

Woodworking

CRAFTS

HAND, POWER & GREEN WOODWORKING • TURNING • RESTORATION • DIY

The big question!

Freehand or table routing?

**Which is best?
Ink versus
CAD drawing**

Cut to keep
– saving
your timber

Feature
Homegrown
timber
conversion

PROJECTS
Wine rack
Turned lidded box
Oak & ash dining table
Pistol-grip walking stick
Scrollsawn fish coasters





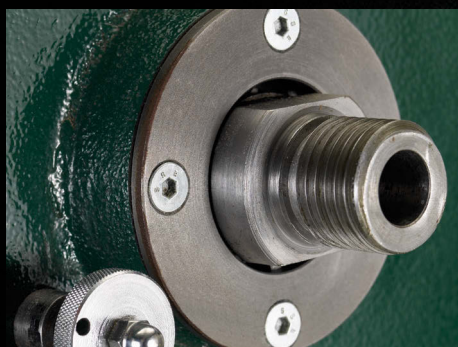
Huge Capacities

Using the optional bowl rest, huge work can be completed with ease. The large motor and solid cast iron construction give ample rigidity and power for the most heavy-duty woodturning.



Swivel Head

Packed with features, the heavy-duty swivel head features reverse-speed function, 6-speed pulley change, cam lock swivel, safety micro switch and indexing.



Heavy-Duty Spindle

The M33 spindle is ideal for the heaviest work and features a machined register for secure mounting.

"This machine punches well above its weight and performs very well. Having already tested various large capacity lathes within the £2,000 - £3,500 bracket, I believe that the MAXI-1 is exemplary in terms of the versatility, capacity, solidity, control and the power it offers. Go and try one out I guarantee that you will not be disappointed.

What They Say...



Woodturning, Mark Sanger
(Professional Woodturner)



Shown with optional MAXI-1/A Cast Iron Outtrigger
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at these
stockists

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MAXI-1-M33 Heavy Cast Iron Swivel Head Variable Speed Lathe

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28



Welcome

to the September issue of
Woodworking Crafts

Hello everyone and welcome to the September issue of *Woodworking Crafts*. There is a very definite theme this month – basically, timber. Brendan Devitt-Spooner not only makes beautiful, well-designed furniture, he also collects trees, or at least the trunks, and has them converted into planks to be air dried and finally kiln dried in his own workshop yard. Imagine being able to create your own wood, ready to use, much of it unusual and beautifully figured with exquisite grain – so much better than buying standard square-edge, plain-grained imported stock from a timberyard.

As if that wasn't enough, Gary Marshall in his Woodland Ways series looks at tree identification, something most woodworkers struggle with. Even if you aren't a diehard woodworker, just being able to stroll among a sylvan glade admiring the trees without feeling massively ignorant of their species and behaviours, is something to be proud of.

Finally, my own more trivial efforts, cutting and keeping much smaller logs and deciding how best to make use of them. Hopefully you too might be inspired to make good use of what grows around us. Nature doesn't work well by itself, it needs a helping hand from us and that includes cropping and planting trees and making good use of this abundant fruit of the forest. Truly, managing nature is the oldest profession in the world...

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com



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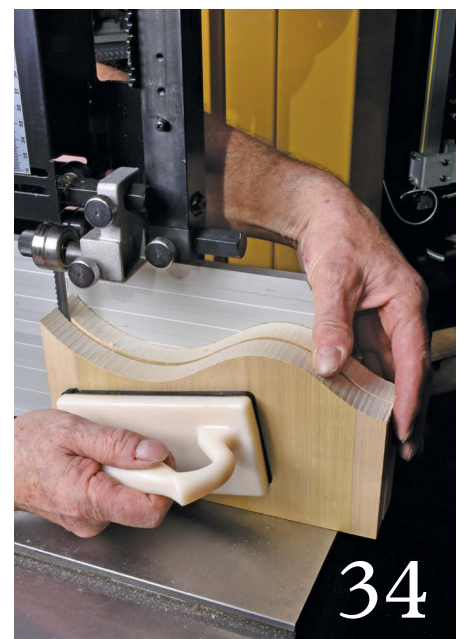
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PHOTOGRAPH BY GMC/ANTHONY BAILEY

A traditionally built Arts & Crafts dining table by Mark Ripley



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Seventies-style four-seat circular table

INSPIRATION

Dining is a special experience, a chance to sit together with friends and enjoy good food and conversation. A dining table needs to reflect that experience



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Traditional dark finish table with curved ends. Able to seat six



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

A retro-themed table and chairs with swept legs and undercut top



PHOTOGRAPH BY DAVID SMITH

Plain, simple square lines with tapered legs. Note the folding top and collapsing frame



PHOTOGRAPH BY GMC/ANTHONY BAILEY

An ingenious extending table which accepts the light coloured sections



PHOTOGRAPH BY GMC/ANTHONY BAILEY

Extending

Oak & ash dining table

James Hatter pulls out all the stops to create a unique design

This project describes how to construct a modern theme dining table using ash and oak for strength and good looks. The size is 1576mm long, 910mm wide, and 730mm high, although this can be customised for individual needs. This size will allow for six settings. In addition, two extensions are included that are 175mm x 910mm, one attached to each end, which increase the table length to 1926mm, giving a more generous table area. The main timber stock was 45mm-thick ash in various widths, all PAR (prepared all round). This was obtained from a local stockist. It would be more economic to use thinner stock and thicken the visible edges of the completed table top, which would make the structure lighter. 28mm thick oak was used for the legs and side rails. The top would

be quite heavy even so, therefore I decided to make it in two halves. If you use thinner material you may choose to make the table top in one piece.

All the components were sealed with a water-based clear matt varnish. The table top, rails and legs received four coats with a fine sanding with 400g paper between coats. The underneath received just one coat. The varnish was applied using an artificial bristle brush, although a small roller was used to apply the varnish to the larger table top surface. The varnish provides a hard-wearing cleanable surface.

CONSTRUCTION Tabletop

1 Cut lengths of ash to form the table top and cut matching size 20 jointing biscuit slots. After a dry fit

check, use adhesive and biscuits to edge join the lengths together. Check the ends of the timbers are square and flush with each other.

2 Use cramps to pull the timbers together. Use a damp cloth to wipe away excess adhesive. Repeat the steps for the other table top half. Join the two parts together until the adhesive has set. Repeat for the other half table top.

3 Cut matching biscuit slots to join the end pieces to the ends of each table top half. Join the end pieces using size 20 biscuits and adhesive, and clamp until the adhesive is set.





4 Cut off the outer corner on each outer piece, if required. Join each outer piece using size 20 biscuits and adhesive. Sand the table top halves to give a smooth finish.

Legs

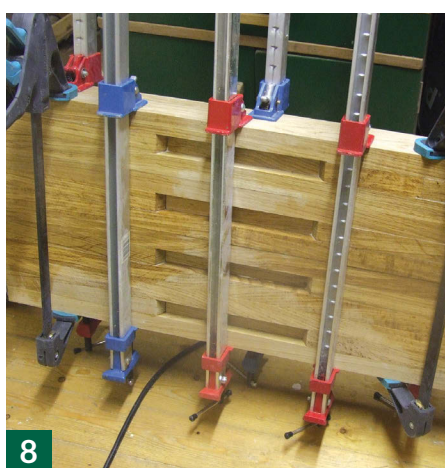
5 Use screws and adhesive to attach the mid infill piece to one of the leg pieces.

6 Attach the insert piece to one end using biscuits and adhesive and attach the other insert.

7 Attach the other leg piece to form the basic leg. Repeat the steps to form the other legs.

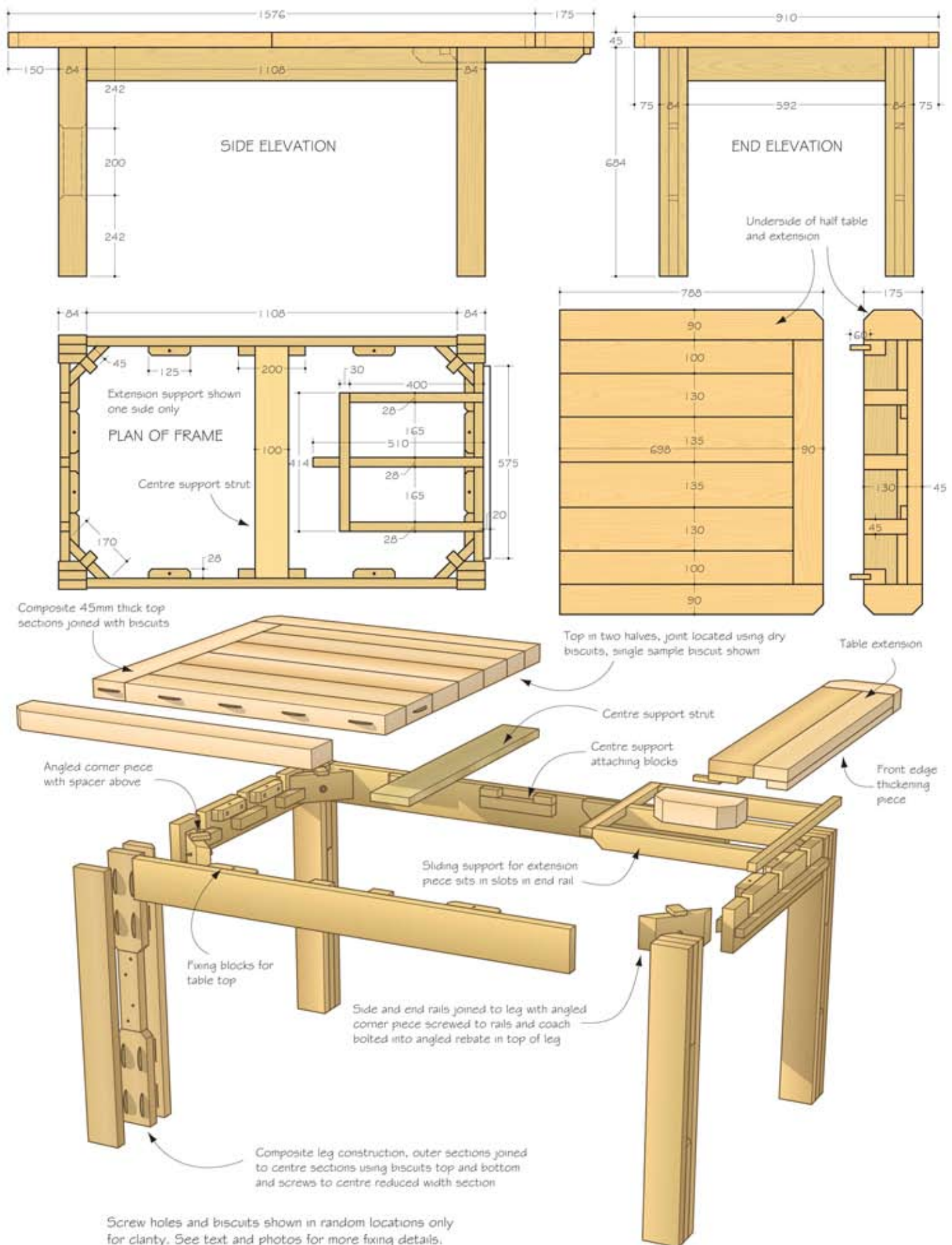
8 Cramp all the legs together in a stack until the adhesive has set. This is followed by putting each leg through a thicknesser to give an 84mm square section. Trim to the correct length.

9 Cut three 29mm wide and 46mm deep slots in each end rail that will take the extension support. A quick and effective way is to use a depth stop with a compound mitre saw. Omit if you do not require extensions. ➤



The table without extensions fitted

PHOTOGRAPH BY GMC/ANTHONY BAILEY



Rails and attachments

10 Cut the blocks that will attach the rails to the table top using a sliding bevel to mark the angles and a tenon saw, screw to the inside face of each rail.

11 Turn the table top upside-down and mark the position of the legs and rails. Screw the rails to the underside of the table top temporarily, using the drawn guidelines.

12 Each leg sits neatly against the rails. The flat cut to each leg allows the leg to be securely attached using a coach screw to an angled corner piece.

13 Cut four corner pieces to size with 45° angled ends, and drill holes for attachment to the rails and an initial 6mm hole that will take the coach screw. Attach a spacer to the bottom of each corner piece that will also give additional support.

14 Attach each corner piece using screws and adhesive, note the spacer is underneath.

15 Place each leg into position and use the 6mm hole previously drilled as a guide to drill a 6mm hole. Enlarge the size of the corner piece hole to 10mm, and the leg hole to 8mm. Identify each leg to refit later. Sand all components and apply four coats of water-based varnish with a light sanding between coats to 'denib' the finish.

Main assembly

16 Screw the centre rail in place to give the table top additional support and refit the rail assembly to the upturned table top temporarily.

17 Screw a plastic furniture 'slide guide' to the bottom of each leg.

Using timber wisely

James needed to create quite a lot of small components considering this is quite a large table. Although you can buy squared stock, home-grown oak and ash is normally sold as waney edge with the bark in place. Tree trunks are seldom parallel so there is usually quite a bit of wastage, but you can look on it as an opportunity and cut slim sections from the flared-out trunk areas for smaller components.



18 Place each leg into position and use an M10 x 95mm coach screw to secure into position using a ratchet spanner.

19 The table can now be turned the right way up. The assembly is very heavy, so you may wish to unscrew the rail assembly first or get extra pairs of hands.

20 Then position each half of the table top using dry fitted size 20 biscuits for alignment and support. Re-attach to the rails and centre rail with screws if you had previously separated the top and underframe.

Table extensions

NOTE - The table will need to be inverted again if you want to fit extensions.

21 For each extension piece, cut a panel to size and add a thickening strip to the front edge and the other additional pieces, to match the 45mm thickness of the table top.

22 Cut matching biscuit slots to attach end pieces.

23 Sand and varnish the extension pieces to match the table top.

24 Cut the pieces to form the extension carriers and cut a slot in the centre support, screw and glue the rear bar into the slot.

25 Screw and glue the two outer supports to the rear bar.

26 Line up the extension with the table top and mark the position of the carrier supports onto the support pieces on the extension.



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27 Push the extension support carrier into position and screw the carrier front piece into the ends of the supports. Sand and varnish the extension pieces to match the table top.



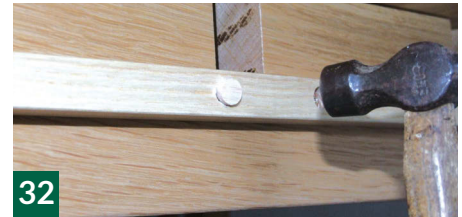
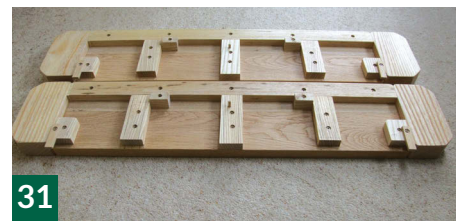
28 Cut the pieces to form the extension carriers. Cut a rebate in the centre support, then screw and glue the rear bar into the rebate. Screw and glue the two outer supports to the rear bar. Screw on a strip of ash to give added support to the carrier.

29 Add locating devices and anti-tip piece. Align the extension accurately on its carrier, and use clamps to secure. Drill a locating hole through the carrier into the bottom of the extension piece.

30 Use a 8mm dowel into the hole drilled leaving 10mm protruding.

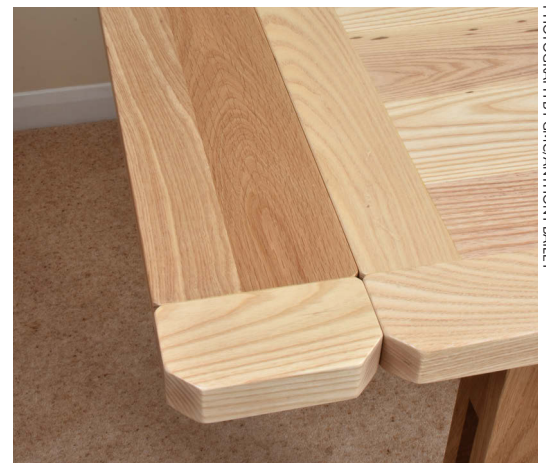
31 The completed extensions look like this on the underside.

32 Glued-in ash plugs are used to cover the screw heads then chiselled off flush once the glue is dry. ■



Fitting the extension pieces

Pull out the extension carrier, rest the extension piece on the carrier and rest this on the locating dowel. Push the extension towards the edge of the table top and the extension is now fitted.



A woodworking glossary

The letter C

CABINETMAKER A woodworker who makes fine furniture and cabinets. Often uses specialised joints such as dovetails and veneers and other special materials.

CABRIOLE LEG A style of turned or carved leg with a graceful S-shaped sweep and an ornamental foot.

C-CLAMP A type of clamp with a C-shaped frame and a moveable screw thread and pad.

CAMBium The active living layer of wood in a tree just below the bark.

CARCASS (alt carcase) The structure of a cabinet but not the containing parts, e.g. drawers or external additions such as a mirror etc.



A chest of drawers carcass

CAUL A device made of wood designed to distribute pressure evenly during gluing, normally used for veneering on boards.

CHAMFER A symmetrical bevelled surface between two adjoining faces.

CHECKING Splits in the end grain of timber indicating drying has not been evenly done.

CHEEK A tenon applied variously to the long grain surfaces of a tenon, a mortise and other joints such as lap or dovetail, vice facings or side surfaces of other wooden objects.

CHIP CARVING A technique whereby chips of wood are cut away to create a carving using a few, very simple dedicated tools.

CHOPSAW A static powered saw usually with a limited cutting range.

CHUCK Fitted to hand and power drills, a chuck is very different to a collet because it can hold any diameter of drill shank within its size capacity. It is only suitable for use at lower speeds, unlike collets which cope with high rotational speeds.

CLAMP A workholding device which can be tightened or loosened as required. Clamps are available in many different types and typical uses include temporary setups, dry assembly and gluing up.



A bar clamp (top) and a quick clamp

CLEARANCE HOLE A hole drilled in a diameter just large enough for both the screw thread and shank to pass through. Usually needed in hardwood and with traditional tapered screws, less essential with softwood and modern parallel shank twinfast screws.

CLEAT A holding or securing device. When made of wood it is usually a 'French cleat' consisting of two parts

with bevelled mating edges, one screwed to a cabinet the other to the wall receiving it. The cabinet cleat hooks on to the one fitted to the wall.



Machining a French cleat

CLIMB CUT Climb cutting is moving the router or workpiece in the wrong direction causing the cutter to run uncontrolled along the workpiece at high speed. This can be quite alarming and unsafe for the operator. There are a few exceptions where the technique is permissible but it has to be done with great care – not for novices to routing.

CLOSE GRAIN A term for wood which has a fine cell structure. Oak is considered to be coarse grained due to its open pores but sycamore, as an example, has very fine grain.

COLLET A tool-clamping device for an electric router which sits within a collet nut, used to tighten the collet around the shank of the router cutter to hold it safely. Often available in more than one shank size fitting.



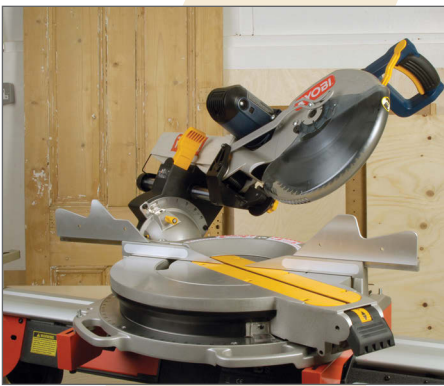
Collet and collet with nut

COMBINATION BIT A router cutter incorporating several different shapes, thus allowing it to produce different mouldings depending on how the cutter is set up in the router table.

COMBINATION SQUARE A measuring and marking device which consists of a dedicated steel rule and a movable alloy body which allows marking at 90° and 45° angles. It also functions as a depth gauge or constant width marking device. It also contains a spirit level and a removable marking pin.

COMPOUND MITRE A saw cut made in two angled planes, neither of which is perpendicular to the long grain edges of the workpiece.

COMPOUND MITRE SAW A more sophisticated version of a chopsaw, capable of both angled and bevelled cuts, usually capable of cutting quite wide boards.



A compound mitre saw

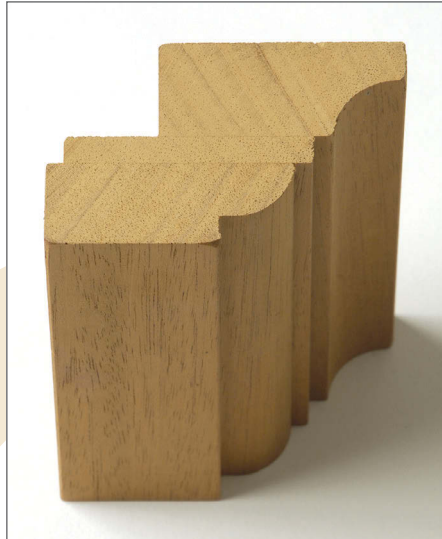
COMPRESSION The force exerted on wood by its own weight or loading on the wood, or in a joint such as when using wedges to spread a tenon to lock the joint.

COPE An American term for scribing, i.e. cutting and fitting a piece of wood to fit an existing surface. This can be a section of wood or a wall next to a piece of fitted furniture where an infill piece is being fitted. It can be the junction between two mouldings, such as a cornice.

COPING SAW A small frame saw which takes its name from the term 'cope' (shown above), as it can be used to shape sections of moulding or other wood to fit together.

CORNICE A projecting moulding used to 'top off' a piece of cabinet furniture. It is derived from the classical orders

in Greek and Roman architecture, the word itself is derived from the Italian word for 'ledge'. It makes furniture look more imposing, although in architecture it also serves to throw rainwater clear of the building on which it sits.



A section of cornice

COUNTERBORE A drilling tool for creating a countersink, clearance and pilot holes for screws, all in one operation. Some versions cut a hole rather than just a countersink so that wooden plugs can be glued over the screw heads to hide them.

COUNTERSINK A countersink is used in a drill to create a cone-shaped hole to accept a screw head. There are two types – the rose countersink, which has many sharpened ridges, and the snail type, which has a hole through it, angled so it cuts a smooth shape. This latter type is more expensive but gives a superior result and can also be used on non-ferrous metals.



From top: Counterbore; snail and rose countersinks

CORE BOX BIT A router cutter which has a regular curved end, making it suitable for creating fluting shapes for a flat column etc.

CRAMP A term similar to 'clamp', but generally refers to heavier workholding devices such as sash cramp or T-bar cramp.

CROSSCUT This applies to any perpendicular or angled cut made across the grain of the wood. It can also apply to a handsaw or machine used for making these cuts. A tenon saw is also a crosscutting saw and the teeth are normally sharpened and set so they cut through the wood fibre effectively.

CROTCH This refers to the branching of a tree, making it useful for carving and turning. Sometimes it can produce highly figured grain which can cut into decorative veneers used, called 'feather crotch'. Mahogany is a typical example of this.

CUP Planked timber can warp by curling up across the grain of the wood, referred to as 'cupping'. It tends to occur in the upper and lower slices in a log because of the distribution of vessels in the wood. It can also happen due to the action of the elements on weatherboarding.

CUTTING LIST Every project or job should have a cutting list. It needs to itemise all the components needed, their sizes and quantities and it should be clearly expressed so it is easy to understand, especially if it needs to be given to another craftsman or a timberyard for preparation.

CYANOACRYLATE ADHESIVE

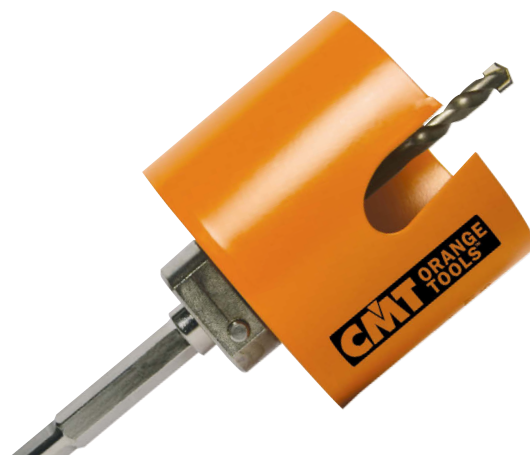
An adhesive produced by various manufacturers but frequently referred to by a particular brand name 'Superglue', it has various industrial, medical and household uses. It can be bought in different viscosity grades or have a thickening powder added to it to reduce its runniness. It is an acrylic resin which polymerises in contact with water. This can reduce its shelf life, but does mean it can be used in the presence of moisture, such as dampened wood or porous porcelain. Used with sawdust as a filler, it can bond cracks in turnery etc. It is used in forensic science to detect fingerprints. ■



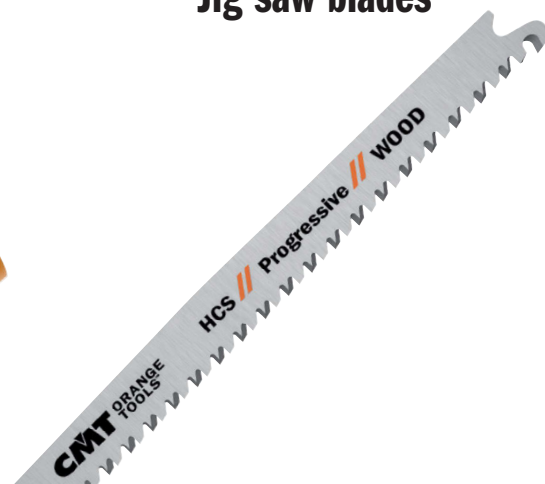
Saw blades



Hole saws



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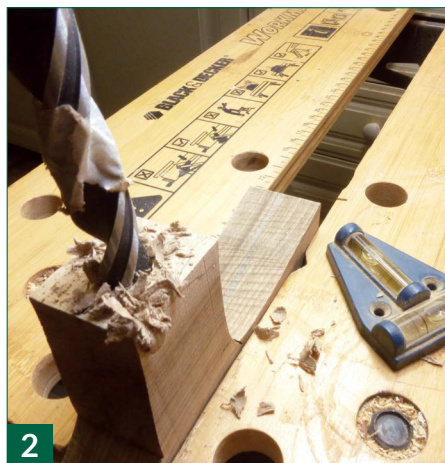


This project is for a comfortable walking stick that is suitable for leisure purposes or as a walking aide. This design is sometimes referred to as a pistol grip, although, this term also refers to a type of knob stick. The addition of end caps and accent pieces creates a touch of refinement and complements the English walnut handle.

1 Make a side template from the plan and use the bandsaw to cut out the blank. This plan is for a 28mm shank plus a 2mm allowance. If the shank you are using significantly differs,

adjust the diagram and template accordingly.

2 Find the centre point at the bottom of the head. Clamp the head into a vice or workbench. Use a two-way spirit level to ensure the blank is level in both planes. Drill to a depth of 45mm with a 13mm wood drill. Ensure you use a sharp drill to stop any wander. This project incorporates three spacers between the head and the shank: two purple heart and one African blackwood. You can change these to woods of your choice. Drill the spacers with the 13mm wood drill. ➤



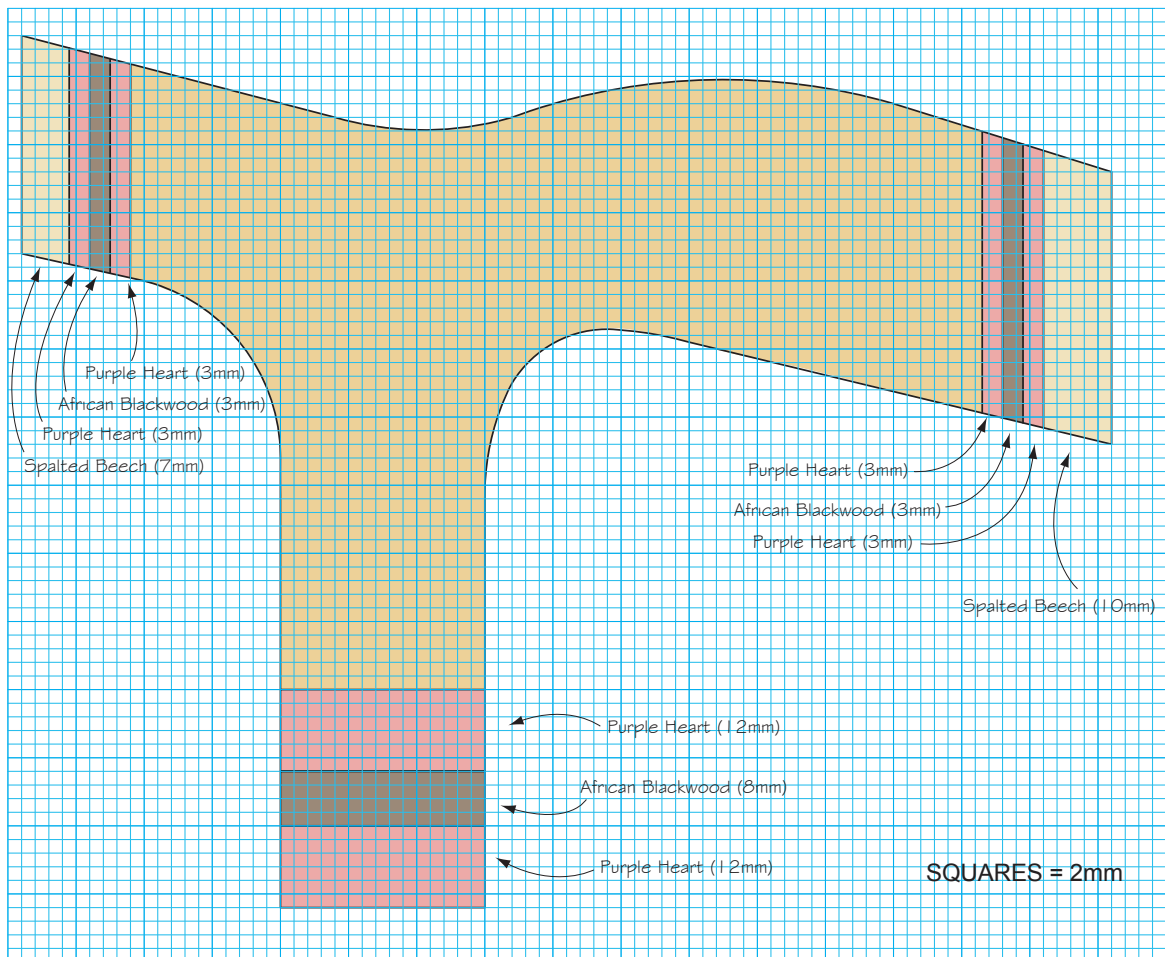
EQUIPMENT USED

Tools

- Bandsaw
- Rotary carving tool
- Coarse and medium-toothed burs
- Junior hacksaw
- 13mm wood drill
- 6mm wood drill
- Cushioned-drum sander
- Split-mandrel sander
- Carving knife

Materials

- Piece of English walnut (*Juglans regia*) 130mm long x 110mm high x 30mm wide.
- Four pieces of purple heart (*Peltogyne pubescens*), two at 40mm x 40mm and two at 50mm x 40mm. All 3mm thick.
- Two pieces of African blackwood (*Dalbergia melanoxylon*), one at 40mm x 40mm and the other at 50mm x 40mm. Both 3mm thick.
- Two pieces of spalted beech (*Fagus sylvatica*), one at 40mm x 40mm x 7mm and the other 50mm x 40mm x 10mm.
- Hazel shank
- Piece of 6mm dowel
- Cloth-backed sandpaper 120 through to 400 grit
- Brass ferrule
- Epoxy glue
- Finishing oil

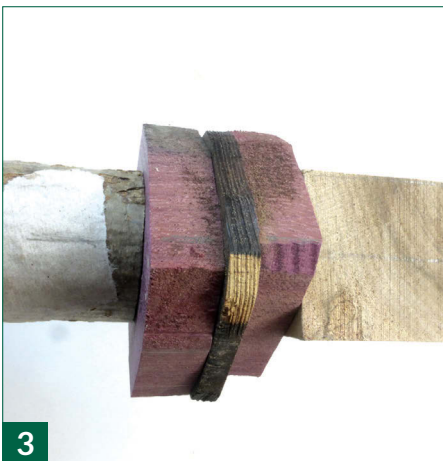


Tip: When drilling into the head, it will help keep the hole vertical if you drill a short distance and then move yourself by 90°. Drill another short distance and move again. Keep doing this until you reach the required depth.

3 Use a carving knife to prepare the dowel from the top section of the shank. It must be long enough to fit into the head and through the spacers (refer to *WWC issue 21* for the full process). Dry-fit the three spacers and head. Wherever you achieve the best fit, mark all pieces with that alignment.

4 Use a bandsaw to cut out the end caps and accent pieces for the front and rear of the handle. Aim for a new blade and correct set-up, as any gaps between these pieces will spoil the appearance. In total, you will need four purple heart at 3mm; two spalted beech, one at 7mm and the other 10mm; and two African blackwood at 3mm. The front end piece uses the smallest piece of beech and the rear uses the larger. Cut the front pieces to approximately 40mm x 40mm and the rear to 50mm x 40mm. You can use any wood of your choice to achieve a design of your choosing.

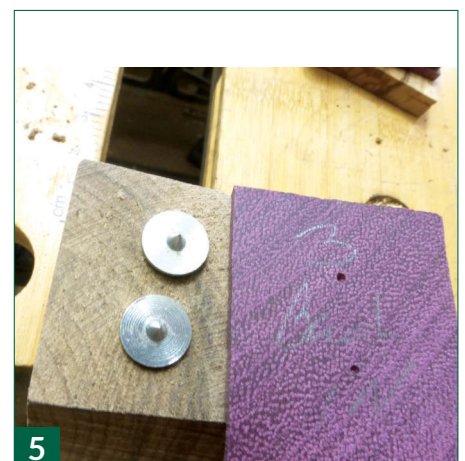
5 Once you have cut the slices for the accents and end caps, arrange them so they fit together snugly and leave no gaps. Number the pieces in the order and orientation you have decided on. Drill two 6mm holes, about 10mm deep and 10mm apart, in the rear end of the blank to take a 6mm dowel. Place the dowel pins in the holes. Take the first piece of purple heart that will adjoin the blank, ensure you have the correct orientation and lightly press on to the pins. Ensure you have wood overhanging the blank on all sides. Repeat this process for the front end of the handle. Now you have the centre points for your holes.



3



4



5

6 Drill 6mm holes through the three accent pieces – two purple heart and one blackwood – of the rear of the handle. Ideally, clamp the three pieces together on a workbench while drilling. Use these pieces as a template to transfer the position of the holes in the end cap. Drill the holes in the spalted beech end cap, but this time drill only halfway through. Mark the depth on your drill to ensure you do not break out of the other side. Repeat the process on the accents and end cap for the front of the handle.



Tip: The 3mm accent pieces, especially the purple heart, are brittle and easily crack. When drilling the holes use a piece of backing wood for support.

7 Cut four pieces of 6mm dowel long enough to fit into the blank by approximately 10mm, through the accent pieces and into the end cap. This will be approximately 22mm for the front and 25mm for the rear. Test-fit both sets to ensure everything fits flush and there is sufficient overhang of wood for shaping.



8 Glue on the accents and end caps with epoxy glue and allow to dry.

9 Glue the three spacers to the shank with epoxy glue, making sure you accurately line them up with your marks. Allow to dry overnight before further work on them.



10 Temporarily, put the head back on to the shank. Place a couple of wraps of masking tape around the shank where it meets the spacers. With a coarse burr, round over the spacers to the shape of the shank.



11 Using the same coarse burr, shape the neck of the head while still attached to the shank.

Tip: Never shape the spacers or the neck without them being together. No matter how careful you are, there is always the tendency to round-over the edges.

12 Sand the spacers and the neck with 120 grit paper on a cushioned-drum sander. Leave sufficient wood for fine sanding later on. Good 120 grit paper is usually capable of removing deep burr marks. However, you can use a medium burr before sanding if you wish. ➤



13 Remove the head from the shank. Using a coarse burr, shape the capping on both ends to match the rectangular shape of the handle.

14 Divide the top and bottom face of the handle into quarters lengthways. Draw on the $\frac{1}{4}$ and $\frac{3}{4}$ positions. Mark approximate width lines on the side faces. Use the coarse burr to flatten the outer-quarter edges.

15 Use a cushioned-drum sander with 120 grit paper to smooth out the sharp edges but do not round them over. Leaving the edges this way gives the head a touch of character. Sand the head by hand with 240, 320 and 400 grit paper. Sand only the edges – do not touch the bottom of the neck.

16 Refit the head to the shank. Wrap a few wraps of masking tape around the top of the shank. Sand the spacers and the bottom of the neck using the cushioned-drum sander and 120 grit paper. Finish the sanding by hand down to 400 grit paper.

17 The finished handle showing the accent pieces.

18 Glue the head to the shank with epoxy glue. Prepare the tip of the shank for a ferrule. Rub down the stick and head with white spirit and a lint-free cloth to remove any dust. Apply four coats of the finishing oil of your choice. This stick has been finished with matte oil. Fit the brass ferrule on the tip with epoxy glue. This is the completed walking stick.

19 A different view showing the spalted beech end. ■





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Dining chair restoration

Louise Biggs sorts out some rickety chairs in need of her expert TLC



PHOTOGRAPHS BY LOUISE BIGGS

Owning a set of antique dining chairs, my customers brought in two carvers and two singles as they had become very loose and wobbly, more so than I would have expected from just loose joints.

The only damage visible was a broken top rail on one carver and previous repairs on the others. The first stage therefore was to remove the upholstery and find out what the problem was, bearing in mind that the upholstery, cover and braid would need to go back on.

For this article I will focus on cutting in false tenons, used on some of the rails, and how to replace seat rails using templates with a look at repairing the joints between the back legs and top rails.

Tool list

- Tenon and dovetail saws
- Hacksaw blade
- Side cutters/pliers
- Sash and G cramps
- Chisels – various widths
- Bandsaw
- Planer/thicknesser
- Tablesaw
- Drill and drill bits
- Card and utility knife for templates
- Ripping chisel or equivalent for removing upholstery
- Rubber mallet
- Pin hammer
- Smoothing plane
- Round bottom spokeshave

Stages of restoration

1 Each chair's frame components were marked prior to being knocked apart. The nails had previously been hammered through the joints and were punched well in or bent over. Each joint was assessed for the nail positions, those in the frame covered by upholstery were removed,

being careful not to increase the existing damage.

2 The decision then was whether to damage the show-wood in trying to extract the nail or damage the tenon while removing the rail. Some of the original rails were weakened by insect

damage and the tenons had already suffered badly. Having noted four rails between the chairs that needed replacing, the tenons would break quite easily. The tenons were quite short compared to the depth of the mortise so I decided to damage the tenon rather than the show-wood. ➤



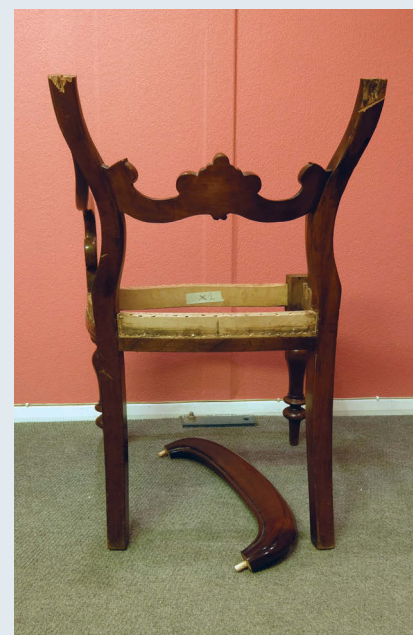
Upholstery being removed prior to assessment



One chair knocked apart with insect damage to the rails and severely damaged tenons

Assessment

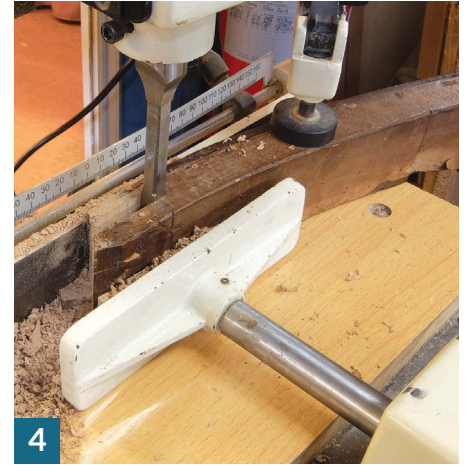
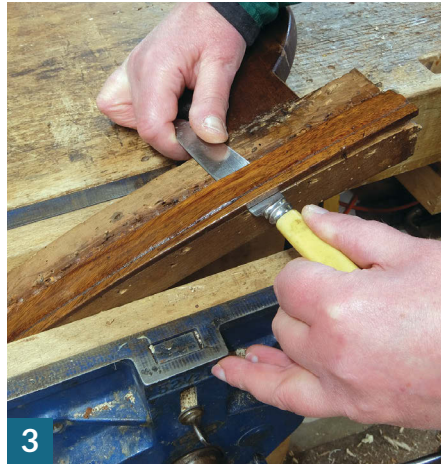
- Some of the seat rails on the chairs had been replaced during earlier restoration.
- There was extensive insect damage to some of the rails and the corner straps.
- Nails were through the legs and tenons, punched well into the timber or bent over.
- Some of the tenons were broken due to the nails and/or insect damage.
- Frames were loose, which had put stress on the back legs and top blocks of the front legs causing splits and breaks.
- One back leg on a carver had a break just by the mid rail, which had previously been repaired with evidence of glue.
- The carver also had a broken top rail and corresponding damage to the tops of the back legs.
- On the other chairs there was evidence of repairs to fix the arms on the carver and to the joints of the top rails.



A carver with the top rail broken and damage to the tops of the back legs



3 With the frames apart the nails were removed if possible or cut level to the mortise walls using a piece of hacksaw blade. Wrap part of the blade in tape or use a glove to protect hands. The moulded edges were removed from the rails, which were going to be replaced using a flat blade to break the remaining glue joint.



4 Those rails where the tenons were to be repaired were cleaned up. Where possible a sound piece of original tenon, on the top side of the rail, was left to act as the template when cutting the new timber. A saw cut down the tenon separated the sound timber. Using wedges to hold the rail securely in the mortiser, a mortise was cut in the centre of the rail to line up with the tenon at the shoulder.



5 A section of timber was cut to shape with a tenon saw and chisels to fit into the mortise in the rail. Excess timber was left at the end which covered the area of the remaining original tenon. The section was then glued and clamped in position. Stages 4 and 5 were repeated as necessary to the rails that could be saved.

6 Once dry the tenons were shaped to match the existing pieces, checking that they fitted with their respective mortises. Initially cut to shape with a tenon saw, the shoulders and sides of the tenons were then trimmed using a chisel. To strengthen the false tenons small holes were drilled at an angle going through the rails and false tenons and stopping in the outer part of the rails. Small dowels were then glued into place and levelled off when dry.



7 For the new rails, templates were made for each rail, marking them for each chair. Using the remaining material from the existing tenons the positions of the tenons were marked on each template. There was clear indication as to the shoulder line so the template was checked against each chair component so that the tenons were correct.



8 The timber for the new rails was planed to the right thickness while allowing the width and length to be a little larger. Once prepared the templates were marked on the timber before being cut out on the bandsaw. At this stage only the rail shapes were cut.



9 The sides of the rails were then trued up using a plane on the convex side and a spokeshave on the concave side, keeping the sides square to the top edges and the shape true to the show-wood moulded edges.

10 For each rail the tenons were then cut out using a bandsaw, with the top shoulder being taken out using a dovetail saw. The shoulder line and surfaces of the tenons were then trued up using a chisel, checking all the time with the mortise that the positions of the rails were correct.

11 On one carver chair the back leg had a previous break just on the point where the mid-rail mortise and tenon joint was cut. Having carefully removed the old glue without removing any timber I found that the joint was a close fit. Although at one of the worst points to break for strength of the leg with support of tight-fitting seat rails and the arm, it was decided to repair the leg as opposed to making a new one. The joint was glued and cramped in both directions to keep it aligned and, when dry, small dowels were fitted at angles to help support the joint.

12 The tops of the front legs were glued up and strengthened in a similar way to the break in the back leg. The broken joints at the top of the legs and top rails were repaired by inserting sections of timber to infill the broken sections. The repairs were glued and clamped together and, when dry, the dowel joints were re-drilled to fit the top rail. The previous repairs around the other top rails were tidied up as much as possible, so when polished they were less visible.

13 With the chair frames re-glued in the same way as described in my previous articles, the cut-outs for the corner straps were cut into the new rails and the new corner straps cut and shaped to fit.

14 Finally the show-wood moulded edges were reinstated on to the rails. The repairs were then stained and polished to match.

15 The upholstery was reinstated on to the chairs, which were then returned to the customers in full working order. ■



9



10



11



12



13



14



15

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Demonstrators and exhibitors really enjoy EWS and most take little persuading to return to the show to either demonstrate their skills or showcase their wares. Our overseas contingent includes Chris Schwarz of Lost Art Press, Dave Jeske of Blue Spruce Toolworks, Ron Hock of Hock Tools, Thomas Lie-Nielsen of Lie Nielsen Toolworks, Chris Vesper, Sadatsugu Watanabe & Chris Vesper of Veritas tools.

Firm favourites will be returning including turners Joey Richardson, Mark Hancock, pyrographer extraordinaire Bob Neill, timber hewer Steve Woodley, woodcarvers Peter Berry, Tim Atkins and Dave Johnson, marionette maker Lenka Pavlickova, scroll saw expert Fiona Kingdon, Japanese joint maker Brian Walsh, plus furniture makers David Charlesworth, Dylan Pym, David Barron & Treeincarnated. Willy Rackham, The International Boat Building College, Willow Sculpture by Louise, blacksmith Nic Westermann, knife maker Ord Knives,

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If you would like any further information please contact Mike Hancock or Joy Allen, joy@ews2017.com

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NEWS & EVENTS

All the latest events and news from the world of woodworking

Forever amber – nature's time capsules

Gary Marshall examines a recent scientific discovery

Researchers based in Myanmar and partly funded by the National Geographic Society's Expeditions Council, have uncovered the remarkably complete remains of a long-extinct, 99 million-year-old baby bird. This was trapped in amber – fossilised tree resin. 'Many people thought it was a lizard. But the scales, thread-like feathers and sharp claws on the feet were so noticeable that I thought they must belong to a bird,' said Chen Guang, curator of the museum in Yunnan, China, that owns the specimen.

Conifers (angiosperms) produce the type of resins from which amber can originate. It is exuded if a tree is damaged and is not the same as sap, being much more viscous. It can seal tree wounds and rid a tree of excess acetates. It often tastes and smells

strong to repel harmful predators (frankincense and myrrh are also from plant resins). Not all resins can form amber. Most resins are unstable over time and decay and can also be made to burn.

Hard polymers can develop over time from terpenes that occur in some tree resins. These differ chemically with each resin-producing tree species. Amber also varies hugely depending on geological conditions, temperature, surroundings and changing chemical conditions, pressures and sedimentation. Often amber will be found washed up on estuarine, lake or seashores since it is less dense than many neighbouring pebbles. Amber occurs in many parts of the world. Baltic amber pebbles have been washed up on the Northumbrian shore. In Arkansas and New Jersey, North America, deposits are found in clay pits and mines, while in Asia amber is dug out in coal mines. The



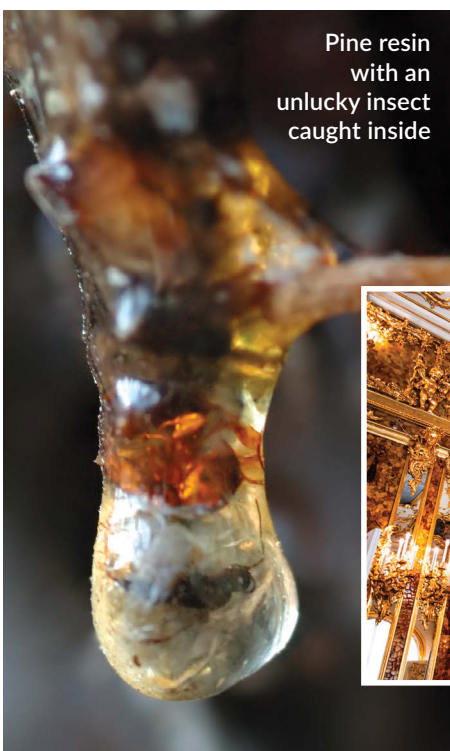
PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

A once-liquid time capsule

highly valued Cretaceous northern Myanmar amber (burmite) often includes intact small remains and was exploited commercially until the mid-20th century.

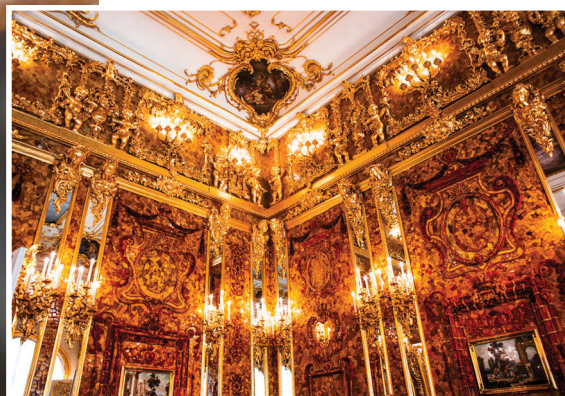
Over eons resin is best preserved in layers of oxygen excluding sand or clay, where time and pressures turn it into the clear, hard substance that gives its name to the colour. Insects, plant fragments, pollen, air and gas bubbles have all been found in amber. From air bubbles scientists have been able to analyse the atmosphere from millions of years ago. Amber is remarkable in its ability to preserve soft and delicate organisms. Even tiny mushrooms are exhibited intact and entrapped in amber in one Chinese museum. Provably genuine pieces of amber can be very valuable, but there are plenty of fakes out there too.

If we find it really amazing that a whole bird has been trapped by amber, that's a big blob of ancient resin! There's surely a lot more to be unearthed yet.....



Pine resin with an unlucky insect caught inside

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS



The reconstructed amber room in St Petersburg

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Events

South Downs Show

19-20 August 2017, Queen Elizabeth Country Park, nr Petersfield, Hants.
www.southdownsshow.co.uk

Biddenden TractorFest and Country Fair

19-20 August 2017, Biddenden, Kent.
www.tractorfest.co.uk

Charcoal and Woodyard Weekend

26-28 August 2017, Weald and Downland Museum.
www.wealddown.co.uk/whats-on



PHOTOGRAPH BY GMC/ANTHONY BAILEY

Bentley Wood Fair

Stock Gaylard Oak Fair

26-27 August 2017, Stock Gaylard Estate, Sturminster Newton, Dorset.
www.stockgaylard.com/the-oak-fair.asp

Fangfest – Festival of the Practical Arts

2-3 September 2017
 Fangfoss, Nr York.
 Facebook: Fangfest Festival of the Practical Arts

Into The Trees

9-10 September 2017, Pippingford Park, Nutley, East Sussex.
www.into-the-trees.co.uk

Self Build & Design Show

9-10 September 2017, Westpoint, Exeter.
westpointexeter.co.uk/whats-on/47/self-build-and-design-show

Bentley Wood Fair

15-17 September 2017, Bentley, Halland, East Sussex, BN8 5AF.
www.bentley.org.uk

European Woodworking Show

16-17th Sept 2017, Cressing Temple Barns, Essex
www.europeanwoodworkingshow.eu

Reader letter

Hello again Anthony,

I have just finished reading John Doonan's article in issue 17, making a wedding post box requested by his daughter to receive small gifts and cards. Reading this brought to mind a similar request I had from a relative whose son was getting married. The request was for a 'wishing well' to serve the same purpose. I have attached some pictures of my wishing well. Although not as ornate as John's creation, it may be of interest to readers.

Regards, Alan Coates



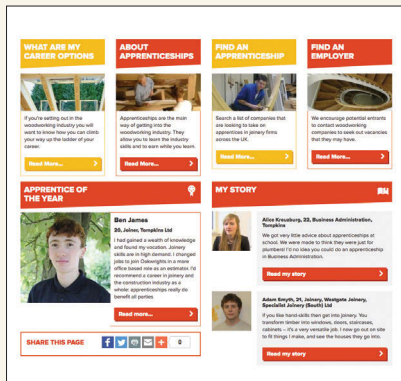
PHOTOGRAPH BY ALAN COATES

Web links for you

Websites

www.bwf.org.uk/training/woodworking-careers

The British Woodworking Federation has taken matters into its own hands, so to speak, with its Wow! I Made That! initiative to get young people to take up a career in woodworking. Also see its Wow! I Made That! Facebook page.



Youtube

Floating waterfall coffee table by Wesley Inglis

Not quite floating but almost, and a great way to use a natural edge slab of timber.

Instagram

Robinsonhousestudio

Find out what wondrous and wacky things Marc Fish and co have been up to in sunny Newhaven, East Sussex. Plenty of inspirational images and video clips of amazing quality work.

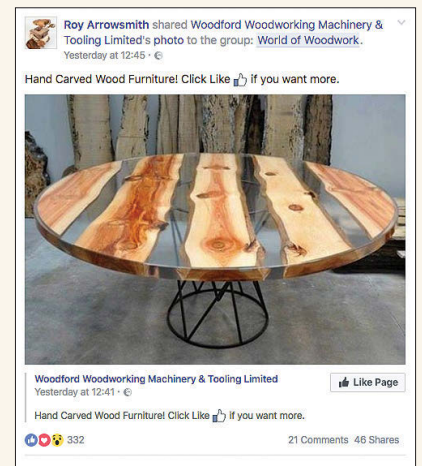
Pinterest

AD Magazine Parquets originaux
 A French design magazine Pinboard, if you thought parquet flooring was boring, click the link, plus a lot of non-woody design styles to ponder on.

Facebook

World of Woodwork

A public discussion group with a US slant but some interesting stuff, including impressive professional joinery and cabinetwork but open to all – a kind of 'show and tell' page.



Homegrown timber conversion

Brendan Devitt-Spooner does what we can only dream of – creates his own timber supply



The most asked question – “Where do you get your wood from mate?”

Over the years at exhibitions and various craft shows I have taken part in, there is usually a question along the lines of: ‘Where do you get your wood from mate?’ The devil inside me wants to reply: ‘From trees.’ Whether they think because I am ‘in the trade’ I have access to a secret source of timber I am not sure. Depending on how seriously the conversation develops, I say that I get most of it from trees that I have sourced or been given or, failing that, from a reputable sawmill.

Since I began my life as a furniture designer and maker in the summer of 1987 I have been actively engaged in collecting trees, having them converted and then air drying them outside my workshop. Fortunately for me (but not for many others) the hurricane of that October was a gift. Suddenly there was free timber everywhere for the asking. So began my timber collecting activities.

A fallen oak

This account is about an oak tree that fell down in Eastbourne early on in 2016. A student at my evening class mentioned to me that a friend of hers had a large oak tree that fell over in strong winds. Because it somewhat made a mess of her garden she was anxious to have it removed. Having got the go ahead to take the tree, it was just a matter of setting a suitable date. Although it might look daunting, collecting a tree of this size is not usually a problem. The two main issues which can affect the collection are access to it and the ground conditions. If I cannot drive to the tree with a trailer and have space to turn or get the

PHOTOGRAPHS BY BRENDAN DEVITT SPOONER UNLESS OTHERWISE STATED



One day this ‘pippy’ oak trunk will be turned into beautiful furniture

log on to the trailer then it becomes a no-go. Similarly if the ground is boggy then it is also a no-go. In this case a simple reverse with a trailer down a winding driveway made the job quite straightforward.

Log recovery

Arriving at the address and having reversed down the drive to align the trailer parallel with the log, it was obvious 17ft of oak tree was not going to fit onto a 12ft trailer. Fortunately the guy who accompanies me on these forays just happens to be one of my sons, who is also a tree surgeon. We decided to cut it into two pieces – a 9ft and an 8ft. It was around 3ft in diameter at the base reducing to about 2ft.

Setting up the recovery is reasonably straightforward. The ramps are laid far enough apart to take the weight of the log evenly without being too close, which might allow the log to fall to one side should it not roll up evenly. The winch is attached to the far side of the trailer with a strong rope. The steel cable is attached also to the far side of the trailer, fed underneath the log and then fed into the winch and ➤



Slowly does it – hand winching takes time



Two big logs make for a balanced load





pulled taut. With the handle engaged it is just a simple matter of cranking the handle backwards and forwards and watching the log roll towards you and the trailer. Sounds simple, and it is, assuming the log is perfectly cylindrical and of a constant diameter. In real life one has to allow for trees being far from the ideal shape. In most cases this will mean siting the steel cable slightly closer to one end or the other. If the log is not parallel to the trailer you will need to move the cable on the log to compensate for the angle.

When the log reaches the base of the ramps you must ensure that the log will roll up and sit with weight slightly forward. Driving a tail-heavy trailer is no fun.

As the log rolls up the ramps it may be necessary to alter the angle to straighten it up. This is where the

“Large logs falling off a trailer on a road does not bear thinking about...”

wedges come in. Put a wedge under the part of the log which is furthest from the trailer and then reverse the winching. This will let the part of the log nearest the trailer to slip back down under control until it is level. It may be found that the winch cable needs to be repositioned to enable the log to proceed evenly.

Put wedges under both ends on the ramps and then slacken off the cable and reposition. It might be prudent to note here that logs are not light. With any adjustment work it should always be done on the ‘up side’ of the log. Twice I have had ropes and chains part and trying to stop three tons of tree from returning to ground is not easy.

As the log comes on to the trailer make sure it runs on suitable bearers as this will allow the cable to be disconnected from underneath it and will also protect the floor of the trailer.

This is another time when wedges are useful. They will stop the log from rolling off the other side and also keep it in position.

Getting the other part of the tree on to the trailer was equally straightforward, although we had to move the trailer further back to align it correctly. With both logs on board they were both wedged and then secured with a number of ratchet straps. Attention to safety is of paramount importance here.



Should you be tempted to try this for yourself...

- Primarily you will need a vehicle that can tow a large trailer with a heavy log on it. A large 4x4 with a low ratio gearbox is essential. Trying to reverse 3.5 tons up a slope while slipping the clutch is not much fun – it doesn't do the clutch much good either. This is hooked up to a 3.5 ton trailer, in this case an Lfor Williams flatbed with old-style forklift truck wheels. These, being much wider than the current offerings, resist the possibility of sinking in soft ground.
- A pair of sturdy ramps, ideally 2.4m long as they lessen the angle from ground to trailer.
- A winch – in my case I have a hand-operated Tirfor with 25m of steel cable.
- Various ropes to secure the winch to the trailer.
- A selection of wedges – mine are cut from old 8x4 roof joists.
- A strong steel crowbar or two.
- A selection of heavy-duty ratchet straps.
- A metal detector.
- Possibly a chainsaw and associated safety equipment.
- Gloves and steel toe-capped boots.
- A sense of adventure.

The sawmill

Amusingly on the way home we had to fill up with diesel. Going into pay, the cashier joked: 'Jeez, you must have a big fireplace!' After the trip back from Eastbourne I went up to my local sawmill, Northwood Forestry near Ashington in West Sussex. Getting the logs off is a breeze as they have a rather large Volvo grab truck. Having decided that I wanted both logs planked into 2in (54mm) thickness, I left the head sawyer, Richard, to do his magic. A couple of weeks later I picked up the planks and took them back to my workshop. ➤



Several of Brendan's logs waiting to be processed



The first pass just takes off a thin layer



An early cut produces a 'top' board



Some serious planking begins



The feed roller moves the boards away



Brendan's planked timber being fork-lifted back on to his trailer



The trunk re-stacked by hand





Brendan's secret is getting the supports dead level

Stacking planks

Putting the planks into stick – that is, separating each plank with softwood sticks to allow the planks to dry evenly – is a very important process. Not done carefully it can lead to a lot of expensive bent timber. Over the years I have arrived at what I consider a good way of achieving straight, flat planks.

Most important is a flat and level ground. Most of my timber storage area is concrete. I put down heavy rails of either steel beams or large section timbers. These will then have thick 'stickers' (sticks, in other words) of about 4 x 4 in section placed to about 500-600mm centres to form the base. Before placing any timber it is imperative that these big stickers are flat, level and not in wind. Using a long aluminium straight edge helps. On top of the big stickers I then put on conventional size stickers, usually 20mm thick. The planks of timber can then be laid to form a stack.

It is important to ensure that each

Beautifully stacked and 'sticked' to air dry

line of stickers is vertically in line to ensure flat planks. I have found the best source of stickers to be old pine floorboards – they are a constant thickness and usually free!

Air drying

After sticking the log, the stack has to be protected from the weather, whether it be sun or rain, and weighted down to keep the top planks flat. I have found old concrete fence posts to be ideal. 'Roof' coverings can be whatever is to hand. I have long steel roofing sheets which allow for a long overhang. These need to be weighted down as well, usually with more bits of fence post, concrete blocks or the discarded crown boards from the log which cannot be used.

In two year's time I will have some lovely pippy oak. In order to use it, I will then need to put it in my container-based dehumidification kiln for a while longer until the moisture

content drops to the roughly 10-12% needed for furniture making.

The numbers

In collecting trees it is a benefit to know how much a log weighs. Trying to persuade the traffic policeman that it doesn't weigh very much is not going to cut much ice. Generally 25 cubic feet of timber weighs around a ton. My trailer is rated for 3.5 tons and can therefore legally take a 2.75 ton tree as the trailer weighs 0.75 tons.

You will note that I use imperial measurements for my calculations. Despite metrication, hardwoods are still commonly measured this way because a cubic foot is much smaller than a cubic metre, which is huge by comparison.

Working out the cubic footage I use the following method: length of log in inches multiplied by 0.25 of the girth twice. This will give the number of cubic inches, which is then divided by 1728. This will result in the cubic footage.

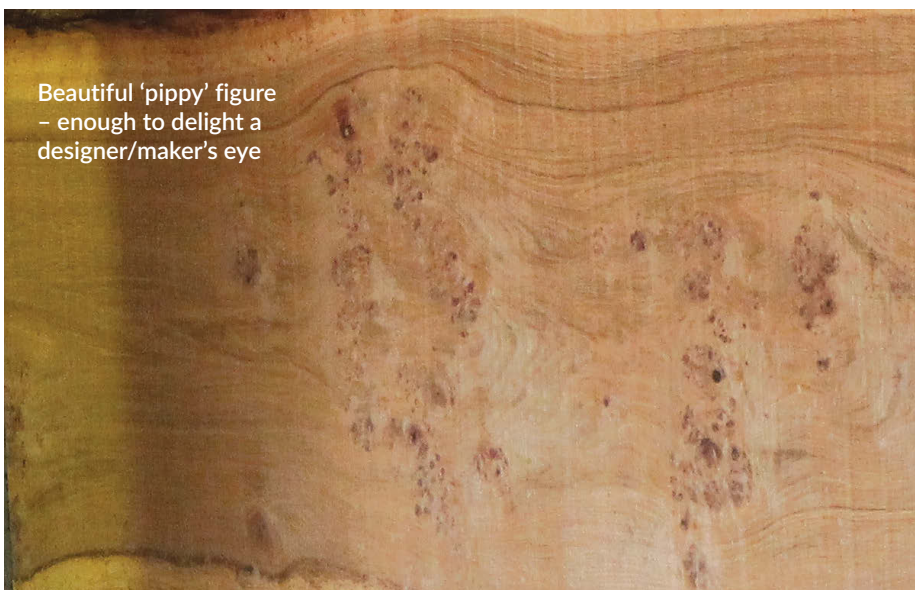
So a 12ft by 3ft log is worked out as follows:

$$144 \times 30 \times 30 = 129600 \text{ cubic inches}$$

$$129600 \text{ divided by } 1728 = 75 \text{ cubic feet.}$$

And, if you are paying £40 a cube for oak, this example would cost around £3000.

I like the ideal of a workshop which is surrounded by stacks of drying timber which can be traced to their origins. When clients or visitors visit they can see the timber in its natural state. They can see where it was sourced. They can see the journey from growing tree to finished item of furniture. Romantic? Possibly, but I feel it works. ■



Beautiful 'pippy' figure – enough to delight a designer/maker's eye



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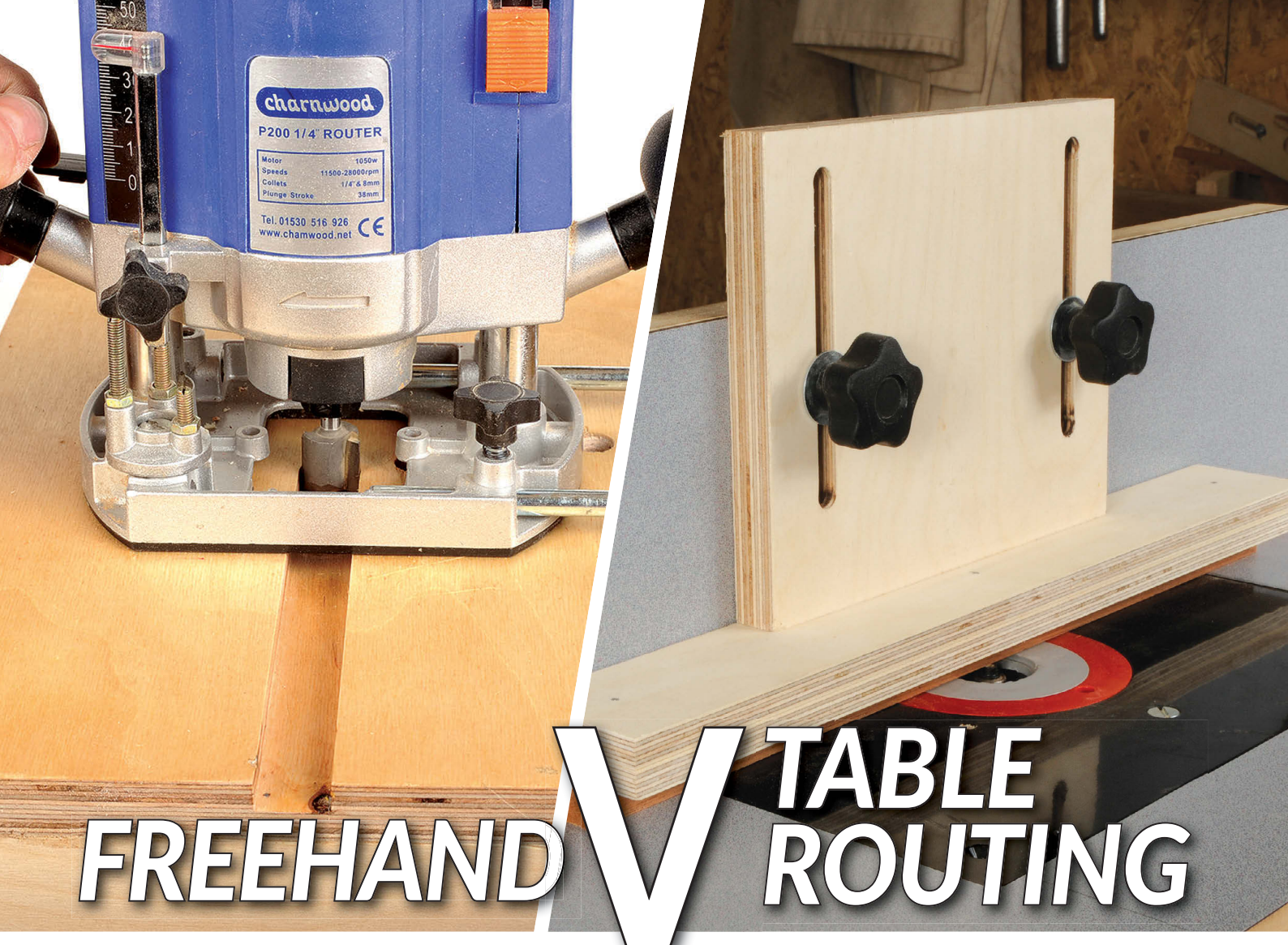
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FREEHAND V TABLE ROUTING

Is a router table really better than freehand routing? There's only one way to find out – ask the **Editor**

Above left: Freehand routing with a straight fence being used to make a precision finger jointing table

Above right: A tunnel guard controls small section workpieces and improves quality, accuracy and safety

Most of us buy a router, take it out of the box, fit the straight fence and a straight cutter that comes with the machine and think that's all there is to it. Maybe you have bought a discount set of cutters, some with bearings, some without? The guide bush in the box – do I really need that? Using that with a jig seems like hard work trying to make the jig correctly. So mostly we will use the easiest route to getting a result. Then we have ambitions to own a router table – own, not make, one. So we buy a standard design of router table, not too expensive, and set to work. Does it do what we want? It seems to but sometimes it seems limited in concept for some reason. Maybe we just don't know how to get the best from it? Too many questions – here are some of the answers.

Freehand routing

The term for any operation where the router is held while machining, usually with some means of controlling its directional movement. This can be a straight fence, trammel bar, guide bush or bearing guided cutters.

Router table

A router table holds the router underneath in a fixed location. It can be adjusted but relies on an adjustable fence for straight edge work or a guide pin for shaped work.

The differences

Working freehand is unique to a router, whereas a router table is a smaller, safer option than its big cousin, the spindle moulder. Both have advantages and disadvantages. Deciding which is best and when to use it depends on how much you are willing to learn and then put into practice. In truth, to get the best from either working method does require an investment of learning and effort rather than money just to solve problems.

WORKING FREEHAND A question of balance

If you are working freehand – overhand might be a better description – then you need to keep the router on an even keel. Balancing it on the edge of a narrow workpiece almost guarantees you will get a variable cut finish and a step at the start or finish of the workpiece. Clamping a longer board next to it and flush on top will keep the router steady by extending

the width of the workpiece and giving feed in and out support at each end.

Let something be your guide

'Something' meaning any of the previously mentioned forms of guidance. Routers only work accurately if they are guided in some fashion. The standard straight cutter is okay but limited to straight machining and where the fence won't clash with anything else. For instance, making hinge recesses inside a carcass is limited by the inside of the carcass as the recess should be fenced from the inside so the cutter doesn't accidentally cut into the outside edge of the carcass. Both balance and machining close to the carcass corner are best served by a clamp-on jig instead.

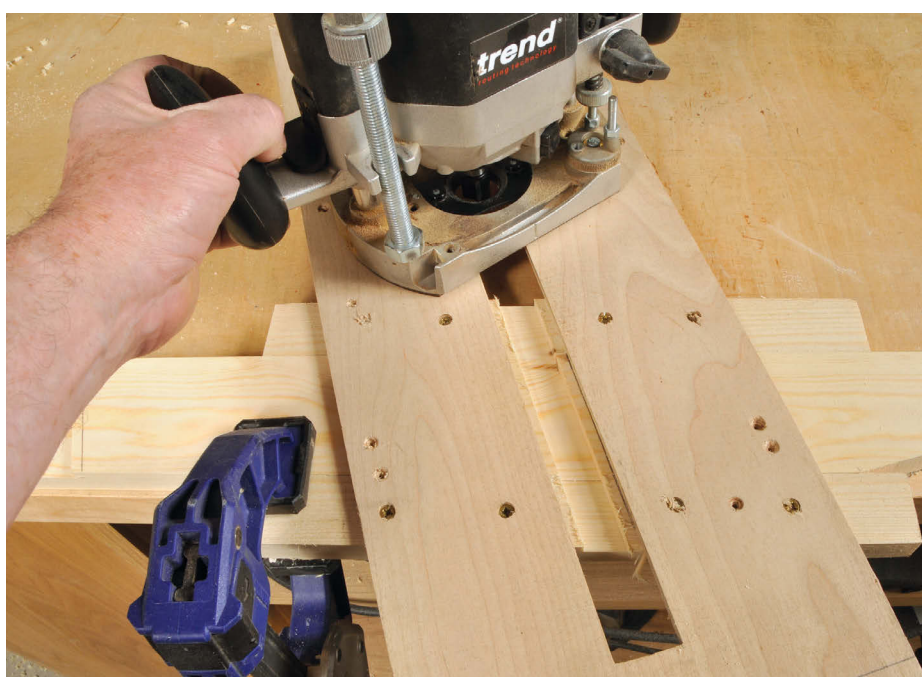
Often you can need either extended fence facings or the cutter gap closed for smooth unbroken running. Your router fence may have adjustable facing but it is easier to double-sided tape a strip of wood to them. Carpet tape or special jig tape, which are both thicker and fine fabric-cored, will do this best.

Guide bushes are a pain to use

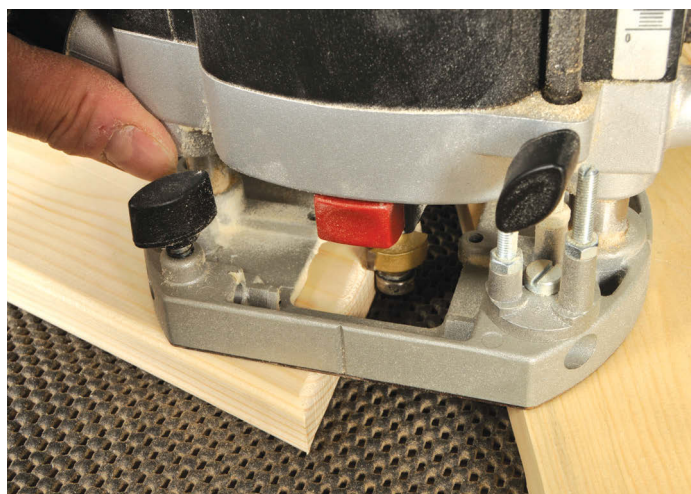
No they are not, but you do need think through why you should be using them and how to go about making jigs and templates that go with them. In practice there are jigs for just about every operation you can think of. A typical problem is that some routers, the cheaper ones, come with just one size of guide bush when you may need different sizes to suit particular cutter sizes or to change the dimensions or radii of the cutout being created. ➤



Plenty of support on the workpiece but the router is being pushed away which can cause it to wander off course



A special slanted guide bush jig to make a DVD storage rack. Guide bushes and jigs give repeated accuracy



Extra freehand support using a second support of the same height as the workpiece



An offset base with a hold-down knob gives control and an even finish when edge machining



A very basic straight fence but an extended wooden sub fence can be screwed to it for smooth running

Allied to this is understanding 'guide bush cutter offset'. This is the difference in diameter between the cutter and the guide bush, which is then halved. This gives the amount the jig or template needs to be made larger so you end up with the right amount being machined away.

Going round in circles

Routers often come with a trammel point which attaches to a single fence rod to enable cutting circles whose diameter is larger than the router base size. Once in a long while they are really useful to have available. Some circular cutouts need to be smaller than the router base size and, although you can buy templates for doing this, you can make your own inboard trammel to whatever size you need.

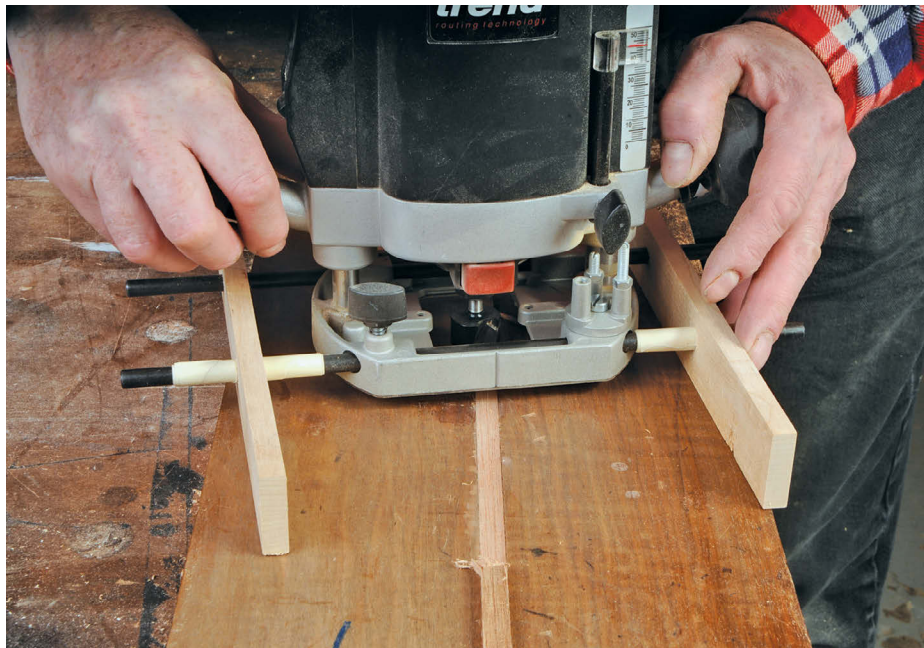
Large radius arcs can be done with a standard trammel but, with a bit of ingenuity, you can create a super-size trammel with a strip of MDF bolted to the router base and point at the other end.

There are plenty of ways of making the router do what you want but under control, which is the key element.

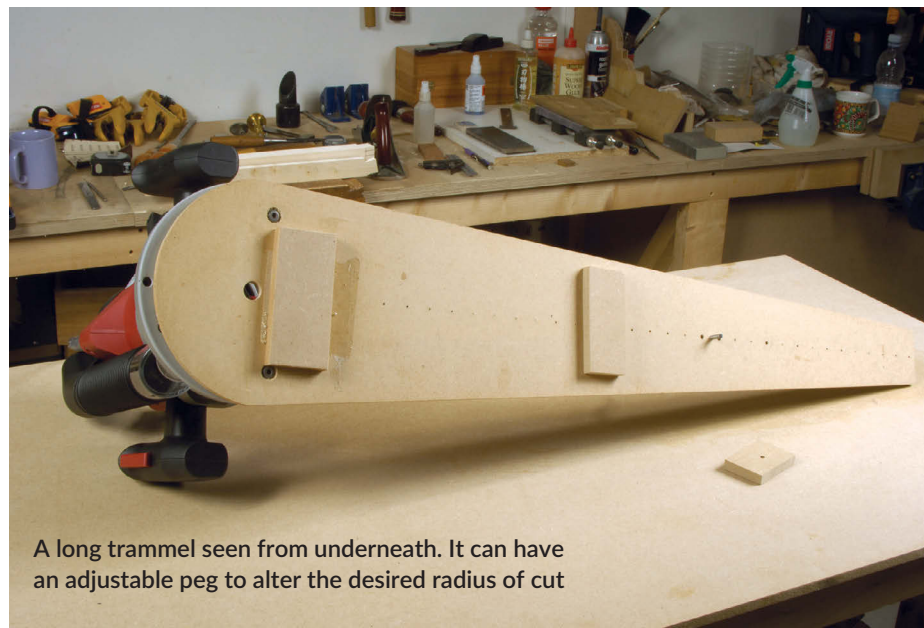
ROUTER TABLE WORKING

Turning on the tables

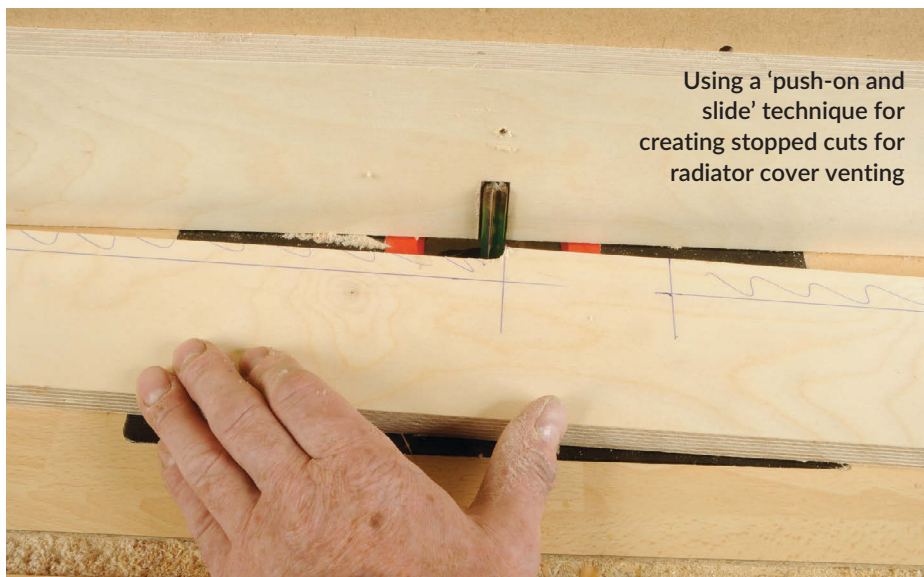
A router table is another kettle of fish, as it were. In theory, gone are all the issues of control because the table and fence do it all for you. If you buy a router table you may be slightly disappointed on occasion. For many tasks it will be fine, but what if you want to run vertical components so they don't risk tilting? Most manufactured router fences aren't very high, which seems strange if you need support. You may be able to clamp taller sub-fences to standard



Machining a patched-in strip level with the original boards using 'skis' fitted to the fence rods



A long trammel seen from underneath. It can have an adjustable peg to alter the desired radius of cut



Using a 'push-on and slide' technique for creating stopped cuts for radiator cover venting

ones. If not you may have to screw through, which can damage the table's own fences. In any case they are split in two and usually movable with a cutter gap in between. Often you will need a continuous running surface where the sub-fence is pushed back on to the running cutter creating a 'breakthrough' fence. If you can't fix it satisfactorily to the fence behind, that becomes a problem. On the other hand, a homemade router table isn't just cheaper and satisfying to build, it can solve any problems that ready-made tables suffer from by adjusting the design as required.

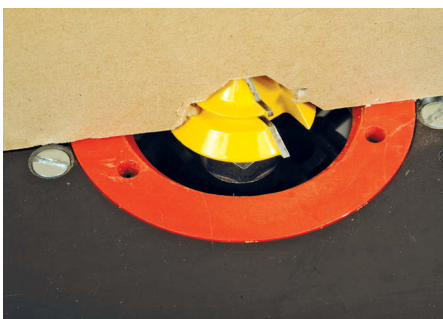
Can't do curves

That isn't true. Remove the straight fence and either fit or lead-in pin and a bearing-guided cutter and with care you can machine various round or awkward shapes. You need to master making templates that a bearing can run against so you can create a safe, accurate result.

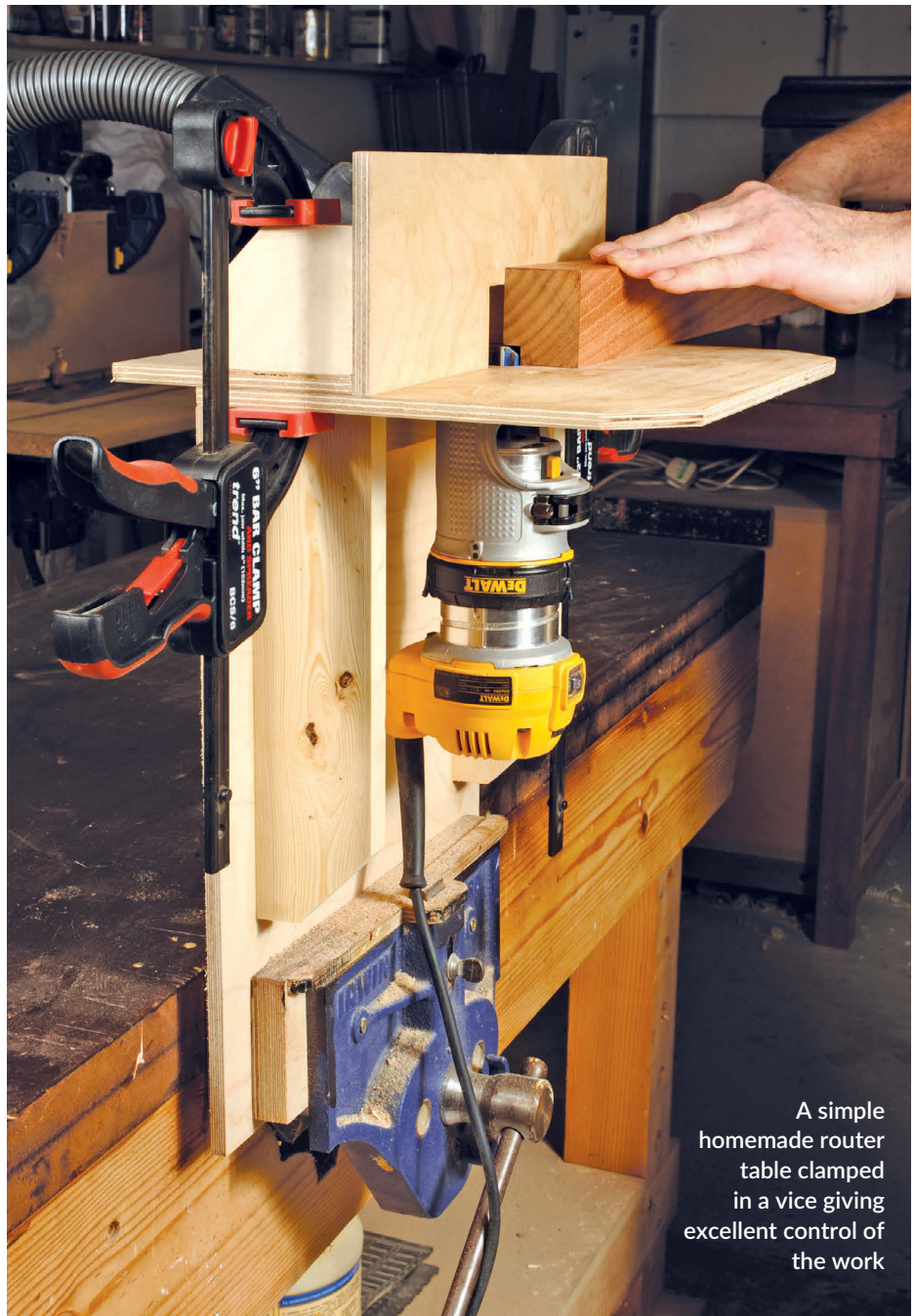
Machining small stuff

It can't be done – wrong of course. It's just a matter of working out how to do it. Apart from the obvious idea of machining one edge of a board, saw off a strip and repeat – you can fit hold downs that keep small strips in place, preventing vibration and irregular cutting. A tunnel made to the size of standard size stock will do the same job more thoroughly.

A last question is: what router for what job? Some would keep a small router for freehand work and a large router sitting in a table if they can afford that. In fact, a small router can work well in a table and a large router is sometimes the only beast that will tackle a freehand task such as machining stair strings using a jig. You can make your router do anything you want – you just need to figure it out... ■



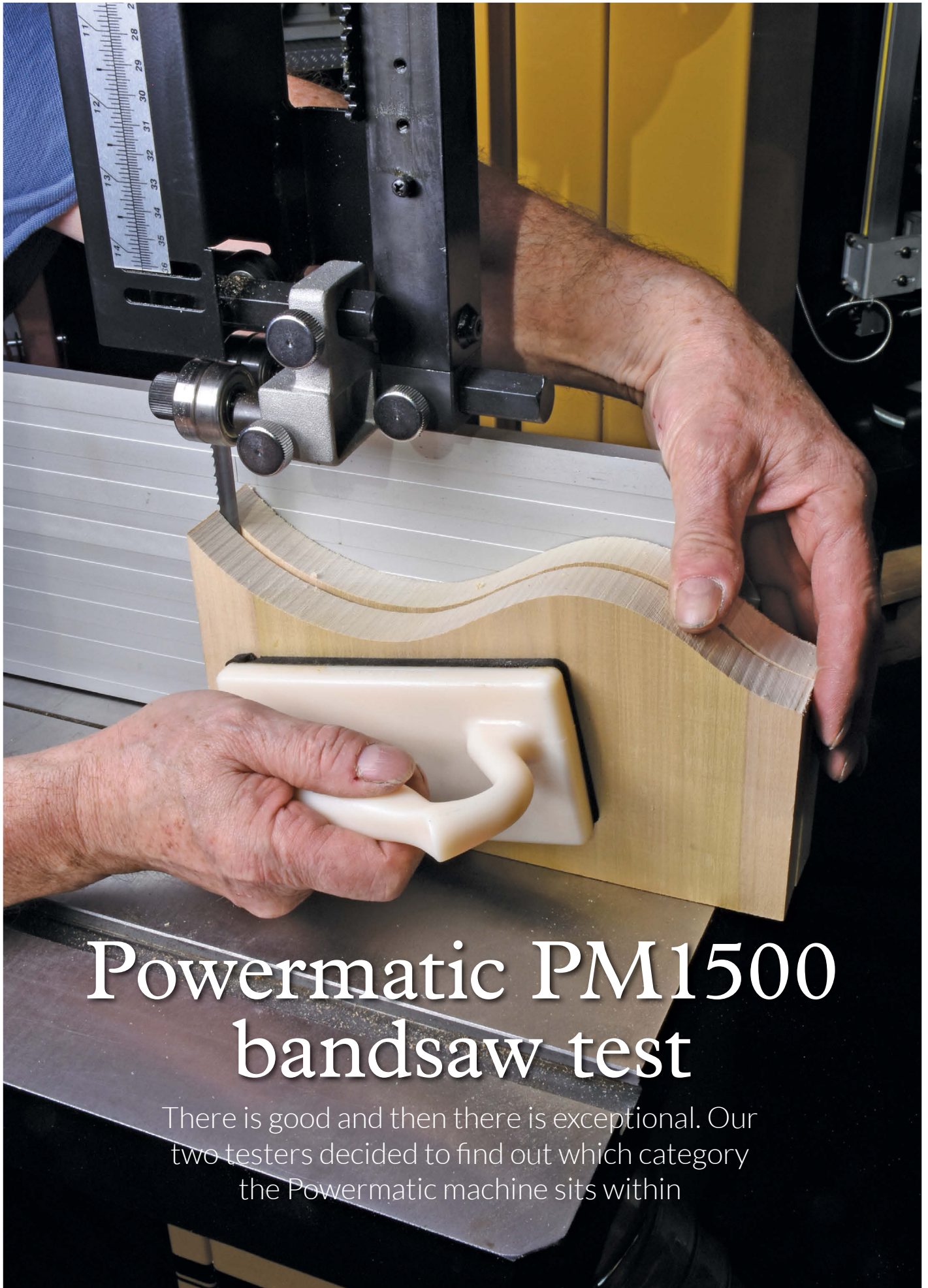
On the router table a breakthrough fence gives complete support and smooth 'through running' even with scribe or end cutting



A simple homemade router table clamped in a vice giving excellent control of the work



Small or awkward machining operations like this leg dovetail tenon are only possible on the router table

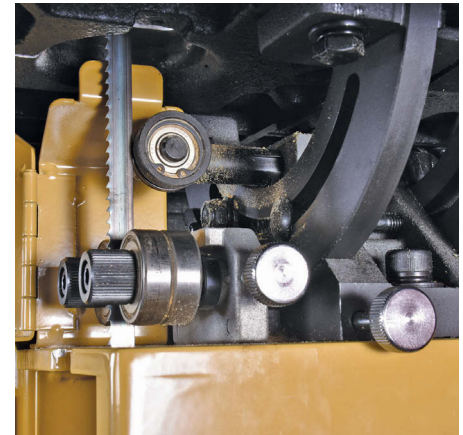


Powermatic PM1500 bandsaw test

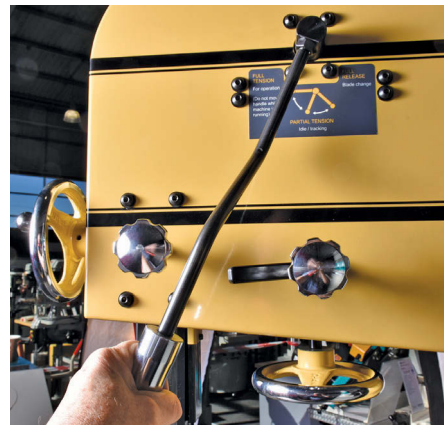
There is good and then there is exceptional. Our two testers decided to find out which category the Powermatic machine sits within



Heavy duty adjustable table trunnions



Double side bearings and slotted rear bearing



The unusual tensioning lever



A tapered steel dowel keeps the surface level

Axminster has started selling the Powermatic range in the UK. This brand is part of an American group of companies that includes Jet Tools and Performaxx. This machine is sold at a premium price and if you go to the Powermatic website it is easy to see why – the range is solidly aimed at the woodworking industry and built for that market. With that in mind we knew this bandsaw wouldn't fail the quality test, but did it have innovation and features that would attract everyday users? Mark Baker and I decided to take it for a spin.

Capacity

The PM1500 has a potential resaw capacity of 350mm high when fitted with a suitable blade. The throat width is 370mm and it comes with a high fence that can be set low down for sawing narrow components.

The large table area will accept a large diameter steel pin for single point contact cutting. So on the capacity yardstick as it were, this machine wins within its own capacity range. It could be expected to handle some large stock and do a decent job so long as you are strong enough to lift big boards on to the table and have some form of outfeed support.

Casing

Unsurprisingly the casing is lock, stock rigid. It doesn't shake or move around so the blade will run true under pressure. Everything about the casing is tough, being made from heavy gauge folded steel, the case design and colour scheme are rather assuringly 'retro'. In fairness to other makes of bandsaw they are all pretty rigid in build too, these days.

Controls

The controls are all logical and shiny and where you expect to find them, although any bandsaw with the upper wheel tensioning handwheel positioned underneath the upper casing where deep stock may pass, does seem a little perverse. Almost the sole piece of critical rubbery-plastic on the whole machine is the lever for locking the upper bandwheel tilt. This was 'factory tight' and I was concerned I might damage it so I left it to Peter, an experienced member of Axminster staff, to free it off. After that it was fine, but any other machine would have had a metal lever, a rather odd manufacturing decision here.

Cutting

To be honest you only need to look at a machine like this to know it will cut perfectly. The wheels run true and the blade guides are generous in their accuracy and support. The key is always using the best blade you can afford and the right type for the job and dispatching it when the blade 'goes off' and loses sharpness.

Key features

Tough, heavy duty trunnions for mounting and tilting the large ground cast iron table. A neat, retained, tapered steel dowel to hold the front table edges flush to each (cast iron can and does, twist and vibrate).

Knobs and levers everywhere, precious few allen socket adjustments are to be found anywhere on the PM1500. Particularly commendable are the blade side bearing guides which, at the turn of a knob, move eccentrically to minimise blade wander. There is a pressed steel flip-guard under the table to cover the moving blade. The rear thrust bearings runs edge-on, a novelty when most manufacturers have the bearing running perpendicular to the ➤

back edge of the blade, which makes no sense at all. Not only does this bearing run 'with the blade' under load, it has a slot to guide the blade, which is essential with this bearing orientation.

Microswitches everywhere so full safety-first when setting up the machine.

An interesting big tensioning lever at the back of the machine. Not only can you detension fully, there is a midway setting for blade tracking and to relieve the stress when sitting idle. There is a tensioning gauge visible through a clear window on the upper case, but I never trust blade tensioning devices – I just keep 'thrumming' the back edge of the static blade with my fingers until I get a semi-musical note from it.

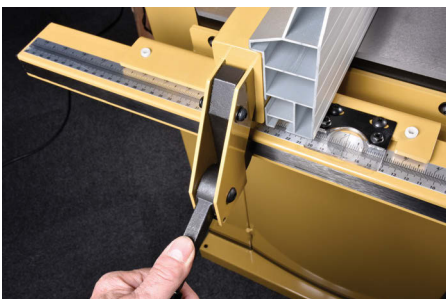
The straight fence is a substantial extrusion suitable for deep cutting, but it can be turned through 90° for low, awkward or narrow passes. An adjustable optical gauge allows accurate setting against a combination metric and imperial scale.

The editor's verdict

The mitre gauge has two grub screws sitting in machined slots that can be wound in to make the bar fit closely in the table slot, a nice precision touch. In a way there were no surprises with this machine. It is powerful, it cuts true, it does what it says on the casing – however, it does need a three-phase power supply. Perhaps the only surprise is that it needs very little improvement. There is the slight matter of price, but for a meaty machine, it should be worth it.



Grub screws in bar slits allow a precise sliding fit



A high fence and accurate scale setting

Mark Baker's verdict

I had occasion to take a look at the Powermatic PM1500 Bandsaw when trying out one of the Powermatic lathes at the Axminster Tools & Machinery store in Nuneaton.

I must admit that my impressions of the bandsaw when poring over it, was that it was well made and very sturdy. It looks smart and all of the machined parts and castings were nicely finished. Just like the Powermatic lathe actually. I like the attention to detail.

I was able to work with some thick timber 100-150mm thick oak and ash to create turning blanks for testing on the lathe and for the waste. I tried thin cuts to check for blade wander (blade lead), ability to cut vertically in order to cut thin, clean sections and also manoeuvring along various arcs.

I have to say that the bandsaw didn't balk in any way on the thickness of timber I cut. The power delivery was smooth and consistent without power fade. I wish I had taken thicker sections to try the full capacity. I suspect the result would have been the same.

But since the ash was wet and the oak old and bone dry it didn't seem to mind at all. I liked the fact that there was very little detectable vibration in the bandsaw when cutting and that you could accurately and easily set the table.

I found this to be a seriously good, quality machine that will suit the serious woodworker who has a three-phase supply. ■



A very solid bandwheel microswitches a tension scale



Tech spec

Bandwheel diameter: 381mm
Max cut width and height: 368w x 355h (mm)
Blade length and widths: 3886L x 3mm-25mm
Cutting speed: 950m/sec
Machine table and tilt: 545 x 405mm/10°-45°
Dust ports: 100mm dia x 2
Motor output: 2.2kw (3hp)
 Three-Phase 415 volts
Overall machine size: 770L x 870w x 2040h (mm)
Axminster price: £3,499. 96 inc VAT
 For more information visit:
www.axminster.co.uk



Mark Baker cutting out a deep turning blank

Meet the contributors...

We put all of this month's professional and reader contributors here, so you know exactly who they are and what they do



James Hatter

James' main interests include design and construction of a wide range of wood-based projects, and DIY, mainly for home and family use. Ash and oak are favourite timbers, which are included whenever possible in appropriate projects. He enjoys teaching and working with his eight-year-old grandson Kieran, who often makes really good suggestions in design.



Gary Marshall

Gary has had a life-long interest in woodlands and the countryside. He trained in countryside management and subsequently ran a company working with the local County Councils and Unitary Authority and their Countryside and Rights of Way Teams, as well as a wide range of conservation organisations.



Brendan Devitt-Spooner

Brendan has been involved with wood since school, first as a teacher of crafts in the '70/'80s then as a furniture designer/maker working from his workshop in Angmering, West Sussex. He

exhibits his work mainly in the south east and most works come through his showroom at his workshop.



Simon Rodway

Simon Rodway also runs LineMine, a website with articles and online courses on drawing software. A new course, SketchUp for Woodworkers, is proving really popular.

Web: www.linemine.com/courses



Geoffrey Laycock

Geoffrey is a Chartered Safety Practitioner, Chartered Ergonomics Practitioner and Fellow of the Royal Society for the Protection of Health and has written extensively for our sister

magazine *Furniture & Cabinetmaking*.

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Louise Biggs

Having completed her City & Guilds, Louise trained for a further four years at the London College of Furniture. She joined a London firm working for top antique dealers and interior designers in London before starting her own business designing and making bespoke furniture and restoring furniture.

Web: www.anthemion-furniture.co.uk

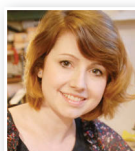


Michael T Collins

British-born Michael has been working with wood off and on for 40 years. He moved to New York in 1996 and, over the years, has made bespoke furniture, including clocks, inlay work, Adam

fireplaces, bookcases and reproduction furniture.

Web: www.sawdustandwoodchips.com



Amber Bailey

Amber Bailey is a marquetarian and surface design artist with a background in furniture restoration. She has trained in prestigious decorative art schools on both sides of the English Channel and is now based in North Wales working for a furniture

company using laser-cut marquetry.

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Neil Scobie

Neil is a full-time woodworker who makes custom-made furniture and woodturned and carved art pieces for private clients and selected galleries.

He also writes for a number of woodworking

magazines. Neil lives in New South Wales, Australia.

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Your face and details could appear here in our rogues' gallery if you write an article for the magazine, and you could be rewarded for your efforts too.

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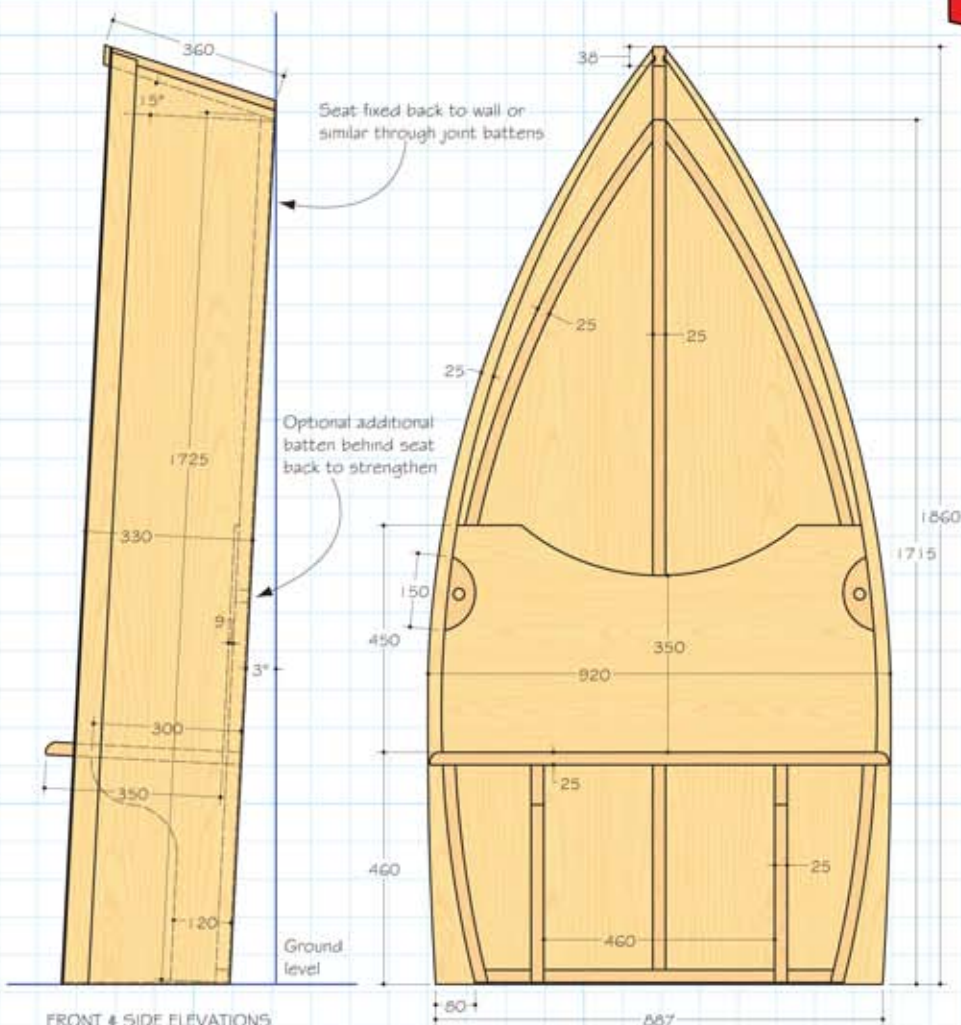
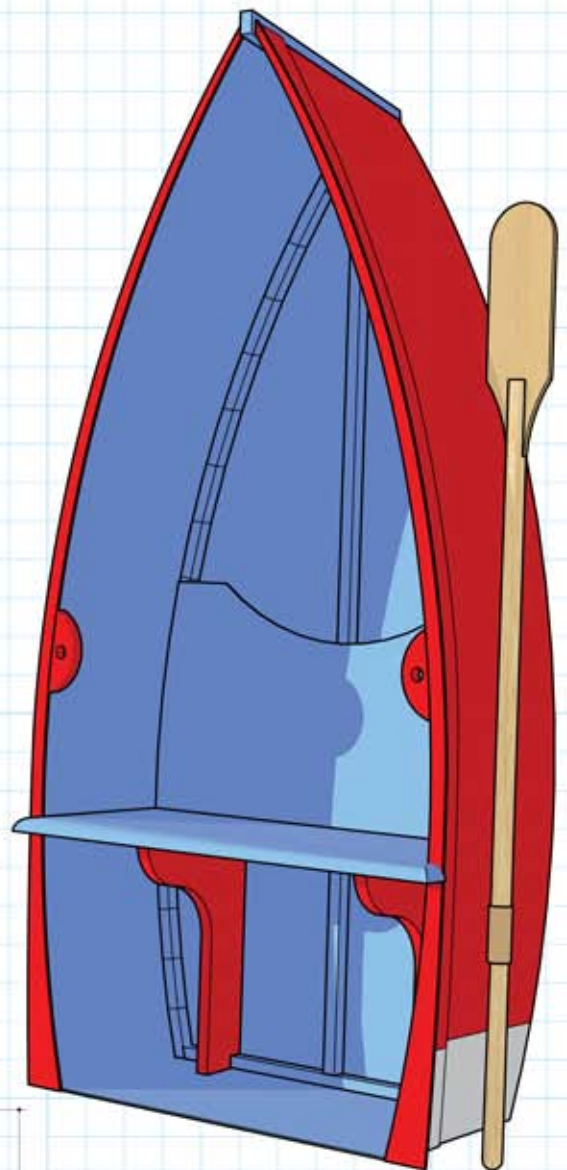
Boat-shaped seat

Cap'n **Simon Rodway**'s latest project is nautical but nice

Carrying on a theme set by the last project (a playhouse tepee), here is another with the emphasis on enjoying the process in a light-hearted and creative way. Once again, there are barely any joints to cut, and the build process could best be described as 'adapt as you go along'

with a large dose of flexibility thrown in.

It should be fairly obvious that most of the structure is ornamental, with the seat being the only part that should have to withstand stresses and strains of any kind. The latter is supported



on two shaped brackets which are notched over the bottom batten, and the whole seat assembly should be screwed and glued firmly together. I have suggested three drain holes towards the back of the seat, since it is tilted back, like the rest of the 'boat', at 3°, the intention being that you fix the whole structure back to a fence or wall to prevent any tipping or movement. Additionally, your seat should be sited over a well-drained section of the garden, ideally on a shingle or similar bed, with the bottom section of the sides, back and bottom panels further protected from wet by the use of flashing or a waterproofing of some kind.

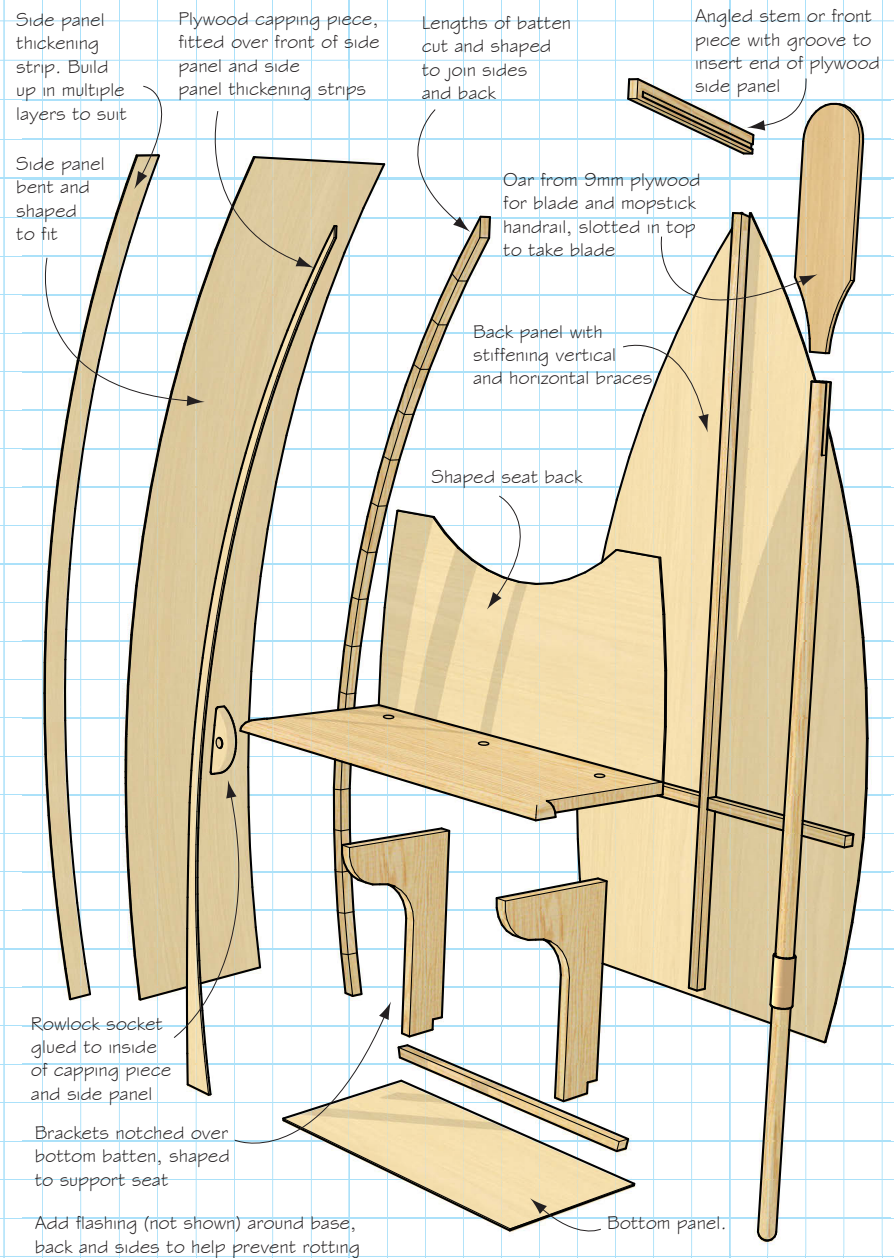
The overall shape is determined by three or four factors. First the back or 'bottom' of the boat, which would be the best place to start, drawing the outline for one side on a plywood sheet and transferring it across to the opposite side to get a symmetrical

shape. Second, the shape of the top of the sides has to follow the capping piece which sits on top of the sides and the thickening strips, so cut these next, one for each side. The third component to cut and shape is the stem or front piece, which picks up the ends of the side panels as they come together to form a bow. This has a stopped groove on each side for the panels, and is angled forwards at 15°, plus the bottom is slightly notched at the top, or 'prow', to allow the stem to be let in. Finally, the end panel, which sits on the ground when the boat is upright, is tilted back at 3° and you need this in place to mark off the angle against the sides and support the capping pieces at that end.

The whole thing is very flimsy at this stage so some temporary supports will help, and then you can set about fitting the side panels. The tricky bit here is that they curve inwards from top to bottom as well as front to back, so probably the best way to manage this is to cut the panels a bit too long and a bit too wide. The plywood is quite thin and should bend and warp easily to the right shape, and you can provide some temporary fixing blocks along the edge of the back panel of the boat, and along the inside edge of the capping pieces. Mark each side for a final trim cut, fix in a few key spots and start cutting and adding the battens that connect the sides to the back, and the long batten that runs the length vertically, plus cross battens which sit behind the seat and, optionally, the seat back as well. The whole structure should start to tighten up at this point, and you can add the thickening strips which run along the outside front edge of the sides, below the capping pieces.

Using the outline of your boat, you can now measure and cut the seat, notching out for the sides, and the seat back, which should ideally be cut from thicker ply or sheet material than the rest of the boat, plus the support brackets, the feet of which need to be angled at 3° to sit flush on the end panel on the floor.

Finishing touches are the rowlock sockets and the oars, which are made from mopstick handrail sections and shaped 9mm plywood rectangles for the blades, let into slots in the handrails at the top. The whole thing is finished with copious amounts of undercoat and topcoat, colours of your choice. Happy boating! ■



Cutting list

Back panel	1 @ Ex 1780 X 920 X 3.6
Side panels	2 @ Ex 2000 X 350 X 3.6
Bottom (ground) panel	1 @ Ex 730 X 350 X 3.6
Capping pieces	2 @ Ex 2000 X 250 X 3.6
Thickening strips	6 @ Ex 2000 X 50 X 3.6
Stem	1 @ Ex 370 X 38 X 25
Ground batten	1 @ Ex 700 X 25 X 25
Side battens	2 @ Ex 1850 X 25 X 25
Centre batten	1 @ Ex 1750 X 25 X 25
Cross battens	2 @ Ex 875 X 25 X 25
Seat	1 @ 920 X 350 X 25
Seat back	1 @ Ex 900 X 450 X 9
Seat brackets	2 @ Ex 450 X 300 X 25
Rowlock sockets	2 @ Ex 150 X 55 X 19
Oar pole	2 @ Ex 1250 X 44 diameter
Oar blades	2 @ Ex 400 X 120 X 9

Sizes given in this cutting list for guidance only. Finished dimensions will vary, and most components given over size. Side battens are made up from multiple smaller sections to fit. Use plenty of screws to help hold it all together.



The art of... the cricket bat-maker

Geoffrey Laycock meets a maker whose traditional skills also embrace hi-tech methods



PHOTOGRAPHS BY GEOFFREY LAYCOCK, UNLESS OTHERWISE STATED

A wooden smoother is used with both push and pull strokes

It's hard to imagine any boy or girl growing up in England and not having had a cricket bat of some sort in their hands at some time. Some progress to greater things and leave behind the mass-produced club that we had provided at school. My own bat was years old when I got it, with string wrapping on the blade. This was the *de rigueur* requirement for the best, my father told me, but I think it was just cracked and this hid it. The vast majority of bats are machine made these days, but the very best still require the personal touch of a highly skilled craftsman – or woman – to get the best from the English willow (*Salix alba*) cleft, from which it is made.

Bat-making used to involve only hand tools and a great deal of skill, but like so many 'wood'-related crafts, commercial pressures and developments of sophisticated

machine tools mean most are now a uniform, rapidly manufactured product. Time does not stand still and often embracing new technologies, mixed with those of old, can be essential for survival of a craft. Bespoke bat-making is one of those.

Robert Pack

Robert Pack has been involved with bat-making for more than 23 years and should know what they need to do – in the late 1980s he played for the Northampton Colts team. Originally an apprentice to a major building contractor, he later worked with Bernie Facer – still recognised as one of the top bat-makers today. Bernie taught him the skills of making, while he still played cricket and worked for Kookaburra – a major Australian sport manufacturer and, from 2002, the largest manufacturer of cricket balls



The fashion for modern bats includes deeply sculpted backs rather than a flat inverted 'V'. This shows a variety of CNC machined blanks ready for further work



Wooden planes play a large part in this initial shaping and have the advantage of being suitable to modify for a specific profile



This is one of the modestly sculpted bats where the wooden convex sole planes really come into their own



Starting with a CNC machined blank, Robert then uses very traditional tools, such as this drawknife. He changes from heavy 'hogging' cuts to perfect shape refining cuts with incredible speed, flicking from bevel up to bevel down almost unnoticed

since acquiring the British company Alfred Reader & Co Ltd. Kookaburra soon offered him a job making its first production of English-made bats. Pack's reputation was now being established. He began doing bat repairs in the early 1990s and started his own bat-making business in 2003. Almost immediately he was taken on board by Puma to make all its high-end bats, until 2012 when it finally moved all making abroad for commercial reasons. In 2008, Pack restarted his own Blueroom cricket brand, now a mainstay of the business, based in a collection of small buildings in Irthlingborough – including a busy retail shop hidden away from street view. He is the fourth generation of his family working in these premises.

Traditional crafts, such as bat-making, have obviously become highly

automated as pressures of demand and manufacturing costs require quicker and cheaper methods, but at the end of the day there can be a significant difference between those and a handmade bat. Variations in wood density affect balance and watching Robert doing the initial shaping with hand tools, he was regularly testing the feel of the bat – something a machine is not going to do – and then removing more material until he was happy with the balance for the style of bat.

Tradition vs method

Those same pressures mean traditional makers may have to take advantage of modern methods where they can, as Robert does. His clefts arrive, having been roughed out on a CNC machine, where traditionally a skilled worker with a drawknife would magically ➤



New Zealand Test cricketer Aaron Redmond using one of Robert's bats



Have you ever seen a spokeshave like this? Neither have I and I am going to make one. Robert also uses a standard Surform for shaping the cane handles



Robert has a serious collection of power machines, such as this pneumatic drum sander. He has quite a few of these. Depending on machine grit sizes, these range from 80-150 grit



Robert makes his own shape-segmented sanding wheels to fit the sculpted back. Note the MDF dust collection enclosure – this is not sophisticated but amazingly effective



These large flap wheels run at a slow speed and are used for creating a fine overall surface very effectively. Robert then goes over the whole blade with hand-held abrasives to finish off

turn rough timber to a recognisable bat outline shape – this was the ‘pod shaver’ of old. Robert selects clefts he wants to use from another bat-maker and previous owner of John Newbery Ltd – Tim Keely – who then carries out the initial machining and fitting of the unfinished Sarawak cane/rubber leaved handles. These are imported from India and used by just about all the top brands.

A top-grade cleft with handle fitted can cost close to what you might pay for a low-end, mass-produced bat and that is before Robert starts work to produce one of his finished items. This approach allows the specifying of the grade of wood and the outline profile, i.e. traditional back through to deeply sculpted, leaving Robert to continue the skilled process of detailed shaping, balancing and finishing. It turns what can be a labour-intensive business into a more viable, yet still highly skilled, one in a different league to the mass-produced bats, of which the vast majority are now made in India.

The process

An interesting mix of tools is used to make a bat, starting with a very large drawknife, which deftly removes large shavings and then the finest delicate shaping cuts. A fascinating modified flat-soled spokeshave mixes with old wooden planes, some with convex soles modified to suit the concave back profile, for finish shaping of the blade. A simple Surform rasp makes light work of rounding and smoothing the handle. Powered abrasive finishing is used extensively and machines range from a small, home-built pneumatic drum sander, through larger versions and segmented profile wheels, again made by Robert.

Cricket bat-making is seasonal, as you might expect, with a rush to buy a new bat just before the year’s play begins. At other times repairs are a mainstay of income and even our mid-week visit saw – in a couple of hours – three bats come through the door.

Two of the bats were recoverable, but the third was beyond help, even with



Out of 10 photographs, this was the sharpest as the speed of working was incredible. Robert is 'striking' or winding string on to the glue-coated handle prior to fitting the rubber grip

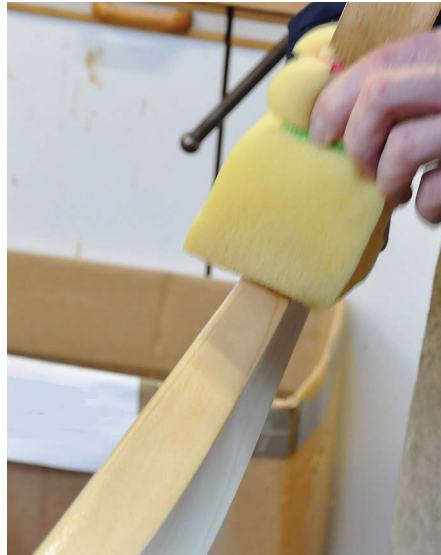


As Robert bounced up and down on a finished bat, he demonstrated that my nerves were weaker than his handle/bat joint

drastic surgery. Having never given any thought to having a bat repaired, it is surprising how far this can go: from the very common splits at the base, through to the example I saw having a new edge fitted.

Simon works with Robert, having started as an apprentice, he also clearly loves his work. Simon was busy with a number of bat repairs on the day, just as Robert began several decades earlier, and what better way to learn what goes wrong in order to understand the design and structure needed to avoid such faults?

Within minutes of meeting him you can see that Robert Pack has a passion, common in all the best makers – be it furniture, bats, artworks, etc. He loves cricket and wants anyone buying a bat, whether one of his own Blueroom or



The first coat of Robert's 'secret mix', which is a blend of Danish oil, raw linseed oil and turps. When you have lots of suitable foam packing around, it's easy to make a large applicator

A few technical terms

Cleft – green timber split naturally along the grain for maximum strength

Knocking-in – hitting the surface to drive the grain closer together to increase strength

Pressing – as above but using rollers in a large machine to treat the whole face with a consistent profile

Blade – the bit you hope to hit the ball with

Shoulders and toe – the junction area of blade to handle and the bottom end of the bat

RPC brands or another make, to have the best one for their style of play and to suit their pocket. It really was a pleasure to meet an individual whose reputation is growing rapidly, purely through results and word of mouth. Watch out for that RPC logo next time you watch cricket live or on TV – an increasing number of the top batsmen in England are buying them because they want the best they can get.

Did you know?

In days gone by, when bats were made entirely using hand tools, such as a drawknife, those craftsmen were called pod shavers. ■

Details:

Web: www.robertpackcricket.co.uk

History of the cricket bat

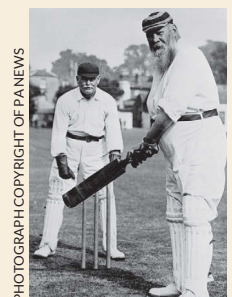
The oldest known bat is held at the Oval cricket ground in London and is dated 1729. Before the 18th century, bats were more like hockey sticks and the origins of the game are uncertain, but, as with most tools, they developed to become more effective to suit the game.

The Marylebone Cricket Club – MCC – was founded in 1787 and the first match was between Middlesex and Essex, played on 31 May that year on what is now Dorset Square in London. The match was organised by Thomas Lord, whose name still remains for the grounds, now located in St John's Wood. The following year the first Code of Laws of cricket were laid down and even today the MCC is the custodian and arbiter of the laws relating to cricket around the world.

The willow used for more than 90% of the entire world's cricket bat market comes from Essex, produced by JS Wright & Sons Ltd, established in 1894. The willow used for bats is grown for 15-20 years and is planted and harvested specifically for this purpose. Of 185 species of willow, only six are suitable for bats. The trunk is cut into 711mm lengths, which are then split into eight clefts with axe and wedges. Each cleft is then sawn into a rough bat shape and the ends are dipped in wax to prevent splits as they are air dried for up to a year, to around 16%.

After drying, each cleft is graded depending on the spacing of growth rings, which affects the number of 'grains' in the finished bat. A good bat will have six to 12 grains across the face of the blade and this is chosen depending on the requirements of the player. It is a surprise to learn that closer-grained willow makes for a good bat early in its life, but is unlikely to last very long. Depending on the player, this may be suitable as some only use a bat for one innings while others want a bat to last a season.

WG Grace is known for playing a record 44 seasons, his impressive beard and having taken almost 3000 first-class wickets



PHOTOGRAPH COPYRIGHT OF PANEWS

KITTED OUT

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

Axcaliber MT1 mitre trimmer

Whether you are a picture framer, a carpenter or a cabinetmaker, the creation of accurate mitres is an essential part of your work. This heavy duty trimmer is a substantial piece of machined cast iron, with razor sharp tool steel blades. A long lever with a rack and pinion mechanism enables you to trim off fine shavings for the most precise fit. Its shearing action results in an incredible glass-like finish even on softwood end grain. There is no exaggeration as to the level of precision mitring you can achieve with this machine every time.

Each fence has two adjustable cam stops: one at 0° and one at 45°. The fences are also lockable at any intermediate angle. This trimmer can handle picture frames, dado rails, mouldings and more. The maximum capacity is 100mm high by 150mm wide at 90° or 98mm wide at 45°.

The optional Top Trim accessory allows you to trim

mouldings with hollowed, tapered or curved outside edges. This attachment presents the moulding to the blade at an angle of 45° to the vertical rather than the horizontal, allowing mitres to be trimmed on curved, hollow or difficult-to-hold mouldings. Top Trim maximum width capacity is 65mm and there's only one angle option of 45°. The optional Cut Length attachment allows you to perform repeat cuts to an exact length up to a maximum of 735mm long.

MT1 mitre trimmer £181.98

Top trim attachment £21.84

Cut length attachment £34.45

Prices include VAT and may be subject to change without notice.

Contact: www.axminster.co.uk



£181.98
inc VAT

Gorilla superglue

It dries in 10-30 seconds and is reinforced with rubber for an impact-resistant bond that stands up to wear and tear better than other CA class glues. It has an anti-clog cap with a metal pin to keep the adhesive usable and ready whenever you want it. RRP £5.83 inc VAT.

Contact: uk.gorillaglu.com



£5.83
inc vat

Colt pen blank drill

Colt now makes a 3/7/64in Pen Blank Drill bit available at Planet distributors. This size of drill is needed for making the Gentleman, Executive and Empress fountain/rollerball pens.

Contact: Planet Plus Ltd
www.planetplusltd.com



£29.40
inc VAT

Trend M-class dust extractors

Equally at home in the workshop or at the jobsite, the new Trend T35A dust extractor offers ultimate performance and protection from fine dust generated by power tools, including MDF dust. The T35 is dust class category M rated to EN60335-2-69, for dust with workplace limit values $\geq 0.1 \text{ mg/m}^3$. It is designed for professional use, offers industry-rated protection to home woodworkers and has a durable, impact-resistant tank with a 27-litre dry pick up capacity and a 16 litre wet pick up facility. The auto shaker facility keeps the HEPA 0.3 micron cartridge filter free of excessive dust build up and a blockage warning light ensuring maximum performance at all times. An auto-start socket allows power tools to control the extractor with an eight-second run-on to clear residual dust once the tool is switched off. A maximum of 2200 watts can be plugged into the auto-start socket (1000 watts on the 115v model).

The T35 features an extra-long 7m cable and a 5m 39mm diameter hose. It can be used as a workshop vacuum or blower supplied with a complete set of floor-cleaning tools, crevice tool and round brush.

T35A M Class dust extractor two versions –
230v x 1400 watts £418.80
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Contact: www.trend-uk.co



From
£418.80

The Great Big Scroll Saw



This was designed to cut scrolls in wood up to 4in-plus thick. It is used by scroll cutters, woodworkers, craftsmakers, toymakers, carpenters etc. to create fine detail in wide, thick wood, which no other tool is capable of. It requires no electricity or other fuel, just gently push a pedal up and down to operate it while guiding the work through. It can be built in a day or so using basic skills and tools at little cost. At the end of its life, it can be sawn up for firewood itself. How environmentally friendly is that?

Plans inc DVD £20
Metal parts only £50
Plans inc DVD and metal parts £65
All prices inc P&P and VAT

Contact: www.greatbigscrollsaw.com/

The Dremel plunge router attachment

This converts your Dremel tool into a plunge router to rout circles, signs and inlay work, decorative edges and to rout parallel to an edge. The plunge lock-in handle helps to simply turn handle to lock and unlock. The two depth stops help with quick, consistent adjustment of depth. Edge guide and circle guide are used to rout straight lines and circles. The guide bushing set is used for letter and pattern template routing.

Contact: shop.dremeleurope.com/gb/en/



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CTS100	1500W	254mm	£169.98	£203.98

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CHT152	Clamped	72/60/40	£17.99	£21.59
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Einhell TE-PL850	850W	3mm	£52.99	£63.59
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11/250	2.5HP	9.5	24ltr	£109.98	£131.98
8/510	2HP	7.5	50ltr	£119.98	£143.98
11/510	2.5HP	9.5	50ltr	£139.98	£167.98
16/510*	3 HP	14.5	50ltr	£209.00	£250.80
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Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£94.99	£113.99

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CVAC20PR2	1400W	16/12ltr	£64.99	£77.99
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Woodland ways

Broadleaf tree identification by leaves

We take a leaf out of **Gary Marshall's** tree ID book

A friend of mine is keen on trees but hasn't grasped the basics of leaf analysis, so brings me leaves to name.

Unless they're typical, in good condition, not a single leaflet from a compound leaf (more later) and with details of where the leaf was found – this is tricky.

Even some professionals make errors in tree ID. A nearby conservation site's management plan, drawn up by a team of ecologists, contains a real howler. Hornbeams are named as beeches. Not a mistake you will make if you read this article.

This short article doesn't tackle all leaves but looking for the following will help:

Types of leaves

Simple – Any shape or size but occurring as separate entities along stems. (Simple leaf dogwood.)

Compound – like horse chestnut 'hands' or ash or rowan with opposite leaflets attached via a sub-stem. (Compound leaf horse chestnut.)

Shape

Such as: lanceolate (thin spear shapes) like crack willows; ovoid like beech or dogwood; heart-shaped (lime or alder – although alder can be broadly ovoid it can also be in the shape of an inverted heart); lobed – oak; palm-shaped – acers, plane. (Guelder rose with three main lobes – usually! – not five as with most acers).

Edge detail

Smooth – privet, wavy – beech, serrated – elm, sweet chestnut, deeply indented – hawthorn, wild service, hairy – beech. (Slightly indented Midland hawthorn glossy patina.)

Veining

Smooth, ridged veins, fanning out, parallel.

Patina

Varying degrees of shiny or matt, from glossy to furry.

Underside

Light or heavy veining – e.g. hornbeam, covered in white down – e.g. white willow, white poplar, no down e.g. oak, small hairs in veins – e.g. lime. Most trees have a colour and texture variation between the topside and the underside.

Feel

Smooth, delicate, rough e.g. elm, leathery (English elm rough texture).

Colour: from very pale green to deepest purple. Watch out, there are purple versions of many common trees – initially

look for typical green versions. Even typical versions vary, dependent on the time of year and precipitation levels.

Size

Size can be definitive but recently coppiced or pruned trees can have larger or non-typical leaves.

Smell

Rub a leaf. Once you have smelt elder leaves, for instance, you'll remember their distinctive smell – same with many trees.

Stem

How long? Rigid or yielding? Ridged, round or oval in cross-section.

Occurrence of leaves on stems

Are they: opposite each other (e.g. ash, maples); or alternate (e.g. lime, hazels); or spiralling out from the stem – 'whorled' (blackthorn, oaks, poplars). Some new leaves are densely clustered although they are often whorled, like oak, so look for several examples.

Hone your skills

What if a tree is too tall to observe the leaves at close quarters? This is a common problem in woods, where the trunks are tall, unbranched and the leaves are up in the canopy. Look at the ground for fallen leaves. Even skeletal leaf remains can aid identification. Also hedgerows help 'get your eye in' with many species. If trimmed and regrown you'll see leaves in all states of development.

And now... never muddle a hornbeam with beech again! A brief analysis of two leaves:

Beech – untoothed edge, lightly ridged even on underside, slightly hairy, from pointed buds on hairy new stems, no indentation next to leaf stalk.

Hornbeam – toothed edge, highly ridged (especially underneath), from smaller buds on smoother stems, indentation next to leaf stalk. See photo far right, **hornbeam and beech** – hornbeam top, beech bottom (any other background leaves fescues, lesser celandine, bramble, creeping buttercup and wood avens).

Also visit online sites helping informative identification: e.g. Treezilla tree guide or the Forestry Commission or Woodland Trust guides. Avoid generalising sites that don't make distinctions between, say, weeping and other willows.

Get out there and have a go, practice – then, when confident, pass your knowledge on to your kids and friends. ■

Did you know?

There are approximately 450 species of oak in temperate woodlands



Non-native scarlet oak



Simple leaf dogwood



Hazel leaf



Midland hawthorn – slightly indented, glossy patina



Compound leaf horse chestnut



Aspen – long, thin, ovoid section stems (that cause the aspen to tremble)



English elm – serrated edge and rough texture



Field maple – opposite leaves



Hornbeam and beech



Backs and fronts of leaves



Guelder rose – three main lobes



Hawthorn

Wildcurrant

Hazel

Hazel

Bramble

Ash

A mixed hedge

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Utility dining chair restoration

Amber Bailey returns to her Chiltern roots with the restoration of a dining chair from the 'Chilterns' range of the Utility Furniture Scheme, c.1942

PHOTOGRAPHS AND ILLUSTRATION COURTESY OF AMBER BAILEY



The Chiltern countryside has always played a vital role in the British furniture industry and during the Second World War was no exception. Herbert J Cutler and Edwin Clinch of High Wycombe designed the 'Chilterns' furniture range for the Board of Trade in 1942, including the Model 3A dining chair.

The Utility Scheme was brought about as part of rationing to manage the growing demands on limited resources during and after the war, as well as to help meet the housing needs of a population where many had lost their homes and possessions during bombings.

Utility furniture was designed to be affordable, minimise on material waste and efficient to produce. It also signified a change in direction for the design and manufacture of furniture. Utility furniture was not generally regarded as attractive but its clean-cut lines and restrained use of materials were a big step away from the heavy, dark furniture of the Victorian era. Design would adapt the advances of Utility into Mid-Century Modern furniture – a style still coveted and highly collectable even today. ➤



The chair looking a little worse for wear after more than 70 years

The frame of the Model 3A dining chair is oak (*Quercus robur*) with a drop-in seat of birch (*Betula pendula*), ply and ash (*Fraxinus excelsior*). As with all Utility chairs, the seat was upholstered in Rexine, a faux-leather that had been popular in use during this period.

1 To stabilise the chair, loose joints will need to be taken apart and cleaned before being re-glued.

In preparation for this, all sections were labelled to avoid any confusion during the reassembly. This is the very practice used in the original assembly of the chair – there is still a system of lettering written on the frame.

The joints were carefully prised apart with a wooden mallet, using scrap softwood to ensure the chair did not suffer any damage during the process. Once separated, a combination of water, wallpaper paste and old chisels was used to clean up the joints and remove all existing protein glue.

A layer of protein glue was reapplied to both surfaces of the joints, which were clamped back into position. A layer of rubber between the wood and clamp stops dents in the chair. Any excess glue was wiped away.

I always have a dry run and assemble the chair before gluing to make sure there are no problems and that all the suitable clamps are ready.



The original upholstery was still in place, indicated by a single line of tack marks on the seat frame



2 The chair had suffered plenty of scrapes over time and a nitrocellulose finish such as on the Model 3A is inclined to flake.

I always prepare for a new finish to be applied to the frame with all existing polish removed. I began by washing the chair down with water and PH-neutral soap to clean away any dirt and leave just the stubborn areas of finish.

Paint stripper was applied to areas that still need to be cleaned, allowing several minutes for the stripper to lift the finish before scraping away with a wooden spatula. Afterwards the chair was neutralised with water. This process often needs to be repeated.

Safety and working methods

Paint stripper is extremely corrosive. Work in a well-ventilated area and use heavy-duty gloves at all times. Should paint stripper come into contact with skin, neutralise immediately with water.

Occasionally you may find joints on furniture have been nailed in place as an added precaution. Instead of attempting to take these apart, drill discreet holes so that the joint may be moistened with water before fresh glue is injected.

Rexine is a fabric that is easily creased but its plasticity means it cannot be ironed. Use a heat gun to soften the fabric and rub over with a cloth to smooth out any marks.



Inject water and glue with a syringe. A hypodermic needle may be needed for very small holes



3 Nitrocellulose lacquer was becoming a popular finish in the 1940s as the industry was starting to look further afield than the traditional shellac polish for coating furniture. Cellulose lacquer was often applied with a spray gun for a quick and efficient application process, but a brush-on version is also available.

With a soft paintbrush I worked over the chair frame with nitrocellulose lacquer, making sure to follow along the grain direction to eliminate brush marks. Once dry I applied a minimum of at least one more coat.

It was left overnight to fully dry before polishing with microcrystalline wax and buffing up with soft cotton cloth. The frame was ready for the drop-in seat to be inserted.

4 All of the existing upholstery was removed to examine the seat frame. Splits in the wood could then be filled with a mixture of protein glue and Microlite.

When reupholstering the seat, it may be possible to save the original foam from a chair such as this but chances are all other materials will have suffered badly from decomposition. Repositioning of the foam in place with several layers of skin wadding over the top was required. This was then packed into place with a sheet of calico and neatly tacked around the back. A fresh layer of Rexine or other desirable fabric can be used to tack over the top, making sure to neatly fold over the edges as these will be visible from the base. Alternatively the base could have been covered with black bottoming for a tidy appearance. ■



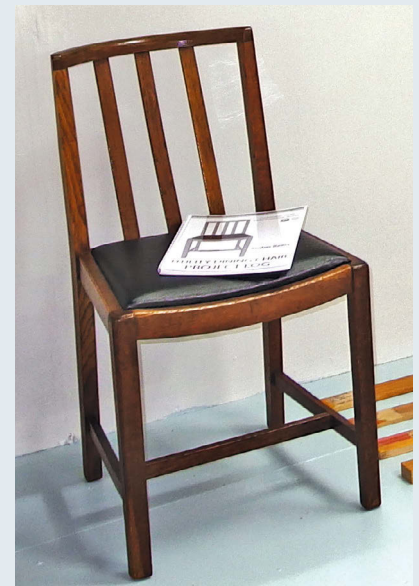
EQUIPMENT USED

Tools

- Wooden mallet
- Various old chisels
- Soft paintbrush
- Wooden spatulas
- Tack hammer

Materials

- Scrap softwood
- Water
- Wallpaper paste
- Protein glue (animal or fish glue)
- Scrap rubber
- PH-neutral soap
- Paint stripper
- Nitrocellulose lacquer
- Microcrystalline wax
- Calico
- Skin wadding
- Rexine
- Tacks



The finished chair at my BA end-of-course show

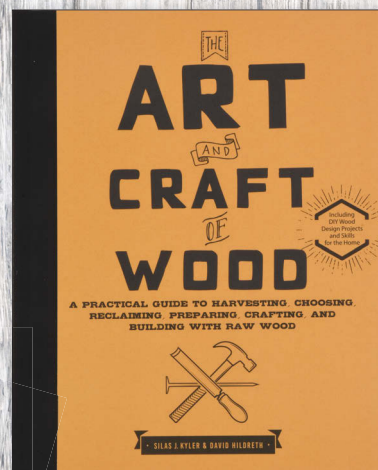
BOOK REVIEWS

The Editor finds this month's book selection
to be a heady brew

The Art and Craft of Wood – A practical guide to harvesting, choosing, reclaiming, preparing, crafting, and building with raw wood

By Silas J Kyler & David Hildreth

The cover title is a bit of a mouthful but it does at least give a flavour of the contents without even opening it. American in origin, it nevertheless covers topics familiar to any woodworker. Printed on a grade of bright white but matt paper that is now so popular, images are rendered a little muted but with plenty of strong and informative photographic compositions. It aims to be all things to all craftspeople, opening with tools and safety considerations and then five parts – choosing wood for your project, milling and seasoning, crafting and building projects, firewood and the leftovers. Nothing much is left out. Whether you want to make a keyrack and shelf, a dining table, keep warm in winter or make your own garden mulch, it's all here to try, with lots of information both technical and practical. But I think I really should grow a beard first...

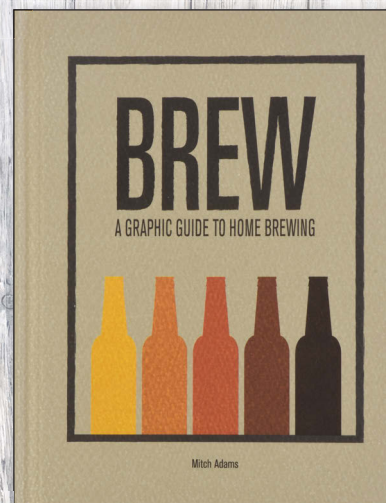


ISBN: 978-1-63159-297-3
Publisher: Quarry Books
Price: £16.99
Pages: 160

BREW – A graphic guide to home brewing

By Mitch Adams

Calling all hipsters – this really is bringing craft beer down to a homebrewed level. Wearing that beard is a must after reading this solid little tome. Set between very thick cardboard covers, the simple and colourful graphic style complements the author's personal obsession with beer in all its glorious golden brown forms – much like my passion for making bread, incidentally both use yeast for fermentation of course. I'm a Harvey's of Lewes man myself and, at a push, Shepherd Neame – neither gets a mention here. Instead it tells you everything you should know about different types of beer, different hops, beer matching, which is choosing which beer goes with what food, homebrew equipment, all the processes involved in brewing from start to finish, identifying flavours, legal requirements and, usefully, homebrew clubs. Basically it is designed to get your brewing urges fermenting and encourage you to start your very own backroom nanobrewery. All written by a member of the British Guild of Beer Writers – hmmm, that gives me an idea, maybe a change of career.... Speaking of which, this is very thirsty work, I'm off to the pub!



ISBN: 978-1-78145-278-3
Publisher: Ammonite Press
Price: £7.99
Pages: 128

Both books are available from:
GMC Publications
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01273 488005

#@*&!%?! happens!

Fine trimming

Instead of cutting wood too short, you play safe and cut slightly too long – awkward to trim properly...

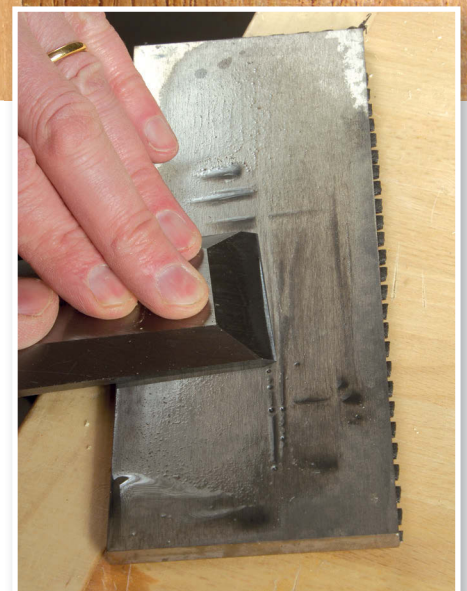
By resting the blade on another surface, wood in this case, the chisel slicing cut can be controlled

It's an easy reflex to cut overlength rather than risk it being too short, too loose. Unfortunately being slightly long can be just as awkward as being under length – hard to trim off and a tight hammer fit with the risk of stressing the very structure you are creating. There are a couple of ways of dealing with this. If we take sawing, it means using a much finer-toothed saw than usual to trim off a tiny amount. A standard dovetail saw with very fine teeth isn't very effective because of the blade thickness and the push action, which makes taking off a thin sliver difficult. This is when it pays to start using a fine-tooth Japanese handsaw. The kerf can be very thin because the blade is pulled, i.e. stretched, so it is in tension. Combined with tiny hardpoint teeth, it makes cutting a thin slice practical. Until you have tried it, you cannot appreciate the difference in cut

action and result. It's a great get-out-of-jail tool as well as a fine woodworking tool.

A wood chisel is good way to trim wood to length, with a couple of provisos. It works better with a low sharpening angle so it will slice cleanly and – surprise, surprise – it must be lethally sharp. You have to have a good sharpening technique, which needs to start with flattening the back of the chisel so you can achieve a really good, crisp edge. Although 1000 grit is sufficient to cut with, stropping the edge to remove the burr raised and polishing it will increase the cutting effectiveness. ■

Right: It is possible to create an even finer slice but this shows how precise the new cut end really is



Sharpening a blade starts with the back before creating the correct bevel



A fine-tooth Dozuki saw which has a back to stiffen the blade, it is very easy and accurate to control and quick too



PHOTOGRAPHS BY GMC/ANTHONY BAILEY



Wine rack *from reclaimed oak*

We raise a glass to Michael T Collins' simple wine rack design

I've always wanted a wine cellar. 'If you're interested in building your own wine cellar you need to start by analysing your space and determining what will fit,' said my local sommelier. Well, that put an end to the underground climate-controlled room I was dreaming about. So, for the time being, it's a counter-top wine rack.

The configuration

While wine bottles come in a variety of shapes and sizes, a typically 75cl bottle has a diameter of 75mm and is about 293mm tall. Champagne comes in slightly larger bottles that measure up to 90mm in diameter and closer to 318mm tall. Therefore different wine racking styles work better for certain wine bottle shapes, depending on what you plan on collecting (or drinking).

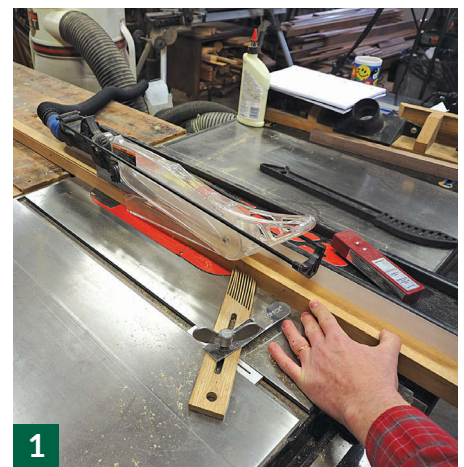
For this project we'll create a wine rack that can hold standard wine and Champagne bottles.

First plan the configuration of your wine rack. A rectangular rack for 12 bottles is going to take a different number of supports and connectors than a triangular rack for the same number of bottles. If you want to store bottles larger than this simply make the connector longer.

Cut list

For this particular project I had some red oak left over from a previous make that was ideal, but this project lends itself to using up any off-cuts. To make a rectangular wine rack that will hold 12 bottles you will need: Enough wood to make 20 support pieces of 30mm x 180mm and enough 10mm dowel to make 62 x 95mm connectors. You could use less if three bottles are simply resting on the top layer.

1 Rip the oak into 30mm x 30mm long strips – I have found that this



size is just right, and aesthetically pleasing to the eye.

Side note: Hard woods are notorious for showing scorch marks from a tablesaw. These blemishes can be avoided by having a feather board, clean sharp rip saw blade and the fence that is perfectly parallel to the blade.

2 Cut the supports to length. Use a stop for consistent sizes.

3 Next, ease the edges on all the pieces – you could also choose to do this after ripping to size.

4 To bevel the ends I set up a simple jig on the spindle sander that limited the amount that could be sanded off.

5 Mark the location of the support connectors – centred and 20mm from the ends.

6 To get consistent results I created an L-shaped jig that was clamped to the drill press. This ensured that every hole was perfectly aligned. Set the drill depth to 10mm – with this depth the holes will not intersect in the supports.

7 I drilled holes on all sides of the supports – this allowed for future expansion (still have that cellar in mind) – and did a final clean up.

8 Finally, cut the connectors to a length of 95mm. This gives enough space for 75mm-90mm diameter bottles.

Building the frame

9 This couldn't be easier – start by joining the supports and connectors to make a single layer.

10 Then make another layer and connect the two. Because I was not sure of the configuration I wanted, I opted not to glue the parts together – the friction between the supports and the connectors is sufficient to hold the rack together. However, I would not rely on it to carry your wine around.

Finish

I decided not to apply a finish, but instead to just let the oak develop a natural patina.

Now pour yourself a glass, sit back and enjoy the view of your wine cellar to be... ■



3



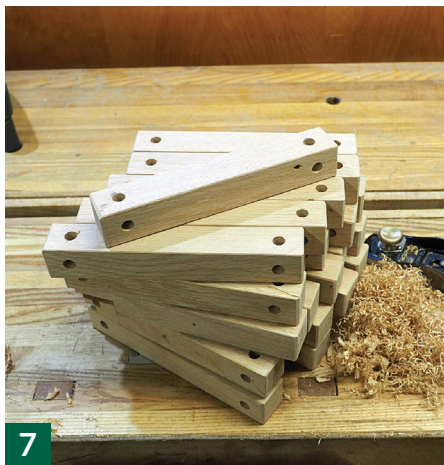
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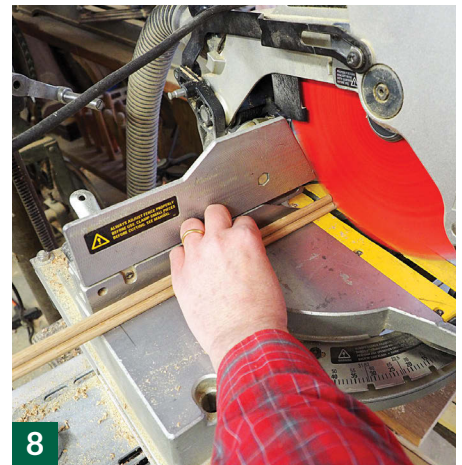
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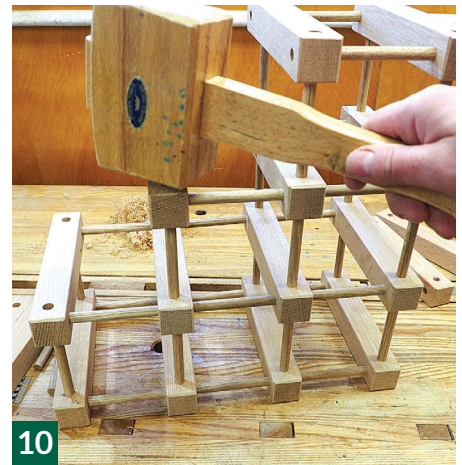
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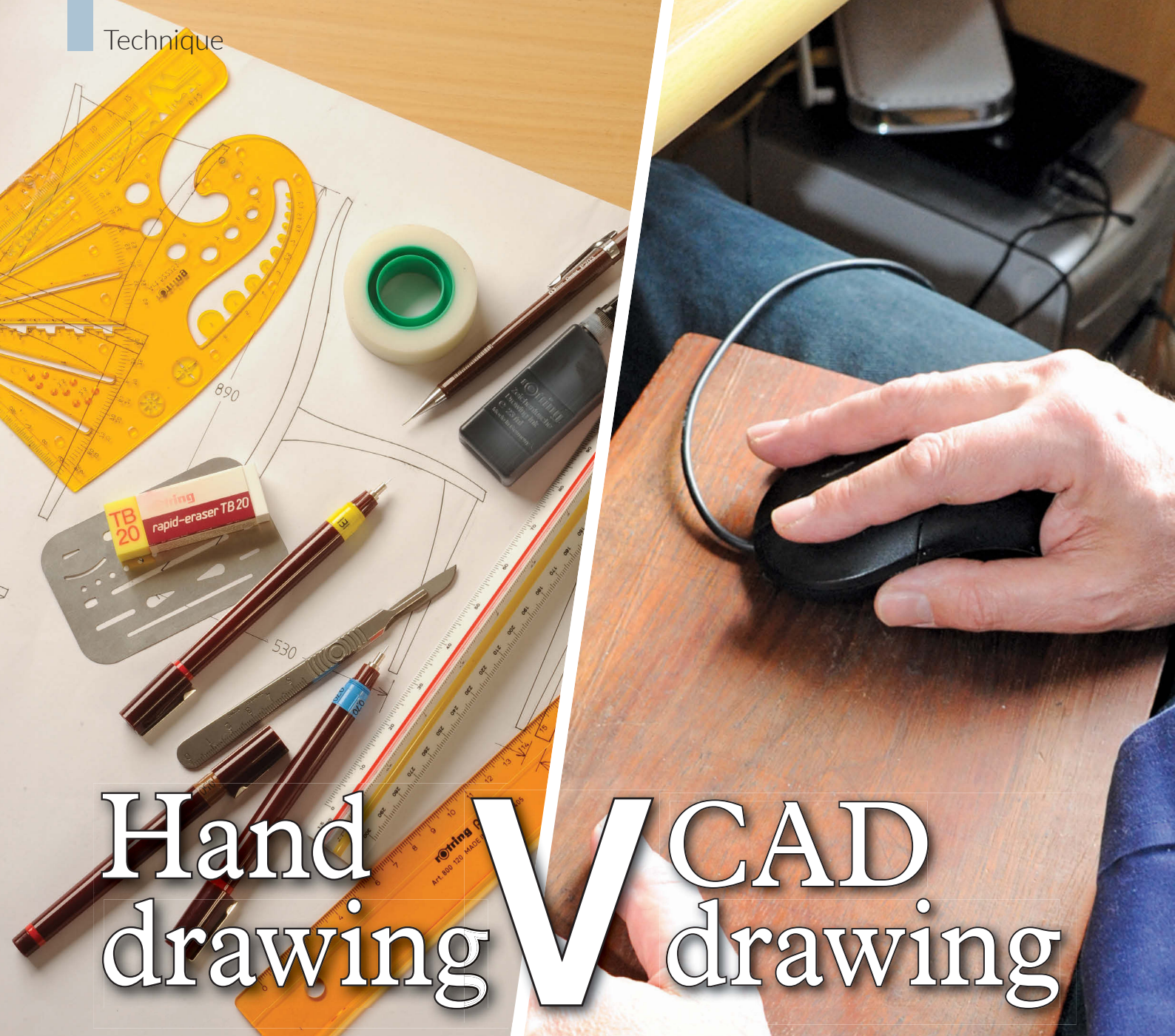
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Hand drawing V CAD drawing

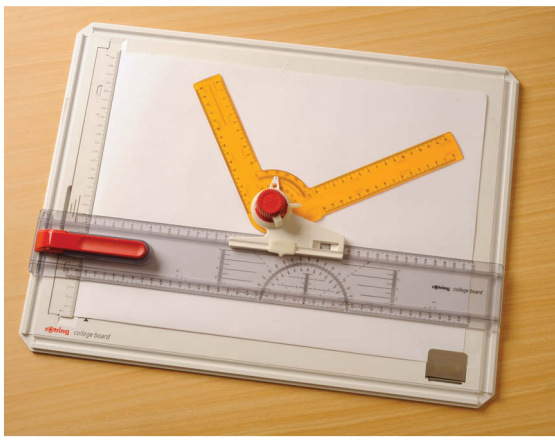
If you want to design something, what is the best way to draw it? There's only one way to find out – as the **Editor** and **Simon Rodway** go head to head

Hand drawing – the Editor

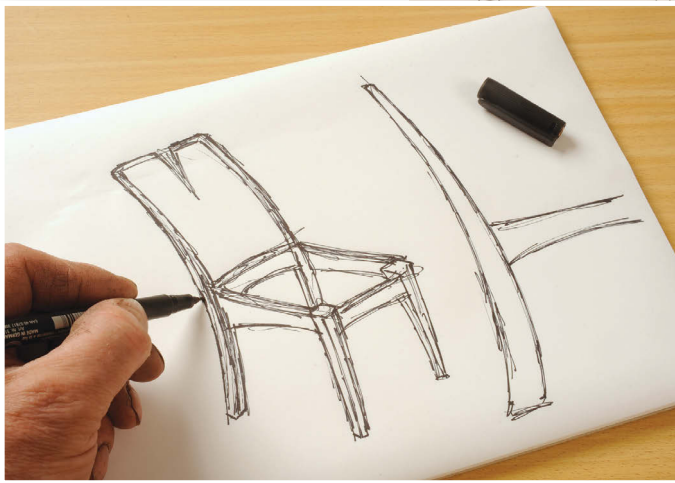
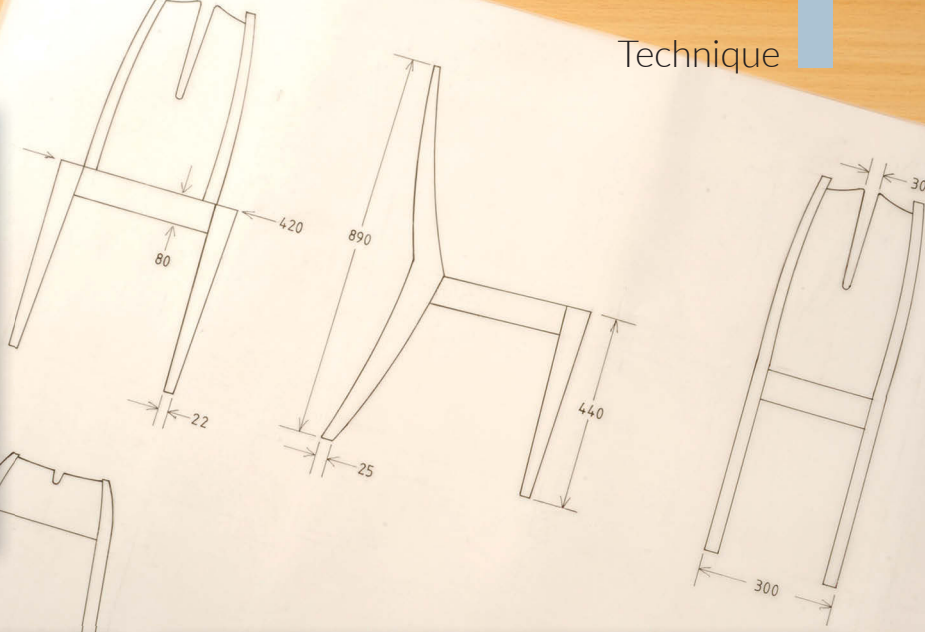
I know, I'm from a different era, I went to a technical high school in the late 1960s. We had woodwork and metalwork shops and we did technical drawing by hand using pencil. My efforts at drawing were pretty lame, more smudges than sketches. Even so, my interest in all these subject areas stuck and years later, when I started designing, I naturally used pencil and ink drawings. Then came CAD and I've used a number of programs since, but strictly 2D (two dimension) because I need to generate accurate working drawing rather than trying to impress clients. Even now, 3D drawings are created mainly for presentation because it can be hard for the 'end user' to imagine what an object looks like. So, do I prefer ink or CAD?

I'm a big proponent of hand skills. To my mind CAD is efficient and quite quick although you have to make sure you have the right settings, examples being the 'snap to' command, which is set according to how you want drawn lines to behave as you lay them on the screen, so a different purpose will need a different setting. The magnify command is essential but you can spend time shunting components around minutely until all the elements are nicely arranged. Checking you have the correct line width and type set in case it has changed without notice, it's great, but an unexciting experience.

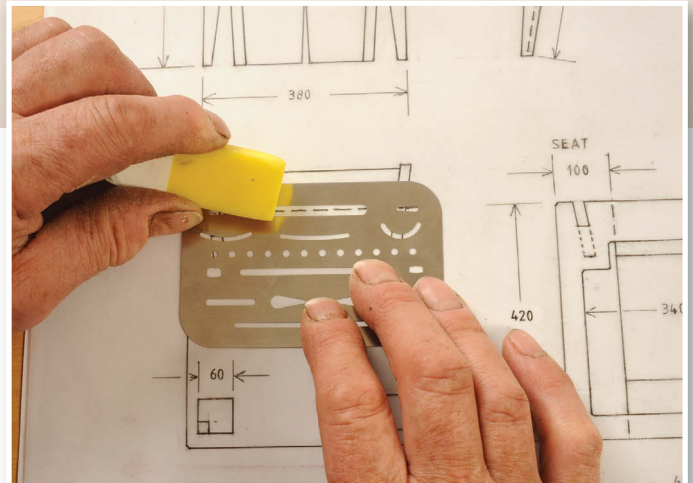
Ink drawing, on the other hand, requires having all the kit to hand and in good condition, damaged or caked-up



A portable A3-size drawing board



Sketches using a pencil or a fineliner are a good starting point



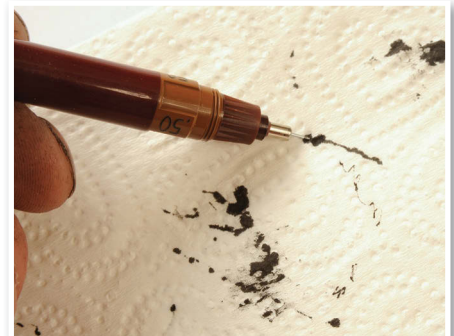
An erasing shield protects the surrounding drawing



A technical drawing set costs around £60



A reduction scale rule that includes 1:5, 1:10 and 1:20 scales



Folded kitchen towel is a good blotting paper for cleaning tips

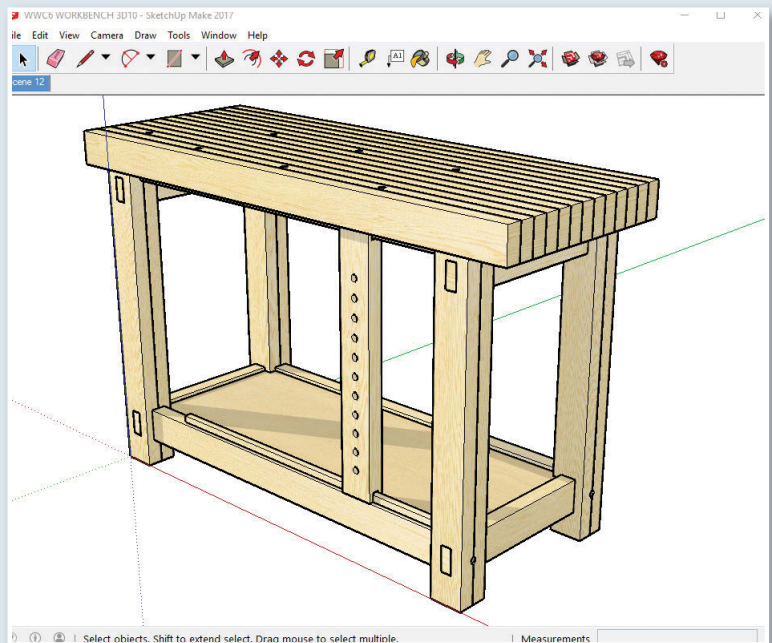
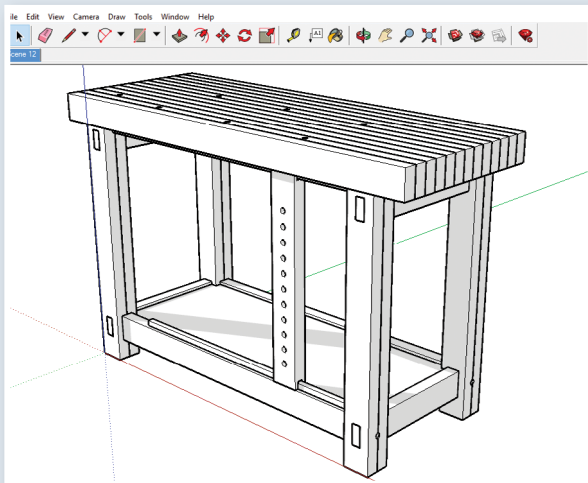
drawing nibs are no use. On the plus side, I love the special experience of sitting in front of a drawing board, getting the drawing instruments ready, a ritual that infuses my blood. Strong words, but it is like any other hand-wrought skill, time and effort rewarded by setting out accurate pencil lines with the aid of a scale rule. Creating plan and elevations, rubbing out wasted lines and finally inking in with precision technical pens. Even the quality of the tools – the pens, rules, transparent amber-coloured drawing aids, make it special.

Now it's over to our illustrator Simon Rodway for his view... ➤

A fineliner pen and a mechanical pencil and leads available in several tip widths



Bringing your designs and projects to life is really simple using SketchUp – just add shadow and then apply a wood type of your choice. The model can be rotated to show any view you like, and can even be animated.



CAD drawing – Simon Rodway

For many woodworkers who might just need the odd sketch in 2D to work out a few dimensions on a project, sticking with traditional pencil and paper makes sense. There is no doubt that a skilled hand drawing will nearly always look better than the computer-drawn equivalent. There is also an initial investment in time and effort required to learn computer drawing software before you are able to achieve any useful results, and you really need to use it regularly to keep those skills from slipping away.

So why bother? The answer can be summed up in three words: speed, accuracy and power. Once you become proficient at computer drawing, you will be able to outperform even the most skilled draftsman worked on a board, cutting average drawing times in half, and then half again as your skill level increases. Using the correct techniques, computer drawing is always 100% accurate, and mistakes are much harder to make, and much easier to spot.

If you are used to drawing things by hand, the power available to you is quite simply astonishing. The two features that probably stand out most are the ability to edit an existing drawing quickly and seamlessly, and the fact that you can reuse sections of drawings you have previously completed in a new drawing. I know of many professional woodworkers who have turned to CAD as a result of clients changing their minds on a project, meaning existing paper drawings had to be thrown away, resulting in endless hours of demoralising redraws.

Additionally, most woodworkers have favourite features – details that are reworked into projects time and again, and these can be stored as a library of reusable components and incorporated into new drawings as and when required, again saving hours and hours of work. When you get to the end of the drawing, of course, and need to add dimensions, you can do this in a CAD drawing in a few minutes with total accuracy.

3D drawing

There is one further advantage I have not mentioned so far, and that is the ability to draw in 3D. It is practically impossible to produce accurate 3D drawings by hand



Simon Rodway in his office with his lap mouse pad

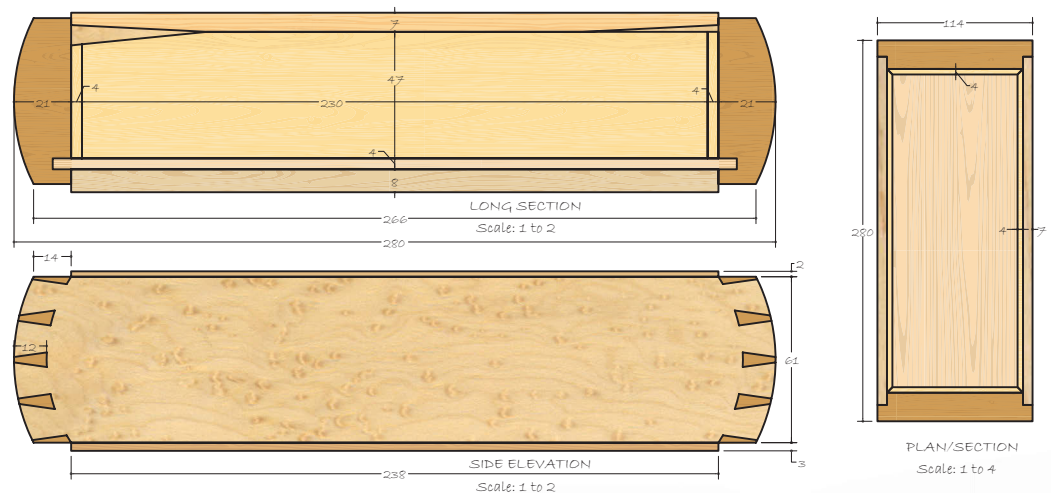
without setting up two or three-point perspectives on a drawing board. Using a program such as SketchUp, we can build complex 3D models in the computer and then output these as a series of views – front, back, sides, top, it is your choice. What is more, you can vary the materials and colour of the project in a few seconds.

The benefits of this type of drawing are so huge that it is unsurprising that SketchUp, which is a free and relatively easy to learn 3D program, has become immensely popular in the woodworking community. How else are you going to properly evaluate ideas that you might have for a design? How else would you be able to demonstrate these ideas to the client, friend or relation you might be making your project for? SketchUp is a lot of fun to use and has really transformed the 3D drawing world, bringing it from a specialised and highly technical skill into the mainstream.

So are there limitations?

Well, the answer is, regrettably, yes. Currently there is no one program that is both very good at 3D and very good at 2D, and also free (or reasonably priced) and easy to learn. Professional software is available that can do both, but at

This 2D drawing, which shows a box designed and made by David Barron, has been enhanced by the addition of background wood grains to match the original, a relatively simple technique which again brings it to life.



professional – and, in my view, ridiculous prices – and there is a pretty steep learning curve for this type of program as well. Probably the nearest you can get is the Pro version of SketchUp, which has an additional, but limited, 2D capability called Layout built in.

So what is the answer, assuming you don't want to spend a small fortune on professional software, and why should you when there are really great free versions available? At this point, my advice is always to ask yourself what the primary use will be for your drawings. Are they for design and presentation, for one-off projects, perhaps? Do you really need a 3D drawing capability? For this type of woodworking, simple overall dimensions are often sufficient. If this is the kind of use you will need, a program such as SketchUp is almost certainly your primary need.

Furthermore, SketchUp has great free online tutorials to get you up and running quickly, has a very intuitive and easy-to-grasp interface with a minimum of visible tools so that the screen isn't cluttered with lots of unnecessary stuff (something I really hate) and, above all, is lots and lots of fun to use.

Alternatively, do you need to work out details and sections and produce sets of comprehensively dimensioned plans, or perhaps templates? Will you need to output your drawings at any point for CNC production? If the answer is yes, then you really need the power and accuracy of a good 2D CAD program, which is able to do all these things easily and quickly.



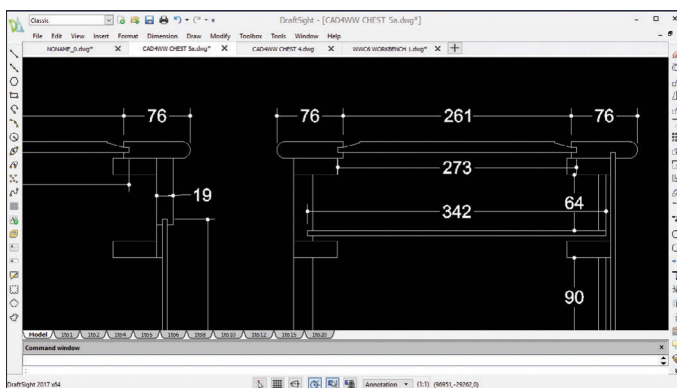
It is interesting to compare the accuracy of the drawing to the precision of David Barron's beautiful dovetailed box

There are many good free versions available, and the best in my view is a program called DraftSight, which is very similar in many ways to a basic version of AutoCAD, which has set the industry standards for CAD software. What this means in essence is that files you create in DraftSight, called DWG files, can be opened and edited almost universally by, for example, those CNC companies you might want to use at some point.

Additionally, and a lesser point in this context, the skills you learn drawing with DraftSight are readily transferrable to other CAD programs. The major plus with DraftSight, though, is that it is published and supported by a large corporation, and is also cross-platform so it works on the Mac and PCs.

DraftSight is undoubtedly not as much fun to use as SketchUp, I'm afraid, at least not at first. There is just something a bit more compelling about 3D drawing, and once you start adding materials and shadow your designs can really spring to life, but in terms of usefulness, it is every bit the equal.

Once you become proficient, it is a real pleasure to use either of these programs, because they really do take most of the hard work and repetition out of 2D or 3D drawing, leaving you with the time and energy to do the creative bits. ■



A section through the chest showing reused details. The profile of the panel and frame is drawn once and then mirrored to create a complete section. Dimensioning this section in DraftSight takes a few minutes using pre-set scales.

Lidded box with a carved handle



Neil Scobie revisits one of his old designs to bring us this challenging turned box project

About 30 years ago, I made two of these lidded boxes, but never again until now. I always thought it would be a good project for woodturners as it is not too difficult, but has a few challenges in the turning process and the carving of the handles. I almost always turn lidded boxes on end grain so I do not have to worry about movement in the fit of the lid. However, for this project, an end grain box will not really work with the handle, so my choice is to use a side

grain blank of quartersawn timber. This means that the grain will run vertically in the turned box when you look from the end grain. In the turning process, you may encounter some movement in the timber due to stresses built up in the blank. If it does move, all you need to do is re-turn or reshape the fit of the lid, on either the box section or the lid. The timber I have chosen is quartersawn Australian red cedar (*Toona ciliata*), but you could use any timber of your choosing.

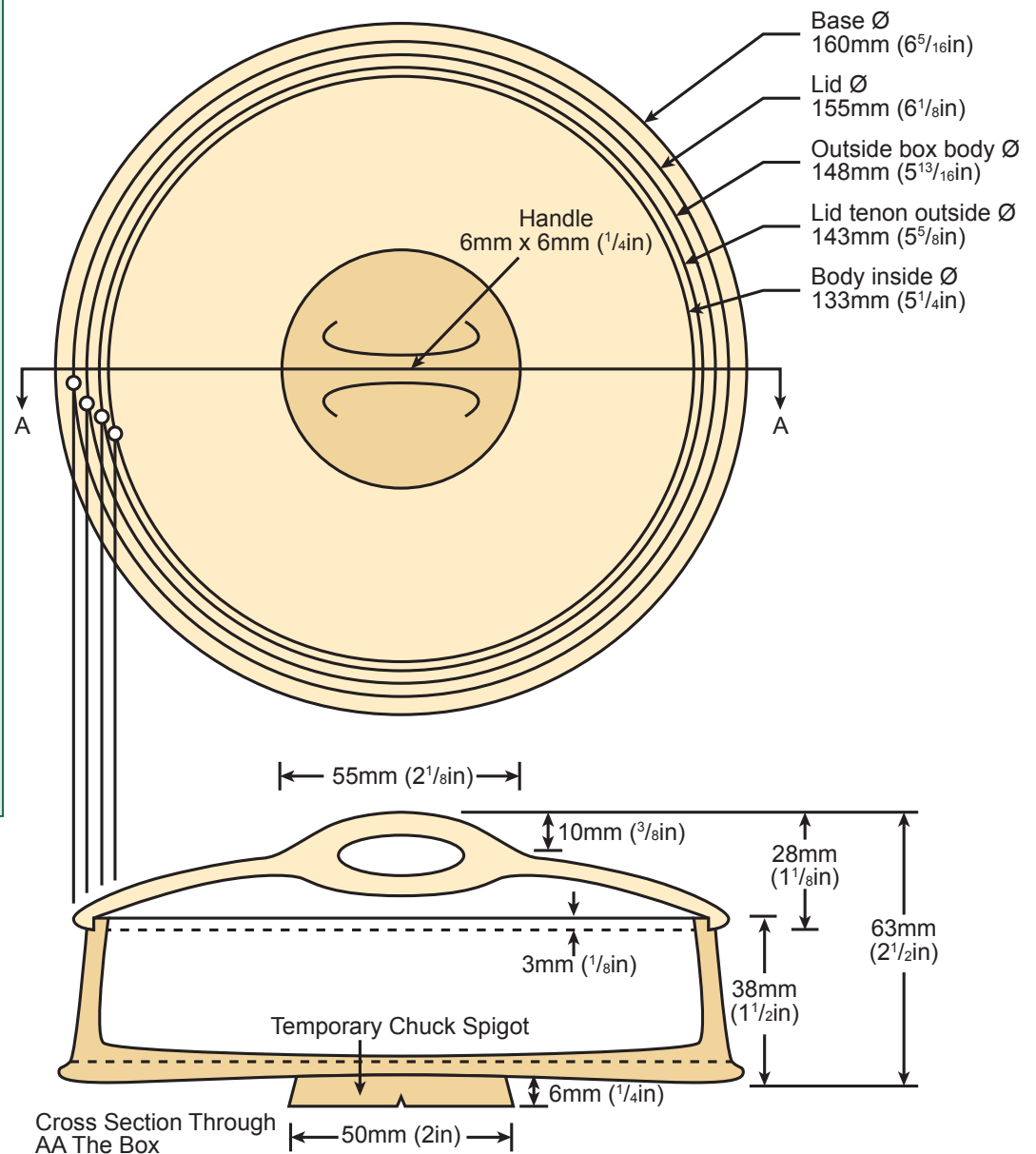
EQUIPMENT USED

Tools

- Small deep fluted gouge
- Small spindle gouge
- Parting tool
- Round skew chisel
- Carving burrs for the handle
- Scroll chuck
- Dividers
- Various grits of abrasives
- '0000' steel wool
- Masking tape
- Soft pencil – 4B or 6B
- No.7, 8mm carving tool
- Rotary carving tool – 6mm diameter with a rounded end and a straight shank
- Disc sander
- Livos Kunos oil sealer
- PPE: facemask, respirator/dust mask and extraction

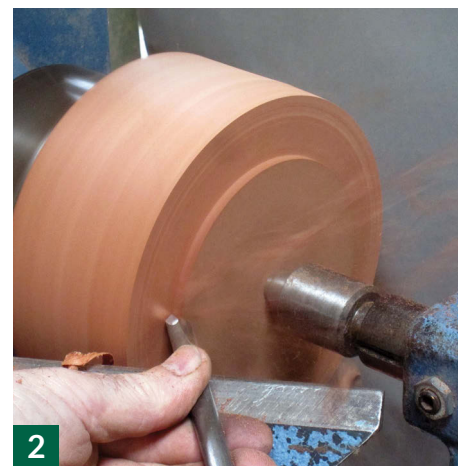
Handy hints

1. Use quartersawn timber to prevent warping on cross grain boxes
2. If the lid does warp a little, re-turn it before the final turning of the box tenon
3. Select a good piece of timber to start with so you will be pleased with the end result
4. Sneak up on the fit of the tenon, regular checks on the fit will prevent making it too loose
5. When carving under the handle don't make the end corners too small a radius as it will make sanding much harder
6. When making the base tenon to fit the lid keep the sides parallel
7. The tenon slot in the lid should also be parallel, for a fit



1 Bandsaw the blank, then open the jaws of your scroll chuck a little before placing the blank against the jaws with the tailstock centre pressing in the centre. Or, place the blank between centres to turn a chuck spigot. A screw centre is not an option here as you don't want a hole in either the top or base of the blank. To trim up the sides, use a small bowl gouge to trim the waste off and turn on centre. Generally, I turn from the outside towards the middle to save chip-out on the corners of the blank.

2 Turning from the outside towards the centre, trim up the base and make a spigot to suit your scroll chuck. This will be on the base side of the box. ➤



3 Use a round skew chisel to turn a slight dovetail shape on the spigot to suit the jaws of the scroll chuck. This will only be a temporary spigot and will be turned off at the very end.

4 Turn the blank around and hold the base spigot in the scroll chuck. Now you can remove the tailstock and turn a spigot on the top side of the lid side of the blank. This spigot will be reshaped into the handle later. Cut from the centre towards the rim – you will be cutting with the grain because of the slope of the domed lid.

5 Here you can see the finished top of the lid shape with the scroll chuck spigot.

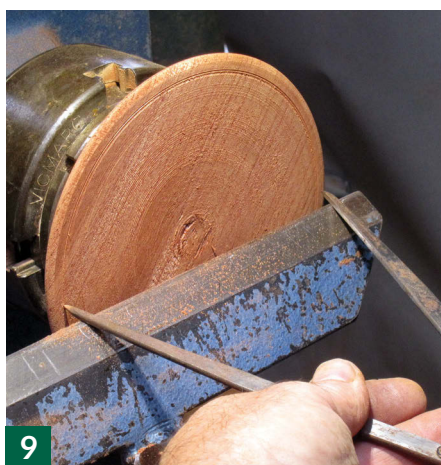
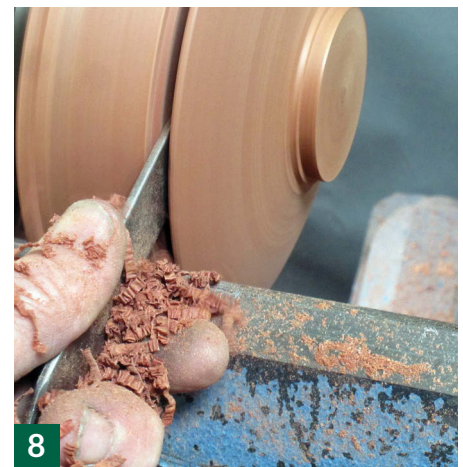
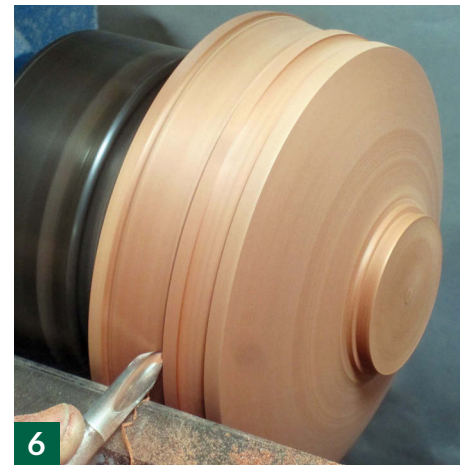
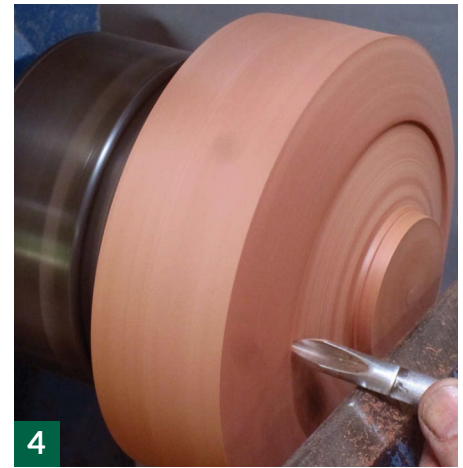
6 The next step is to turn the side profile of the box, using either a spindle gouge or a small bowl gouge. Turn from around the middle section towards the top and the bottom beads. The beads should protrude around 3-4mm above the side wall.

7 To get the definition between the side wall and the beads, you will need to roll a spindle gouge over on its side so you can cut right into the corner of the bead. You can cut both ways into the corner. This process should be carried out on the lid bead and the bottom bead.

8 To part off the lid of the box, you should take two cuts to give the tool side clearance. Because you are cutting a deep parting cut, you will need to hold the parting tool securely and stop when you have about 15mm left to saw off by hand.

9 Place the lid spigot in a scroll chuck and use dividers to mark the diameter of the step on the inside of the lid. Check the drawing for sizes. If you are using the dividers with the lathe spinning, make sure you engage the left-hand side of the dividers first where it is supported by the toolrest.

10 The next step is to use a skew chisel to cut the step in the inside of the lid. This should be about 2-3mm deep and be parallel to the axis of the lid.



11 Use a small bowl gouge to shape the inside dome to allow for the undercutting of the handle on the top of the lid. Depending on how deep you want to make the handle, allow enough depth in the dome to leave about 4mm thickness after the handle carving is finished.

12 You can then completely sand the underside of the lid up to 400 grit, making sure all marks have been removed.

13 Here you can see the completed underside of the lid.

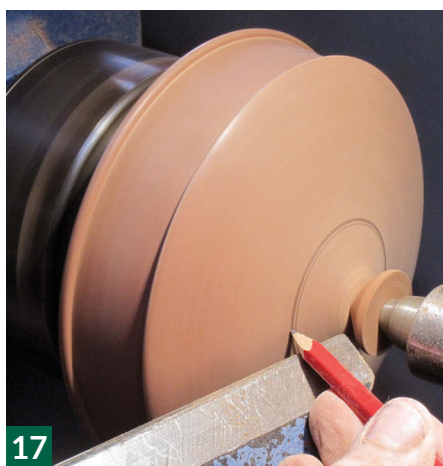
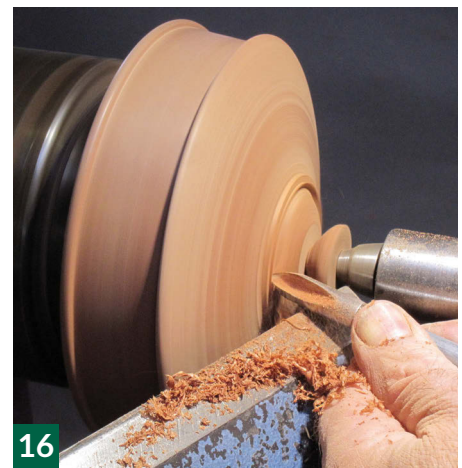
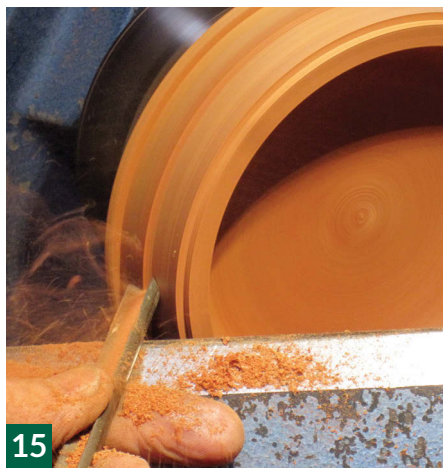
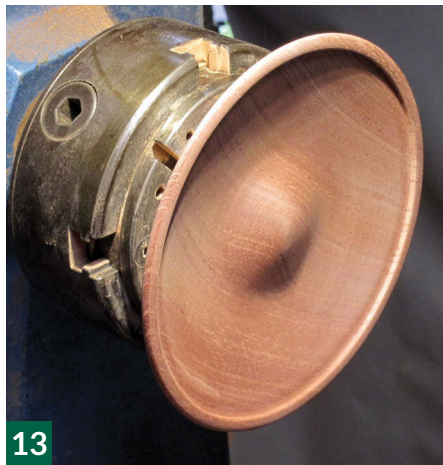
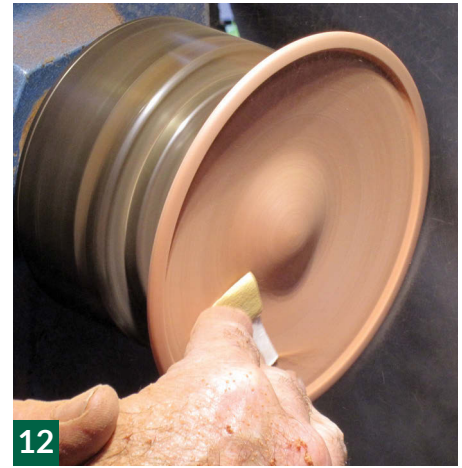
14 Now place the base spigot in the scroll chuck and turn out the inside part of the box. This is the same process as turning the inside of a bowl. Cut from the rim towards the middle to cut with the grain. You should be looking for a base thickness of about 5 or 6mm to allow for the slight undercut of the base. The wall thickness should also be 5 or 6mm. You can have a rounded or a square internal corner, depending on your preference.

15 Once the inside is finished, take trim cuts off the outside in case the blank has warped out of round in the process of hollowing the inside. You may also need to trim the tenon so the lid is a tight fit. Fully sand the base section with 180 grit to start, working up to 400 grit followed by '0000' steel wool to polish the surface of the box.

16 Push the lid on to the tenon of the base ready to turn the top handle section. If the lid is a little loose, just wrap the join with a couple of runs of masking tape. You should now be able to trim the top surface of the lid and the raised section of the handle. Leave a small section around the tailstock centre. You can then fully sand the top of the lid up to the small tailstock spigot as it is best to do this while the lid is spinning.

17 While the box is spinning, use a soft pencil, such as a 4B or 6B, to mark a circle where the lid hollow is contained.

18 Now draw in the handle carving area. Refer back to the drawing at this stage to see the measurements. ➤



19 The carving can be done with hand carving tools quite successfully as long as you are carving with the grain. Basically, you need to carve down the hill towards the lowest point from all sides. A small gouge such as a no.7, 8mm will do the job.



19

20 Grain direction isn't a problem, with a rotary tool, the burr best suited would be one about 6mm in diameter with a rounded end and a straight shank. You can use the burr while the box is held in a vice so you can support the handpiece in both hands.



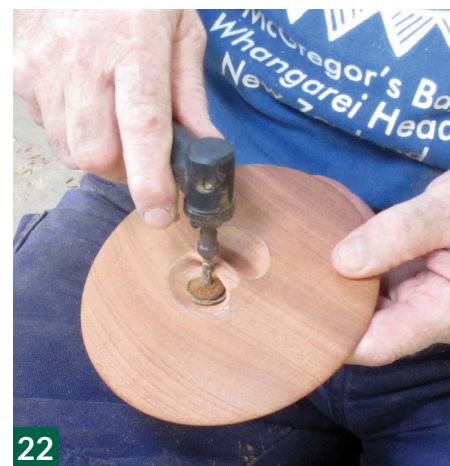
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21 Make yourself comfortable sitting down and support your hand on your leg while carving out under the handle. This way is maybe a little better because you can keep rotating the box and work around the handle.



21

22 To sand the carved area, a small disc sander is the best way to go. I am using a Wecheer handpiece that hooks on to a rotary carving unit. The abrasive is held on to the small soft leather disc by double-sided tape. This is cheap to buy and quick to change to the next grit. Look for the sponge double-sided tape, which is about 3mm thick.



22

23 To sand under the handle of the box, hold the chuck in a vice and hold the bottom spigot in the chuck so you have both hands free to pull a thin strip of cloth-backed abrasive backwards and forwards. Work down to 400 grit until all the scratches have been removed. Note that the lid has been taped on so it will not come off while sanding. Hand-sand with the grain to remove any scratches left by the rotary sander. Sand to 400 grit followed by '0000' steel wool.



23

24 Make a jam fit chuck to place the bottom half of the box on to so that you can turn off the bottom spigot. Use a small deep fluted gouge, cutting towards the centre. The base should have a slight hollow towards the centre.



24

25 Sand the base completely and the box should now be ready for finishing. I used four coats of Livos Kunos on this box with a light sand with '0000' steel wool between coats.



25

26 Your finished box should look something like this. ■



26

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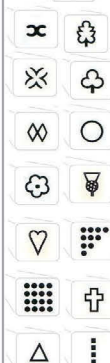
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Trees for life

A continuing series looking at trees, timber and their uses. This month we look at a very versatile and flexible tree, the willow

Did you know?

In central Europe a 'hollow willow' is a common figure of speech alluding to a person who one can confide secrets in.

It is rather appropriate that our feature this month is about making cricket bats. The cricket bat willow is a hybrid of the white willow and crack willow. Young willow stems, or withies, are used for traditional basket work and creating modern sculptural forms. It is indeed versatile as well as a beautiful tree form.

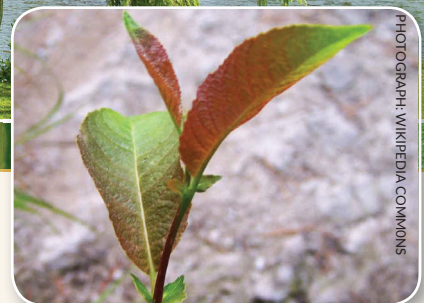


PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Willow

The willow is a name for genus *Salix* of approximately 400 species of deciduous trees found primarily in the temperate cold regions of the northern hemisphere in moist soils. Most are known as willow, but narrow-leaved shrub species are often referred to as osier, while broad-leaved species are referred to as sallow. Some willows are low-growing or creeping shrubs. At the other extreme are the so-called weeping willows or white willow *Salix alba*, often found growing near water. Mature trees grow to 25m tall, often with an irregular

leaning crown. The bark is grey-brown, developing deep fissures with age, the twigs are slender and flexible. The white willow derives its name from the silky white hairs on the underside of the leaves. The male and female flowers grow as catkins on separate trees in early spring, the male catkins being larger at 4-5cm than the female catkins which are 3-4cm. In wintertime green to yellow-brown hairy narrow buds are to be found pressed close to the twigs. Willows hybridise freely so it is possible to confuse one species for another.



PHOTOGRAPH - WIKIPEDIA COMMONS

Typical leaf



PHOTOGRAPH - WIKIPEDIA COMMONS

Young catkin



The willow warbler

Environment

Various moth caterpillar species, including the puss moth, willow ermine, eyed hawk-moth and red underwing feed on the foliage. The catkins are an important early source of nectar and pollen for bees and other insects and the branches make nesting and roosting sites for birds.

However, willow roots become aggressively widespread and can clog drains and sewer systems although newer plastic piping which doesn't leak, is much less susceptible to root attack.



Willow catkins

PHOTOGRAPH: WIKIPEDIA COMMONS

Medicine

Anyone allergic to aspirin can also be allergic to willow as it is a natural source of salicin which is a component in the production of salicylic acid which is used in the preparation of various drugs. Since ancient times it was known that willow bark had the power to relieve pain and fever.

Diseases

White willow is fast growing and short lived, being vulnerable to watermark disease.

Typical uses

Willow is a versatile material. Apart from basketry wickerwork and cricket bats it is used for fish traps, wattle fencing, wattle and daub walls, poles, flutes, turnery, trugs, boxes and crates and sliced for decorative veneers having a mottled or moiré figure and construction of the double bass musical instrument. Additionally it can produce charcoal, tannin, fibre, paper, rope and string.

Willow is grown for biomass because of its high energy output to input ratio. It is also used for river engineering constructing wetlands, biofiltration and slope stabilisation.



Stool with woven willow seat, by Lee Stoffer

PHOTOGRAPH BY LEE STOFFER



A wattle fence made with willow

PHOTOGRAPH BY PETER WOOD



Charcoal making in the Surrey hills

PHOTOGRAPH BY GMC/ANTHONY BAILEY



Growing withies

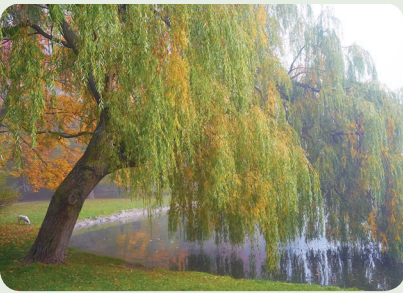
PHOTOGRAPH BY GARY MARSHALL



Creating river bends using willow to slow water flow

PHOTOGRAPH BY O.A.R.T.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK



Symbolism

There are many cultural references to willow but here are several of interest. In English folklore a willow tree is believed to be sinister and capable of uprooting itself and stalking travellers. In the Native American tribe, the Osage Nation, there is story that a young man seeks answers from a willow tree, addressing it as 'grandfather'. Interestingly, Hans Christian Andersen wrote a story, *Under The Willow Tree*, in which children ask questions of a tree they call 'willow father'. A willow branch is a chief attribute of Kwan Yin in Buddhism, the bodhisattva of compassion. Churches in north western Europe, Ukraine and Bulgaria often use willow branches instead of palm crosses during Palm Sunday.



PHOTOGRAPH BY GMC/ANTHONY BAILEY

An expert cricket bat maker in Sussex creating willow bat blanks

Timber conversion

The timber dries quite quickly with minimal degrade but can retain pockets of moisture. Crack willow can split badly when drying but there is little movement in use.

Working characteristics

Willow is light, flexible and resilient. Its strength properties are low and poor for use in steam bending. It

works easily by hand or machine with a low blunting effect. However, a reduced angle on cutting edges is advised to avoid a woolly finish. It turns, moulds, bores, routs and sands well if sharp cutting edges are used. It nails and screws well, has excellent gluing properties and can be brought to a high finish. Willow is not durable and can be vulnerable to attack by wood borers.

Fascinating fact

It is possible to create living sculptures using planted willow osiers. If you have the right setting and plenty of imagination you too can create your own amazing willow shapes in your garden!

PHOTOGRAPH: WIKIPEDIA COMMONS

Sandworm sculpture, The Dunes, Wenduine, Belgium



PHOTOGRAPH BY GARY MARSHALL

Make your own discoveries

There are many ways to find out more about the willow but an unusual one is the Willow Globe, a one-third size living version of the Globe Theatre, London, but planted, alive and growing in Powys, Mid Wales. Visit the website to find out which productions are taking place www.shakespearelink.co.uk/willow-globe ■

A willow garden pyramid

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

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Poolside coasters

Scroll these whimsical fish coasters out of wood and acrylic for outdoor events

By **Bob Duncan**

Design by Ellen Brown
Cut by John Martin

Summer entertaining usually centres on spending time outdoors. Whether it's a pool party or a barbecue on the deck, it's easy to show off your scrolling talent with these great fish coasters.

Infinitely stackable, the variations of colours is limited only by the colours of wood and the colours of acrylic available. By stack cutting, you can mix and match wood overlays and acrylic backers for an endless assortment of unique coasters.



Materials

- ¼in x 4 ½in x 3½in hardwood of choice (overlay)
- ¼in x 4½in x 3½in coloured acrylic of choice (base)
- Boiled linseed oil

Tools

- # 3 reverse tooth blade (fretwork)
- #5 reverse tooth blade (outside profile)
- Assorted drill bits
- Painting tray
- Silicon-based glue or waterproof epoxy

1 Attach the pattern to the wood with temporary bond spray adhesive, applying the adhesive to the back of the pattern.

2 Attach several pieces of wood together to stack cut using double-sided tape. Wrap the whole stack with clear packaging tape (on top of the pattern).

3 Drill blade entry holes where needed for the fretwork inside the fish.

4 Starting at the inside, cut out the fretwork. Work your way out until you have cut everything except the outside perimeter of the fish.

5 Remove the packaging tape and pattern and separate the stacked layers. Restack the pieces alternating layers of wood and layers of coloured acrylic. Use double-sided tape to hold everything together.

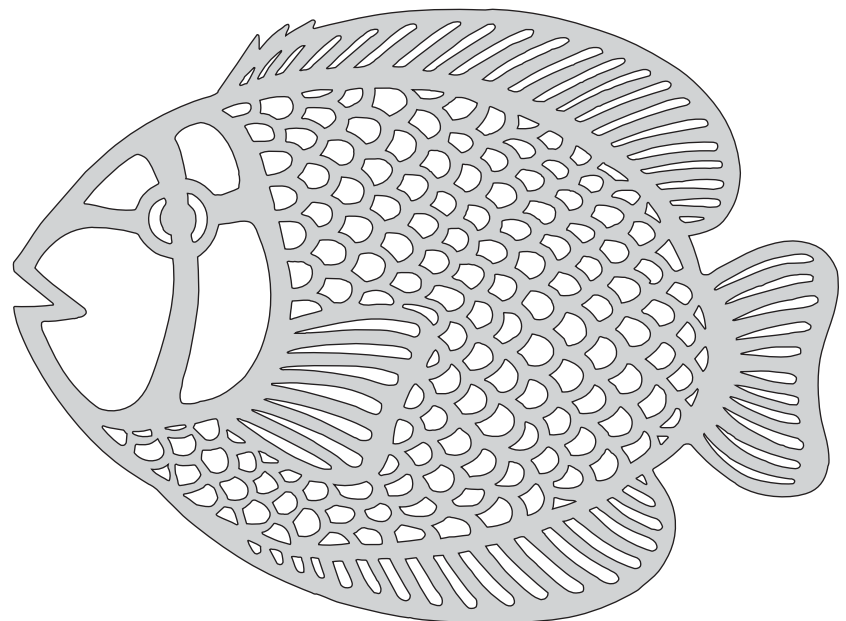
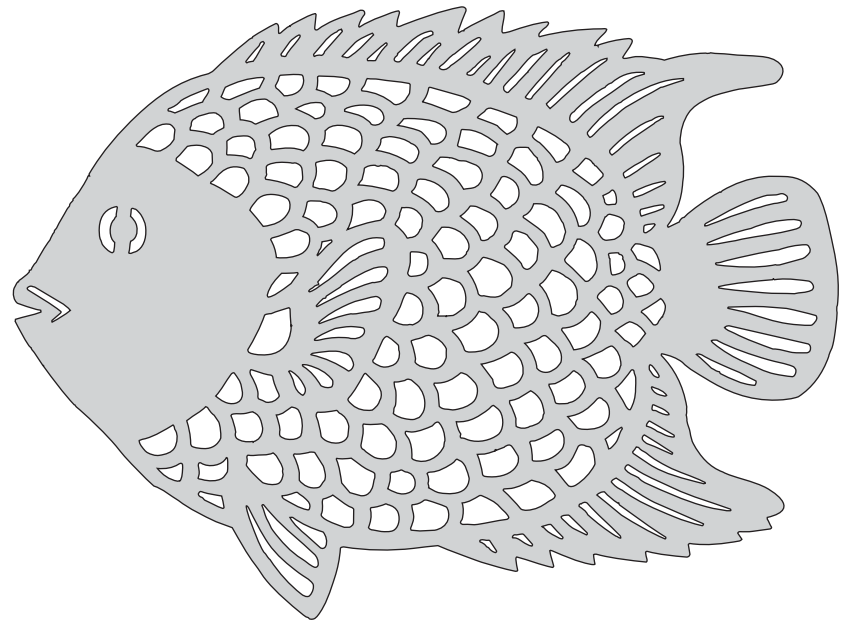
6 Attach a new pattern to the wood and cover the whole thing with clear packaging tape. Cut the outside profile of the fish.

7 Remove the tape and pattern and separate the layers again. Wipe the top and bottom surface and the outside edges with mineral spirits to remove any adhesive residue.

8 Sand the wood starting with 150 grit sandpaper and using progressively finer grits up to 220 grit. Use light pressure with a palm sander or sanding block to protect the delicate fretwork. Small strips of sandpaper can be used to clean up the fish's fins.

9 Finish the wood with an oil finish of your choice. Boiled linseed oil is an easy and durable finish. Dip the coasters in the oil and hang them so the oil drips out of the fretwork. Allow to dry overnight.

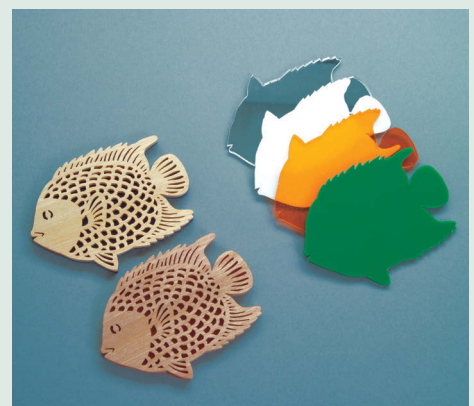
10 Glue the wood to the acrylic using silicon-based glue or a waterproof epoxy of your choice. ■



Other uses

You are not limited to making coasters out of the fish pattern – in fact, the only limit on what you can create is your imagination. To get you started, here are a few suggestions:

- Sun catchers (using coloured acrylic). String monofilament fishing line through one of the top holes and suspend in a window.
- Wall hangings. Increase the size of the pattern, cut out and attach a wall hanger.
- Soap holder. Cut out of Corian or some other man-made material and place in a soap dish to keep soap from getting soft.
- Cookie press. Cut out normally and finish with walnut oil. The walnut oil creates a food-safe finish that dries hard and can be washed.



This article is an extract from *Scrollsaw Woodworking and Crafts* magazine, available as a single issue or by subscription.

For more information visit: www.thegmcgroup.com

Ask the Experts

Another selection of awkward questions for our experts to answer



ANTHONY BAILEY
Editor,
Woodworking
Crafts magazine



MARK BAKER
Group Editor,
GMC woodworking
magazines

COUNTRY STYLE

“ I've found some old pine doors, quite simple – a sort of rustic, country style. I want to make a cupboard to fit them on but I'm not sure how I can make new pine match with the old stuff. Any suggestions welcome. ”

Gerry Standen

Anthony replies: I once worked with a designer whose mantra was 'always highlight a fault' – some of the time, I think he was right. In this case, don't struggle to match new with old. You will probably need quite a lot of pine to make both carcass and shelves and it is impossible to get a good match. Instead, why not make a carcass from ply or MDF and then paint it, possibly in a chalk paint so it goes with the pine doors sympathetically. It's a much easier solution and will look better for it.



Instead of impossible matching, painting the cupboard is cheaper, easier and looks better



A calculator and sample blocks make measuring and marking out easier to do

MEASURE FOR MEASURE

“ Am I the only one who finds measuring and marking out a problem? Additions and subtractions, multiplications start making projects complicated. I tend to 'fly by the seat of my pants' and hopefully get it good enough. Is there any way to make this sort of thing a bit easier? I sometimes use card templates or strips to mark specific sizes. ”

Sid Walworth

Anthony replies: Measuring can be confusing and we all make mistakes. If you find it a particular problem, then strategies such as your use of card for templates and sizing can work well. For larger jobs it is standard practice to make a 'rod' or template for getting sizes correct. I always use a calculator now, because I don't trust my arithmetic skills. I think this is because we no longer need to do many mental calculations and no doubt when coins cease to be in the future, there will be even less need. I do think the modern age has rather taken away the need to 'work things out' in a way everyone once used to do. Certainly taking time to not just work out sizes and dimensions but to think through processes for making does help, rushing jobs will increase the chances of mistakes happening.



This Z-Saws mitre saw and guide is quick and easy to use and will do perpendicular cuts too

FINE CUTS

“ I want to make accurate cuts in wood. I bought a mitre box because the man in the shop said if I used it with a tenon saw it would work. I’m doing quite small-scale things such as mouldings and frames and the cuts aren’t all that good. Am I doing something wrong? ”

Angie Burns

Anthony replies: Almost certainly it is the inaccuracy of the mitre box combined with a modern type of saw which is contributing to rather poor cuts. Using a good quality traditional handsaw and learning to mark cut lines accurately beforehand will give good results but it is a skill that has to be learnt. I have found that a small Japanese mitre saw and guide set such as the one shown here, gives very precise results without any learning curve, it is that good. The saw has to be pulled not pushed in order to cut.

DISABLED ACCESS

“ I’ve been asked to make an access ramp for a local community hall so wheelchair users can get in and out as there is currently a threshold creating a step. Can you advise me about the correct way to do this, are there set specifications to be followed. ”

Arnold Blythe

Anthony replies: You are quite right to query whether there are specific requirements because indeed there are. I presume you are being asked to make a wooden ramp, this raises a question because if it has long-term outdoor exposure it could suffer. The choice of materials will make a difference. Treated timber for the underframe and good quality shuttering-type ply for the surface would be necessary. It would also need regular inspection to ensure it was still safe to use. Although it sounds like a semi-permanent rather than permanent structure, you should follow the guidelines set out in Building Regulations Part M, Access to and Use of Buildings. You can find the necessary document for download online which will give you correct guidance. However, just briefly – such a ramp must be 1.5m wide, have a non-slip surface and a gradient between 1:20 at 10m (500mm high) and 1:12 at 2m (166mm high). This results in a sliding scale in between these two sizes as a short, steeper ramp is acceptable but would not be over a long distance. I hope this information is helpful but do research it properly before starting.

SHINE ON

“ I want to do a bit of French polishing on some old furniture – any tips about what sort to use? The stuff in our local DIY store is a muddy brown colour. Is that good or should I be using some sort of varnish? ”

Darren Cook



French polishing takes a degree of skill. Practice on a sample first

Anthony replies: First of all, be careful you aren’t repolishing a genuine antique and taking away some of its value in the process. It is worth looking online for a tutorial on the subject or I can send you Louise Biggs’ article from issue 4 on the subject of French polishing. The product you are referring to being sold locally is a standard small-project polish, which is a cloudy type that adds a browny colour to whatever you apply it to. There are different types of French polish that suit different types of work. If you want a clear standard polish instead, you can buy it from specialist retailers. The first thing is to learn how to use French polish by practising on a sample board. Don’t rush into working on the real thing until you understand the process.



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Inset: It looks tempting but this lot belongs to a landowner, in this case the Forestry Commission

Cut to keep

— *saving timber*

Do you sometimes come across a freshly sawn log and wish you could convert and save it to make something? We give you some handy advice

There is always something attractive about timber that is homegrown, unusual and free. It could be an overhanging tree branch has to be lopped for safety or maybe a garden tree that has outgrown its place. You may see tree surgeons at work and want to ask if there are any logs for free? Whatever or however you



This nice straight trunk of 'wet' birch will be turned into a number of shrinkpot projects

might come across apparently useful wood you need to work out what to do with it. It very much depends on the timber, the state it is in when you find it and what use you could make of it. You can do one of two things with timber – make something useful from it, anything from fencing poles to a beautifully turned vase, or just burn it. The latter option seems a bit drastic but if it turns out not to be very useable, it can least earn its keep by being chucked on the fire once it is seasoned.

Use green

If timber is wet, i.e. still green, then it's quite possible you can do some green wood projects with it. While the sap is still fresh in the cells of the wood it will be at its softest and most amenable to conversion by splitting. Once split it needs to be worked within a reasonable period of time.

Shrinkage with green wood is a fact of life, so your projects will need to take account of that as they did in olden times. Making a shrinkpot as seen in the August issue can only be done with fresh-cut wood and various things like turned items on the pole lathe will just naturally shrink as they dry out, hopefully without cracking. Branches or youngish tree trunks are particularly suited for conversion. That is the first route you can take.

Burning wood

Unfortunately, some felled timber can have so many defects that it isn't really suitable except perhaps for a piece of abstract sculpture. Timber that has been badly stored and got wet and fungated or had serious attack by wood borers isn't going to make anything useful. In this case splitting it down for burning is the only useful option. Some timbers will spit sparks on open fires, which have a low level of efficiency in any case. A woodburner will handle any wood so long as it is dry and has no risk of throwing sparks. It is also a very efficient means of outputting heat. Logs need to be cut



If your log looks like this it will be far worse inside as fine fungal filaments travel throughout the log



A trunk of walnut that has been left to dry, now ready to plank and being cut at one bend. It will be cut again at the next branch as well

into lengths that will fit the firebox, which also makes it easier to split them down. You may need to get this done by someone who owns a chainsaw if it is too big to crosscut by hand with a large pruning saw. It needs to be left under open dry cover to air-dry ready for the burning season.

Project timber

This is a different matter altogether. The logs need to be stored in dry conditions under open cover with the ends painted with a suitable end seal to prevent drying and splitting if you aren't going to get it cut into boards immediately. Planking is a specialist job but there are quite a few tree surgeons



A froe makes splitting between the vessels in the wood after hitting it with a club very quick and easy



Split logs drying under outdoor cover for burning, when green they may be good enough for green carving, e.g. spoons

who either do their own planking on a compact milling machine or get someone else with a timber mill to do it for them. If your logs look as if they are a useful species and could yield decent boards it may be worth exploring this option. Small diameter logs can be resawn on a larger model bandsaw, using a jig to hold the log and the correct green wood cutting blade. Once it is sawn into boards it needs to be air dried under open cover with small sticks separating the boards. Drying it to a moisture level suitable for joinery or furniture making can be done by making your own dehumidification cabinet and installing a standard domestic dehumidifier and an electric fan. In lieu of that, final conditioning is often best done by placing boards under a bed or in the room where the built furniture will eventually be placed. You need a moisture meter to check the water content.



Mini planking work can be done on a bandsaw with a green wood blade or adapted chainsaw



You could, of course, have a go at carving a section of trunk like this chainsaw carving by Alastair Craig

Last thoughts

Finding or being given timber is often a rarity. You can't just help yourself from a woodland, it all belongs to someone. So if you do get lucky, make sure you treat the timber well from the start so it doesn't have a chance to degrade and you can have the joy of making something meaningful from it for free. ■



Properly stickered, part-machined boards being further dried out with a domestic dehumidifier

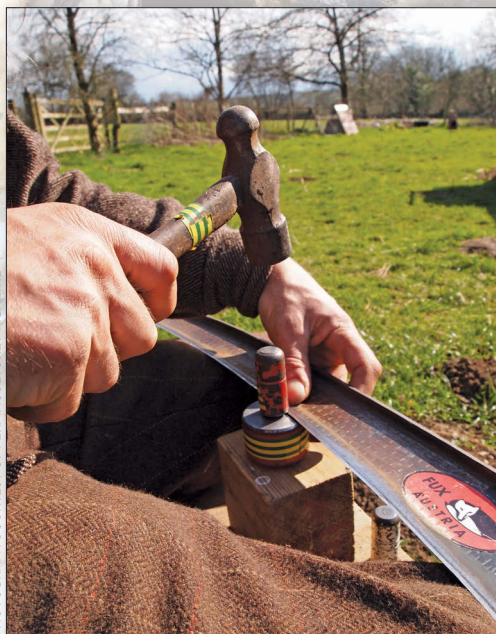
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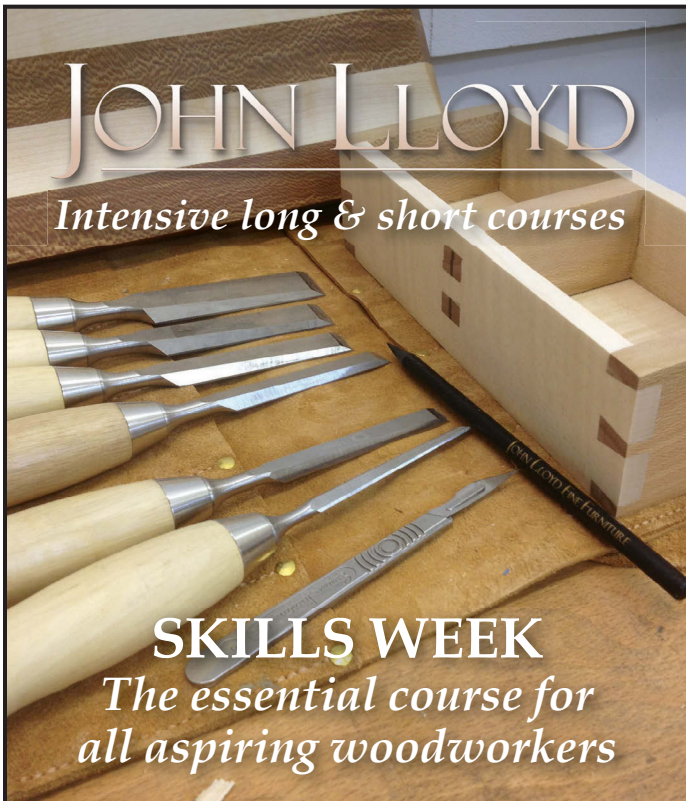
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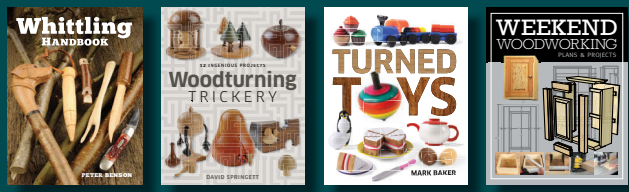
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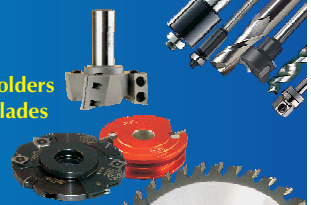
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Focus on...

A ship called Mora



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The Norman Conquest wouldn't have happened unless Duke William of Normandy had landed at the head of his troops in *Mora*, a gift from his wife, Matilda of Flanders...

The Norman fleet
on its way to
Pevensey

I've chosen this ship at random because it represented such a big change in the history of Great Britain. In fact, Duke William's fleet numbered just under 700 similar vessels for soldiers, horses and major battlefield equipment, plus many smaller boats pressed into service bringing the total to around 3,000 vessels of all sorts. *Mora*, built at Barfleur, and the other fighting vessels bear a striking resemblance to Viking longships. This is hardly surprising as a good idea is always worth copying, but of course 'Norman' is a corruption of 'Northmen' and in turn a corruption of 'Norse Men' a group of people who moved south from Scandinavia, thus there is an obvious connection.

These troopships were provided by wealthy barons and abbeys. Trees were cut down with long-handled axes and shaped with side axes, methods still practised today, but on a very limited

scale. They would probably have used oak for the structural components and the planking. The vessels were clinker-built with overlapping boards nailed in place and all the joints sealed and made watertight. Holes for the oars had to be drilled in the upper sides of the vessels. Their shallow draught made for speed and good beach landings while the double-ended design made it easy to reverse them.

In the event not all the horses could be embarked but they did take three pre-fabricated kit-built wooden castles with them. Add to that the hundreds of bows, thousands of arrows, shields and various utensils and you can see that wood played a massive part in the invasion plans. The Norman fleet suffered an early defeat in the face of rough weather causing considerable loss of ships and men until they found safe harbour on the Normandy coast. William had to invoke the soul of the

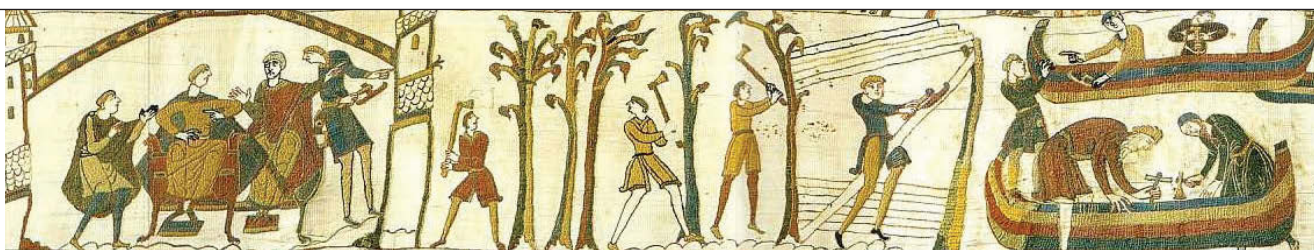
deceased body of St Valery to bring about a lightening of the winds and lift the spirits of his men.

By rights, Harold Godwinson, having celebrated victory over the Vikings in the north of the country and his men rested shortly before setting off to do battle, should have won, but as we know things turned out differently. One thing is for sure, Duke William in his flagship and extensive invasion fleet would not have been possible without vast quantities of timber.

For further information visit: www.normaninvasion.info ■

Medical fact 'Viking disease' – a commonly used term for a severe tightening of tendons in the hands, more correctly known as 'Dupuytren's contracture' – may occur in anyone with Viking or Norman ancestry.

Left to right:
Project meeting;
felling and
de-limbing;
squaring a log;
fitting out the
boats





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