being dimension constraints,' he recalls. 'With this in mind I pitched a console table design to a client of mine, and with the go-ahead I set sail with one of my biggest ambitions at the time.'

At Oxford Charlie entered the World Skills UK Furniture & Cabinetmaking Competition, and won the regional finals. He went on to the national finals, in which he had just 18 hours to make a Japanese-inspired cabinet. 'I placed third overall and was in complete disbelief,' he says. 'It was definitely one of the most successful and amazing experiences of my career so far.'

CONTEMPORARY STYLE, TRADITIONAL JOINERY

Charlie has been greatly inspired by Marc Fish, head tutor at Robinson House Studio Furniture School. 'He is my greatest inspiration to date, due to his use of organic and natural curvilinear forms and elegant creations,' he explains. 'He turns the idea of making furniture into an art of sculptural and aesthetic forms, while maintaining function and originality. They are creations of true beauty.'

In his own work Charlie likes to fuse up-to-date style with time-honoured skills. He says: 'I focus on creating contemporary pieces that promote the use of traditional joinery methods to create a sense of craftsmanship appreciation. If my furniture brings a smile to my client's face, then I know I have carried out a great job and have provided them with a piece of satisfaction that will last for many years to come.'

His favourite work so far has been a recent university assignment, the Gordon Russell Project. Charlie explains: 'This project consisted of taking one of Gordon's original designs, altering it and designing a more contemporary version. I was heavily engaged in this project as I really appreciate Gordon's legacy and how he shaped 20th-century furniture and the realm of design to the current day. He is a figure within the furniture world I truly aspire to be like.'

When he's not at university Charlie shares a garden workshop with his dad, a keen metalworker, which the pair built together four years ago. 'Over the years we have kitted it out with machinery and tooling to sustain both my furniture studies and my Dad's love for metalwork creations,' he says. He likes to keep his tools shiny and sharp, and often favours Lie-Nielsen – 'simply because of their true quality of build and overall sense of appreciation', he explains.

Charlie loves working with fumed oak with metal accents – particularly copper sheeting and dowelling, which add a sense of luxury and diversity to his work – as well as American black walnut, maple and European ash. At Ryecotewood he is currently working on a project with the American Hardwood Export Council to Europe, which promotes the use and sustainability of American hardwood timbers. 'In this project we are allocated a limited amount of red oak boards where we have to design and make a piece of storage of our choice,' he says. 'I have chosen to design a whisky cabinet, as this has always been a dream of mine to carry out. The cabinet will feature the use of ebonising red oak along with ornate copper door panelling.' His go-to finish is stain gloss Osmo oil, which he says is easy to use and enriches the grain and texture of the timber.



PHOTOGRAPHS BY CHARLIE TEAGER-NEALE



DESIGN AND BUILD

Charlie's design process starts in his sketchbook, with quick initial drawings of forms and details he wants to include. 'Once I acquire forms I like, I develop the design until I have a concept ready to present. I will also produce fusion 360 models and renders for a photo-realistic depiction of the product.'

The Covid-19 pandemic has affected his studies, limiting the number of projects he has been able to complete. 'However, we get more time on each project, and in my opinion this is more beneficial and rewarding,' he says. It has also affected his time outside university, when he had hoped to be pubbing and clubbing with friends, but he can still enjoy downhill biking. 'I just love the adrenaline rush you get from it, as well as progressively getting faster and faster,' he says.

After university he plans to take a gap year and go travelling with his two closest friends. 'Then I will fulfil my lifelong ambitions of opening my own furniture business, Teager-Neale Furniture, creating high end commission-based pieces and providing clients with luxury and contemporary furniture,' he says. Watch this space. For now, you can see more of Charlie's work on Instagram @teager.neale_furniture.





ON THE MOVE

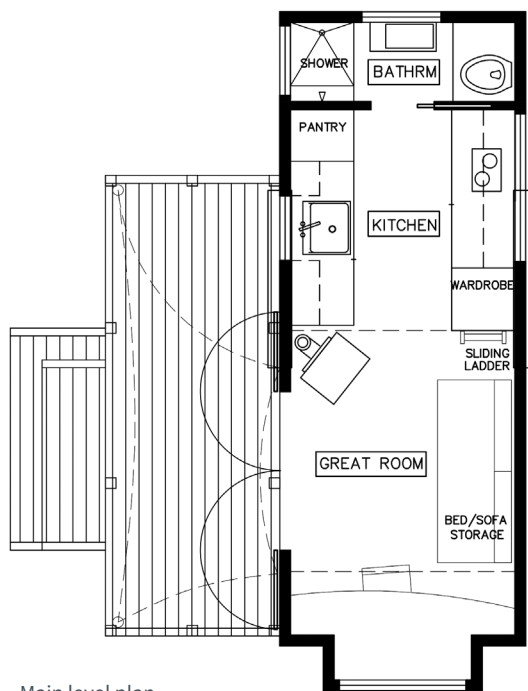
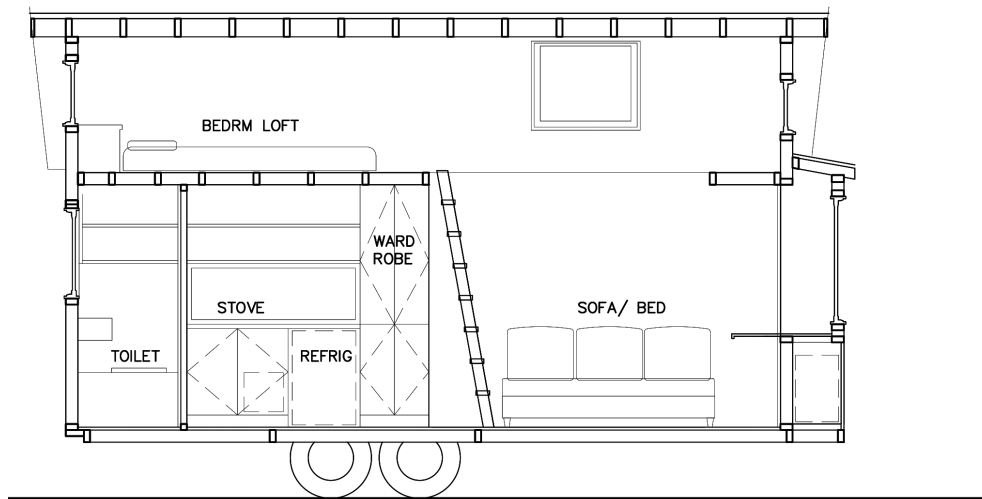
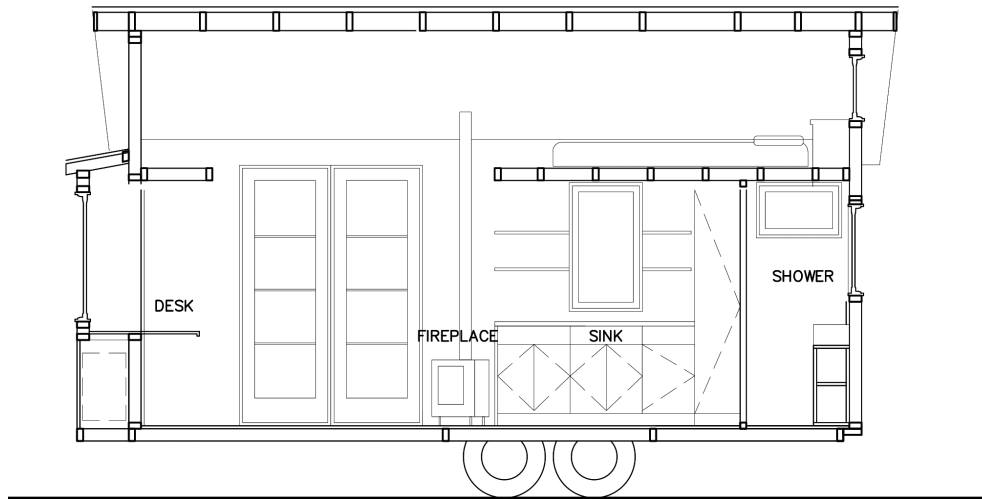
Designing the interior of a small mobile home can be challenging but the results can be ingenious, environmentally friendly and beautiful

A recent architectural trend is the increase in popularity of mobile homes. Some are built on wheels, turning into rolling houses in the most literal sense of the word. Others can be easily carried on a truck and moved to wherever their owners want to live. Tiny houses, of less than 20m², represent a design challenge, especially as the main space is at the same time the kitchen and living room, bedrooms have to be squeezed into a small loft and storage space is at a premium.

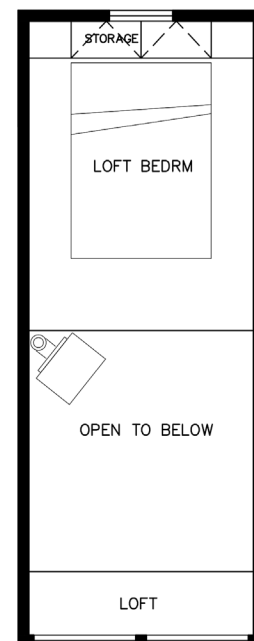
Here, we look at the design of a 14m² mobile home, which was created by California-based Vina Lustado of Sol Haus Design.



PHOTOGRAPHS BY EILEEN DESCALLAR RINGWALD, CHIBI MOKU PHOTOGRAPHY. COURTESY OF MONSA BOOKS



Main level plan



Loft level plan



Vina's Tiny House

This house was born of the desire to live lightly and simply. Vina set out to design and build a tiny house for herself. Built on a 2.5 x 6m trailer, Vina's Tiny House is just 14 square metres of charm packed in a micro dwelling. The house represents the owner's values in sustainability, simplicity and living within her means. Using reclaimed materials and powered by solar panels, the dwelling has a minimal impact on the environment. Elements throughout were carefully chosen and crafted for multi-functionality.

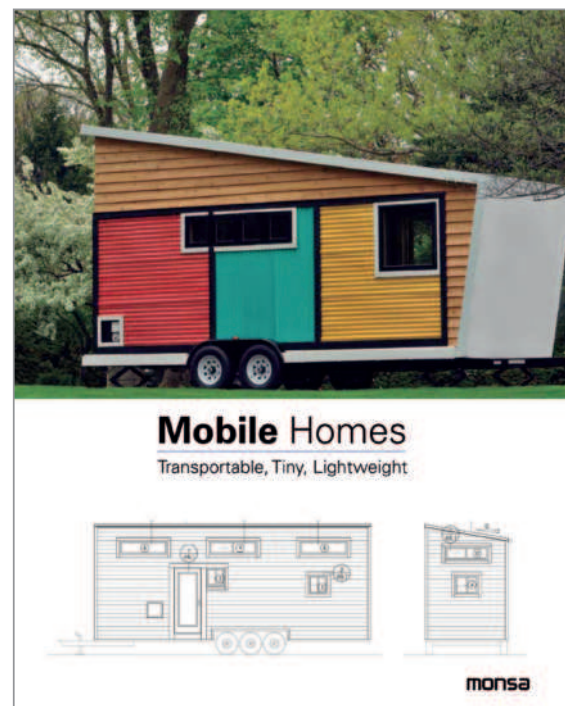
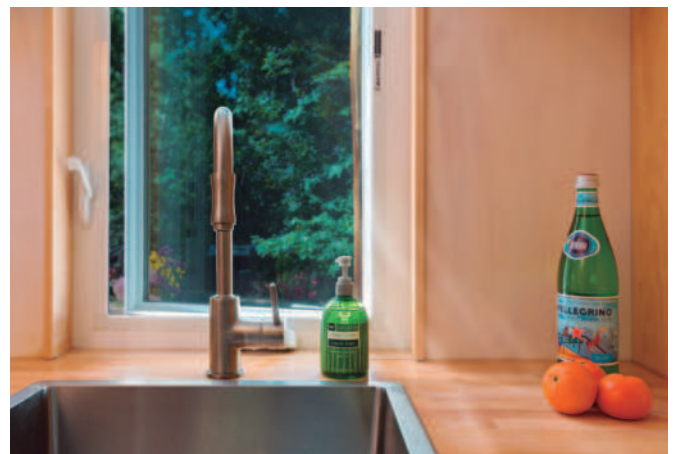
The exterior deck maximises the living space, while trees provide shading and passive cooling. The glass doors open out onto a wooden terrace, blurring the boundaries between inside and outside.

Equipped with a gas fireplace and operable skylights, living simply has never been so luxurious.

With multi-purpose custom furniture, the main room serves as a living room, dining room, office and guest bedroom. The intentional use of light, flowing spaces and hand-crafted touches by local artisans give Vina's Tiny House a unique Zen-like quality.

For more information, visit: www.solhausdesign.com and www.vinastinyhouse.com





Mobile Homes: Transportable, Tiny, Lightweight, published by Monsa Books, RRP £19.99, available online and from all good bookshops

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The thoughtful woodworker

Take some time off to reflect, refresh and plan your next project

There is a mantra for us woodworkers and it is 'measure twice, cut once' and this is a thought process to plan before committing. This is also a good philosophy for life in general and we have other quotes for that as well: 'look before you leap', 'fools rush in where angels fear to tread' and 'think before you speak'. However, it seems these qualities have gone out of the window nowadays and have been replaced with someone saying a flippant 'sorry', after they have said or done something rude or cruel. It is like a lame apology excuses them after the fact, but in my opinion that reasoning is just ignorance with a complete lack of empathy. If we applied that process back to woodworking there would be all manner of horrendous-looking monstrosities these people have made without using their brain first. Thankfully woodworkers are mostly considerate thinkers and want to make things they are proud of, that is why woodworking shows and events are so pleasant to attend as everyone is creative and friendly. While many shows have continued virtually over the last year, here's hoping some can return in real life soon.



PHOTOGRAPH BY SHUTTERSTOCK

WORDSEARCH

Engrave	Knife	Scraper
Extraction	Mallet	Screwdriver
File	Pallet	Teak
Grinder	Pyrography	Trestle
Hone	Sander	Whetstone

N	T	Y	T	R	E	S	T	L	E	R	S	R	F
N	F	F	P	Y	R	O	G	R	A	P	H	Y	D
E	V	I	K	T	E	A	K	O	R	I	E	N	H
H	A	L	A	E	S	T	E	G	E	N	C	R	E
E	H	E	E	R	E	E	L	T	V	S	V	C	X
E	G	E	E	G	H	F	R	L	I	A	I	E	T
H	A	N	T	R	R	I	W	R	R	N	S	N	R
N	Y	G	E	I	L	N	T	M	D	D	C	O	A
O	L	R	I	N	K	K	S	A	W	E	R	T	C
X	E	A	C	D	T	R	V	L	E	R	A	S	T
M	E	V	H	E	E	N	R	L	R	H	P	T	I
R	R	E	H	R	E	V	E	E	C	O	E	E	O
V	R	E	P	S	D	N	R	T	S	N	R	H	N
E	S	A	T	E	L	L	A	P	Y	E	N	W	E

SUDOKU

Sudoku is a great activity to sharpen the mind. The object of Sudoku is to fill in the empty spaces of a 9x9 grid with numbers 1-9 in such a manner that every row, every column and every 3x3 box contains all numbers 1 through 9.

		3		8		5	2	
		6	9					
	7			5	4		8	3
							6	
		2	7	1	5	9		
	9							
1	6		5	7			4	
					8	1		
	4	5		3		8		

RUSTIC TABLE

Add a little country cottage charm to your home with John Bee's quick and easy table design

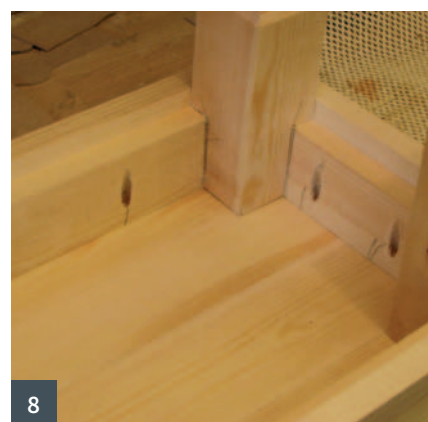
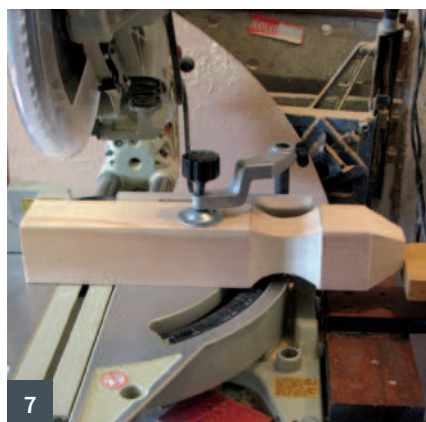
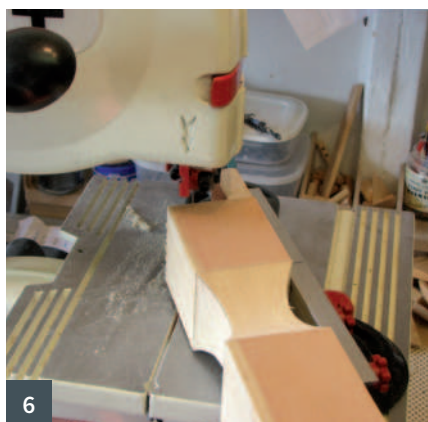


A friend's daughter asked me if I could make her a couple of small tables. She had an idea of what she wanted, so I drew a few quick sketches, and here is what we came up with.

Cutting the boards

First I cut the boards for the table tops. For this I used 100 x 25mm

PAR redwood, which was cut to size on the mitre saw. I then laid the boards out on the bench and marked them off for dowelling together using my Beadlock jig. It's made for making loose tenon joints, but I find it doubles up nicely as a dowel jig. When the top was glued and clamped together, I went on to make the legs. These were made from 75 x 75mm.



1 Cutting the top boards to length **2** Marking the boards for dowelling **3** Drilling the holes for the dowels **4** Bandsawing the curves on the legs **5** Setting up the fence for sorting out chamfers on the legs **6** Cutting off the chamfers on the legs **7** Cutting the legs to length on the mitre saw **8** The table apron ready to be screwed on to the top

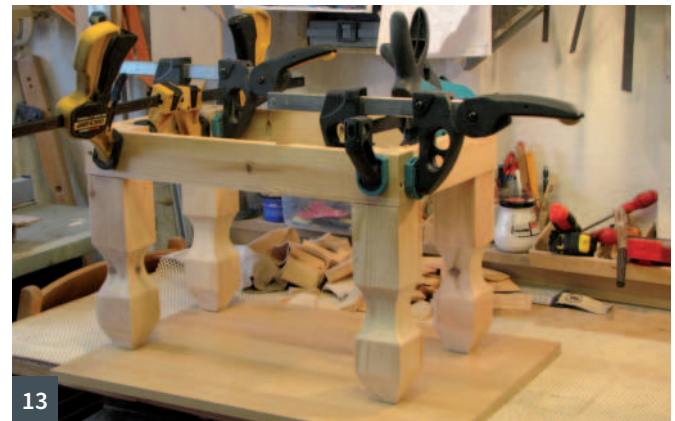
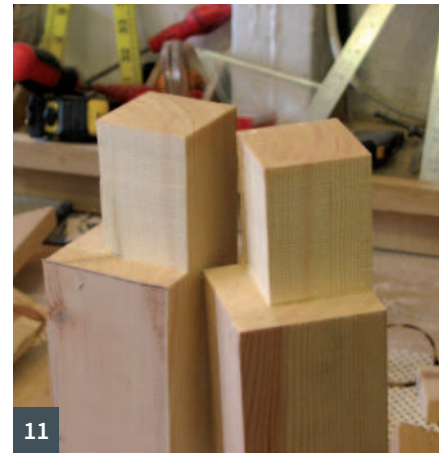
Legs, curves and chamfers

To give the legs some shape I decided to cut out curves all round, and after marking them out I went to my bandsaw. Mine is only a small bench-top bandsaw, and these cuts were almost at its limit; I just had to be careful to get all the corners spot on.

The next job was to cut the chamfers on the bottom of the legs. This again was done on the bandsaw: I set the mitre gauge to the chosen angle – in this case 37° – to give me an 8° chamfer on the bottom. I marked the desired height of chamfer and clamped a stop block to the mitre gauge to make the cuts. The stop block ensured all 16 corners

were exactly in line. When I was happy with the height of the table, I cut the legs to size on the mitre saw to ensure they were all dead square.

Against a stop, all were cut to exactly the same length. Next, I needed to make the cuts in the legs to accept the table aprons, so I cut a test piece to make sure it was accurate. Again, setting the stop blocks cut the corners from all four legs: you can cut all the legs the same, as they are interchangeable. I sanded out the curves on the legs with a fine belt, and with the grain I got an excellent finish. Compact belt sanders are invaluable for this kind of job, and are definitely worth your money.



9 Test cut for the top leg joint **10** Stop block and fence set-up **11** The leg top joints **12** The legs being sanded **13** Legs chamfered and glued to the table apron **14** The template for corner braces **15** The corner braces blank affixed to double-sided tape **16** The template stuck to the brace blank with the tape

Corners and braces

Next I made up a frame to form the table apron, then used mitred joints on the corners. You can use glue and screws on the legs as the latter won't show when finished. While the glue was curing I made a template for the mock corner braces. The template was made from flooring laminate: I always seem to have some left from past jobs, and it's great stuff for making jigs and templates.

The mock corner braces were made from 1mm MDF. My first deliberate mistake was to make the braces all the same length, until it dawned on me that the table is rectangular and so needed shorter braces on the ends of the table. I drilled the holes for the

pocket hole joint on the table apron before fixing it to the legs.

Making the braces is dead easy: I cut the blanks, and with double-sided tape stuck the template on a blank. I used a profile cutter in the router to make the passes; I used my router sub base screwed to the bench. Around the bottom edge of the table apron I glued on a 25 x 25mm strip: this now gives the finished size of the table top to be in line with the strip glued onto the apron. I sanded the top and cut it to size so the top overhang was equal to the 25mm strip on the bottom of the apron. I used the pocket holes to screw the table top to the frame.



17



18



19



20



21



22

17 Cutting a brace using a profile cutter in the router **18** Spring head nails waiting to be cut down **19** Router around the corner brace template **20** Sanding the table top with my compact belt sander **21** The table now ready to be stained **22** The finished table

Finishing

I used three coats of walnut varnish stain. To paint the corner braces I used Black Hammerite, to give it an antique look. I poured a small amount into a plastic top and left it overnight with the top uncovered: the Hammerite will thicken up and cannot be painted smooth, so don't even try, as it will give a textured look which looks quite effective.

For the studs in the corner braces, I used spring head nails used for

roofing, and with the shank cut down and ground to a point. When I tapped them into the pilot hole in the braces, it left the top of the nail exposed. I thought it looked okay, so I left it as it was. The braces were first glued on with hot melt glue. I sanded the end grain of the table top thoroughly: the better the polish on the wood the better the match of the stain for colour with the rest of the table.

TOY TRUCK

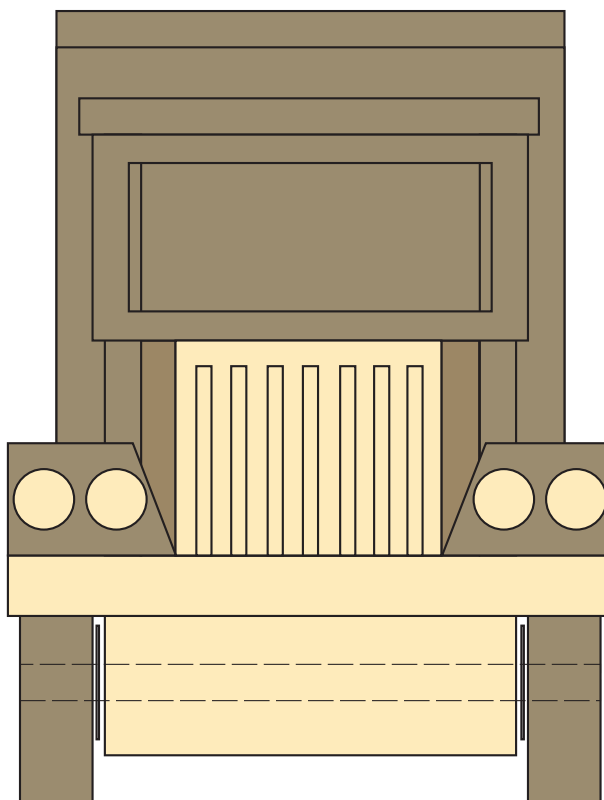
Fred and Julie Byrne use the scrollsaw to make this fantastic kids' toy

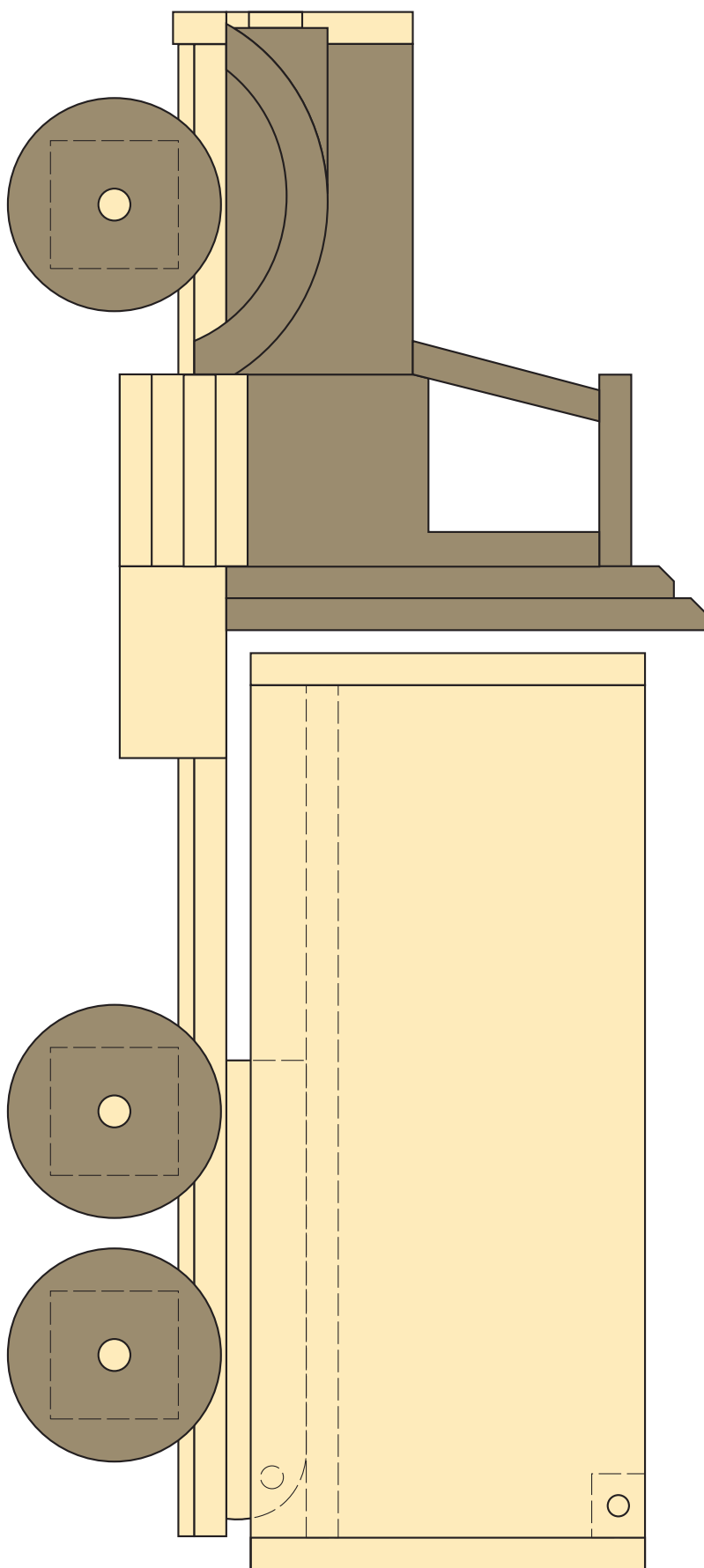


Designing and making this toy tipper truck presented us with a different kind of woodworking challenge than we are used to. We also had to keep reminding ourselves that it was a toy to be played with and not a model for collecting dust on the top shelf!

We used an assortment of woods: walnut for the cab and wheels (where we lacked an appropriate sized piece of walnut, we used an alternative and stained the finished piece to match); tulip for the chassis and tipper assembly; pine for the axle housings and generally the pieces that were not seen; and 3mm obeche for all the small pieces, e.g. headlights, steps and front grille.

The scrollsaw is such a versatile tool. It can easily cope with the varying thicknesses of woods used here, ranging from the quite chunky 35mm needed for the bonnet and inner cab, down to the 3mm used for the headlights. As long as you choose the right blade and speed for the thickness of wood used, you can't go wrong.





You will need

- Scrollsaw – blades No.7 & 2
- Pillar drill – bits 8, 6 & 2mm
- Length of dowels – 6 & 3mm
- Spacer washers – 6mm
- Square, ruler & pencil
- Sandpaper 180 & 220 grit
- Wood glue
- Glue stick
- Child-safe finish

Parts list

CAB & FRONT END:

- Roof 1 @ 76 x 36 x 6mm
- Rear cab panel (front) 1 @ 84 x 84 x 6mm
- Rear cab panel (rear) 1 @ 90 x 84 x 6mm
- Bonnet & cab dashboard 1 @ 66 x 56 x 36mm
- Doors 2 @ 70 x 36 x 6mm
- Windscreen 1 @ 66 x 36 x 6mm
- Mudguards & headlight supports 2 @ 66 x 29 x 25mm
- Headlights 4 @ 3 x 10mm diameter
- Front grill (2 sections) 2 @ 42 x 45 x 3mm
- Front bumper 1 @ 100 x 10 x 6mm
- Steps 2 @ 36 x 28 x 3mm
- Fuel tank 2 @ 36 x 15mm half circle

CHASSIS:

- Main chassis (top) 1 @ 280 x 68 x 6mm
- Main chassis (lower) 1 @ 280 x 68 x 3mm
- Front support 1 @ 68 x 20 x 6mm
- Axle housing 3 @ 68 x 24 x 24mm
- Axles (dowel rods) 3 @ 100 x 6mm diameter
- Spacer washes 6 @ 6mm diameter hole
- Wheels 6 @ 12 x 40mm diameter

DUMP ASSEMBLY:

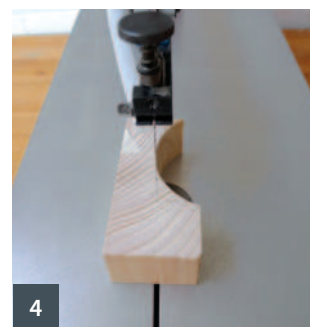
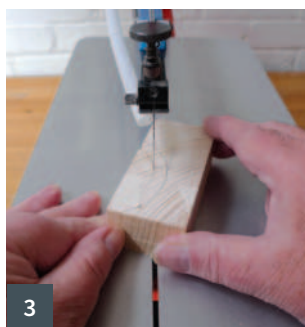
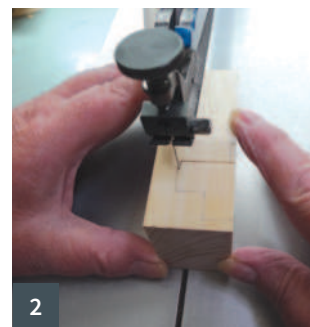
- Floor 1 @ 160 x 100 x 6mm
- Side walls 2 @ 166 x 74 x 6mm
- End wall 1 @ 112 x 74 x 6mm
- Tailgate 1 @ 100 x 74 x 6mm
- Tailgate pivot pin (dowel) 2 @ 16 x 4mm dowel
- Tailgate hinge block 1 @ 100 x 12 x 10mm
- Dump hinge assembly 1 @
- Raised floor baton (end) 1 @ 86 x 15 x 6mm
- Raised floor baton (tailgate) 1 @ 86 x 15 x 6mm
- Raised floor baton (side walls) 2 @ 160 x 15 x 6mm

Getting started

- 1 Make a simple end-drilling jig, which comprises a back vertical support measuring 19 x 60 x 80mm, and side vertical support at 19 x 35 x 80mm. Glue and clamp them together to form an L-shape. The hole for the axle has to be drilled vertically all the way through the housing, so take a little time to set the jig up correctly and then clamp it to an auxiliary fence on the pillar drill. All three axle housings can then be clamped, drilled and flipped over and re-drilled accurately, without the need to mark out and set up afresh each time.

Cutting and drilling

- 2 Next, prepare the surfaces of the wood to be used, and make a copy of the diagrams. Set the scrollsaw with a No.7 blade to cut out the thickest pieces first, and check that the blade is set exactly at 90° to the table, using a small try square. Then make the blade extra taut so that distortion is kept to a minimum during cutting. Referring to the diagram, cut out the bonnet and inner cab piece, starting with cutting out the top profile and then the side.
- 3 Moving on to the mudguard and headlight support, again make the top angled cut first. Use masking tape to keep the cut piece in position for support while making the side cut.
- 4 Once the mudguard is revealed, continue to cut out the headlight unit from this piece. Cut out the three axle housings and mark the centre on the top of one of the ends by drawing a cross diagonally from corner to corner using a ruler. Fit the pillar drill with a 6mm drill bit, then clamp the axle housing into the drilling jig. Clamp the jig to the fence, position the jig so that the drill comes down exactly on the centre of the cross and finally clamp the auxiliary fence onto the pillar drill.
- 5 Drill down as far as the drill will go, unclamp the axle housing only and flip it over, re-clamp and then drill down from this end to meet your existing hole. Repeat with the remaining two pieces. The jig can also be used to drill the holes to take the tailgate pivot dowels, this time using a 4mm drill bit, and again to aid accurate drilling of the hinge mechanism.
- 6 Use the diagram as a reference when cutting out the pieces that make up the hinge mechanism, drill the 4mm hole through the three pieces, and then round over the corners as shown.
- 7 Place a length of 4mm dowel through the holes and do a trial fit to check the movement. Sand a little more off the curves if necessary, although you don't want the tipper assembly to swivel all the way over – aiming for a 50–60° tilt is fine.
- 8 When cutting the thinner 3mm woods, it is a good idea to use a lower speed and switch to a finer No.2 blade, especially when cutting the more delicate pieces like the front grille. Once you have cut along each of the lines, return to the beginning and cut out each alternate strip to make the grille detail.
- 9 Use a compass to draw the wheels out on paper – you will need six 40mm diameter circles, and then glue the patterns onto the 12mm wood. Use a pencil to highlight the compass pivot point, which can then be used as a guide when drilling the centre hole, and then continue to cut out the wheels.
- 10 The windscreen is slightly angled inwards at the top of the cab, therefore the top and bottom cut will need to be made at 10° off from the usual 90° cut. The electronic angle gauge allows you to tilt the scrollsaw table at the exact angle you wish, completely taking out the guesswork – as we all know, a degree or two out can be a real eyesore.

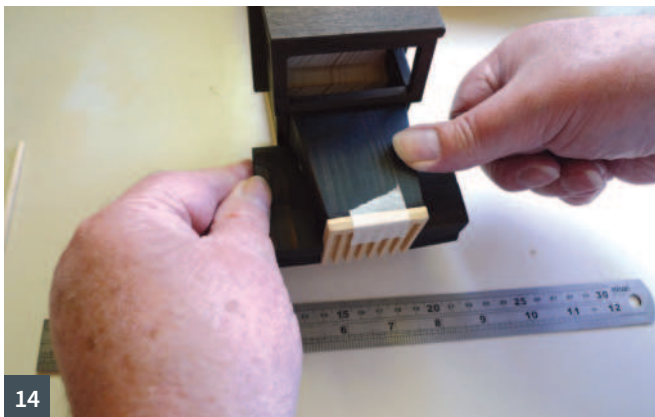
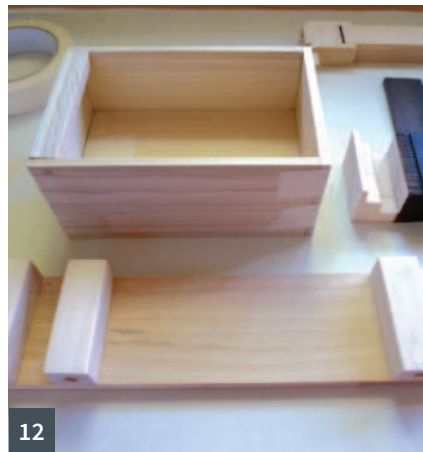
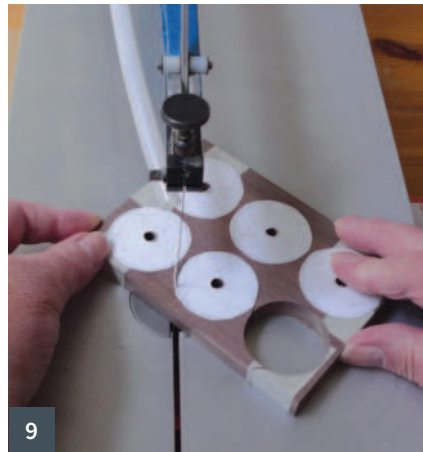
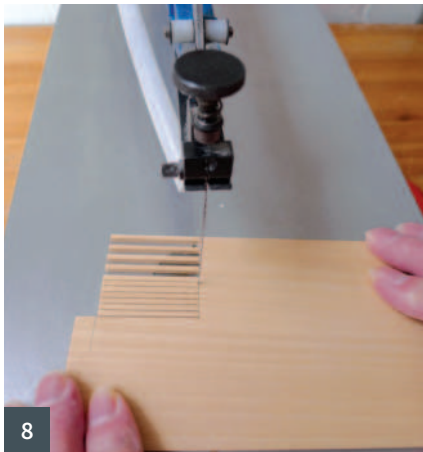


PHOTOGRAPHS BY FRED & JULIE BYRNE

- 11 First cut out and remove the inner section of the windscreen and the sides then, before making the top and bottom cut, tilt the table down to the left by 10°. If using an angle gauge, set the gauge at zero before tilting. Once set, you'll be ready to make the cut, giving you the angle for the top and bottom of the windscreen. As you continue to cut out all the pieces, check with the parts list that all is present and correct.

Sanding and finishing

Use 180- then 220-grit sandpaper to sand the pieces smooth, remove any burr from the underside, and slightly round over the visible edges, e.g. the sides and inner edge of the windscreen, along the three sides of the roof and wheels. At this stage some of the components can be glued



together – the step sections, the two pieces that make up the front grille, both pieces of the main chassis, the two rear cab panels, and the tailgate hinge block onto the tailgate.

The remaining pieces are best left unassembled until after the finish is applied, as many of the pieces would be inaccessible in the completed truck.

Apply two or more coats of a durable non-toxic finish of your choice, taking care not to apply finish to areas that will be joined together.

Final gluing

12 Start by gluing the tipper assembly together. Glue the pivot dowels into the tailgate first, then glue on the raised floor battens around the inside, and attach the sides to the front wall and tailgate. Secure

with masking tape and allow to dry. Attach the axle housing onto the under side of the chassis, and again set aside to dry. Next, glue the cab onto the chassis, then attach the front grille, the rear cab panels, doors, windscreen and cab roof.

13 Glue the headlight units onto the mudguards ...

14 ... then attach the mudguards to the cab and press down firmly.

Glue on the steps and fuel tank, position and glue the hinge mechanism in place on the chassis. Place masking tape around the edges so that the glue, when the tipper floor is lowered, will not adhere to the sides. Lastly, attach the wheels, not forgetting to use the spacer washers.

15 When the glue is fully dried, tilt the tipper assembly and remove the masking tape.



THE ROUGH GUIDE TO SHARP EDGES

Colin Sullivan puts standard and premium plane blades to the test

When the Japanese smooth-cut laminated steel plane blades came onto the market about 20 years ago I put one into my No.4 and No.7 Stanley planes. Being the same thickness as the Stanley there was no trouble fitting them. I think they are a little better than the originals and certainly keep sharp longer.

These days we have more choice of blades, although not all of them will fit a standard bench plane. If you are fortunate enough to own a Stanley bedrock plane it will adjust to the various thicknesses of these superior blades. I have given four of these irons a comparison test to see how they perform compared with a normal Stanley chrome vanadium blade. The object of the exercise was to establish at what point there would be any discernible change in blade performance when subjected to a typical round of everyday workshop use.

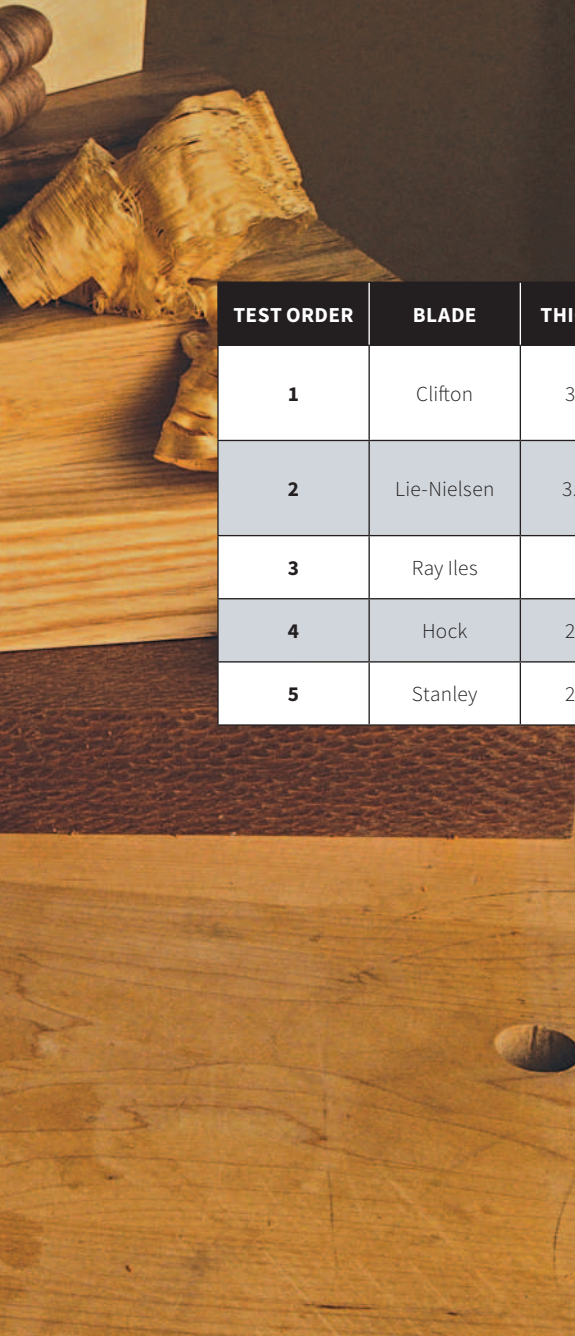
There is a great deal of information available to the woodworker seeking to raise their game a little by opting for premium blades. The dilemma is not exclusive to plane irons of course; chisels and machine

tooling are all available in a variety of tool steel. This test does not set out to prove or disprove any claims of one material over another. More importantly neither do I expect to crown a winner at the end of it.



Clifton No.5 with Clifton blade in it

PHOTOGRAPHS BY ANTHONY BAILEY/MC PUBLICATIONS



Equipment

TEST ORDER	BLADE	THICKNESS	PREMIUM BLADE PROPERTIES	SUITABILITY
1	Clifton	3.5mm	Forged O1 high-carbon steel	Stanley Nos.4, 5, Record 04, 05 & bedrock equivalents. May require further modification for lateral adjustment
2	Lie-Nielsen	3.25mm	Cryogenically treated A2 high-carbon stool	Stanley Nos.4, 5, Record 04, 05 & bedrock equivalents. May require further modification for lateral adjustment
3	Ray Iles	3mm	D2 high-carbon steel	Stanley Nos.4, 5, Record 04, 05 & bedrock equivalents
4	Hock	2.5mm	O1 high-carbon steel with 1.1% manganese	Stanley Nos.4, 5, Record 04,05 & some bedrock equivalents
5	Stanley	2.5mm	Chrome vanadium	Stanley Nos.4, 5, Record 04,05 & some bedrock equivalents

The test

PLANES TESTED:

- Clifton No.5 bench plane and plane irons
- Quangsheng No. 5 bench plane

TIMBER USED:

- Sycamore
- American walnut
- English oak
- White ash
- Ropala lacewood

Method

The blades I used were all new and of high-carbon steel with the exception of one, which was a chrome vanadium from Stanley. 'High carbon' in reference to tool steel implies a carbon content greater than 0.8%, this being the point at which steel becomes fully hardenable. The amount of carbon present in steel determines the degree of hardness and wear resistance that the steel can achieve.

Fresh from their packaging they were checked for a grinding angle of 25°. The temptation was to head straight over to the Tormek and re-dress them but for everyday use each one was ready to use straight from the pack. Flattening the backs and adding a 30° micro bevel were the only adjustments carried out using an Eclipse honing guide on a traditional flat and fine carborundum stone.

One at a time the blades were fitted into a Clifton No.5 bedrock plane. The mouth was set to 0.75mm and the back iron was also set to 0.75mm from the sharp edge. The variation in blade thickness required that this setting be repeated for each blade. It was not possible to adjust the Clifton down to these settings for the Hock and Stanley so a Quangsheng No. 5 bedrock was used instead.

I began the test with four pieces of timber likely to be used in a serious woodworker's workshop: sycamore, American walnut, English oak and white ash samples were machined to 38mm wide and 575mm long. Fearing the worst for the chrome vanadium, each blade was subjected to three strokes of each timber at an average depth to give a full-width shaving with the intention of removing material at a reasonable rate and not for a finishing pass of a much finer cut.

Observation

At this level of use there was little difference between the first four blades' performance. If anything the D2 high carbon was slightly easier to push. The chrome vanadium kept a good edge on the first three timbers but was noticeably lagging behind when it came to the ash. With no real conclusion at this point it was time to raise the stakes by re-grinding, honing and increasing the stroke count to 10.

To further test the premium blades, a fifth timber was also added, ropala lacewood, a dense tropical hardwood with irregular grain and high silica content, a material that would respond better to a high-angle smoother or scraper plane.

As before, the decline in sharpness was slow for all the blades with the exception of the chrome vanadium which was done for by the time it got to the ash. No great surprise there. More interestingly though, the premium blades were all evenly matched and within a stroke or two all struggled to complete a satisfactory pass on the ropala.

Comparison of blade condition

FORGED O1 HIGH CARBON STEEL

Example: Clifton

Clifton plane irons are forged from high carbon steel with a carbon content of 1.0%. An additional forging process compresses the molecules to increase hardness and resistance to wear. As a result any extra carbon will then combine with the iron atoms to form carbides; small hard wearing granules dispersed throughout the steel which add to the material's ability to take and retain a sharp edge. The O in O1 stands for oil, used to quench the steel.

CRYOGENICALLY TREATED A2 STEEL

Example: Lie Nielsen

A2 steel differs from O1 with the addition of 5% chromium and 1.1% molybdenum, allowing it to quench in still air. The A in A2 stands for air. The relatively low amount of chromium improves the material's resistance to wear but does not significantly increase its resistance to corrosion. The cryogenic treatment of A2 steel increases the steel's toughness without compromising hardness.

D2 HIGH CARBON STEEL

Example: Ray Iles

1.0% high carbon tool steel D2. D-2 steel contains between 11.0 and 13.0% chromium to increase wear resistance. It has a good resistance to corrosion but is not classed as stainless. The sharp edge, though harder than other high carbon steels, is also more brittle.

Micro bevel ground to 30° →

Main bevel 25° →

O1 HIGH CARBON STEEL WITH MANGANESE

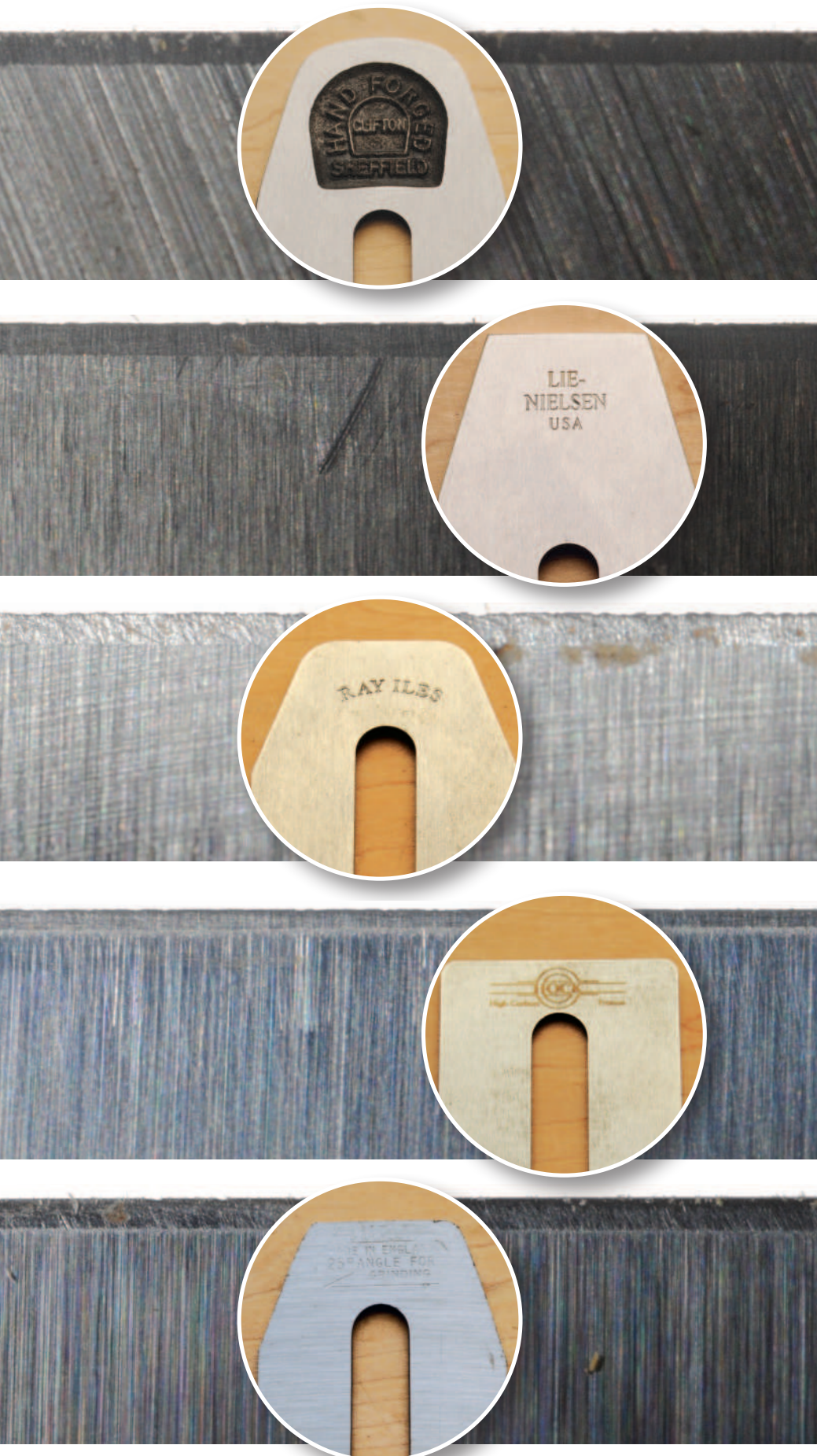
Example: Hock

High carbon O1 tool steel with the addition of 1.1% manganese. Adding manganese allows the material to harden when quenched. Using oil rather than water reduces the amount of distortion and risk of cracking from thermal shock caused by quenching in water.

CHROME VANADIUM

Example: Stanley

Chrome vanadium contains larger grains of carbides, primarily chrome, which strengthen the material and offer resistance corrosion. The large molecular structure inhibits the ability to create a sharp edge.



Results

In terms of time spent at the bench versus time spent sharpening, the chrome vanadium has a lot going for it, taking less time than the premium blades to sharpen and keeping a respectable pace over the distance.

The photographs here show a similar pattern of degradation along the cutting edge of all the premium blades after completing 50 passes. The level of pitting is slightly varied but not detectable in use. The significant difference is found in the chrome vanadium blade: by 40 passes the working edge had burred over, making use virtually impossible.

Conclusion

There were a number of variables in our workshop test that under lab conditions could have been eliminated, depth of cut being the most obvious. But as mentioned earlier the intention was to create as near workshop-like conditions as possible, so I purposely steered away from protracted sharpening methods that would lend themselves to a very different comparison test altogether.

There is a general understanding that a thicker blade will out-perform a thinner one, but any conclusion to that effect was not apparent at the end of this test, suggesting that the choice of steel is of greater significance.

A noticeable improvement however, is likely to be felt if the same process were repeated using a Bailey type plane; something that would make for interesting reading in a subsequent article. I would even suggest that a decision to choose one over the other be based on your intended method of sharpening, or appetite for the process, rather than the blade's ability to retain a good edge. In addition, the point at which we decide to stop and re-sharpen is subjective and cannot be the same for each component let alone for each variety of timber.

My conclusion is that I would be happy to use any of these improved plane irons. To do so would require a suitable bedrock plane unless you are prepared to file out the mouth of an existing Bailey-pattern plane.

EUROPEAN TREE OF THE YEAR

The Millennial Carrasca tree from Spain was crowned this year's winner

An ancient Spanish oak was named this year's European Tree of the Year. The Millennial Carrasca of Lecina is a 1,000-year-old holm oak in Aragon, Spain. Local legends tell of the 'old days' when witches used to come down from the Guara Mountains to dance around the tree. Today, that connection between the tree and the people endures: the oak stands in the small town of Alto Aragon, which has only 13 inhabitants, and it continues to provide a focal point for communal celebrations.

The Millennial Carrasca won the annual competition after garnering over 100,000 votes. Another 1,000-year-old tree, a plane in Curinga, Italy, finished second, while a sycamore in Dagestan, Russia came third. The UK's entry, the Survivor Tree in Moffat, Scotland, finished in 11th place.

The European Tree of the Year contest highlights the significance of trees in the natural and cultural heritage of Europe and the importance of the ecosystem services trees provide. The contest is not looking for

the most beautiful tree, but for a tree with a story, a tree rooted in the lives and work of the people and the community that surrounds it. www.treeoftheyear.org



PHOTOGRAPH BY MIKHAIL EREMIN, COURTESY OF EUROPEAN TREE OF THE YEAR



PHOTOGRAPH BY MIKHAIL EREMIN, COURTESY OF EUROPEAN TREE OF THE YEAR

MAIN: The Millennial Carrasca tree is a 1,000-year-old holm oak

ABOVE: Italy's 1,000-year-old plane tree came second

LEFT: Russia's Ancient Sycamore came third

ProEdge THE ULTIMATE SHARPENING SYSTEM

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Pictured with the
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(Not supplied with machine)

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Honing Kit

This kit uses the abrasive honing wheel which can be shaped to allow for honing of gouge flutes - especially useful for woodcarving tools. Items also available individually.



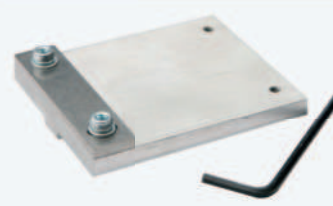
Buffing Kit

This kit uses the buffing mop and honing paste to create a high polish on any steel. Items also available individually.



Woodworking Chisel Jig

Easy to use Jig for woodworking chisels.



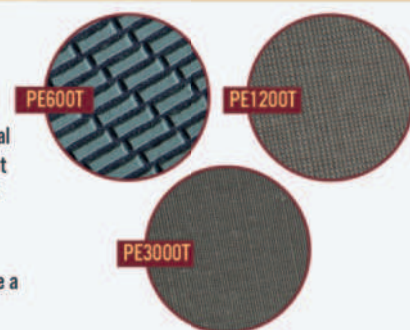
Woodworkers' Square Guide

An adjustable guide to accurately sharpen woodworking chisels and plane blades

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PORTABLE TOOLBOX

Carry your kit with ease with Alan Goodsell
and Randell Maxey's simple pine toolbox



Whether carrying around art supplies, garden equipment or DIY tools, this toolbox is sure to find a lot of use. Made from a single pine board and a short length of dowel rod, the construction couldn't be easier. It's a great project for younger woodworkers to have a go at, too.

It's made from a 25 x 255mm pine board at least 2,440mm in length. We used simple butt joints assembled with nails. No glue is needed. A coping saw is used to create the rounded top on the ends of the toolbox.

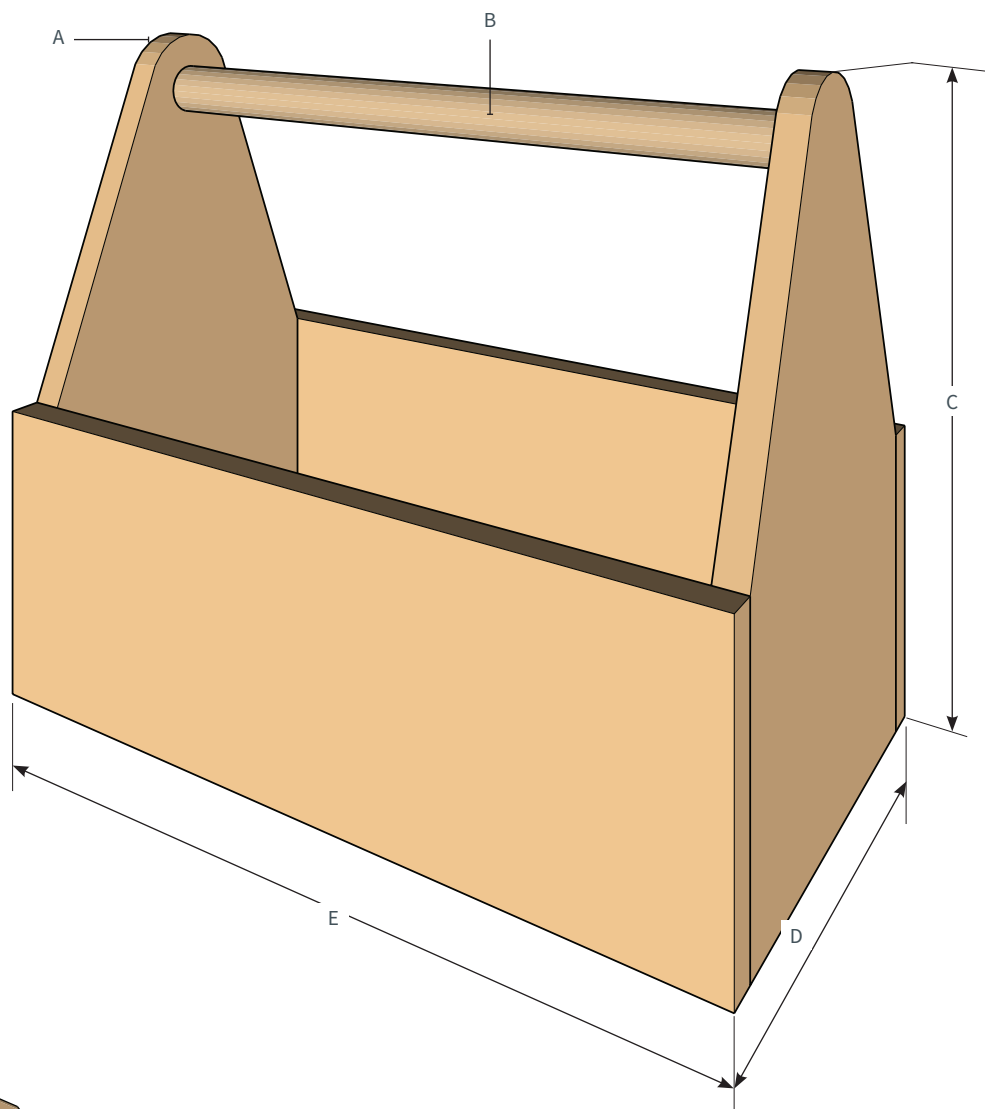
YOU WILL NEED

Timber:

- **Bottom:** 1 @ 443 x 235 x 19mm
- **Sides:** 2 @ 485 x 235 x 19mm
- **Ends:** 2 @ 405 x 235 x 19mm
- **Handle:** 1 @ 466 x 19mm dia.

Tools:

- Plastic carpenter's speed square or mitre box
- Combination square
- Handsaw
- Coping saw
- Compass or circle template with 75mm dia.
- 3/4in (19mm) spade or Forstner-style drill bit
- Power drill (optional)
- 4d (4-penny) box nails 38mm long
- Hand plane or sandpaper

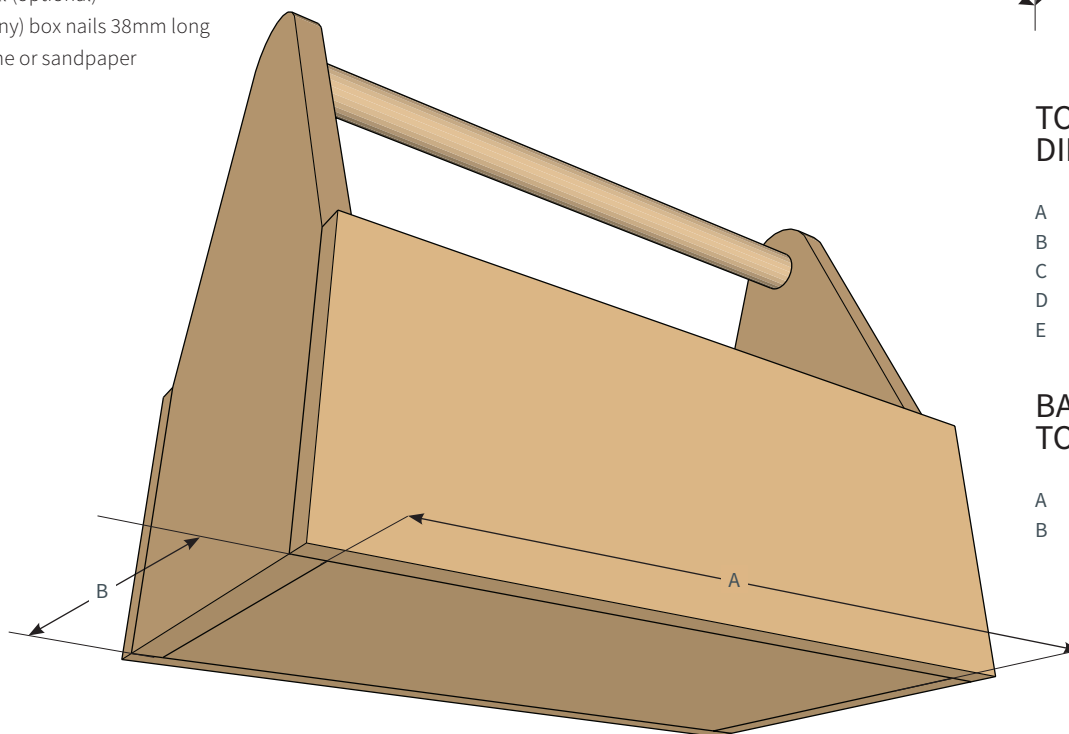


TOOLBOX DIMENSIONS

- A 38mm rad.
- B 19mm dowel
- C 405mm
- D 235mm
- E 443mm

BASE OF TOOLBOX

- A 443mm
- B 235mm





1 Use a square to mark a cut line. Cut on the waste side of the line **2** Use a sanding block or hand plane to remove the saw marks from the cut ends of all the workpieces. This creates a tighter joint during assembly **3** Lay out a 38mm radius at the top centre of each toolbox end piece **4** Make a mark 235mm from the bottom edge of the toolbox end. Connect this mark to a point tangential to the radius you drew earlier

Making the sides, ends and handles

The sides and ends of the toolbox wrap around the bottom, so the bottom is the place to start. Cut it to size with a handsaw. The trick is to make sure the ends are square. You can use a plastic carpenter's speed square to help guide the saw if you have difficulty staying on the line.

Sand the ends to remove saw marks then set the bottom aside while you work on making the ends of the toolbox. These can be cut to 405mm in length. The ends have straight sides that match the width of the sides 235mm before they taper to a triangular shape at the handle. Make a mark from the bottom edge to indicate where the taper starts.

Get out your compass and lay out a 38mm radius at the top centre of each end. Mark the centrepoint with a pencil. Then draw lines

tangential to the arc to the 235mm mark you made earlier. This defines the taper of the ends.

Use the handsaw to remove the waste along the taper line. Take care not to cut further than the layout line at the start of the taper. Use a hand plane or sanding block to smooth the tapers. Next, use the coping saw to cut the curve at the top of each end. You can stack the parts together to do the final shaping with a sanding block.

The last task to do on the end pieces is to drill a stopped hole on the inside face to accept the 19mm-diameter dowel handle. The centre of the hole is at the centrepoint of the arc you marked earlier with the compass. Drill the holes 10mm deep. Use a spade bit or a Forstner-style drill bit to drill these holes. You may want to use a power drill for this step.



5 Stack the two end pieces together and use a square to mark the cut line for the taper across the top edge **6** Cut the tapers with a handsaw **7** A hand plane makes quick work of removing saw marks and making a perfectly straight taper line **8** Use a coping saw to form the radius at the top of each end piece **9** Stack the pair of ends together and use coarse sandpaper to refine the shape of the radius. Use fine sandpaper for final smoothing **10** Use the centrepoint of the arc to locate and drill the 19mm holes 10mm deep on the inside face of each end piece

With the ends complete, all you need to make are the sides and handle. To determine their length, place the end pieces at the ends of the bottom piece and measure the total length. This will be the length of the sides so that they end up flush with the outside face of the ends.

After you cut the sides to length and sand all the pieces, you're almost ready for assembly. The last piece is the handle. Temporarily

clamp the sides, ends and bottom together and use a square to make sure the ends are square to the bottom. Measure between the ends then add the depth of the holes to determine the length of the 19mm dowel used for the handle. Subtract about 3mm from this total length just to allow a little wiggle room for the handle. Cut the dowel to length and test the fit.



11



12



13



14

11 Before nailing the parts together, drill pilot holes through the pieces that will be fastened. This helps prevent splitting the wood as the nails are driven **12** Align the parts flush and carefully drive the nails, seating them almost flush with the surface. Use clamps to help hold the pieces together **13** After the last nail has been driven home, remove the sharp edges with a hand plane or sandpaper **14** The finished toolbox, ready for use!

Assembling the box

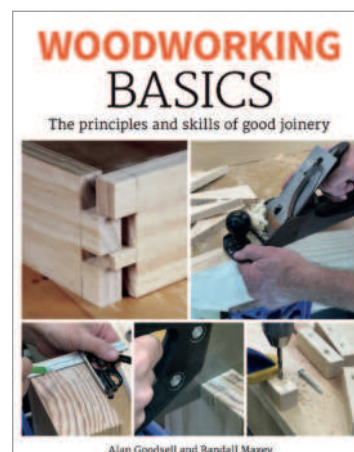
To assemble the toolbox, use 4d (4-penny) box nails. These nails are 38mm long. To avoid splitting the wood, it's a good idea to pre-drill holes in the pieces you are fastening. Pick a drill bit that's the same diameter or slightly smaller than the diameter of the nail.

For the best appearance, take some time to lay out the locations for the nails. Aim for consistent spacing and placement. All the nail holes are located 10mm in from the edge.

Pre-drill the nail holes along the bottom edge of the end pieces and fasten them to the bottom, keeping the edges flush. Drive the nails carefully, trying not to mar the workpiece. As the nailhead contacts the workpiece, give it a couple of light taps to completely seat it without denting the wood. Sometimes it can help to clamp the workpieces together to help secure them as you drive the nails. Remember to insert the handle before attaching the second end.

Now you can pre-drill the nail holes along the ends and bottom edge of the sides and attach them to the bottom and ends. Make sure the ends are flush as you drive the nails.

Use a hand plane or sandpaper to knock down all the sharp edges. Your toolbox is complete and ready to put to use.



Woodworking Basics by Alan Goodsell & Randall Maxey is published by GMC Publications, £14.99, available online and from all good bookshops



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For his final project, James designed and made
a European Cherry and Wenge console table

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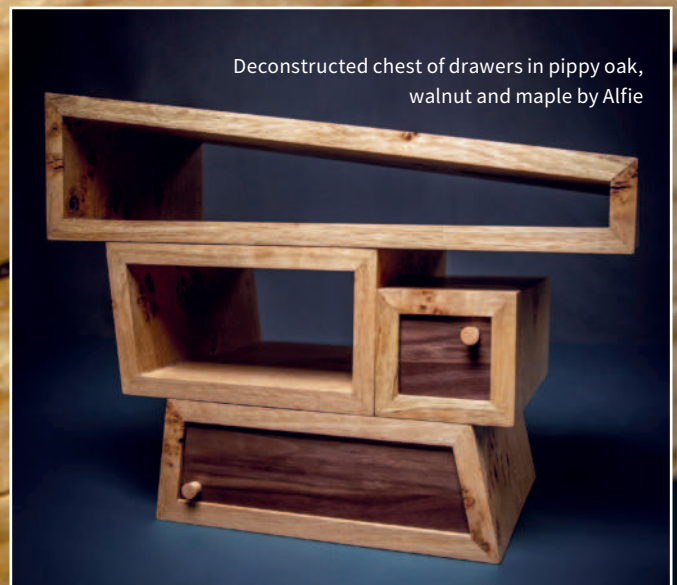
If you're looking to expand your furniture-making skills, a course at the Dorset-based Boat Building Academy could be just what you need



Classical-style console table in European cherry and wenge by James



Cabinet in ash and elm by Adrian



Deconstructed chest of drawers in pippy oak, walnut and maple by Alfie

Woodworking has been at the heart of the Boat Building Academy since its inception in 1996 with the launch of its flagship Boat Building course.

The eight-week furniture course was developed by tutor (now Principal) Will Reed in 2009 to give students foundational skills in furniture making and joinery. Having quickly gained a popular following, the course was later expanded into the 12-week course that is on offer today. Since 2018, the course lies in the capable hands of Mark Ripley – a celebrated designer and maker with more than three decades' experience in furniture making.

By popular demand, a 12-week Advanced Furniture Making course was launched in September 2020, tailored for intermediate furniture makers looking to achieve the highest, professional standards. The Advanced course takes students through hand and machine skill development, cabinetmaking, fine drawer making and fitting, chair making, batch production and a personal project piece. The photographs above show the project pieces designed and made by the September Advanced Furniture Making course.

In January 2021, The BBA Furniture School was established to house all woodworking courses at the Boat Building Academy under one roof.

For further information about the BBA Furniture School, head to: www.bbafurnitureschool.com

PENCIL CASE WITH PISTON-FIT TRAY

Hone your marking and measuring skills with Ian Parker's box project

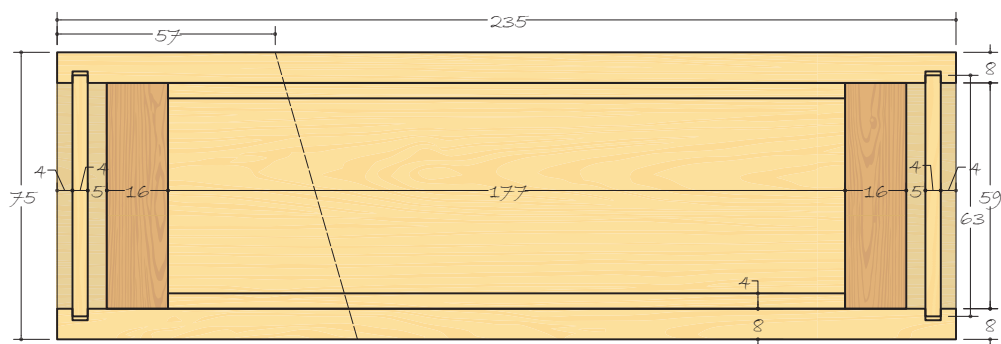
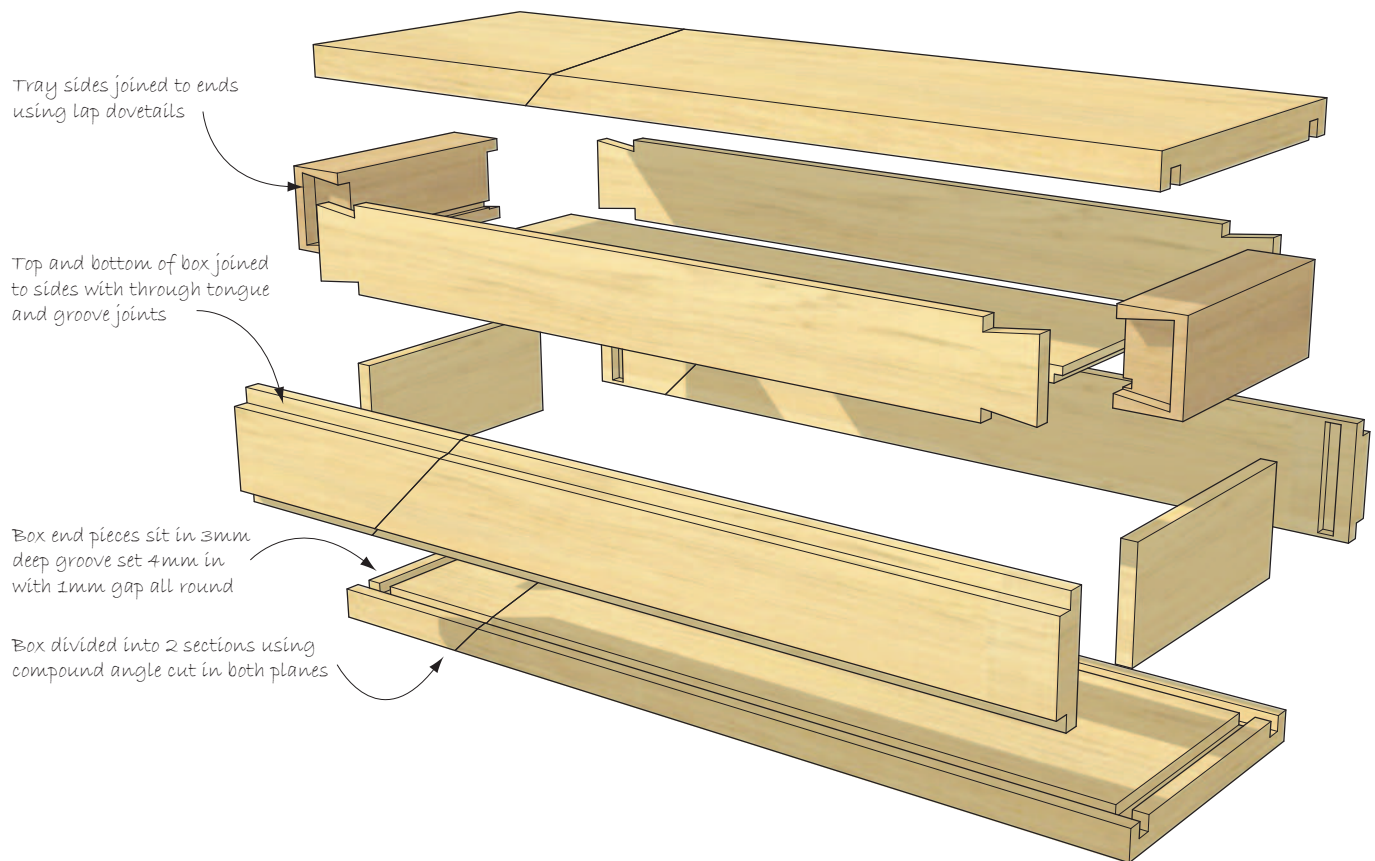
There can be no better test of a maker's skill than the construction of one component to perfectly contain another. The highly desirable piston-fit drawer is quite rightly revered among makers. Elusive they may be but unattainable they most certainly are not as I will show in this article.

From the outside this small box appears to be a relatively straightforward exercise in very simple jointing. On the inside, however, there is a container that is made to tolerances designed to highlight any issues you may be having with stock preparation. The box can be made over three days and is a great project for beginners looking to establish a level of accuracy in their marking out and measuring techniques and set them on the right path to dimensioning with hand tools. This is the first project I teach my students as the ability to make components repeatedly square and to set dimensions is a pre-requisite to producing crisp work. This exercise highlights any errors or techniques that need improving.

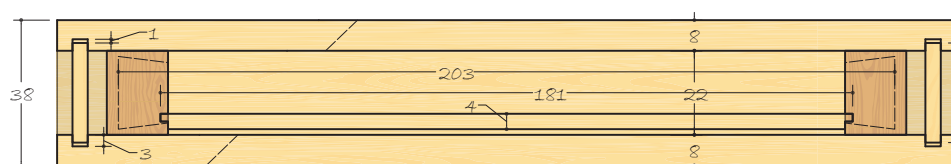


Practice pieces

If you are new to furniture making or would like to test your hand planing skills before making the pencil case, then it's a good idea to make some practice pieces first. Use some scrap pieces about 400mm long, 60mm wide and 10mm thick. Plane an edge flat on one side of each and check your accuracy as described in step 4 of the pencil case instructions. Keep practising this until you are confident that you can consistently plane edges flat.

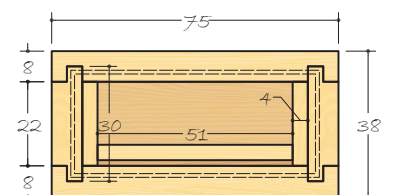


PLAN SECTION



LONG SECTION

Scale 1 in 2



CROSS SECTION



PHOTOGRAPHS BY IAN PARKER

Set the plane

- 1 This project begins with making the case. All the stock material is planed and sanded on the face sides to the required thicknesses: 8mm for the case and 4mm for the case ends, tray sides and base. Aim to get as near to a finished surface as you can as any further work after this will change the dimensions of the components.
- 2 Plane a reference face on one side of each of the case sides and the top and bottom. Do this using a shooting board and ensure the plane is set to take an even cut across its width. A cambered blade, such as that used on a smoothing plane will require grinding to a straight edge.
- 3 This is easy to check by holding the plane body upright and carefully pulling a thin piece of test wood over the blade and looking for a uniform shaving across the width of the blade. Some lateral adjusters can be less than precise so use a small plane adjusting hammer to tap the blade and align it correctly.

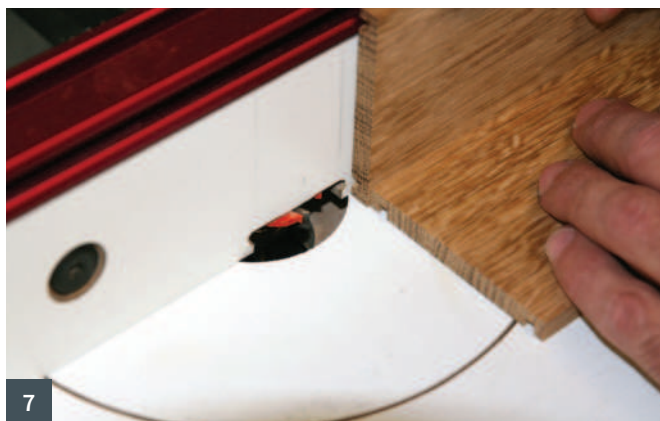
Checking for accuracy

- 4 Accuracy is checked at every step throughout the project as errors have a nasty habit of coming back to bite you at the end. To check

that these four reference edges are actually flat and not curved, place two edges against each other and press them together at one end. A gap should not open up but if it does then check the whole batch to find the culprit and adjust accordingly. Remember it only takes one component to throw things out so adopt a methodical approach to quality testing.

Dimensioning

- 5 Set a cutting gauge to the required dimension and mark one face on one top and one side only. Plane each of these to final dimension; you can set the plane to initially take a heavy cut and gradually reduce the cut until a final wafer-thin shaving is coming from the whole pass. All the time check that you are planing parallel to your marked line. The other corresponding pieces are then planed to match. Place the reference piece up against this and use your fingers to check for evenness.
- 6 When you are able to turn the piece around and upside down without detecting any differences in heights, then they must be a matched and square pair.



Routing a groove

- 7** The pencil case is effectively a tube made with a simple tongue-and-groove joint. The joint is cut on the router table with a 4mm slotting cutter. The cutter is set to cut a depth of 4mm and set to 8mm high.
- 8** Both parts of the joint are cut using this one setting. The groove is cut on the wide top and bottom sections with the tongue cut on the narrower sides.

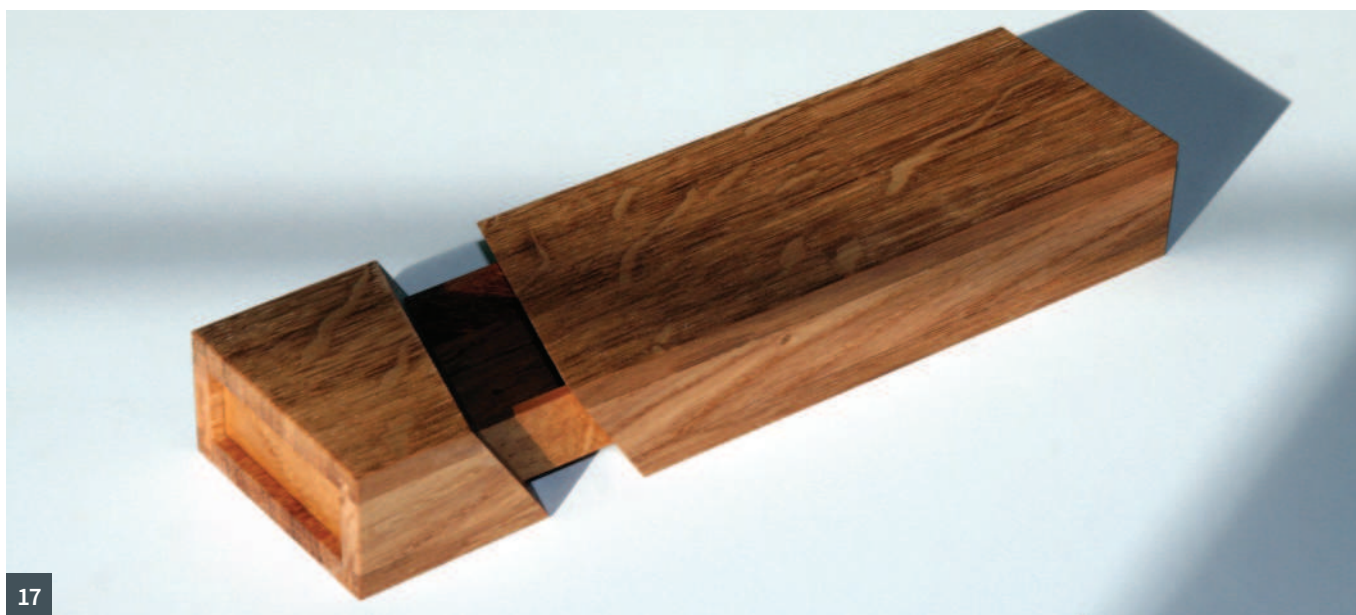
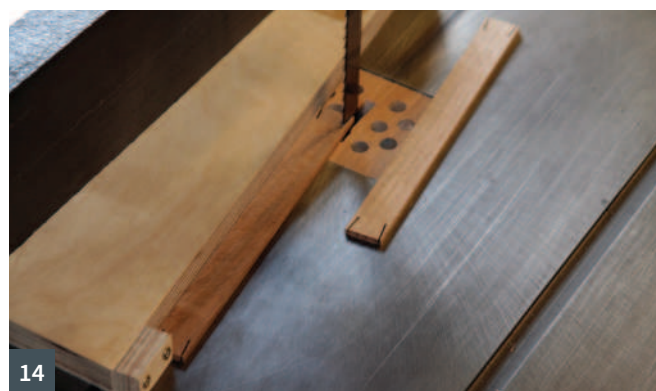
Shooting to length

- 9** A block plane is used on an end grain shooting board to dimension all pieces to the same length. When complete, a slot is cut on the inside face of the tube at either end to house the end stops. The slotting cutter depth is reduced on the router table to cut a depth of just 3mm. This groove will need to be finished with a chisel on the top and bottom faces. The 4mm-thick end pieces are made to fit with a 1mm gap all around.

- 10** Check if all four sides are the same length by using two pieces of scrap wood to try and pick up all four pieces at once. If the lengths are correct, you can start the glue-up. Use a small paintbrush to apply a thin film of glue to the grooves and tongues, take care to avoid any glue squeeze out on the inside of the case as this will prevent the tray from sliding and is difficult to remove. The two end stops are not glued in. Assuming the case is square and true, then only light clamping pressure is needed.

Splitting the case

- 11** A piece of scrap wood is cut and planed to 45° and a magnet inserted. This is then clamped to the case to help guide a fine-toothed saw.
- 12** If you are using a backed tenon saw it is unlikely you will clear the guide and so the final part of the cut will be freehand. The freshly sawn faces are cleaned by pulling each part against abrasive paper held on a flat surface.



The tray

13 Now you have the case finished, the internal dimension can be taken using callipers and transferred to the tray side stock. The tray sides are planed to fit with just the smallest of gaps.

14 The bandsaw is used to cut a single dovetail on each end. This is achieved with a simple 1-in-8 jig. The dovetails can of course be cut by hand but this is a beginner project and the emphasis is placed on using a jack plane and a block plane effectively, so we will conquer dovetails another day. I have a special chisel vice that students use to cut the pins on. If used correctly these ensure clean level sockets every time.

15 A 2mm groove is cut in each end piece to provide a support to the

tray base. I used a 2mm router bit in the router table, but a scratch stock would work just as well. The tray base is made to fit snugly and the tray glued up.

16 Here are all the tray components ready for the trial fit.

17 Despite all the accuracy employed throughout the making, the trays never go all the way down first time. Light sanding is all that should be needed to make the tray fit. Basically you are just flattening off any slight discrepancies on the sides and sanding off any glue squeeze out. Take your time with this stage as removing just the slightest amount will affect how slowly or quickly the tray descends. The tray should glide down on a cushion of escaping air regardless of which way around, or which end is inserted first.

MADE IN BRITAIN



Robert Sorby celebrates being granted Made in Britain membership

Robert Sorby has been accredited as a member of Made in Britain. Robert Sorby's adoption of the official, protected mark (shown here) will help buyers recognise its products as good quality, great value and British-made.

The mark also lets customers know that Robert Sorby is a trusted company that values transparency, sustainability and ethical business practices. Consumers are increasingly recognising the Made in Britain mark as a mark of confidence.

'We are extremely proud to be accredited the mark and become part of this great community of British Made products,' commented Ian Finkill, General Manager of Robert Sorby Ltd. John Pearce, chief executive of Made in Britain said: 'We're delighted that Robert Sorby has joined the community of more than 1,200 British manufacturers. The more the mark is used and seen, the more it is recognised as a mark of quality. In addition to getting access to the official protected mark, Robert Sorby will also start to enjoy the many other benefits

membership to Made in Britain brings, including support in sales, marketing, PR/comms and export. We look forward to watching Robert Sorby grow with our help and support.'

www.robert-sorby.co.uk

ABOUT MADE IN BRITAIN

The Made in Britain organisation helps Britain's manufacturers to grow. It provides support to its members in sales, marketing, PR and export. Members of Made in Britain can be found in a searchable directory at madeinbritain.org, which gives detailed information about their manufacturing businesses, including company news and links to their websites and social media activity. Buyers and procurement professionals use the Made in Britain directory to find suppliers.

For more information about Made in Britain visit: madeinbritain.org

A CREATIVE JOURNEY



PHOTOGRAPHS BY STANISLAV SKOULL



Czech woodcarver
Ladislav Zika tells us
about his life and craft

Ladislav Zika began woodcarving as a hobby when he was 25 years old. He already had other artistic passions, including guitar playing and painting, but he soon became an accomplished wooden puppet maker and carver. Here, he tells us about the influences and experiences that have inspired his work.

Nature and creativity

Looking back, I can see that my life was emotionally shaped by love of nature, compassion for the weak and helpless, sympathy for the oppressed and resistance to injustice and parasitism of any kind.

I believe nature has given man an urge to create that has been nourished and developed over the millennia. People are inspired to create out of curiosity and wanting to experiment with natural materials. We love to explore the properties and possibilities of materials, not just to make what we need but also to express our goals, dreams and desires.

A family of craftsmen

My work has also been influenced by previous generations of craftsmen in my family. My great-grandfather was a blacksmith, my grandfather was a locksmith and my father was a toolmaker. I also trained as a machinery repairman, so I learned the basics of working and forming metals. These techniques are actually not that different from working with wood.



The magic of puppets

I started carving when I was 25 years old, inspired by the art of nature and also puppets. The first puppet I made was a witch. It was made of plum wood and had glowing eyes. When I performed with the puppet for children, I noticed that although they saw me, they spoke to the puppet, not with me. Puppets have such magical power!

Making puppets requires not only carving skills but also knowledge of mechanics. This is particularly evident in the production of trick puppets: closing the eyes operated from the rocker arm, turning them on and off, chest opening, self-standing ability, movable jaw, etc. I created about 30 puppets on threads (size about 30–40 cm), nine marionettes (height about 75cm), 10 puppets and about 25 headers for large marionettes.

I worked at a puppet theatre for six years as a puppet designer and carver. Unfortunately, towards the end of my time there, the theatre was privatised and everything became focused on profits. For me, any activity based on commerce loses its moral value, so I was glad to quit.

Carving in retirement

It was only after my retirement that I took up woodcarving as a more permanent hobby. I built a workshop, equipped it with several older machines, which I renovated, bought the necessary tools and the means to sharpen them. I spend spring, summer and autumn at a cottage where I have a workshop, carve, practise

classical guitar, work in the garden and go mushroom picking.

I like to carve animal figures. To get my carving materials, I walk through the woods and look for dry and wind-blown branches and dumps. I never cut living trees. When I get wood from someone who cut down a tree, I put the material in a dry roofed place where it rests for several years. I work with different types of wood. The best workable material is linden, but to get the natural colour of the wood, it is advisable to work with wood from fruit trees. Exotic wood is relatively unavailable. I prefer to work with hand tools – chisels, axes, saw – but I use machines to prepare material for further processing.

A creative philosophy

According to some Eastern philosophies, the way to the destination (or aim, objective?) is more important than the destination itself. This was related to the warrior's way – budo. However, I say, let's skip the fight and focus on the creation. Creation is a way and product is a destination. The way is movement, direction, discovery, overcoming obstacles, requiring strain and thus constantly improving our skills. By reaching the destination (finishing the project), the way is over, but the creator has immortalised his work in the product. The enjoyment or pleasure and joy of creation can itself become a destination. I believe this is true whatever you choose to make, whether it's machines, instruments or puppets.







VIRTUAL LIVING ROOMS

Fancy a change of scene?
The Museum of the Home's
digital backgrounds will
liven up your next video call

MAIN: 1630s hall.
The large fireplace
dominates this
room, with the
hearth being the
traditional symbol
of home and
hospitality

RIGHT: 1830s
drawing room. Key
features include
the floor-to-ceiling
windows dressed
with fashionable
and elaborate
drapery





1965 living room, as styled before the Museum's redevelopment. The walls and ceiling are painted white, but colour and texture come from the furniture and rugs, which are a mix of Scandinavian and English design



1990s open-plan living room. The defining feature is space: high ceilings and a large window, furnished with industrial aesthetics and design classics

During the lockdowns, it was easy to become bored of looking at the same four walls. The Museum of the Home came up with an ingenious solution – a virtual home makeover.

Rooms through time

On their website, the Museum supplied downloadable images of four of their 'Rooms Through Time' – recreations of typical British domestic interiors from different eras. So your next video call with family, friends or colleagues could be conducted from a busy 17th-century hall, a grand Victorian drawing room, funky 1960s living room or cool 90s loft-style pad.

If you want to refresh your space and create a Zoom talking point, the backgrounds can be downloaded here: www.museumofthehome.org.uk/explore/things-to-do/backgrounds-for-your-video-call/

The Stay Home collecting project

The Museum also found other unique ways to respond to the coronavirus pandemic. During the lockdowns, our homes and the ways we use them became more important than ever. The Museum began the

Stay Home project as part of its ongoing Documenting Homes archive, which records people's everyday experiences of home through images and audio and written testimonies.

For the Stay Home project, the Museum asked people to consider questions about how they use and feel about their home, and submit photos of their interiors. If you'd like to share your experiences of life at home during the pandemic, visit: www.museumofthehome.org.uk/explore/stay-home-collecting-project/

About the Museum of the Home

The Museum is based in Hoxton, London and documents British domestic life. It has recently undergone a redevelopment involving renovating and expanding the existing buildings, creating new exhibition spaces and refreshing the Rooms Through Time. The new look Museum is due to open in 2021.

For more information about the Museum of the Home and its reopening, visit: www.museumofthehome.org.uk

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- Digital speed readout
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- Sensors for superior safety, use and maintenance



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Craft Supplies

BE INSPIRED, BE CREATIVE

BOOK REVIEWS

We review two new additions for your workshop library



Buchanan-Smith's Axe Handbook

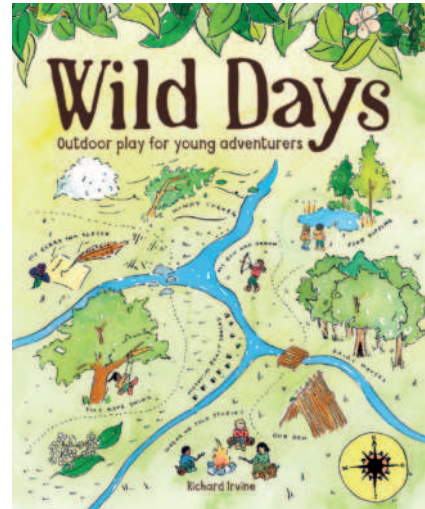
Peter Buchanan-Smith

Peter Buchanan-Smith, founder of the Best Made Company, describes this as a personal 'love letter' to his favourite tool, the humble axe. The book begins with a fascinating history of the axe, from the earliest stone tools made by early humans, through the Vikings' double-bit broad axe and the iron and steel versions of the 18th and 19th centuries, right up to the present-day revival in traditional crafts and tools and the emergence of new forges. Interesting historical snippets are also spread throughout the book, including 'the President's Axe' owned by Theodore Roosevelt, 'the Poet's Axe' of Robert Frost, and a tribute to the Women's Timber Corps.

There is also plenty of practical information, including a detailed 'anatomy of an axe'; illustrated guides to the different styles, head and helve patterns; general care, safety and sharpening tips; and a detailed guide to buying and restoring new and vintage tools. The making process is also covered in detail, with photographs taken at a modern forge. There's information about using an axe, too, covering chopping firewood, felling trees and preparing timber.

If you're interested in using an axe in your woodcarving, this lavishly illustrated, comprehensive guide is the book for you.

Published by Abrams Image, £17.99



Wild Days: Outdoor Play for Young Adventurers

Richard Irvine

Wild Days is packed with ideas for families to get outside, have fun and be creative. There are over 50 activities, all designed to get children away from their screens and out into nature, wherever they live. For young woodworkers there are plenty of woody projects to enjoy, including building a den and cooking on sticks, plus making a bow and arrows, a magic wand and wooden wind chimes. Their creativity will be inspired as they make their own paints and inks, learn to tell stories and make up poems.

Other activities are designed to expand children's knowledge of the natural world, teaching them to identify plants and wildlife, tell a tree's age by its rings, map the stars and listen to birdsong.

While the emphasis is on fun, there is also plenty of essential safety advice and valuable tips on how to behave responsibly and respectfully outdoors. Hopefully this book can help you create some magical family memories and inspire children with a lifelong love of nature and craft.

Published by GMC Publications, £16.99





WORKBENCH FIT-OUT

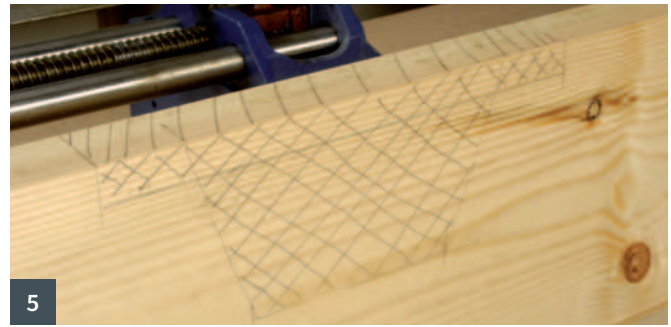
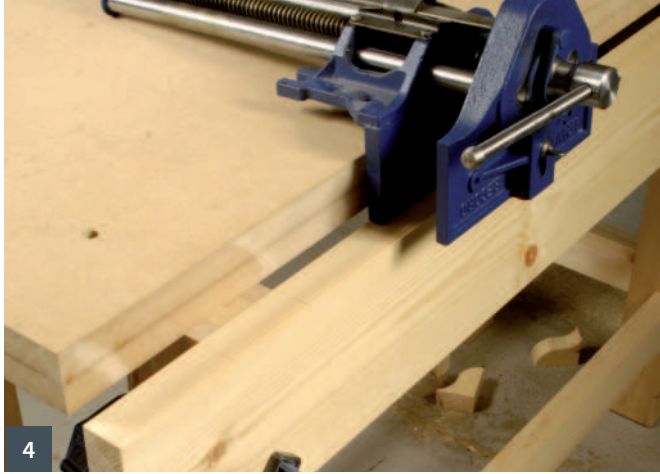
Michael Huntley customises his workbench and fits a vice and benchdogs

Just because a workbench is hidden away doesn't mean it has to be kept plain. I made the frame and top for this bench myself, and I took the trouble to shape the lower ends so to personalise it and add some visual interest. There is almost no limit to the ornamentation that you could put on your bench and this also gives you a chance to play with ideas and techniques that only you need see. When I was happy with the overall look of my bench, I got down to accommodating the all-important holding devices.

Shaping the bench top ends

- 1 Draw any shape that you fancy onto the lower ends of your bench ...
- 2 ... then cut the shape – a scroll in this case – using a jigsaw.
- 3 Clean it up with a drum sander, then consider whether you want to bevel the edges by hand or rout them.





PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS

The legs

- 4 Here I have marked the position of the legs on the top of the shaped rail. If the top is still loose, push it back from the front and clamp the rail in place. Select where you want the vice to be, generally on the left end for right-handers and vice-versa. Turn the vice upside down and mark where the cheeks will go.

Vice recess

- 5 With the vice propped on the benchtop above where it will be fitted, sketch the shape of the cutout needed. You won't get it right first time; it will need lots of offering up and 'nibbling'. On a safety note: take care when handling the vice as it will be heavy and probably greasy. Clean off most of the grease with spirits so the vice can be gripped by its bars.
- 6 The cutout allows the top edge of the rear jaw to sit about 10mm below the benchtop. Use the quick-release mechanism to check that the jaws open and close fully. The little thumbscrew at the top of my vice secures a small bar of metal. This is known as a dog.
- 7 Mark the shape of the recess needed to house the rear jaw. The recess must be 1mm deeper than the thickness of the jaw. The extra millimetre is to allow for expansion and contraction. Also allow a millimetre above the metal jaw. I have used MDF, which doesn't move with the seasons, but it would be an unwise person who didn't allow a little tolerance here.
- 8 Remove the top and clamp it vertically against the legs. Clamp a batten level with the top to give support and screw stop blocks to

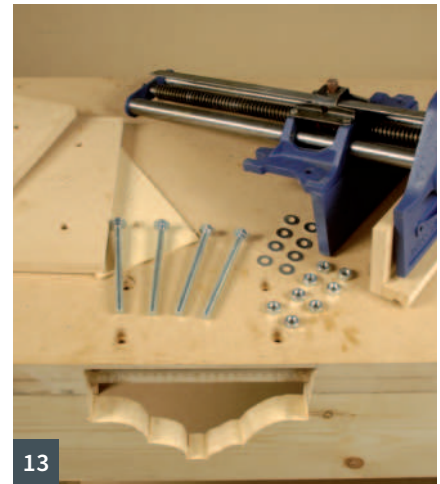
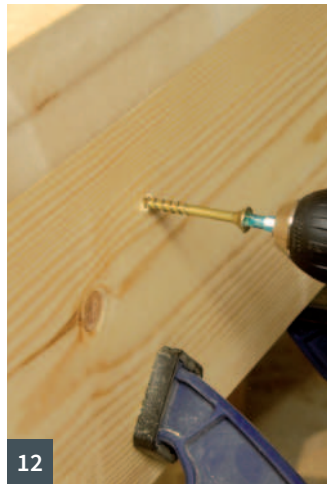
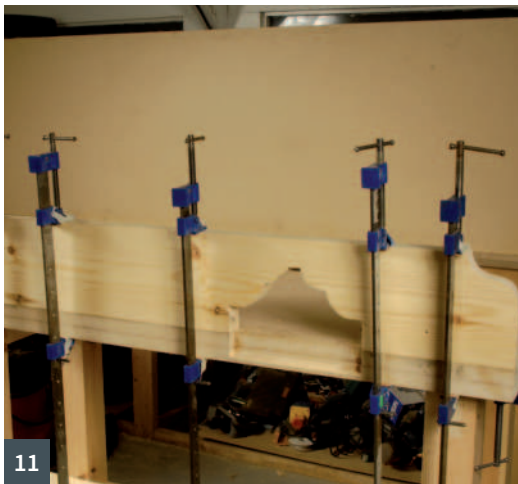
each end of the batten. Form the recess with a router or use a chisel and mallet.

Marking the bolt holes

- 9 You should now be able to clamp the top to the rail and have an opening into which you can offer the vice. Adjust the jaws until the vice is slightly open and it balances without falling out of the hole. Clamp it with a batten or get a helper because you most definitely do not want it falling out. Sit under the bench and mark the position of the bolt holes. You could at this point, and with the help of a second person, set the whole top assembly upside down to do the marking, but it is fiddly and you must remember the correct alignment of all the components. Remove the vice and drill through vertically from the underside, or take the top off and turn it over to drill from above. A long series drill set is useful for this sort of job, and here the 4mm drill is being used to give a pilot hole. Then turn the top over again so that it is right side up. Using a combination square and cardboard template, check the position of the holes.

Fixing the vice

- 10 With a Forstner bit – which will allow you to make small adjustments to the size of the pilot hole if your drilling was less than perfectly vertical – counterbore the holes for the bolt heads on the top surface. Recess the hole so that the bolt head is at least 8mm below the bench top.



Attaching the rail to the legs

- 11** Glue the rail to the top first, then position the whole assembly on the legs with an even overhang at each end.
- 12** Ensure that the rail is clamped tightly to the leg before drilling. Use big long screws and countersink them well below the surface.

Fitting the vice

- 13** You will need bolts, nuts, washers and packing pieces to fit the vice. Pre-drill the packing pieces with slightly oversize holes.
- 14** Offer up the vice, place the packers in position, put the bolts through, fit the washers and nuts and tighten up the nuts, then

affix locknuts for security. It sounds simple but this whole process will require some fine-tuning.

- 15** Fit the cheeks and make sure the screws are well recessed so that your workpiece doesn't get damaged.
- 16** Notice that the vice jaws come with 'toe-in'; this is deliberate and ensures that the top of the jaws close first. When you're satisfied with the operation of the vice, fill the bolt counterbores with timber or a PVA and sawdust mix.

Finishing

- 17** Finally, fit the shelf, give a quick sand and apply a coat of varnish.

A collection of various woodworking tools is scattered across a rustic, dark-stained wooden surface. In the top left, there's a wooden handle and a red-handled tool. To the right, a red square is visible. Below it, a black and red tool lies horizontally. In the bottom left, a hammer with a wooden handle and a black head is positioned. On the right side, a large circular saw blade with a serrated edge is partially visible, along with a long, thin metal rod. The background wood grain is prominent and adds a textured, natural feel to the advertisement.

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FROM SEED TO SAPLING

Carol Anne Strange reflects on how
growing a tree is an act of patience
that can be rewarding on so many levels





Deeply affected by the demise of many elm trees in the 1970s, writer Sheila Jeffries pledged that on each birthday she would plant a tree seed for each year of her life. Over the years that have followed, she has joyfully raised many trees.

Sheila, whose rural Somerset garden is full of pots containing foraged acorns, beechnuts, walnuts and others, says: 'My first experience of growing a tree was when I picked up a shiny conker I found in a city park. I still recall my sense of wonder as I watched it germinate and grow.'

It's this fascination interwoven with concern for loss of habitat that motivated Sheila and her husband, Ted, to plant a 'forest of dreams' on a 50-acre site in Cornwall. Over 10 years, and with just two spades, a wheelbarrow and a collection of tree saplings grown from gathered seeds, they tenderly nurtured this plantation to create a precious, young forest.

Sheila's tree-planting story is heart-warming and inspirational, but she's keen to point out that you can make a difference even if you only raise one or two trees. Indeed there are many rewards, on a personal and environmental level, and the experience of seeing that first green shoot emerging is miraculous. It speaks of hope and renewal.

The Fellowship of the Trees is a UK-based not-for-profit organisation that invites people to become tree guardians and grow saplings from seed. Luciana Lippi, one of the directors, says: 'Apart from the environmental benefits of having healthy tree cover, we understand the close relationship humans need with nature for mental wellbeing. Growing trees from seeds is a great starting point in deepening this relationship. It provides a way of having contact with nature, which is accessible to all, bringing a sense of contribution, stewardship and community.'

Patience and care

Whether your seeds have been gifted or foraged, growing trees takes time, and the results are uncertain.

Luciana says: 'Depending upon the tree species, some seeds require a stratification process to mimic nature's cycles while others can be planted straight away. Even in nature, not all seeds will germinate and this stands true when home growing as well. Patience is required and time will tell whether the seeds will sprout.'

In many ways, nurturing seeds is an exercise in letting go of expectation. The outcome is something beyond our control even when we provide tender loving care, something that is perhaps a valuable exercise for woodworkers who want every project to turn out perfectly. It's a reminder that seeds are just possibilities and, if it's meant to be, they'll grow and mature in their own good time. There is, however, much we can do to give seeds the best possible chance of life.

'Before you begin lovingly planting those golden acorns or pine seeds in their pots, you must be prepared to protect them from all the wild creatures who will eat them,' says Sheila. 'Birds, mice, rabbits and others will enjoy the meal, and, if the seed makes it through the winter and sends up a tender little shoot in the spring, the slugs will be ecstatic. One slug or snail can eat about 20 baby trees in one night. So, either keep them in a cool, mouse-free greenhouse, or inside a wire cage outside. You can use vine-sleeves over individual pots, but even this tough mesh can be chewed by a determined squirrel or a magpie.'

To see a green sapling reaching for the light is wonderful but it's just the start of a very long journey.

Sheila says: 'Once the seeds have germinated, they need intensive care through their first two years, especially in dry summers. Weed them, shade them and water them daily, and you'll be rewarded with robust little trees. It's a brilliant gift to mother earth.'

Choosing your tree seeds

You can obtain free tree seeds from organisations such as the

Fellowship of the Trees otherwise autumn is a good time to go foraging in woodlands, countryside and parks. There are basically five types of seed: nuts, pods, wings, cones/bracts and fruit pips/stones. Some seeds, such as acorns, hazelnuts and horse-chestnuts (conkers), will be familiar to you. Others, such as the seeds of rowan, blackthorn or elder might not be so recognisable. If you're not sure of the tree species – after all you may be more familiar with the timber than the tree itself – take an identification guide with you. Examine the seeds carefully to ensure there is no visible damage or infestation. Put the healthiest seeds in a paper bag and label your finds.

Preparing seeds

Some seeds such as horse-chestnut, oak, sycamore and goat willow don't require pre-germination treatment and can be planted into soil straight away. Other seeds, such as beech, black walnut and alder, benefit from or require a stratification period to imitate nature's conditions to overcome dormancy and promote germination. There are two stratification methods – warm and cold, and the process varies depending upon the species. The seeds are placed in a container of slightly moist horticultural sand and left either at room temperature or within a fridge for a period of time. Depending upon species, stratification can take from four to 40 weeks. Some seeds, such as small leaf lime, holly and wild cherry, benefit from going through both methods, usually starting with the warm process. Remember to label and date the containers.

Time to sow

Check seeds often for signs of germination and sow them as soon as the root appears. Luciana suggests upcycling 1-litre juice cartons to make sapling pots. The carton can be used horizontally to cut down on the use of plastics. Make sure there are adequate drainage holes in the bottom. Alternatively, use 20cm plant pots. Fill with free-draining, organic (peat-free) compost mixed with sand to aid drainage.



Plant five small seeds per pot. If it's a nut, place it in a container of its own. As a guide, to ensure optimum growing conditions, sow seeds to the same depth as their diameter. For example, birch seeds with a 1–2mm diameter only require a slight covering of soil whereas larger acorns with a 1–2cm diameter are sown about 2cm deep.

If possible, place pots outside in a shady area and protect them from hungry creatures. Check the pots regularly and keep soil moist but well-drained.

Planting

When the seedlings are about 5cm tall, re-plant into extra-deep rose pots. Slow growing trees, such as oak, can stay in their pots for a couple of years while faster-growing species, such as birch, might need replanting after one year to a temporary spot to grow more freely or to their final home where they can mature. An ideal time to move trees is late autumn. If you have the task of re-planting, take great care not to damage the roots and stems, and make sure the roots don't dry out at any point.

If you're raising trees as part of a tree conservation project, your saplings might already have a good home waiting for them. Otherwise, donate them to local tree planting schemes or, like Sheila, take steps to plant your own magical forest of dreams to leave a vital lasting legacy.

Tree species

Try growing the following from seed...

HAZEL

In mid-late September, collect hazelnuts directly from the tree when they're easy to remove from the husk. Put the nuts in water. If they sink, they have a good chance of growing. Discard the ones that float. Mix a handful of nuts with an equal amount of horticultural sand and place in a container with good drainage. Leave in the shade away from mice. At the end of February, check seeds for signs of germination. Sow two seeds per pot, about 2cm deep. Water and keep the soil moist.

SILVER BIRCH

In late August/September, gather seeds (known as strobiles) from the tree. Place them in a cotton bag and soak in cold water for up to 48 hours before allowing them to dry. Pop the seeds in a plastic bag containing moist sand and refrigerate for four weeks to aid germination. In April, sow up to 10 seedlings per pot. Birch grow quickly so be prepared to re-pot or plant within the year.

SCOTS PINE

It's not easy to access pine cones directly from the tree so look for freshly-dropped cones on the ground that still contain their seeds. Although pre-treatment isn't required, germination can be improved with four weeks of cold stratification before the intended sowing date. Mix seeds with moist sand and place in a plastic bag in the fridge. In April, sow seeds thinly into trays and cover with a fine layer of sand. Re-pot in the autumn and, after two years, plant the saplings in the earth.

PEDUNCULATE OAK

In autumn, gather clean, undamaged acorns from the ground. Place them in water. Do they sink? If so, keep these. No pre-treatment is required as the seeds germinate naturally and quickly in damp conditions. Plant an acorn about 2cm deep into a small pot of organic compost that has adequate drainage. Alternatively, sow direct into the earth (about 5cm deep).



FOR FURTHER IDEAS, INFORMATION AND TREE PLANTING PROJECTS, VISIT:

- Fellowship of the Trees
facebook.com/fellowshipofthetrees
- The Wild Seed Project
wildseedproject.net
- Tree Nation
tree-nation.com
- The Conservation Volunteers
treegrowing.tcv.org.uk
- Sheila Jeffries
sheilajeffries.com



GREENHOUSE BASE

James Hatter presents a simple garden improvement



PHOTOGRAPHS BY JAMES HATTER

Modern aluminium greenhouses are normally supplied in kit form. Here, I will share a quick and effective method for making a timber base.

Making the base

To start you will need a piece of 50 x 100mm pressurised treated timber. The actual size of the finished timber is usually 45 x 95mm, and the base sides are cut to length then the ends will need to be treated with preservative. The ends are joined with three 4 x 80mm decking screws. Make corner blocks of 27 x 27 x 90mm timber to reinforce the corner joints. Attach these using 4 x 65mm decking screws; position the screws to avoid clashing with the holding ones.

Make up the greenhouse frame, place the wooden base on a flat surface and check that the diagonals are equal. Next, place the greenhouse frame onto the base, and check that it fits correctly.

Level off the area where you intend to site the greenhouse. It is desirable to have a firm under-foundation at the corners of the base, this could be a brick on compacted gravel with a little

cement added. Use string, pegs and a level to mark out the base positions. Use a plastic damp-proof membrane strip, so the base is not directly on the under-foundation.

Lift the base onto the prepared area, and check for equal diagonals, and to make sure it's level. To give protection from movement and provide firm anchors, lengths of steel tube can be driven into the ground at an angle, and then a hole drilled through the pipe to allow an exterior grade screw to be driven in through the tube, into the wood base. Take care when doing this, so that the base is not knocked out of alignment. Old metal water pipe or conduit is ideal for this. Drill holes through the bottom of the greenhouse frame for screws to attach the greenhouse frame to the wood base, and add the roof members. All the greenhouse nuts and bolts can now be tightened in preparation for the glazing. A seal is placed along the frame members receiving the glazing; the glazing is then positioned, and held in place with glazing clips. The assembly of the door, and possibly roof vents will follow. In this example, planting boxes were constructed, and planted to make the greenhouse more presentable.

CELTIC RELIEF CARVING

Zoë Gertner carves a Celtic-style design on a platter

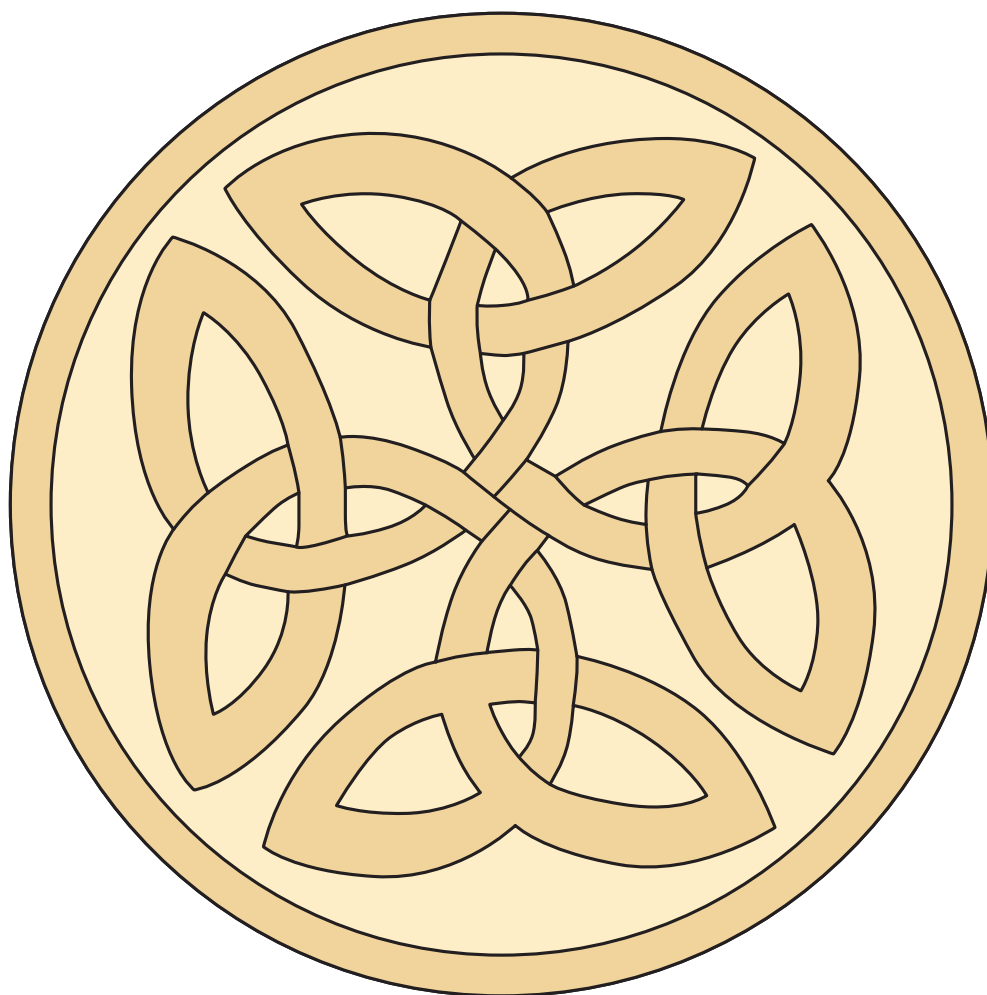


Instantly recognisable, there is a fascination with Celtic designs, their interweaving straps, knots and complicated looking undulations representing stories and religious symbolism. As well as decorating precious objects, such as jewellery, brooches and daggers, for the woodworker the style can easily be applied to boxes, furniture and mirror or photo frames.

The techniques shown for making this simple pattern can be used for carving most Celtic designs with interwoven plaits or straps, however complicated a design you might choose to carve in the future.

I used a turning blank of cedar, approximately 200mm in diameter, but other suitable timbers could be sycamore, lime or beech or any fairly close grained timber at any size you wish, however, a lighter coloured timber will show carved detail more clearly than a darker one.

At any stage of a carving it is inadvisable to sand, because the resultant abrasive dust that remains over your carving after you have sanded will blunt your tools' edges. The cuts from really sharp tools should suffice for finishing and it's good practice to re-sharpen your tools before making your final cuts with them.



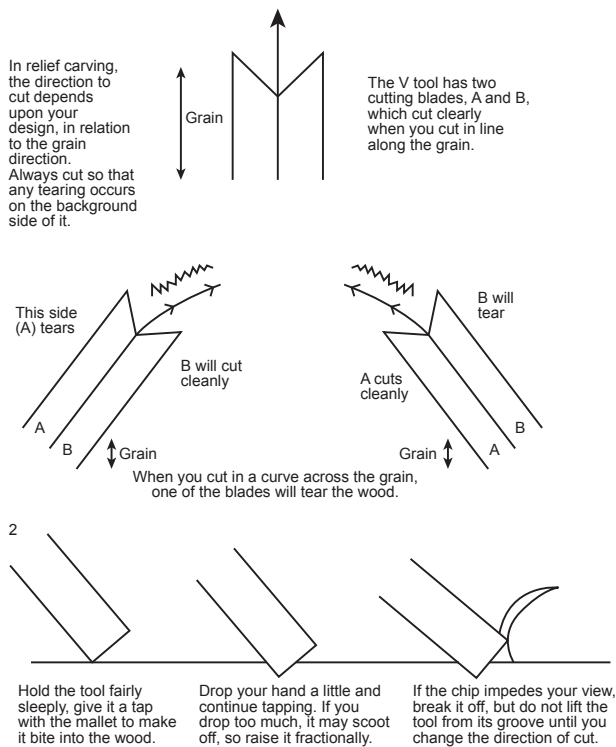
PHOTOGRAPHS BY ZOE GERTNER

YOU WILL NEED

- Cardboard
- Scissors
- 6mm or 3mm 60° V-tool
- No.3 gouges, including 6mm and 3mm
- No.2, 6mm skew chisel
- Punch and light hammer

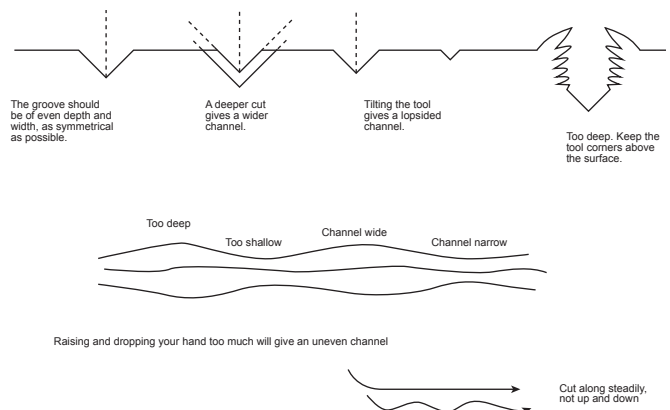
Starting the carving

- 1 The first thing to do is to draw a simple pattern, showing how to carve the strapwork that is used in most Celtic patterns. Using thin card (a cereal packet is ideal), cut it to the shape of your turning blanks, folded in four and draw your design in one corner.
- 2 Cut the outline out with scissors.

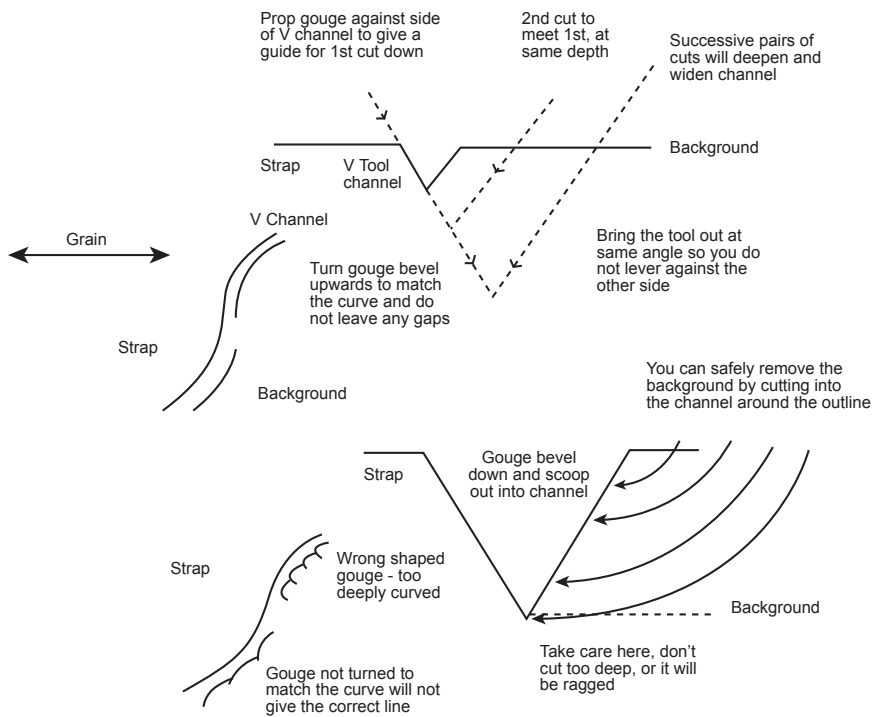
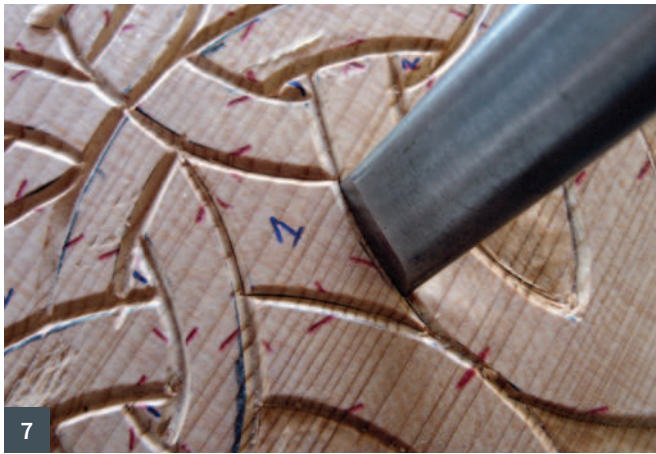


1. Using a V-tool

- 3 Now unfold the card and place it centrally on the blank. Align the pattern with the grain running horizontally. Draw a border around the edge of the blank.
- 4 Draw around the outline onto the surface of your timber, producing a symmetrical pattern in each quarter of the circle.
- 5 Redraw over any faint lines so that they are clear, ready to mark out the pattern with the V-tool.
- 6 Using the V-tool with a mallet, work in the direction shown by the red arrows around each of the straps and the border to cut a clean edge along each side of them. It is advisable to mark the correct direction in which to work with the V-tool before you start – see diagrams 1 and 2 below.



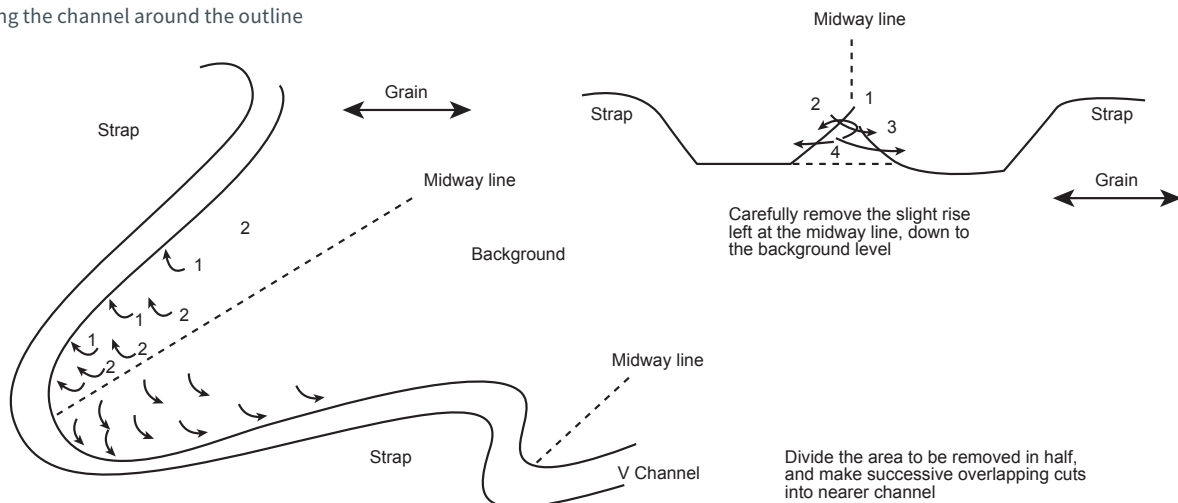
2. How to cut with a V-tool



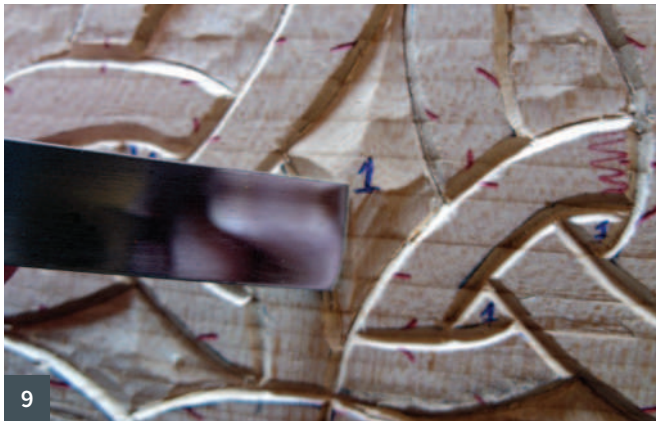
7 Next, reduce the background areas. Before starting to remove this, number them as '1', or shade them with chalk or pencil so you do not remove a strap by mistake. Using the No.3 gouge and turning it, match the curves, cut along the outlines of each strap by aligning the cutting edge against the angled side of the V-cut previously made with the V-tool.

8 Using the No.3 gouge with its bevel down, make opposing cuts to deepen and widen the V channel around the edges of the straps – see diagrams 3 and 4.

3. Deepening the channel around the outline



4. Removing the background in a confined area



- 9** From each side, extend your cuts back to the middle of the area to be removed, then pare away the little ridge remaining in the middle. Smooth off the surface of the background between the straps.

Interweaving the straps

- 10** To interweave the straps, they must cross each other, that is, one strap must either pass over or under the other. Before you start carving the interweaving straps, it is helpful to mark their underlying sections (shown in red) to avoid making mistakes.
- 11** Turn the No.3 gouge so it corresponds with the curve of the edges of the upper strap and make a stopcut across the underlying strap, each side of the upper one. Then with the tool bevel down, carefully pare the area (marked red) adjacent to the upper strap, removing

the red coloured area and making an imperceptible slope each side. Repeat this for the rest of the underlying straps.

- 12** Cut clean all meeting edges and remove any deep or errant cuts. The tiny triangular areas of the background can be pared clean using a No.2 skew chisel.
- 13** To make a nice contrast and show the straps clearly, texture the background using a punch with light hammer blows. Take care with this: it is very easy to split the fibres of a soft timber if you hit the punch head too heavily with the hammer. It is a good idea to practise beforehand using the punch on the back of the carving to find out how much force will be necessary.
- 14** Finish the carving with several coats of wax polish and buff with a lint-free duster.



BRIDLE JOINTS

John Bullar takes a fresh
look at an old favourite

The bridle joint, which consists of a square pin fitting in a square socket, is a simplified version of the mortise and tenon. Although, unlike a mortise, the bridle socket is open sided and there are only two shoulders on the pin instead of four on a tenon – a good fitting bridle joint is strong. We will start by looking at some of the tools.

Tools for the job

- 1 Marking gauges come in two main types: wooden and metal. Traditional marking gauges have a wooden stock clamped on a wooden stem, with a pin protruding from the stem – this one is a mortise gauge with two pins. The modern design of marking gauge has a finely adjustable brass stock sliding on a steel stem. This ends in a sharp steel disc with the advantage that it does not tear the grain.
- 2 Before marking out a joint it is best to consider what chisel you will use to chop the socket, that way you can match socket dimensions to your chisels. A parallel-sided mortise chisel is ideal but any sturdy bench chisel can be used.

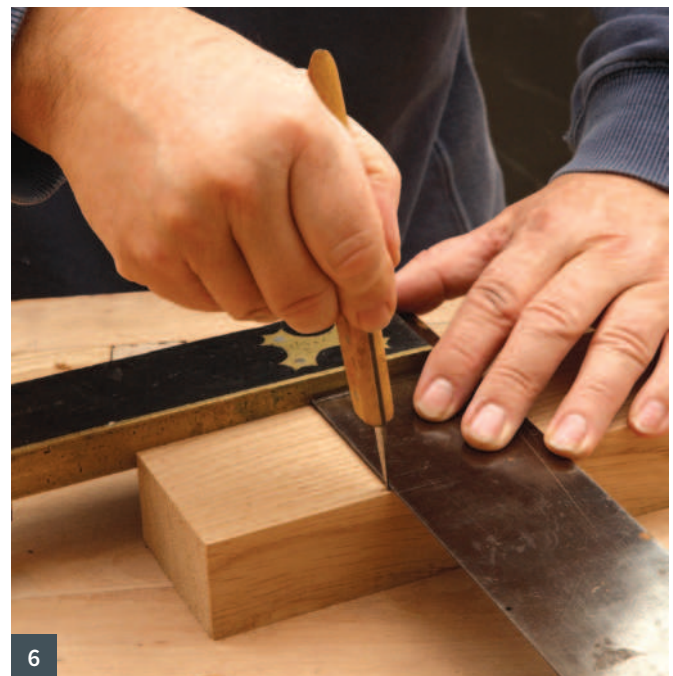




- 3** You will need a small frame saw like this coping saw to remove waste. It has replaceable blades, screw-tensioned across a steel frame. The fretsaw is a finer version, its only disadvantage being that it cuts slower.

Straight, square timber

- 4** I used brown oak for the socket and white oak for the pin so the joint would photograph clearly. Clamp the wood securely then plane all four sides until long continuous shavings emerge, proving there are no dips in the surface. Use a try square to check for a right angle between each face and edge.



Shoulder lines

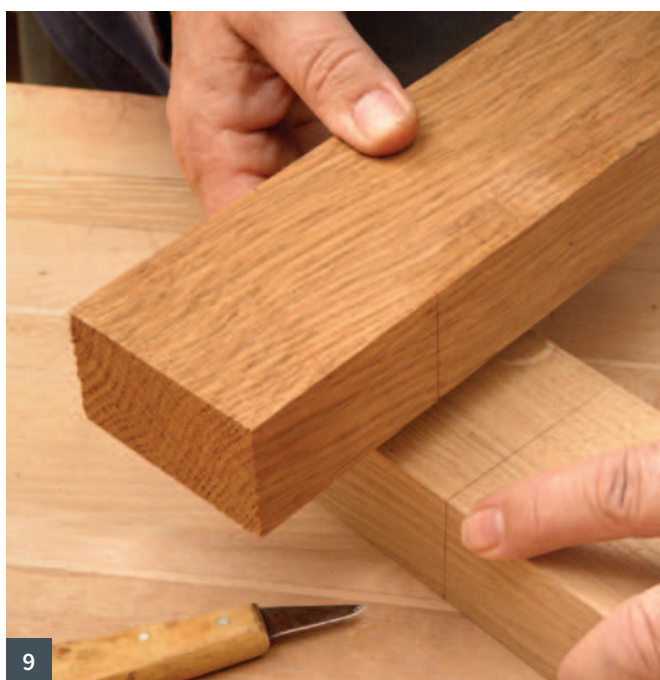
- 5** Accurate marking is half the battle for cutting precise joints. Special marking knives have a bevel on one side with the other flat so it can be pressed against the wood, but I use a fine general-purpose knife and tilt it so the bevel is tight against the wood. The first mark is just a nick in the length of each piece to show the width of the other piece.
- 6** A continuous series of four lines must run around the wood to mark the shoulders of the pin. By placing the tip of the knife in the nick, then sliding the try-square along the wood until it touches the knife, you can accurately position the square for scoring the first shoulder line – almost without looking.



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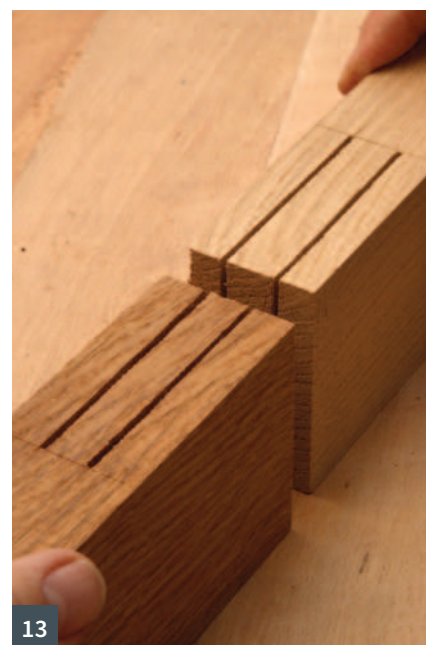
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PHOTOGRAPHS BY JOHN BULLAR

- 7 Use the same trick to continue the shoulder line around the timber – lay the tip of the knife in the end of the first line and rock it over the corner to produce a nick on the edge of the wood. As before, slide the try square along the wood until it touches the knife and then score the second shoulder line against it.
- 8 The end of the fourth shoulder line should come right around the wood and meet precisely with the beginning of the first one. If it doesn't then either the square is not true, the marking was not precise enough or the planing was not quite true. While the pin needs a shoulder line on all four sides, the socket only needs a shoulder line on the edges. The shoulder positions on the faces of the socket are just token marks at each side.

Cheek lines

- 9 The outer faces of the pin and the inner faces of the socket are known as cheeks. The positions of these are marked with a marking gauge making identical lines for the pin and the socket. Choose the width between cheeks as between one third and one half of the total width of the wood. Also make this slightly wider than a suitable chisel.
- 10 Use the marking gauge to score a cheek line around both edges and the end of the wood. Re-adjust the gauge to make the second cheek line. Mark both cheek lines with the stock pressed against the same face of the wood – by so doing, any inaccuracy in the wood thicknesses will not affect the fit of the finished joint.



Rip sawing

- 11** Clamp each piece of wood vertically to rip saw the cheeks – that is sawing along the grain. The saw cuts or kerfs must nudge against the correct side of the line scored with the marking gauge – the kerfs for the pin follow outside the lines while the kerfs for the socket follow inside the lines. Position your head over the saw so you can concentrate on each side of the blade at every stroke.
- 12** For the first few strokes, tilt the saw to establish the position of the kerf on the corner of the wood. Then level the saw and continue to cut with the blade horizontal until the kerf meets the shoulder line at both sides.

Inner to outer

- 13** When we sawed the cheeks, the kerfs for the pin followed outside

the lines while the kerfs for the socket followed inside the lines – so placed end-to-end the two sets of kerfs do not line up. You can see this means that the cheeks inside the brown oak socket will, however, line up with the cheeks outside the white oak pin.

Crosscut sawing

- 14** Sawing across the grain, or crosscut sawing, is needed to remove the waste from the shoulders either side of the pin. Saw on the waste side of the line so the score mark made by the knife actually becomes the outer limit of the shoulder.
- 15** You can either clamp the wood in a vice to make the crosscut, or use a bench hook as shown here. Level the saw well before you approach the bottom of the cut.



Chop the socket

- 16** Clamp the socket wood vertically and use a coping saw or similar frame-saw to remove the waste. During the first few strokes you will need to turn the blade through a right angle carefully so as not to twist it. Make the saw cut a few millimetres above the shoulder lines.
- 17** Lay the socket wood flat on a waste piece of board so as not to damage your bench. Chop the base of the socket with a mallet and chisel, keeping half a millimetre inside the shoulder line.
- 18** Pare away the last half millimetre. By keeping the final cut shallow,

the chisel will remain vertical and not get forced beyond the line.

Test fit

- 19** Now the bridge joint can be trial fitted – a good one fits with firm, even hand force. If the joint is too tight, the forks of the socket will spring apart while if it is too loose, the glue will only contact one side. Apply glue thinly over the internal surfaces and slightly more thickly on the inside cheeks of the socket – any surplus will be pushed into the joint as you close it. Clamp the joint firmly while the glue sets and plane the edges for a final finish.

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THE BEST TIMBER FOR FURNITURE

Anthony Bailey takes us
through the whys and
wherefores of choosing
timber for furniture

When planning a furniture project, particularly for a larger piece, you need a good structural timber that you can buy in quantity and at a reasonable price. If you don't have access to a planer thicknesser then you also need the stock ready prepared. With that in mind we take a look at the most likely suspects that you would choose. There are many reasons for choosing your timber, depending on use, looks and how well it works.



PHOTOGRAPHS BY GWC/ANTHONY BAILEY UNLESS OTHERWISE MENTIONED



Ash

Ash is generally readily available, has plenty of strength and a pleasing grain without lots of flaws. It works well with machine or hand tools, although you need good sharp edges on planes and chisels. Relatively untotoxic and pleasant to work, it is a favourite for steam bending or laminating.

Beech

Often overlooked as a show timber because of its pink colour and fine flecking in the grain, which suggests it more as a functional timber. In truth, it has a lot of merit because it is very consistent in appearance and strength. Certainly good for kids' bunk beds and desks, etc. It's easy to work by machine or hand tools, and it sands and finishes well. It usually leaves a natural colour under a clear finish.

Mahogany

A rather misused term as it can cover all manner of tropical red brown hardwoods. The example shown here is Honduras mahogany, and is a good, consistent colour and grain. The dust is more toxic than most homegrown timbers – as always wear proper dust protection when machining. The grain isn't short or interlocked, making machining easy.

Maple

The maple we are used to is the sugar maple from the US and is known for its hardness. It is consistently pale with a slight pinkish hue and is used for demanding situations such as flooring and kitchen worktops. It also makes a very nice cabinet timber but needs good sharp cutting edges. It suits contemporary design very well because of its pale even appearance. The rare grain variant, birdseye maple, is very pretty to look at but costs a lot more.

Oak

Most commercial oak is in fact imported from eastern Europe or from the US. Oak, even in its biggest planked dimension, isn't without flaws and sawn boards are often limited in width, with wider boards being at a premium. Oak is tough, but wastage is higher than other species because of defects. It can also produce nasty splinters on planed edges so chamfering is essential.

Pine

Pine is a generic term for the softwood you typically buy at a timberyard. It varies in quality – the sort you can buy at DIY stores tends to be pale and soft and not really suitable. You need to use larger sections than with hardwood because it lacks its strength. It pays to select your pine carefully for knots and colour, if that is important to your project.



FURNITURE PHOTOGRAPHS COURTESY OF SHUTTERSTOCK

FOOTSTOOL AND OCCASIONAL TABLE

Oz Hassan builds a multifunctional piece of furniture



At the end of a tough day, it's nice to put your feet up. This combination footstool gives you somewhere to park your weary bones, but you also get an occasional table thrown in. The design is a simple box on legs and made almost entirely of solid beech. The cushion sits on top of the lid when used as a footstool and is stored in the box when used as an occasional table. The timber was chosen to match other woods in the room.



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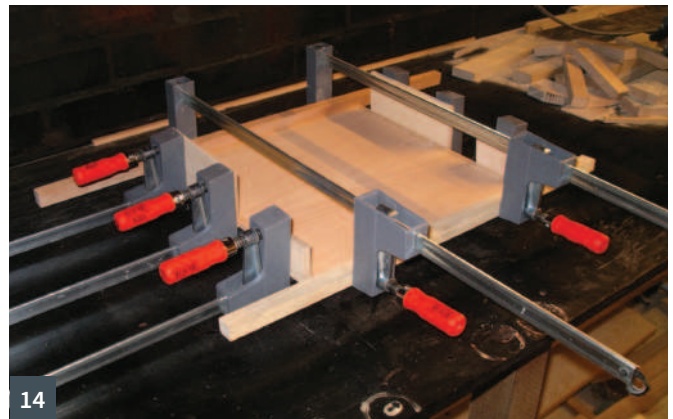
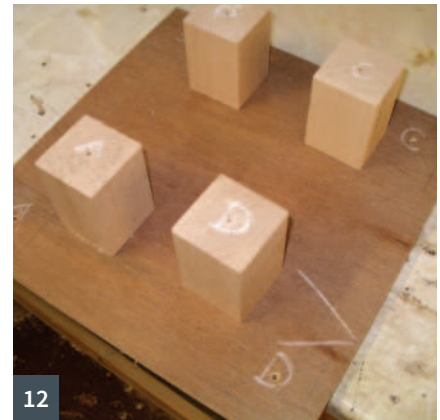
PHOTOGRAPHS BY OZ HASSAN

Sides

- 1 The timber was bought planed all round (PAR) so I didn't have much preparation to do. It was on the chunky side so I started by thickening it down to size.
- 2 It was then cut to length on the mitre saw. My old DeWalt sliding mitre saw is perfect for the crosscutting. To ensure all of your components are the same length, you can clamp a stop to the mitre saw's fence.
- 3 I then used the tablesaw to cut the timber to width. A good tip when using the tablesaw is to always have the blade height set just above the thickness of your timber, as it reduces splchng.
- 4 The sides are jointed with through dovetails, so the next step was

to cut these on the dovetailing jig. The box was carefully marked because the orientation of the sides is important. I use chalk as it comes off easily.

- 5 A router jig made short work of the dovetails.
- 6 On my jig, the tails are cut with the inside face showing, and the pins are cut with the outside face showing.
- 7 Next, the slot for the base was cut into the sides on the router table. The slot was stopped short of the edge so the cut wouldn't be visible when the stool is assembled. This meant carefully lowering the piece on to the rotating bit, sliding it along the fence and then carefully lifting off.



- 8** After the slots were cut, the ends were tidied up with a chisel. Then two battens were screwed into position on opposite sides as supports for the top, which will rest on them.

Feet

- 9** I had some offcuts that were perfect for the feet. They were squared off and then cut to length using a stop clamped to the chop saw.
- 10** The ends were marked and drilled for the fixing screws.
- 11** To minimise the feet splintering in use, I sanded a 45° angle all round the bottom edge.

Base

- 12** The base was a board simply cut to size on the tablesaw with the sliding arm attachment. The feet attach with 2½in screws. With the base in position, the locations for these were marked, drilled and countersunk.

The lid

- 13** The lid is made from a beech-veneered MDF board with a trim of solid beech to cover the edges. I would normally attempt to make all components out of solid stock, however, as solid timber changes shape with changes in relative humidity, this is only an option if there is joinery holding the piece together. As the lid is loose, I opted for a stable man-made board. The panel was cut to size on the tablesaw. The trim was prepared from a small length of timber, which was thickened to a little over the depth of the panel. It was then cut into strips on the tablesaw. As the strips were to be glued onto the panel, it was important to get as good a finish as possible, so I swapped a general-purpose ripping blade for a fine toothed blade.
- 14** The strips were then mitred on the chop saw to fit the panel, and the assembly was then glued up.



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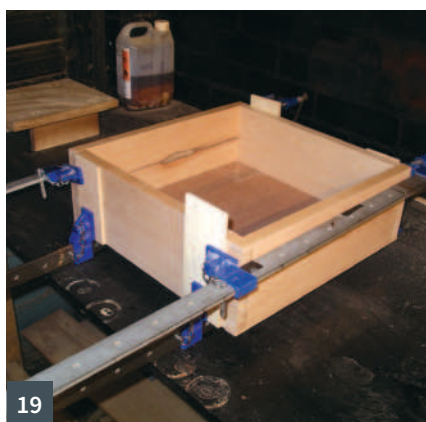
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15 Once the glue had cured, the strips were carefully planed to be perfectly flush with the top. Take care when planing the strips at 90° to the grain of the board – one little deviation and you'll cut into the veneer.

16 After planing, the strips were sanded until they were level with the board.

Stool assembly

Assembling the stool sides and base was trickier than you might think. Because the slots in the sides were stopped, it meant the base couldn't be slid into position. Instead, the base was inserted into the slots of the two opposite sides with the pins, and then the two rail sides tapped into position. The feet were attached after the finish had been applied.

Changing the design

17 You'll notice that the construction photos show a different design to the final piece. Two sides are deeper than the other two and the feet are square. I had doubts about these features. It looked okay on paper but once made, it didn't quite work. So, before the stool was glued up, it was assembled and put to use for a couple of weeks. The dovetails held together with no loosening at all. After trialling, the stool was taken apart and the sides were cut to the same height on the tablesaw, and the feet were rounded off by hand with a small plane.

18 I then sanded the feet on the belt sander. They weren't perfectly round but the results were certainly good enough.

Sanding

The sides and base were sanded separately before the glue-up. It's much

quicker, easier and the results are much better when the thing is in pieces. I used a random orbital sander starting at 120 grit, and worked my way up to 400.

Glue-up

19 Unlike the stress of some projects, the glue-up for this was relatively straightforward. After applying glue, the piece was assembled and lightly clamped – the dovetails were pretty snug on their own. Any glue squeezed out was wiped off with a damp cloth.

Clean up and finishing

20 Once out of the clamps, the carcass was clamped to the bench for tidying up. Any dovetails protruding were planed smooth and then lightly sanded. It's important to remove any remaining fine dust as it will affect the finish. So, before finishing, the piece was vacuumed and then given an all over wipe with a tack cloth. The stool was then given three coats of Danish oil applied with a polisher's rubber. Oil finishes can be sticky to work with, so I diluted them 50/50 with white spirit – not only does it make the oil easier to work, it also improves penetration. The stool was left for a couple of weeks for the smell to subside before it was taken inside for use.

Variations

The design of this stool is very flexible and can be adapted easily:

- ♦ It can be made deeper to offer more storage space.
- ♦ The lid can be hinged.
- ♦ The sides can be built up, as seen in the original design.
- ♦ The legs can be longer, shorter or removed altogether.

RECLAIMED HALL TABLE

Anthony Bailey makes some essential repairs on a damaged table



This project was not so much restoration as a rescue mission – this table was destined for the skip or a bonfire! You can often find broken down furniture in someone's garage, a roadside skip, junkyard or, as in this case, our village hall, kicking around in the committee room feeling all sorry for itself.

The question I found myself asking was, is it worth bringing such a wreck back to life? I decided the answer was 'yes' because, although it is a poorly made country piece and has been battered by its eventful life, it does have a certain charm hidden under that torn surface.

Assessing the table

I started by carefully examining the table all over, particularly by turning it upside down. It was a crude construction, and even cruder repairs had been made involving screws and nails, but the table had potential. The top was split, a drawer cross rail was missing – the other broken off – two legs were torn around the mortises, the drawer and virtually all of the runners were gone and the top was badly split. It was obvious by the lightweight nature of this table and the very dry, aged pine it was made from that it would easily break further if I wasn't very careful during disassembly.

Disassembly

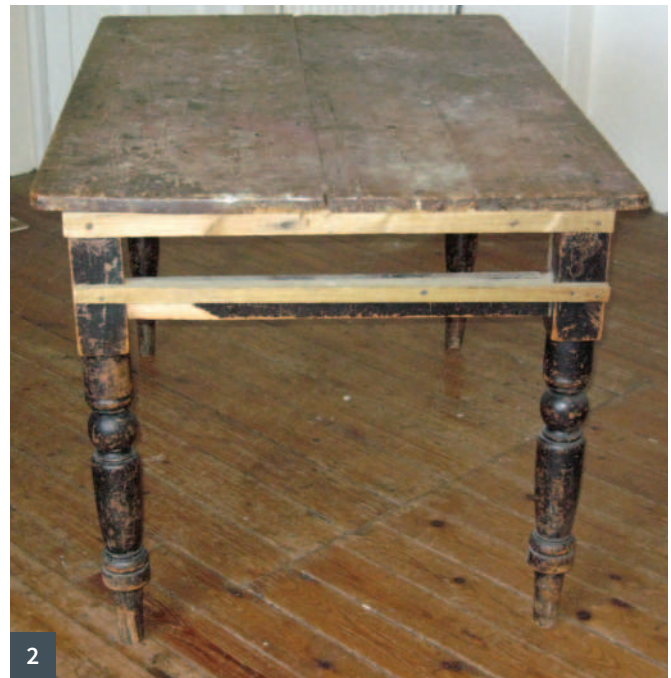
The top was screwed on all round from above, adding to all the holes already present. I used a standard slot head screwdriver which fitted the oxidised screw heads perfectly – if these were reused antique screws with narrow slots I would have had to grind the driver blade to match. However, I did make sure the blade width matched and the slots were clear so they would come free without burring over, thus making removal easier. There were a lot of nails at one end as well. I used a claw hammer and levered with a chisel, with the flat underside against the wood to avoid further denting.

Preparing existing components

The nails in the top were removed using a pad under a hammer head to improve leverage and avoid denting the pine. A crude crosspiece had been added under the middle to brace across the boards. I managed to prise it off but with slight collateral damage as the nail points had been hammered over. These tore straight through the wood, however, I simply used PVA glue and pinned a pad over it to act as a clamp until the repair was dry. Please note restorers among you – this is not fine furniture restoration using animal hide glue, it's a rescue exercise so anything goes so long as it works, and that includes glue choice.

Where the table top boards separated including a long broken strip, I used a kitchen scourer pad to clean dust and dirt off the edges.

There were several minor splits along the annular rings so I glued and clamped these together. The whole section would be glued back to its own particular board later.



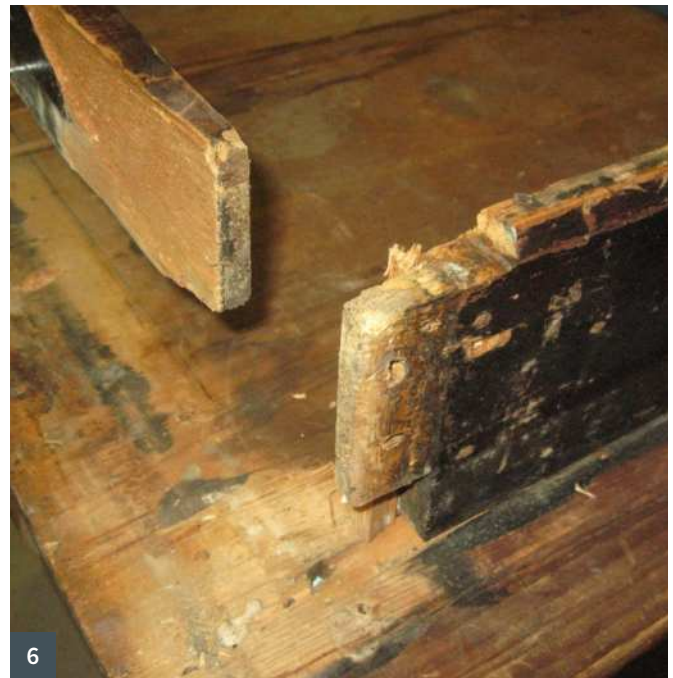
1 The table was pretty much a wreck – unloved and fit only for the bonfire **2** A crude repair had been used to keep the drawer end together **3** A nailed-on strap was holding the top boards together **4** The table was marked with screwholes, tears and a dirty finish

Initial repairs

This kind of exercise won't simply go together in one hit. In practice you need to treat each section separately, do repairs on one area then another, until each component has been restored. Once that is done you can do the major assembly of the furniture.

The drawer bottom rail serves two functions: one, it forms part of the underframe along with the missing top rail; two, it holds the drawer, which in this case was missing. Unfortunately, one end was torn away and missing. It so happens that it was a long grain break and therefore possible to graft a new tenon end on. I placed it in the vice and planed the surface flat, ready to receive a new section and then shaped the new section to match and cut the replacement tenon.

Very old furniture, antique or not, was usually put together with animal glue. It is usual for it to dry out and break up – not easy sometimes to separate joints but at least possible, unlike modern adhesives. It is important to chisel off the old glue and any adhered wood fragments until you get back to clean joint surfaces. Strictly speaking, new animal glue should be used but most of us don't normally use it and this isn't a valuable antique, therefore I have used PVA for tight-fitting joints and simple breaks, and polyurethane glue in one frame joint where there are definite gaps as it will expand to fill the voids. Don't leave old animal glue in place as it will soften and stop the new adhesive working properly.



5 I avoided using the bevel side of the chisel when levering the components apart to avoid denting the wood **6** The worn looking tenons, the original dowel peg holes are visible in one tenon **7** Using a scouring pad to clean the edges of dirt and dust ready for re-gluing **8** An interesting glimpse into the table's history – a warehouse storage sticker, judging by the number one of many pieces of furniture that were kept in store

Intermediate repairs

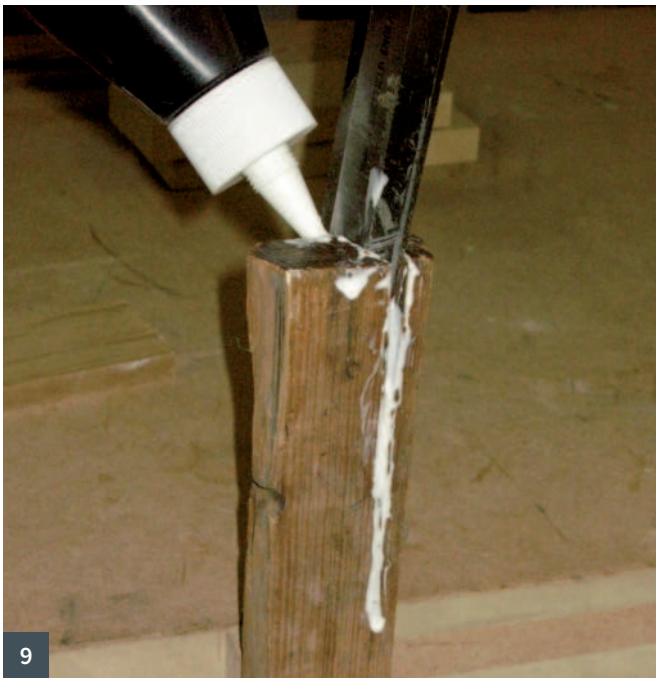
The other end of the underframe was original and in fair order apart from cleaning off glue. One long side was a replacement in newer pine but quite well done, so I felt it was better to keep it. The last vestige of an underside drawer runner was simply removed as there wasn't enough to reuse.

The legs at the drawer end were badly torn around the mortises with wood missing and one serious repair. There were newish retaining screws that hadn't stopped the legs wagging, and these were removed.

I dismantled the legs from the frame at the other end. A French wire nail was clearly visibly sunk into the surface on one leg in the area of a mortise. I deliberated about how to remove it and finally decided that

I couldn't do it with any means at my disposal. So instead, I used a fine-tooth pullsaw to cut either side of the nail in the hope that when I thumped the joint apart, that little piece of wood trapped by the nail would come free. It didn't and the leg tore more than it had already.

It was obvious though that quite a bit of the tenon was missing and the new tear ran along the side of the component. After cleaning off the old glue I decided to use PU glue but PVA on the other leg as that was completely intact. The PU was a risky strategy as there wasn't much of a joint structure left, but the tear along the skirt limited my repair options. I felt that it might be necessary to use some reinforcement once the PU glue had set.



9 Using a 'second best' chisel to hold a split open to run the glue in **10** Keeping loose pieces together by taping them to the component they belong with **11** Honey-coloured polyurethane glue was used to rejoin components and fill some difficult voids. It expands when setting **12** A biscuit joiner being used to rejoin the table top. The masking tape is putting the strike marks on

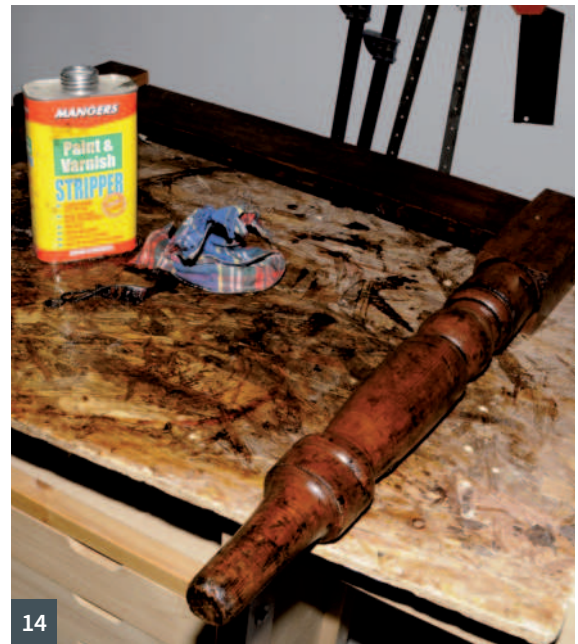
Assembly

The top was rejoined using a biscuit joiner as this is a very positive way of locating and holding the boards together – it is quick to do and the biscuits won't show unless the boards shrink. I put masking tape on the top before pencilling on the strike marks so as not to damage the top further. However, when the tape came off, it did remove some of the 'patina', such as it was. The top was going to have a thorough clean up though, so no great harm done.

The 'good' end of the table was easy to glue, clamp and align. Just a glue clean-up and it was left to set.

The drawer end with its new parts wasn't too bad but slight opening of the mortises was required before it all went together.

Once the two ends dried, the rest of the underframe could be glued and assembled. The one very weak leg joint with the PU glue infill seemed pretty stable but I chose to add a corner block for extra security anyway.



13 The rejoined top showing the underside. Careful clamping was needed to keep the old bowed top flat **14** Stripping is messy and potentially dangerous. The finish took quite a time to soften as it had hardened over time **15** Using a proprietary cleaning agent to scrub the worst of the dirt off the table top **16** The drawer bottom boards have all been bisected on the saw and butt jointed to give a reasonably flat base for the drawer

Stripping

The dark, hard finish had to come off as it was very uneven and looked unattractive. This was a case for paint stripper, rag and wirewool or scouring pads. Safety is crucial so I wore tight-fitting goggles and heavy-duty, chemical-resistant gloves.

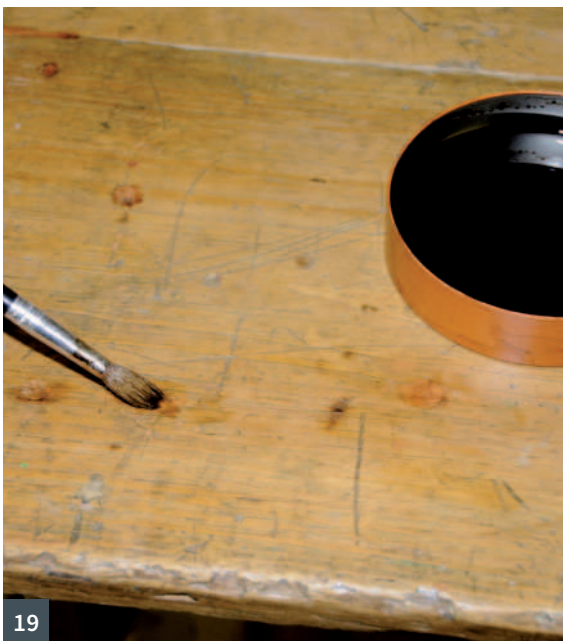
Once it was largely scrubbed clean of finish, I used water to neutralise the stripper. When the whole thing had dried, I used cellulose thinners and a green scouring pad to remove the last vestiges of the varnish finish. Please note that cellulose thinners are inflammable and toxic so make sure you always do this work out of doors with plenty of ventilation and no naked lights. Paint stripper should be treated similarly because of the fumes. Using a proper carbon filter mask is advisable if you are working for any length of time.

The table top needed cleaning with a furniture cleaning agent and bleach to remove the worst staining.

Making the drawer

The drawer I made was pretty basic as it suited the general construction. No tricky dovetails, just hammer and nail carpentry using some recycled floorboards, run through the planer with woodworm holes and all. The boards for the base were wide and thin but bowed, so I bisected them on the saw, planed the edges and rejoined them. The components were cut carefully before assembly to avoid trimming once fitted.

New runners and guides were made and fitted under the table frame. Lastly, the top was screwed back on using 'pocketed' screws.



17 The bottom-mounted drawer runners have the outside edges bevelled so they aren't so visible when the table is the right way up **18** Applying a spirit stain: it is quick to put on and quick to dry, and can be recoated for a richer effect **19** Using the same dye mixed with thinners to make it weaker before brushing over repairs on the top **20** The repaired table has been given a new lease of life

Filling, staining and finishing

The worst holes were filled using one part water-based filler often referred to as 'stopping', then the surplus wiped away while still moist to avoid sanding the existing surface which would have got it back to bare wood. The leg ends had suffered from woodworm so I used PVA glue to stabilise the wood, then rubbed filler in to block up the broken surface.

Staining was the easiest solution to evening up the finish on the legs and underframe. I chose Georgian mahogany – it gave a rich warm effect and covered a patchwork of repairs and fillings well.

Several areas needed extra applications with an artist's brush

to touch them down properly. The top was trickier as everything is on view in all lights. Again, light retouching of the fillings and repairs was needed.

The whole table was brush coated using a clear water-based, semi-matt varnish. The top still looked very pale straw coloured and showed lots of scratch marks so I used a Behlen guitar lacquer aerosol called 'Starcast Amber' in repeated strokes until it gave a warmer, darker, rich look to the top that went better with the darker underframe.

The last act was to rub a dark wax on with a scourer pad to remove the new sheen and give a softer, more agreeable lustre.

Woodworking clamps ... or cramps

We look at the woodworker's faithful friend, the clamp

WHAT DO YOU CALL THEM?

The word 'clamp' is generally used in engineering while 'cramp' is more often used in woodworking, although to a large extent, the two terms are interchangeable. In the UK the term 'cramp' is more widely used than it is in the USA ... unless someone is referring to a muscular spasm.

HOLD TIGHT

Woodworking clamps are used to hold wood pieces tightly together temporarily while the glue that will permanently hold them is drying. They come in many shapes and sizes and some are designed for specific clamping requirements. Clamps can also be used to hold work steady while it is being worked, holding the wood to a trestle while it is being hand planed for example.

POPULAR TYPES OF CLAMP

Pipe clamp: select the length of pipe you want then add the clamp ends to it.

G clamp: a clamp shaped like a G, sometimes called a C clamp for the same reason.

Corner clamp: a clamp for holding together mitres on picture frames, for example.

Long jaw clamp: these clamps come in many different lengths and their long jaws make them extremely versatile.

Strap clamp: useful for irregular shaped or large work.

Wooden screw clamp: the oldest type of clamp and still used to today due to its excellent design.

THE SOFT TOUCH

Some clamps come with soft jaws to protect the wood being clamped from crushing but most seasoned woodworkers will have a box of small softwood blocks they can insert between the clamp's jaws and the wood to protect it.

YOU CAN NEVER HAVE TOO MANY CLAMPS

Woodworkers are often asked 'how many clamps do you need?' and the answer is 'all of them!'

ANCIENT CLAMPS

Early evidence of clamps is found in Egyptian tombs showing illustrations of clamping devices or techniques with glue first applied to the edges of wood boards. The boards are shown to be held vertically by two uprights and then weighed down until the glue set. Another ancient technique is to place the boards horizontally and wedge them with sticks bent against immovable objects, walls for example.



PHOTOGRAPHS BY SHUTTERSTOCK





MASTERS OF WOOD



EXPERIENCE TGEOS 'BEAST MODE'

500W

Geared Eccentric Orbital Sander

TGEOS

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