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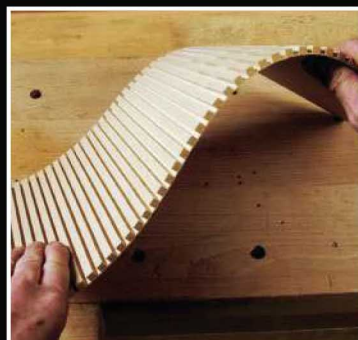
TECHNIQUE

Bakelite restoration

PROJECTS

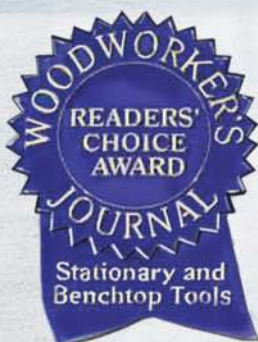
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Hello everyone and welcome to the August issue of Woodworking Crafts



Nothing New...

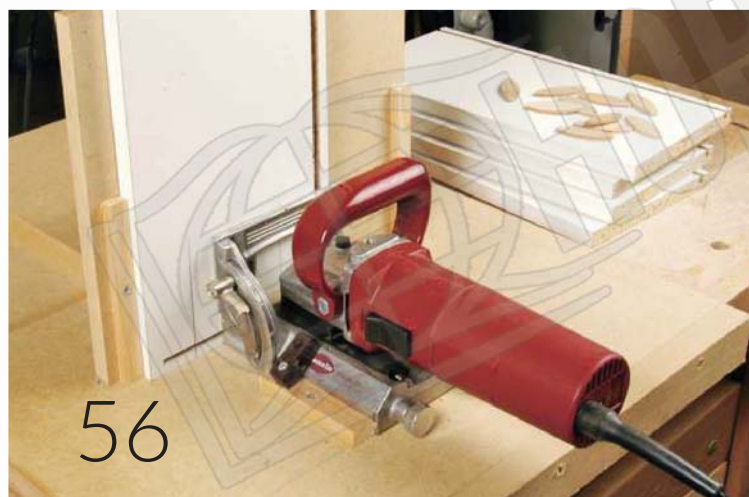
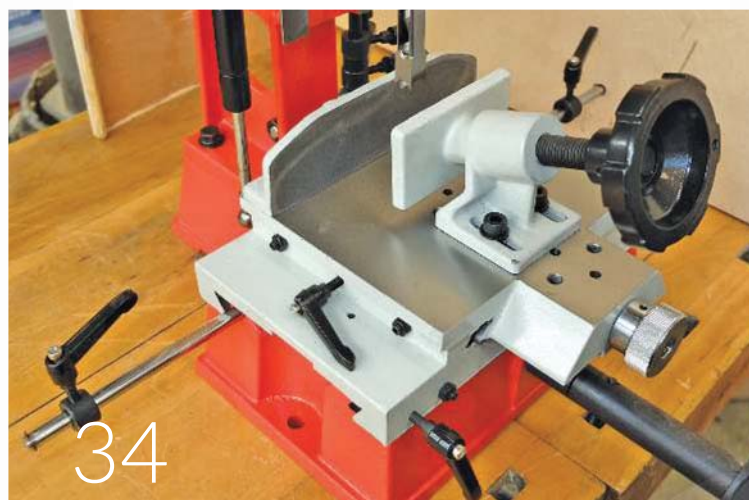
Our feature this month is about Tudor shipwrights. I can't help a wry smile, because the techniques they practised then and the tools they used persisted well into the 20th century. Indeed, during World War II, the 'land girls' were sometimes involved in the felling and conversion of timber, backbreaking work at the best of times, only made easier by the use of large circular sawmills, but otherwise tools such as axes were more basic and traditional. Some years ago I met an elderly gentleman at a woodworking show who had trained as a coffinmaker and regularly had to work a two-man pit saw, a cloth cap being necessary protection from the sawdust constantly falling on him as the unlucky man in the pit.

So we come to today, when there has been a resurgence in traditional methods, now badged as 'green woodworking', i.e. working with unseasoned timber. Pit sawing excepted, most other tools and techniques are finding their way into the hands of beginners who haven't had training in cabinetmaking or other vocational woodworking skills, but instead are going on courses with acknowledged green woodworking experts and finding pleasure and satisfaction from working with wood in a way that goes back centuries. The wooden wheel is turning – so to speak.

I think most of us can understand that there is a very strong connection between craft working of all kinds and not just the enjoyment and fulfilment it gives us, but that it is much more deep rooted in our DNA. If you have ever watched Stanley Kubrick's film *2001: A Space Odyssey*, the opening sequence of apes learning to make crude tools, which unfortunately also then become weapons, shows how very early on in evolution toolmaking and use were critical parts of our development. There is also a belief promulgated by experts that we are 'biophilic', meaning a love of a green and natural environment is also deep rooted in our DNA and not just some intellectual overlay – something in our souls.

I think that's a perfect excuse or reason for everything we do with wood and what this magazine stands for. So whatever project you are engaged in, do enjoy it and let us know what you have been up to and why.

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Left: A toolchest with removable tool trays inside, by Andy Maddams



Above: A blanket chest in English ash with bubinga panels, by Brendan Devitt-Spooner

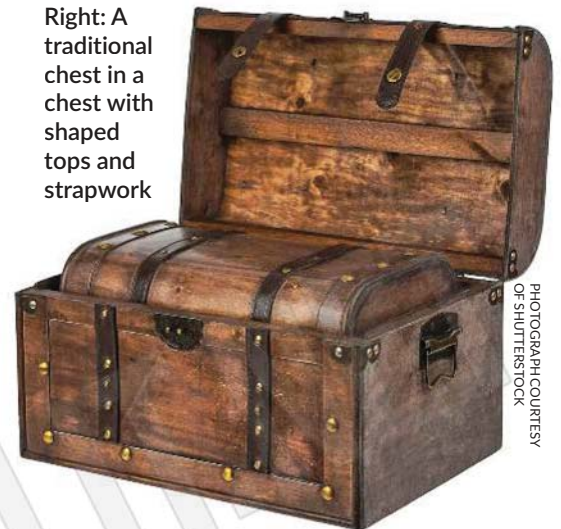
Design INSPIRATION

Chests have several functions really – they are useful for storing items that aren't needed every day, they can be sat on and, at the same time, are a perfect statement piece that catches people's eye



Above: A solid oak chest with cherry frame legs

Right: A traditional chest in a chest with shaped tops and strapwork



PHOTOGRAPH COURTESY OF SHUTTERSTOCK



Left: A square storage chest by Derek Jones, editor of *Furniture & Cabinetmaking*



A framed chest on legs with dovetailed breadboard ends to the lid



The linenfold effect on the finished chest

Blanket coverage

Cheating is fine when the result is a beautiful copy of an early oak chest

I jumped at the chance when I was asked to make a blanket chest based on one featured in Ralph Fastnedge's book *English Furniture Styles*. Although I have made many pieces in English oak, the disciplines of hand carving involved in achieving linenfold panelling always put me off.

But thanks to Wealden Cutters' new linenfold cutter set my excuses have run out. Its cutter profiles produce a convincingly effective substitute for the real thing.

My own substantial collection of cutters has been almost exclusively Wealden from the year dot, so I have no hesitation in recommending them. Equivalent cutters made by other companies can be used for all the operations in this project except, of course, the linenfold work.

Flighty oak

Because oak is a wasteful timber with a flighty nature, purchase double the amount of timber required for the

chest, to allow for wastage.

For the dimensions of the chest I scaled off the drawing in the book, but it could be made to any size, remembering to keep it in proportion.

I used some thick, air-dried, hurricane-felled oak and cut all the components oversize, planed them over-thickness and left the timber for some weeks to acclimatise before re-machining the pieces to the finished size.

Because this is meant to emulate an

early piece of furniture with linenfold detail, the stock thickness needs to be 25mm for the stiles and rails and about 16-18mm for the panels. The legs are made of two pieces of 25mm oak to give the required thickness. I reserved the ray-figured boards for the linenfold panels. To make construction easier treat each face of the chest as one complete item. The front and back and the lid comprise complete 'units', and the ends and bottom are fitted afterwards.

T&G cutters

Wealden's Shaker-style large tongue-and-groove (T&G) cutter set allows neat jointing and panelling without having to resort to mortice and tenons. A router table and a large router will be needed for this operation.

Calculation of component sizes is all important. Mark the square face sides and edges of the components when planing to size and work to these marks as a datum throughout the project to ensure flush joint faces.

Cut the stock for the legs and stiles somewhat overlength, ready to be cut to size later on, but cut the rails and muntins exactly 24mm longer than the distance between the stiles or legs. This is to allow for a 12mm tongue each end to fit the depth of groove created by the T&G set.

The panels need to be about 2mm shorter than the rail, including tongue, so that when slid into the groove there is enough free play to allow for assembly.

The T&G set comes with shims to get the right fit, so it is sensible to make



English oak selected and machined ready for use

several trial joints first and mark the correct shim with a felt-tip pen so that the right one is used.

Rout the scribing cuts first (the tongue) and then the profile (groove). I did some of the grooves at full cut depth but found the 'ragging' of the edges unacceptable and swapped to 'pre-scoring' – this means a first cut at about 2mm deep to give nice, clean edges followed by a full 12mm pass which should remove the bulk of the material without disturbing those edges.

Because the panels need a slightly looser tongue, a different shim is needed.



Wealden linenfold cutters and others used in the project

Router cutters used in this project

Wealden Tool Co: linenfold set, large tongue and groove set, chamfer T916B ¼ shank, V-groove T128 ¼ shank, hinge morticing T310 ¼ shank, panel trim T8018B ½ shank, beaded edge T2503B ¼ shank, T2504B ½ shank, classic panel guided T1622B ¼ shank.

All the components for the end and base can be cut at the same time as the main ones, but on final assembly they might need slight re-machining.

Chamfers, grooves

The stopped chamfers on the lid frame are applied with a 45° cutter, either using a fence on a router table or with the router hand-held working off the side fence. Ensure you have made pencil marks for the start and stop points and don't hold the wood in one place on the spinning cutter too long as doing so would result in a burn mark. ➤



Cutting tongues on stiles



Bottom piece showing tongues, leg cutout and groove

The panels are butt-glued together, then machined and sanded to a finish before assembly takes place. They are flat on the outside but project slightly on the inside of the chest due to their thickness. Use the same 45° chamfer cutter to put a bevel on after tonguing their inside face.

Also before assembly rout large edge beads on the front of the lower rails and a groove on the reverse to take the chest bottom panel. To avoid breaking through the wood, the groove should be higher than the bead.

The large chamfer running down the inside corner of the legs can either be done now or after the first glue-up.

To make the routed small stopped edge bead look as if it has been achieved with scratchstock, whittle each end of the cut with a chisel, and sand lightly.

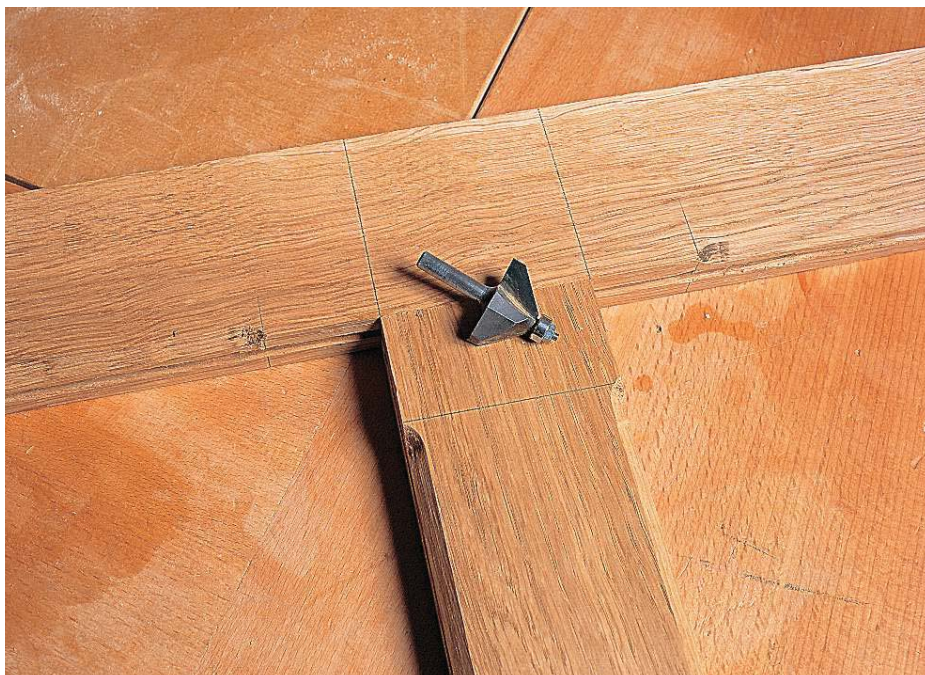
Fitting frame

All of the frame parts should be sanded before assembly.

After a dry-fit trial run, glue up the front, back and lid items separately with PVA or cascamate and cramp up using sash cramps. Place paper between the cramps and the timber to avoid staining from the metal.

Leave to dry then trim the legs to finished length.

Lay the back of the chest down and



Stopped chamfers and cutter

‘Don’t bother to glue the base strips in place, as they must be allowed to shrink’

dry-fit the end parts and the front on top of it.

The base, consisting of a series of planks, tongue-and-grooved all round and with the grain running from back to front, can then be cut to size.

Make cutouts on the two end planks to fit around the legs; place them in their groove each end of the chest. Then fill in between them with the rest of the planks, using a square and a scribe to mark the size.

Mark and cut each one individually until there is a small gap. Trim the last plank to a snug fit when the last tongue is machined.

Gluing, sanding

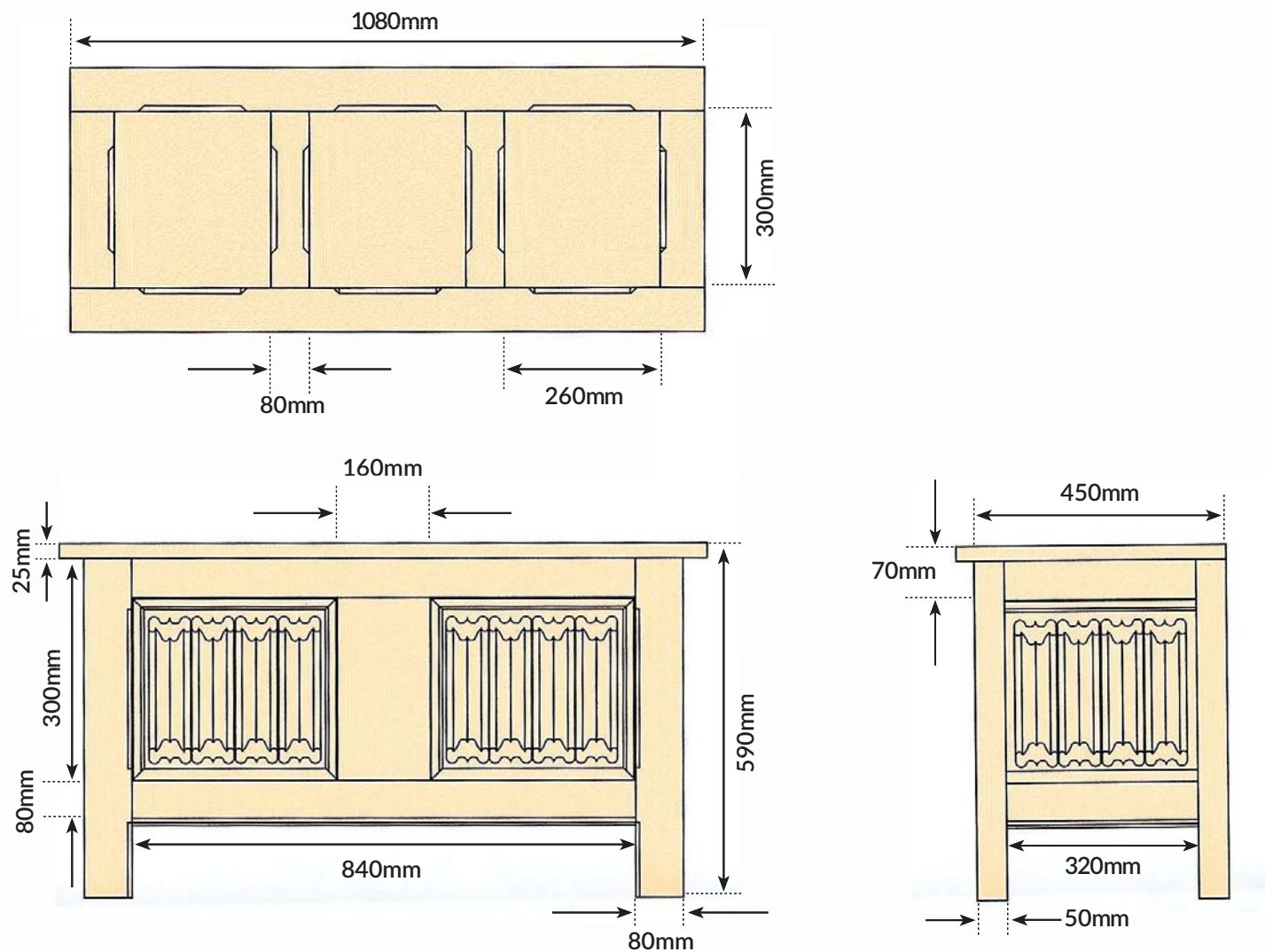
Now glue the whole chest together. Don’t bother to glue the base strips in place as they must be allowed to shrink. Use protective pads and sit the cramped up chest on a flat surface to make sure it is square – sight across the top to check if it is ‘in wind’ (twisted). If both ends are exactly in line there is no wind. If they are not, adjust by placing a small packer under one leg, then leave the glue to set overnight.

The ‘horns’ on the lid stiles can be trimmed to length then sanded all round. Then, with the box open in front of you, check that the lid fits and overhangs the front and sides correctly.

There may be a slight step where the frames are joined. This will need sanding flush, taking care to avoid the projecting bevelled panels. I worked over all outside frame surfaces and top edges with my 4in belt sander and sharp 120 grit. ➤



Routing internal chamfer on leg



Fitting bottom pieces



Main carcass glued up



Linenfold strips in their various stages

Moulding frames

The front and back feature a plain bevel along and a classic profile panel moulding around the other three sides. The ends of the chest also have the bevel on the top of the bottom rail, but the moulding is applied only across the top. A narrow border will separate the linenfold plaques and panel mouldings.

Cut the mouldings with a mitre saw, then glue them into place, holding with masking tape until dry. Note that the vertical pieces on the front and back are next to the edge bead so need to be rounded over with abrasive paper until they look right.

Lastly, remove sander scratches by

running an orbital sander and 180 grit over the whole chest.

All arises (sharp edges) need to be taken off by hand with a quick flick of fine abrasive and the ends of the legs chamfered to reduce any carpet damage.

Linenfold process

Unlike the woodworkers who made early oak chests and panelling, thanks to Wealden we need only give passing concern to the linenfolding as it is machined as plaques and applied afterwards.

The plaques are made from stock 75mm (3in) wide and 10mm (3/8in) thick. When calculating the size of the chest, make sure the panel sizes measure in multiples of 75mm (3in) plus the size of the border you need.

The prepared stock must be profiled in two passes as the cutter does one half of the width. Adjust the fence so that the second cut cleans up and the 'folding' needs only limited sanding.

Next, carefully cut the pieces to length using a table or radial arm saw; make sure more lengths than you need are cut in case some are imperfect. Unusually, the scribing cuts are done after the profiling.

Then make a jig which clamps the plaques and has a special profile at the end. In combination with the relevant cutters, this produces the full effect of the scribing cut. Wealden provides a full-size template for the jig which is transferred to the MDF or Tufnol jig material.

First, set the inverted plaque to one line and, using a straight profiling cutter with a bottom bearing, run along the shaped edge of the jig to scribe one half the width of the plaque.

Tips

- Leaving glue to become congealed – but not set – makes cleaning up neater as it can be done with the second-best chisel rather than by wiping and washing off the surplus, which raises the grain and can push glue into the pores of the wood. To get the amount of glue right, I favour using a slim wedge cut on the bandsaw as an applicator, or a dispenser with a spout.
- When preparing the small mouldings use a wide board of the right thickness and machine one edge, cut it off on the saw and repeat as necessary – then sand carefully.
- To avoid kickback when doing stopped cuts on the fence, apply the far end of the work against the fence, slowly swing the front end against it and feed the wood over the cutter.



Routing hinge sockets – note bar clamped to chest to provide router with a running surface

Invert the plaque to shape the other half, then pull it back to the second marked line on the jig. With the small bearing-guided cutter provided, move the router across the jig and clean off the top of the exposed area of the plaque, so producing a 'carved' effect at the end of each strip.

After a light sanding the plaques can be applied to the panels on the chest. I put an even layer of glue on the backs of four linenfold plaques, placed them on a blank panel and rubbed them gently into place – though a bit of gentle weighting down would be a good idea.

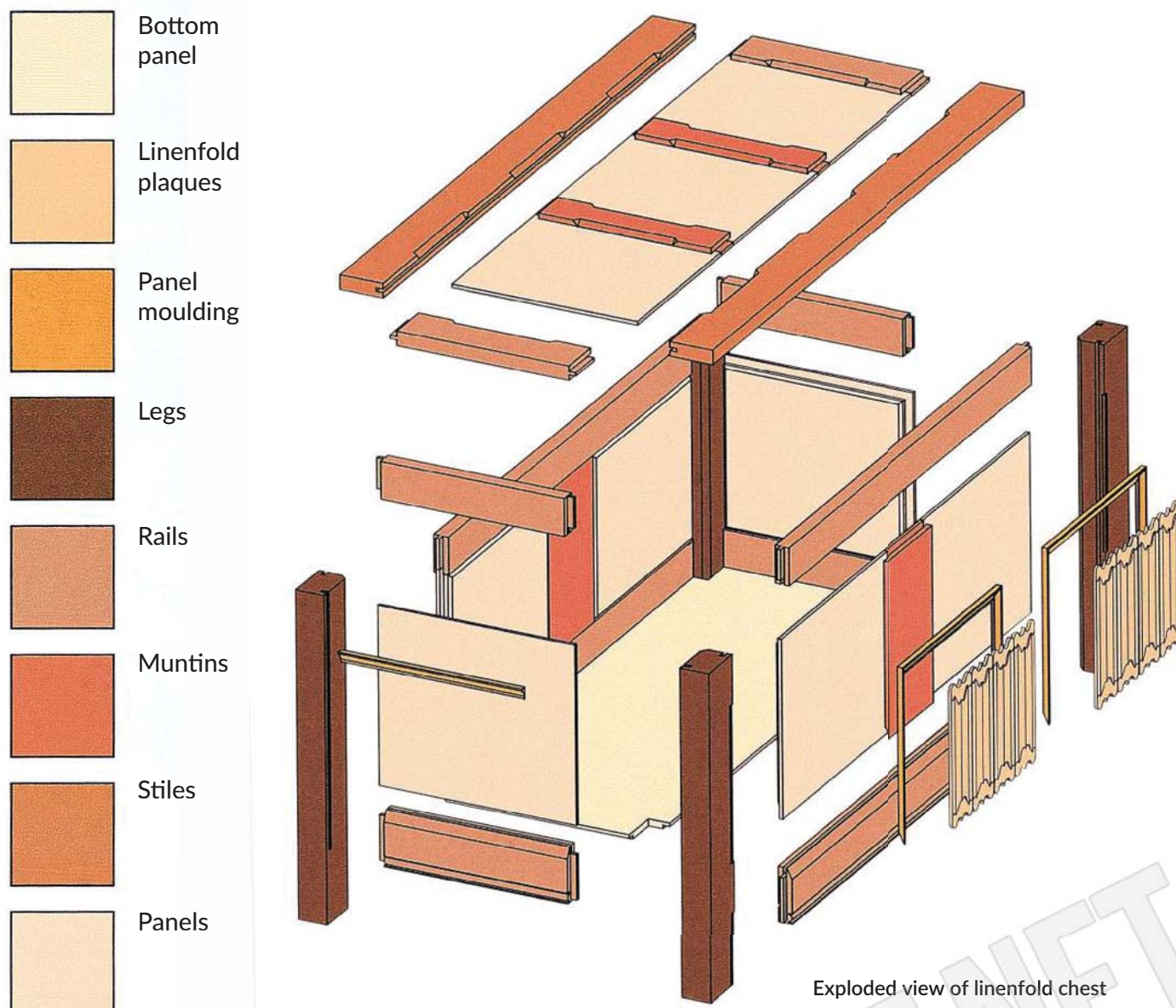
If you don't put glue near the edges, it shouldn't ooze out when the plaques are in place.

Sinking hinges

Mark positions on the back top rail for three 2½in brass butts. They will be sunk into the rail but not into the lid using the router with a 12 or 16mm diameter hinge mortise bit.

With the router stationary, plunge it so the hinge mortise bit just touches a flat surface. Then place the thinnest part of the folded hinge between the depth stop and turret and lock the stop at that depth, lowering the stop a little more if the cut appears to be too deep.

Clamp a board against the top rail to give a larger surface and set the side fence on the router so the hinges will



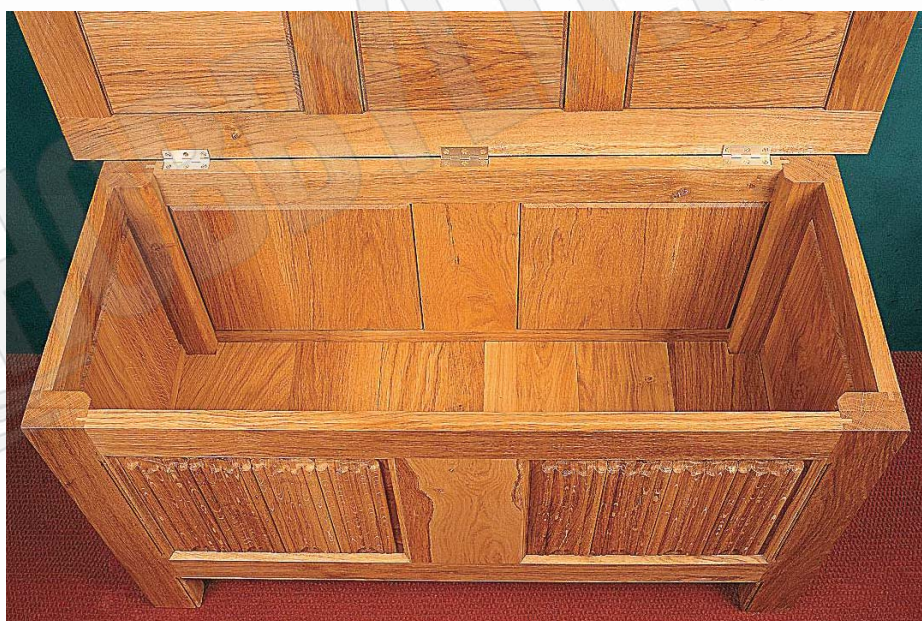
Exploded view of linenfold chest

have half the 'knuckle' projecting from the rail. Now machine out the hinge slot, starting along the edge to avoid tear-out.

Cut carefully up to the end marks, then square out the corners with a sharp chisel. Screw on the lid then take it off again to apply the finish before replacing it.

Finishing

Apply by brush two coats of Liberon finishing oil to reach all the in-between bits, wait a short while and rub off to produce a gentle sheen. Then apply a coat of Liberon Black Bison clear wax for a soft feel and a pleasant smell. Finally, rub down the hinges and screws with fine abrasive to get rid of the factory 'drawn' finish. ■



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Little walnut chest

Franciszek de Sage takes inspiration from an 18th-century silverware chest to create a similar piece with added marquetry and secret compartments



PHOTOGRAPHS BY FRANCISZEK DE SAGE

The story behind the walnut chest started when an 18th-century silverware chest arrived at West Dean college for conservation.

The owner of the piece had lost the key and, not remembering what was inside, was keen to get it opened. Not surprisingly for a silver chest, when it was finally opened it contained a set of silver cutlery, goblets and plates. Job done. However, before it left the department, our tutor had the idea to make copies of the original piece. I decided to make my chest at a scale of 1:2 with my own selection of materials and to add a marquetry picture to the lid, as well as secret compartments behind the drawer.

Main case & lid

For the substrate I chose to use American tulipwood (*Liriodendron tulipifera*). It is a versatile timber that is easy to machine, plane and glue. 8mm-thick boards were veneered in a vacuum bag, with walnut (*Juglans* spp.) on the outside and African mahogany (*Khaya ivorensis*) inside. I used two sheets of walnut veneer, book-matched at the front and meeting at the back. In that way, I created a continuous pattern

around the chest. At the beginning, when all the boards had been veneered, I cut off a strip – 35mm high – for the front drawer out of the board that was to be placed in front. Again, that was a way to keep a continuous pattern around the whole piece, including the front of the drawer.

Then, the case was dovetailed with a housed middle-board dividing the interior of the chest into two. The bottom board was let into rebates so it sits flush. I decided to laminate the lid with three layers of constructional, 2mm-thick oak veneer in a vacuum bag on a curved jig. When that was done, the sides of the case were cut to match the curve of the lid. The curved oak laminate was glued to the case, with four pins nailed at each corner to stop

it from sliding while it was clamped. After this had been glued down and a walnut veneer applied, the box was cut into two parts using the bandsaw to create a lid. To make the chest look lighter, small 2mm-high square feet were added at the corners of the bottom board.

Drawer

The strip of board that I had left earlier was now used as the front of the drawer. I lap-dovetailed the front and sides of the drawer and hid the joints with a strip of walnut veneer. The drawer bottom was housed in a groove running along the drawer front and sides and was secured with nails to the drawer back only. That type of construction, with the grain of the bottom board running from left to right, allows the movement of the wood and prevents it from possible splitting. The lower edge of the back of the drawer is slightly shorter, so the sides can act as runners reducing the friction while sliding.



1

The materials needed to construct the chest



2

The main case is dovetailed

Marquetry

When all of the constructional work was finished, I started working on the decorative motifs: marquetry, feather banding and stringing, moulding and lipping. I hammer-veneered the lid with four identical strips of walnut veneer so they could be quartermatched. The marquetry design of the tiger was based on a drawing by a Polish author and script writer, Mieczysław Piotrowski, who was, most importantly in this case, an illustrator of children's books. I selected veneers considering wood pattern, grain direction and colour.

For example, to get the effect of the tiger's stripes, instead of using several veneers, I chose just one piece of walnut, but with the right pattern. For the background sky, I positioned a light veneer with the grain running perpendicular to the direction of the grain in the tiger's body, so it would provide a better contrast to the animal's form. As a result, seven different kinds of veneers were packed together, with the tiger design glued on top of them, creating a marquetry book.

It was then cut with a fretsaw, with a very fine blade – No.6/0 blade

thickness: 0.18mm, width: 0.35mm, length: 13cm, TPC: 32 Drill. A 0.4mm hole was drilled inside the book, so it could take the thickness of the blade. I cut the pieces by moving from the inside to the outside, choosing the next one to give the best and maximum possible support for the rest of the packet. When all parts were cut out and assembled, they were maintained together in place with a paper backing, before finally being glued on to the laminated lid. In order to glue the marquetry straight on to the substrate, an oval piece of veneer on the lid had to be removed. ➤



3

The veneers are book-matched at the front of the chest



4

The laminated lid was glued on to the case and held in place with clamps



5

The drawer has a lap-dovetailed front and sides, which hides the joints with a strip of walnut veneer



6

Marquetry based on Mieczyslaw Piotrowski's drawing is glued on top of the lid



7

The completed tiger design

First, the outer line was marked and then the waste piece of veneer was wetted and heated with a hot iron. Because animal glue was used for hammer veneering, it was easy to soften with water and heat. To make room for the stringing around the marquetry, another 1mm-thick piece of the veneer had to be removed later. Finally, the marquetry was glued into place.

Feather banding, base moulding & lipping

To create space for feather banding and stringing, I removed a 10mm strip of walnut veneer around all the

edges on the case and lid. I worked step-by-step, from the inside, so first holly (*Ilex* spp.) wood stringing was glued, followed by feather banding and finished with rosewood (*Dalbergia retusa*) stringing on the corners.

Everything was glued straight on to the substrate using hot animal glue and a technique similar to hammer veneering, without a need for clamping. To do so, the glue needed to be at the perfect viscosity and temperature. Otherwise it would gel too quickly, or would not have enough cohesive strength and be too weak.

To create the bottom walnut moulding I used the traditional

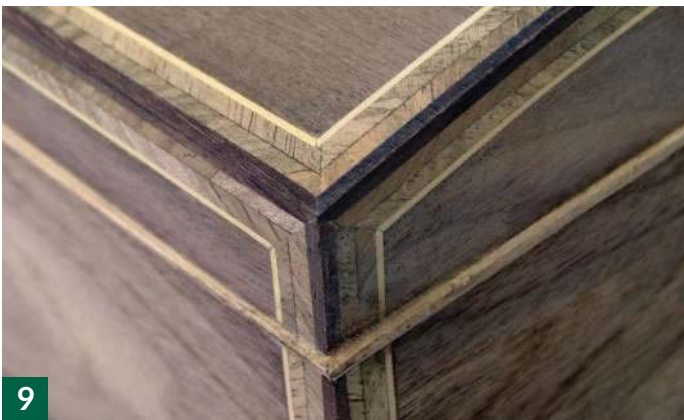
technique of the scratch stock. It comprises a wooden handle with the provision to clamp a steel blade, into which the profile of the shape to be cut had been filed. It works by using a scraping action that gradually cuts away fibres from the wood. The scratch stock is drawn along the wood repeatedly until the desired shape is formed. The mouldings were then mitred at the corners.

For the lipping I used 2mm-thick strips of holly wood. It was glued around all edges, a fraction wider on the lid than on the case, so that lid lifting would be easier. Again, hot animal glue was used.



8

Feather banding and stringing is applied around all edges



9

The stringing and banding, once in place



10

Mouldings were made with a scratch stock...



11

... and once made, were then ready to fit to the chest



12

The mouldings, once fitted in place



13

The lippings, all ready for glue up



14

The lippings in place



15

Parts of an extra board with pigeonholes



16

The edges of the pigeonhole dividers were veneered as well



17

The extra board assembled



18

The little secret drawer

Secret compartments

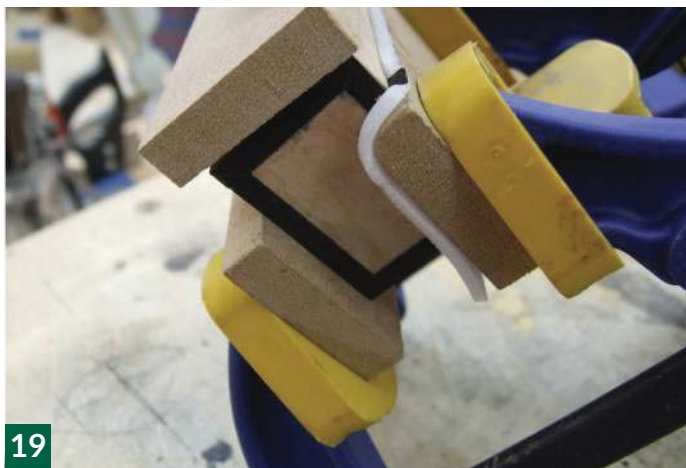
In my family house in Poland we had a cylinder bureau in the style of Louis XVI with a system of secret compartments. I was drawn by their mysteries, finding inside illegal leaflets from the communist time, hidden there by my uncles.

Since then my interest in furniture started and the idea of making secret compartments was always with me. So when I was making this chest I could not resist the temptation of adding them to the original design, especially as in the past it was common to have hidden spaces in personal furniture.

I made the drawer shorter than the depth of the chest so behind it there was space for my secret compartments. Instead of sliding on the bottom board, the drawer is placed on an additional board at the end of which there are three pigeonholes fitted with little secret drawers. When the main drawer is taken out, the additional board can be slid forward, revealing the secret compartments. I made a small hollow at the top of the board so pulling it out with fingers would be easier.

The extra board with pigeonholes was made of mahogany. For the secret drawers I again used American tulipwood as a substrate, veneered

with East Indian satinwood (*Chloroxylon swietenia*) and African ebony (*Diospyros crassiflora*) on the edges. I chose these timbers to get a strong colour contrast with the rest of the piece, which is all in dark-brown shades. Because the ebony strips were hard but also very brittle I had to bend them before gluing them on to the curved parts of the little drawer's edges. For bending I used a simple method – holding a strip of wood against a section of heated metal pipe. Because using a propane torch in the furniture workshop was frowned upon, I found a round, heavy-duty soldering iron as a substitute that worked well. ➤



19

Strips of ebony were glued around all edges of the little drawers



20

The ebony strips in place

Finishing touches

The chest was finished with the traditional process of French polishing. Shellac dissolved in alcohol was applied in many thin coats using a cotton rubber. This was made of absorbent cotton wadding inside a square piece of soft cotton cloth.

For building up layers of shellac I used a specific combination of different rubbing motions, generally circles and figures-of-eight. For easier shellac application I lubricated the rubber with oil. I tried to use as little oil as possible, because with passing time it degrades and can darken the surface.

I also used a small amount of pumice. It acts both as a fine abrasive and to fill the pores of the wood grain. I waited for each coat to be fully dry before the next application, to avoid lifting out the softened finish. After final levelling off I applied a thin layer of wax – a mixture of bee and carnauba waxes. I had to be careful when buffing, as too much friction heat could damage the fresh shellac surface.

Finally the chest was fitted with brass hardware – stop hinges, a small lock with a hand-cut brass escutcheon and a small knob on the drawer. The secret drawers were fitted with knobs,

turned from white bone to emphasise the delicate and light character of the mysterious, hidden part of the chest.

Making the chest was a great experience, although it took me twice as long as it should have. Nevertheless, all the traditional techniques I have learned while making it I am using now each day in my conservation work. And I think the most rewarding moment came on the graduation day, when all our projects were displayed in our workshop. One of the visitors came to my stand asking from which century that little chest was, thinking it was a piece I had restored. ■



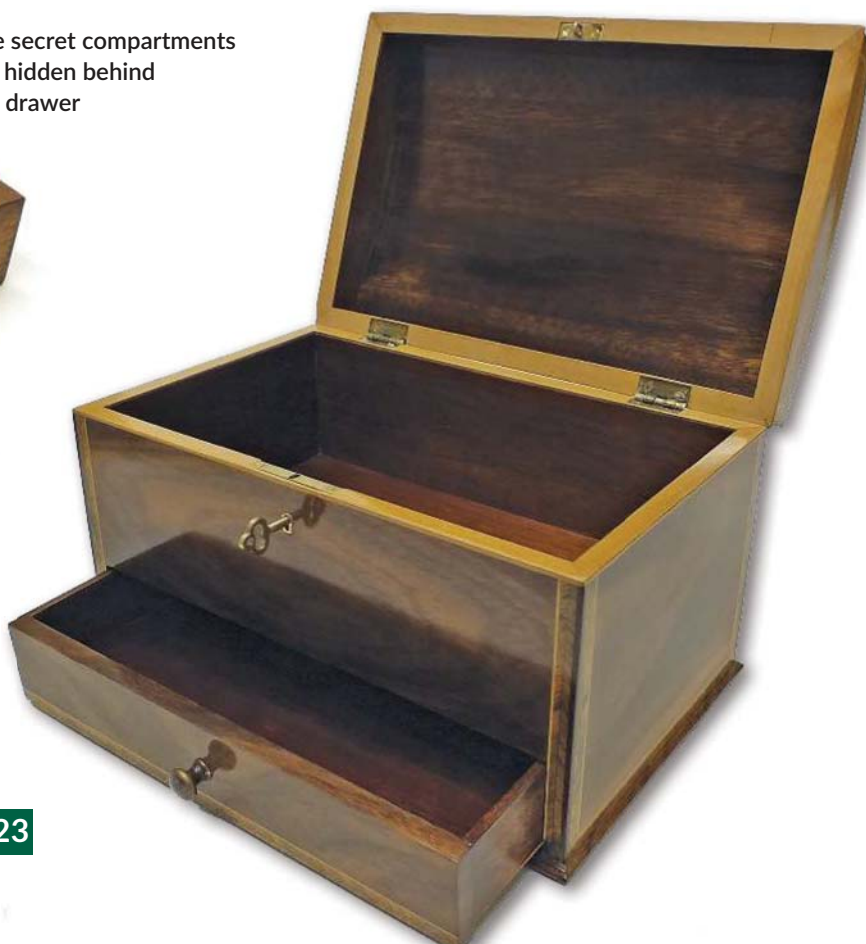
21

The secret compartments are hidden behind the drawer



22

The secret compartments revealed



23

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

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, book cases and reproduction furniture.

Web: www.sawdustandwoodchips.com



Jo Morgan

Jo is a part-time furniture restorer and works for John Hartnett of John Hartnett & Sons in Henfield, East Sussex. She specialises in colouring and matching.



Simon Rodway

Simon has been an illustrator for our magazine since 'the dawn of time' itself, drawing on his experience in the field of architecture. He also runs LineMine, a website with articles and online courses on drawing software. His course, SketchUp for Woodworkers, is proving really popular.

Web: www.linemine.com/courses



Nick Weston

Nick is a hunter, forager, fisherman and chef from Sussex. He left London after three years' working as a freelance chef in the events industry and built a treehouse in a quiet Sussex wood from recycled and natural materials. Nick established Hunter Gather Cook in 2011 with an emphasis on high-end dishes using wild produce. Instagram@huntergathercook



Mark Baker

Mark is the longstanding editor of both *Woodturning* and *Woodcarving* magazines. He is well-known on the woodturning club demonstration circuit and through his presence at woodworking shows, effortlessly demonstrating his enviable woodturning skills. He also has a background in the timber conservation of historic buildings and specialist teaching.



Richard Johnstone-Bryden

Richard is a professional marine author & photographer who has covered the building and restoration of wooden boats for several magazines since the early 1990s, in addition to producing features about regattas, cruising guides, charter features and biographies of maritime figures. He has also written a number of historical naval books, including *The Royal Yacht Britannia: The Official History* and accounts of HMS Ark Royal (IV), HMS Illustrious (V), HMS Ocean (VI), HMS Bulwark (VII), HMS Belfast and HMS Cavalier.



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.

Editor **Anthony Bailey** Email: anthonyb@thegmcgroup.com, Designer **Jan Morgan**, Head of Woodworking Design **Oliver Prentice**, Senior Editorial Administrator **Karen Scott**, Illustrator **Simon Rodway** (www.linemine.com), Chief Photographer **Anthony Bailey**, Group Editor, Woodworking **Mark Baker**, Production Manager **Jim Bulley**, Production Controller **Amanda Hoag** Email: repro@thegmcgroup.com, Publisher **Jonathan Grogan**, Advertising Sales Executive **Russell Higgins** Email: russellh@thegmcgroup.com, Marketing **Anne Guillot**, Subscriptions Tel: +44 (0)1273 488005 Email: pubs@thegmcgroup.com
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Woodworking blog



Krishan Vara discovers that practice really does make perfect

My approach to woodworking is to use hand tools as much as possible, but also not to use fixings such as screws. Dowels, wedges and glue are preferred – I do like a challenge. With a little bit of research I've found these methods have very much aligned with Japanese joinery. I feel this approach helps me expand on my creativity and to continuously learn different practices. A good example of this is dovetail joints, which span back many years and themselves have a lot of variation. I think dovetails add beautiful detail to simple furniture.

My sister has asked if I can make her a coffee table. The construction will be a box with a top opening in the style of a paned window (see the very simple initial sketch). The box will be made up with dovetail joints that are a few millimetres proud of the surface. I am doing this in my evening course at Royal Leamington Spa College. My tutor, Jamie, has taught me two methods for making dovetails and pins, one with dividers and one by measuring out. I prefer the measuring method, although using dividers does seem so much quicker. I have also watched a few YouTube videos and picked up some great tips. I have quickly realised that practice counts for so much with dovetail joints. Marking up is critical as well as precision cutting with a dovetail saw. I like to saw down a vertical line and hold my piece of work in the vice so that I can do this. I used a practice piece and cut it multiple times to build up some muscle memory. It's also really, really important not to cut off your dovetail when you are supposed to cut out the waste – can you spot the mistake in the image?! I did smile and swear. Very frustrating but an important learning point, which is fine when working on practice pieces. It dawned on me, as obvious as it may seem, that you need to get four good aesthetic functional dovetail corners to make up a box... Ooh, the pressure.

On a slight tangent, what do you do with some garden sleeper offcuts? Make a bench/flowerpot stand of course. And the best way to connect the legs to the top? A giant dovetail!

(Um, we've all done that embarrassing wrongly cut dovetail mistake thing...Ed) ■



Oops, I've cut out the wrong piece!



PHOTOGRAPHS COURTESY OF KRISHAN VARA

Thumbsticks

Relatively easy to produce, a thumbstick is a good introduction to the craft of stickmaking

A thumbstick is, in my opinion, one of the most comfortable and useful sticks it is possible to own. Not only does it serve as an aid to walking, the ultimate test of any good stick, but it also doubles as a rest for fishing rod, telescope or gun, as a means of deflecting troublesome brambles or branches on stick-hunting expeditions, and as a convenient tool for extricating Wellington boots which have been sucked into bogs or river banks!

A natural thumbstick

A natural thumbstick can be found in many trees but the best ones are likely to come from hazel or blackthorn. For this project I have chosen blackthorn. Making a thumbstick incorporates three manufacturing processes common to the production of most sticks. These are: straightening the shank (or shaft) of a stick; fitting a ferrule; applying a varnish finish.

Selecting a stick

Our first consideration in selecting one of the sticks from the bundle which has been seasoning for the past year is length. No matter what its other qualities might be, if a stick is not long enough to make a thumbstick it should be passed over. Because we are talking about blackthorn it can almost certainly be used to make something else.

What then is an appropriate length for a thumbstick? Given that people's height varies and the taller the person, the longer the stick should be, is there a way to determine the correct length for a stick? Yes, there is.

At the beginning of this chapter I listed a variety of uses to which a thumbstick can be put. One use that I didn't mention is that it can provide a convenient crutch for its owner to lean on at the mart or in the pub when discussing the day's market prices! The best way to determine the length for a custom-made stick, therefore, is to take the measurement from the armpit (of the person for whom the stick is

PHOTOGRAPH BY RIC BOWER

STICKMAKING HANDBOOK



ANDREW JONES & CLIVE GEORGE



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& Clive George

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Peeled gorse thumbstick. It is very unusual to find a piece of gorse of this length which incorporates a well-balanced vee

intended) to the ground. A thumbstick cut to that length will be comfortable to use: it will be in the range of 50-55in (1300-1400mm).

The 'vee'

Let's now move on to look at the suitability of the 'vee' in the stick you have selected. I should say immediately that faults in this particular area are many and varied. Some faults can be satisfactorily removed; others can be reduced. For example, if the vee is too narrow to take the thumb comfortably, it is perfectly acceptable to widen it by shaving its base (see A). Alternatively, it is possible to widen the vee slightly by heating it gently with a hot-air gun (of the type used to strip paint), opening the vee a little, and inserting a wedge to keep it open while the vee cools. Be very careful not to split the stick down its length when carrying out this operation. Using the same technique, a vee which is too wide can be heated, squeezed in a vice with a wedge of the correct width in place, and held in this position with strong elastic bands. Both of these operations should be undertaken before the sides of the vee have been trimmed to size. The longer the sides are, the easier it is to make any adjustments. Some vees have additional shoots growing out from their base. In most cases these can be carefully trimmed back so that they do not interfere with the proper shape of the vee.

You will be fortunate if the blackthorn you have selected has a perfect vee, so settle for what you have. Improve it if you think you can, but always remember that you are

dealing with a product of nature and not something which has come out of a factory mould. Blemishes, if that's what they are, help to give a stick its identity and character – never more so than in the case of blackthorn.

The sides of the vee should now be trimmed to size. They should be of equal length, between 2½ and 3in (64 and 76mm) long. The edges of the cut ends should then be finished. I do this by lightly sandpapering, taking care not to damage the bark. Another option, which I do not favour, is to round over the cut ends, taking off a little of the bark in the process (see B below). This is very much a question of personal taste. I (and most other stickmakers it seems) prefer to see a clean, straight cut to the prongs of the vee, but ends rounded over are not a fault and would not be judged as such in a competition. If they are rounded off, a minimum of bark should be removed in the process – too much will make them look wrong.

Removing bark

Talking of the bark, it is now time to decide whether to leave the bark on your stick or strip it off. For most stickmakers the very thought of removing the bark from a blackthorn is criminal. It is true that the bark when varnished is particularly attractive, but stickmakers should never be afraid to experiment. I have taken the bark off blackthorns (albeit ones which were not of the highest quality) to good effect. The knots which are left when the thorns have been cut back remain in evidence and if the shank is coloured, especially by the process ➤



PHOTOGRAPH COURTESY OF IMAGE PHOTOGRAPHIC SPECIALISTS

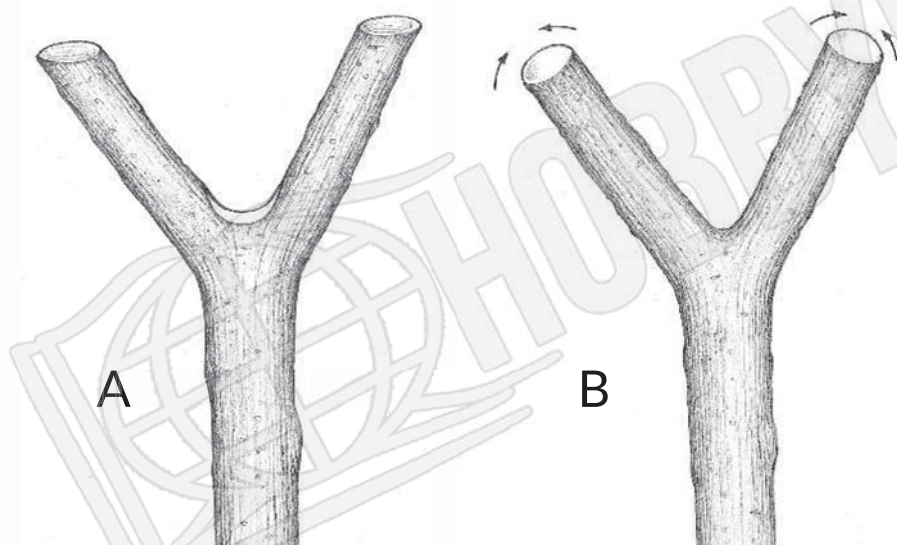
A thumbstick (right) should be comfortable to lean on



Squeezing a vee to reduce its width



Trimming extra growths from a vee



A
Shaving the base of the vee to make it wider

B
Rounding over the tips

of fuming, the results can be very attractive.

For this project we will assume that the chosen stick is of sufficient quality to justify leaving the bark on. The first step, therefore, is to tidy it up by carefully trimming the thorns and any side shoots right back to their base. This is best accomplished by using a pair of secateurs to trim them, and finishing them off with a small file (see 1). Remember, do not take too much off the knots that are left from the removal of the thorns. The quality of a blackthorn is mainly determined by the frequency and symmetry of these knots so they must be left nicely rounded and not filed flat! (See 2.)

If you sight down the length of a blackthorn shank (as if it were a rifle barrel) you will be able to see how the knots spiral like a corkscrew around the surface of the shank. The better the spiral, the better the quality of the stick.

Straightening the stick

The next step is to straighten out any bends. To do this you need to apply some heat. There are two options: dry heat (produced by a hot-air gun) or wet heat (i.e. steam). I prefer, and always use, the steam method. While it is difficult to damage the surface of a stick by overexposure to steam, it is very easy to damage a stick irretrievably by giving it too much dry heat. However, the hot-air gun comes into its own when bending other materials, which we shall look at later.

For a single stick, a kettle on a gas or electric ring is perfectly adequate (see 3). For heating three or four at a time I find an old-fashioned water boiler powered by electricity to be absolutely ideal (see 4). The old coat you can see in the photograph helps to concentrate



The steam from a kettle is sufficient to heat a single stick



Trimming thorns and side shoots from the stick

the steam on the section of the stick where it's needed. A piece of sacking is similarly effective.

Work on each bend in turn. Expose it to the steam carefully for around 15 minutes and then, very gently, flex it over your leg until you feel it giving way and the bend starts to straighten (see 5). Then, look at it again and, if satisfied, tackle the next bend. If it needs a little more straightening, try it over your leg again. If it doesn't move, put it back in to steam. You will be surprised at how easy it is to take bends out with this method. It is also a very satisfying process and I commend it to you. Once you have taken all of the bends out, lay the stick on a bench or table for a couple of hours to set. When it has cooled, if any bend reappears don't be afraid to repeat the process of steaming but this time clamp the offending shank lightly between two battens of about the same length as the shank and let it set overnight.

Safe heating practices

A hot-air gun is a very useful tool in stickmaking and we shall return to its applications in later chapters. This tool, by definition, generates considerable



For heating a number of sticks, a water boiler is ideal. A draped coat will concentrate the heat where you want it



Smoothing down the knots left after trimming



Do not file the knots flat – they should be left nicely rounded

heat which is imparted to the stick and, while it may be stating the obvious, extreme care is needed when handling wood which has been subjected to this or any other heating process. It is important here to underline the need to follow safe practices when generating and working with steam. Without care it can lead to burns or, when contained, to explosions. For this reason, I do not favour the use of steamboxes as a method of heating sticks. They are not necessary and there are safer ways to achieve the same effect.

To avoid the risk of burns, never work close to steam without ensuring that your skin is properly protected. I strongly advise wearing industrial safety gloves when removing sticks from, or placing them over, whatever means you are using to generate steam.

Cutting to size

Next, decide on the length of stick you want. Remember the old carpenter's maxim: measure it twice and cut it once. For this job I clamp the stick in a vice, having first protected the bark by slipping a 3in (76mm) length of 1in (25mm) diameter plastic pipe, split in two lengthways, around the appropriate section. Providing the bark is

protected, any suitable means of holding it steady will do. I use a hacksaw rather than a tenon saw because it produces a finer cut and reduces the risk of tearing the bark, but any fine-toothed saw should suit the purpose.

Fitting a ferrule

The next step is to select and fit a ferrule to protect the bottom end of the stick before putting the finishing touches to it.

There are three choices of material for the ferrule: metal, rubber or horn. I shall deal with horn later because, to my mind, such a ferrule goes best with a handle to match. As for rubber, while giving a good grip and being easy to fit (and replace) it always appears cumbersome to me. So, I am going to concentrate here on metal ferrules.

At its cheapest, a sawn-off piece of copper tubing will suffice, but it looks just what it is.

For the modest cost involved, a purpose-made closed-end ferrule in dull brass is the answer, being both neat and durable. Brass ferrules are available in a variety of sizes, ranging from $\frac{3}{8}$ –1in (10–25mm), and can be purchased singly at game fairs and larger agricultural shows, or in quantities from suppliers that can be found on the Internet.

To select one, measure the diameter of the stick an inch (25mm) or so in from its end. This will give you the size of ferrule you need. Carefully cut through the bark around the circumference of the stick at a point near the end which is slightly less than the length of the ferrule itself. I use a junior hacksaw to make this cut; others prefer a sharp knife.

This mark has three very important functions:

1. It serves as a working guide;

2. It prevents the bark above it from flaking off;
3. It becomes the collar against which the ferrule will eventually sit.

I recommend you stick a single turn of masking (or insulating) tape immediately above your mark in order to protect the bark from the next step, which is to rasp the end into a gentle taper to fit the ferrule (see C below). The only problem with adhesive tape (whatever the type) is that it can be too sticky. On removal, it can tear off the bark which it was intended to protect. To minimize this risk, before putting it in place, press the strip you are going to apply onto another surface first – a dusty trouser leg is ideal! This will remove some of its adhesion and make it less likely to damage the bark on your stick. Try the ferrule for fit and, when it can be readily pushed on for about three-quarters of its length, remove it.

At this stage many stickmakers tap the ferrule home and call it a day, but we will not. Before this, you need to seal the wood you have exposed in cutting the taper. Remember, this is the 'business end' of the stick, which will be constantly under threat from mud, muck and water. This process takes less than a minute and is well worth the effort. Any varnish will do, but I generally use the tin of yacht varnish I've bought to give the stick its final finish.

So, apply a little varnish (it need not dry off), replace the ferrule and tap it home so that it fits snugly against your earlier mark. To make sure that it stays there, insert a small veneer pin (cut to length as necessary) near the rim of the ferrule, but at this stage do not tap in the pin completely. If you tie a loop of strong thread to the protruding pin, it will provide a convenient means



5

Flex the heated stick gently over your knee to straighten it



A collection of brass ferrules

of suspending the stick after it has been varnished, when leaving it to dry. Alternatively, use a small punch to create three equidistant dimples around the rim.

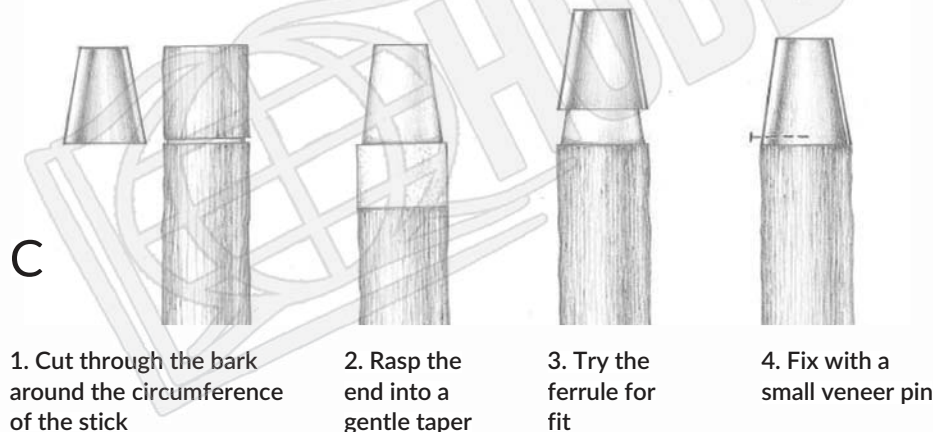
Finishing

You must now apply a finish to the stick both to enhance and to protect it. Start by removing any accumulated grime or dirt. Using 0000 grade wire wool dipped in warm, soapy water, lightly rub down the stick, then wipe it clean and leave it to dry for half an hour.

Apply a coat of sanding sealer, sparingly, using a cloth dipped in the liquid. Leave this to dry for at least two hours, then apply a first coat of yacht varnish diluted with white spirit (50:50) with a cloth or brush; the secret is not to put too much on and to avoid introducing foreign bodies such as fluff and hair. Leave to dry in a warm room overnight.

Next, cut back the first coat very gently using 0000 grade wire wool and wipe the stick clean, being particularly careful to remove any wisps of wire wool. Then apply the second coat, this time of undiluted varnish. Leave to dry as before, cut it back even more gently, wipe clean, and put on the final coat of undiluted varnish. Once this has dried, the stick is ready for use. ■

FITTING A FERRULE



C

1. Cut through the bark around the circumference of the stick

2. Rasp the end into a gentle taper

3. Try the ferrule for fit

4. Fix with a small veneer pin



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A new dust collection system

Michael T Collins can breathe easy now his new dust collection system is working

1 If you use any form of power tool, you are going to generate sawdust and woodchips – lots of sawdust and woodchips. For me, the tools that make the most dust are, in no particular order, my tablesaw, router, planer, sander and bandsaw.

The way you handle this by-product of your craft is critical to the environment in which you work and,

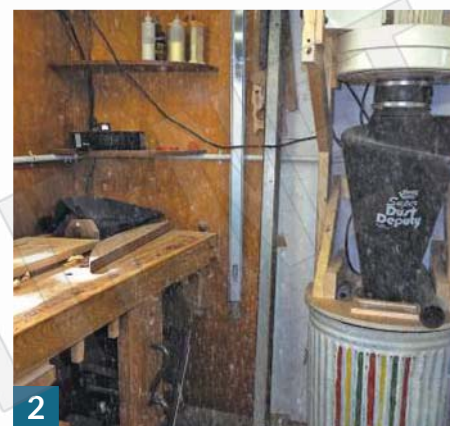
more importantly, your health and wellbeing.

When I first started working wood it was all hand tools and pretty much all the sawdust and woodchips produced with hand tools is heavier than air and winds up, in short order, on the shop floor. This is not really a concern.

2 As I started using power tools in my work, I realised that there were more chips falling faster, but that the air was becoming laced with dust. Clearly visible in the sunlight, this dust seemed to linger in the air much longer, almost like smoke.

Note: The sizes of particles are usually described in microns, a metric unit of measurement where one micron is one-millionth of a metre, or $1\text{in} = 25400\text{microns}$, $1\text{micron} = 1/25400\text{in}$ – that's pretty small. The human eye can see particles larger than 40 microns.

Typical size of sawdust is anywhere



PHOTOGRAPHS BY MICHAEL T COLLINS UNLESS OTHERWISE STATED



between 30-600 microns. To put this in perspective, the dots in this sentence are a little over 600 microns/0.6mm.

My containment journey

Disclaimer: This is not a scientific study of dust collection – there are plenty of articles by people far more qualified than me. This is simply my attempt to create an environment as free from dust as possible for my tablesaw, using parts I already had and those I could buy off the shelf, together with a little bit of ingenuity. ➤

3 My first major investment when setting up my wood shop was a contractor tablesaw and my first step was to add a dust bag under the blade. This really failed at its job and, as you can see, as much dust made it on to the floor as into the bag. I was still being covered in dust and woodchips at the end of a day working in the shop from the fine particles that were being thrown out and into the air.



Minimum protections

I had the good sense to realise that my existing set-up was not a healthy environment. However, it's pretty easy to get good fine-dust protection without much work or expense. A mask and good cross ventilation work and provide good protection. The mask must meet NIOSH (National Institute for Occupational Safety and Health – US) standards and fit properly. In the UK the equivalent agency is the HSE (Health & Safety Executive).

3M makes a series of masks that are approved respirator masks. If you can't stop the dust at least stop breathing it.

4 I use a couple of masks – a GVS SPR457 Elipse P100 Half Mask Respirator and a 3M Dual Cartridge Respirator Assembly. Both are NIOSH approved. These masks should go on before you start making dust and when not in use be kept away from being contaminated with dust getting inside them.

In addition, I crack the door and have a cheap 24in box fan placed in the window so that my work area has good cross ventilation. It's a little harder in the middle of winter, but with the heat on and the fan blowing I don't notice the cold.

5 I also have a ceiling-mounted dust filter that first filters the air at 5 microns and then a second filter stops 1 micron particles. I usually start this well before making dust and it stays on for two to four hours after.

6 In the spring I open the main doors of the shop and, with a box fan in the door, I use a leaf blower to blow all the dust from every surface (wearing a mask of course). The fan then blows it out into the yard – compressed air and a broom will also work.

My next investment was a 3HP cabinet saw that had a dust port. It was time to get serious about capturing all the dust, so I bought a cheap,



single-stage dust collector that worked great, but the bag constantly needed emptying.

7 My father-in-law suggested adding a two-stage separator. This is simply a 100-litre bin connected with 100mm ribbed piping that sits between the dust collector motor and the tool – in my case the tablesaw. The separator is a specially designed lid that forces the air to spin inside the dustbin, causing the sawdust and woodchips to drop out of the air into the bin. Only the very smallest of particles make their way to the dust bag.

I used this configuration for about 10 years, adding a couple of extra hoses and some blast gates via a Y-fitting so that I could connect other tools. I was quite happy with the set-up – the bin was easy to empty (when I remembered). But, as my woodworking hours became longer



and I was making more items, more fine dust than I wanted was making its way through the two-stage separator to the dust bag. Although the air quality was much better, the fine particles were able to make it through the upper bag, and about four times a year I would have to empty the dust bag, which was an unpleasant task.

8 There were several other issues with the design – it wasn't airtight and I couldn't see into the dustbin to check when it needed emptying. It would fill to the point that it over-spilled into the dust bag and, on some occasions, that too would fill up and the dust would start to migrate into the top bag, resulting in a real nightmare of a job.

And so I needed a new system – one that would work with my vast creation of sawdust and woodchips (and furniture, too).

New dust system set-up

The parts:

- 100-litre dustbin
- Oneida, Super Dust Deputy
- Wynn MERV 15, C-1425C air filter
- 6in rubber connector
- Length of 100mm PVC drainage pipe and a handful of clips
- 2 blast gates
- A Y-fitting

9 To start with, I completely dismantled my existing system with all its varied connectors and leaky seals.

10 The new system requires two doughnut-shaped pieces of 20mm ply, the first is a circle of wood that was about 50mm larger than the radius of the dustbin – this was cut using a shop-made circle jig on the bandsaw.

11 I then cut a hole in the middle, creating a 'doughnut', followed by cutting a second piece in the same way and again a hole was cut in the centre.

12 The outer diameter of this second piece was the exact diameter of the dustbin inner rim and created a perfect seal when pushed on to the dustbin. The two rings were screwed and glued together.

Both centre holes were slightly larger than the diameter of the bottom of the dust deputy. This was to ensure that dust could not collect on any existing ledges.

The motor/impeller, central dust inlet housing and the bag spring clip were the only parts that were to be reused from my previous system.

I started by setting the location of the dustbin in the most convenient location and raised it 50mm off the ground – this gave just enough clearance so I would be able to remove the bin to empty it easily.

13 Next the double-layered doughnut was attached to the bin with a seal made of draught excluder.

On top of this I added the Dust Deputy and secured it in place with the supplied foam seal. I had to use longer bolts, as those supplied were too short to go all the way through the doughnut.

The next step was to attach the 6in collar to the top of the Dust Deputy,

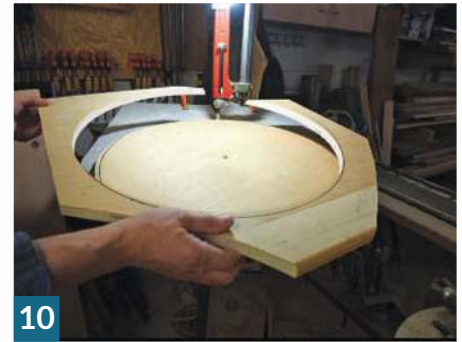


and then on top of this the motor assembly. This was the hardest/heaviest task and one that I really should have sought help to achieve.

At this point I had the maximum height of the main body, and just needed to move it to its permanent location.

The motor support

14 The motor supporting brackets were made using construction



studs and braced using triangular construction. All the parts were secured in place with lag bolts.

The dustbin cover was secured to the wall with two brackets made from studs (this can be seen in image 23).

The filter support

15 I made another doughnut, using the same technique, rounding over the edge on the router table. ➤

16 This doughnut was attached to the wall using some brackets I had laying around.

17 This doughnut went between the bottom of the Wynn filter and the main housing.

18 The doughnut was screwed to the main housing with draught excluder between the two parts.

19 The Wynn filter was then secured to this doughnut with the supplied clips. The dust bag was also supplied with the Wynn filter and was secured to the lower half of the main housing with the spring clip from the original system. The two sections were then connected with a short piece of the original 150mm ribbed pipe and secured in place with clips.

20 To connect the Dust Deputy, with its 127mm intake, to the tablesaw I needed to use a reducer bringing it down to the standard 100mm ribbed piping. All these connectors were inherently loose fitting and needed to be sealed with foil tape.

Note: When transitioning down in size, it's better to use a tapered fitting rather than a stepped connector.

I used standard PVC drainage piping run to a Y under the tablesaw that branched to the main port and the tablesaw blade guard. I use more expensive flexible piping that is smooth on the inside and provides excellent flow and virtually little resistance.

21 This second pipe can also be used on the router table and the thickness planer. It's always a good idea to design a system that has room for expansion.

22 Air suction from the two pipes could be shut off with a couple of blast gates. The design of these gates was pretty poor and where the air could be sucked in was taped using foil duct tape.

Monitoring the system

I tested the system with a pile of sawdust and was very pleased to see that the dust bag had barely any dust in. But a brief test wasn't going to suffice. I needed a way to monitor the system for the two issues that I had been dealing with for far too long: how full was the dustbin and how clean was the filter at any one time?



23 To enable visibility into the system, I cut a window in the top of the dustbin cover and sealed a Perspex window in place.

Making a manometer

The simplest version is a U-shaped tube half-full of coloured liquid, with one side of the tube connected directly to the dust filter, while the other end is exposed to atmospheric pressure. The difference in liquid levels represents the pressure differential.

24 I connected one end to a 70mm PVC end cap with two holes drilled in the top – one 8mm for a bolt to secure it to the filter cover and one 9.5mm to secure an elbow connected to the tube.

Cotton balls were inserted in the end cap to stop dust escaping into the tube.

25 Two holes were drilled in the top of the filter lid for the bolt and the air to escape into the manometer.

Gauge the pressures

26 I then drew some parallel lines on a board at 5mm intervals. The tube was then attached to the board with wire and secured to the wall next to the filter.

27 With the tube connected, I turned on the system. This being a completely new system there was nothing to stop the air flowing through the filter and I had an equal pressure reading where the liquid in the tube was level. This level was marked on the gauge as 'normal'.

28 To simulate the worst-case scenario, a totally clogged filter, I covered the air filter with a plastic bag and sealing all the gaps with tape. The system was again turned on and I marked the liquid level on the gauge.

I now had the best and worst levels – I marked a level on the gauge between these two extremes where I should check the filter. All I needed to do now was keep an eye on the manometer to see when I needed to clean the filter.

29 As of May 2019 I have been using the new system for about two months and I am very pleased with the way it's performing – I can see when the dustbin is getting full and the dust bag has almost no dust in it. The manometer is still registering normal. I have looked inside the filter and, while there is a fine layer of dust on the fins, this is not impeding the airflow and after a full day in the wood shop I leave without being completely covered in dust.

Future changes

There are some changes that I will be making in the near future:

I want to replace 90° elbows with 45° elbows, creating a straighter run.

I will be making some custom ply blast gates – the metal and plastic type



let in too much outside air.

I am considering replacing the plastic bag with a 20-litre bucket and adding a Thien baffle to prevent some of the finest particles travelling up into the filter.

And, lastly, I'll cover the tilt slot on the tablesaw where a lot of suction is lost.

Remember, the purpose for doing this complete redesign was to make the wood shop a healthier place to be for an extended period of woodworking, and to that end I feel I have achieved the goal. However, before every sawing job the mask and fan go on and stay on for about 10 minutes after I stop making dust – the bottom line is that your health is a significant reason to take a good look at your shop's dust control. ■

US suppliers and resources:

Dick Wynn www.wynnenv.com/woodworking-filters
Dust deputy www.oneida-air.com

UK suppliers and resources:

www.toolovation.co.uk for Oneida products
www.addfiltration.co.uk for Microclene filtration products

NEWS & EVENTS

All the latest events and news from the world of woodworking

Woodland Trust tree packs

Earlier in the year the Woodland Trust offered landowners visiting the Suffolk Show the opportunity to claim a special tree pack to help strengthen the rural landscape as tree diseases are on the increase.

The charity gave away 200 Targeting Tree Disease packs, which each contained 45 young saplings, carefully selected to best replace those which will be lost to current diseases.

There's never been a better time to plant to tackle tree disease. Research by University of Oxford, Fera Science, Sylva Foundation and the Woodland Trust recently revealed the true economic cost of ash dieback to be £15 billion.

Edwin Van Ek, outreach adviser for the Eastern Claylands, an area covering most of Essex and Suffolk, said: 'There are two diseases of current interest to tree health specialists in the east of England – acute oak decline and ash dieback.

'Acute oak decline has been recorded since 2006, and research into how the condition spreads is ongoing. Ash dieback has now been recorded in more than 1,000 locations and has been confirmed in every county across England. In the East of England we expect 85% of ash trees to be under threat.

'For acute oak decline and ash dieback combined this might equate to a hugely worrying total of two million trees disappearing from the landscape of Essex and Suffolk alone.

'Our Targeting Tree Disease packs for the Eastern Claylands give the opportunity for people to pre-empt any losses which could occur, while also providing other benefits such as shade, shelter and creating homes for wildlife.'

The trees in these 100%-subsidised packs have been UK-sourced and grown and include a mix of species from the following six: oak, field maple, hornbeam, crab apple, silver birch, and wild cherry.

The trees will be ready to be picked up in December from several collection points in Suffolk and Essex.

The Eastern Claylands – facts and figures

- Forty-four per cent of woodland in Suffolk and 62% in Essex is left unmanaged, yet it has great value which is not realised.



PHOTOGRAPHS COURTESY OF THE WOODLAND TRUST

- 52% of trees within the Eastern Claylands are trees outside of woodland – e.g. in hedgerows and fields – and about a third of these are ash, many of which will succumb to ash dieback.
- The area has approximately 38,000 hectares of woodland, of which 31,000ha is broadleaved.
- Woodland cover in the area is currently just over 7%, compared to the UK average of 13%.
- There are 12,285ha of ancient semi-natural woodland – 22% of these are plantations on ancient woodland sites.
- Analysis of aerial photos in part of the treescape has shown that around 50% of the hedgerows and 75% of standards in the area have disappeared over the last 100 years.

www.woodlandtrust.org.uk

Events

Michelham Priory & Gardens Contemporary Craft Show,
2-4 August 2019, Upper Dicker,
Hailsham, East Sussex BN27 3QS
<https://thesussexguild.co.uk>

Chestnut Products' Woodturning Weekender, 3-4 August 2019
The Springfields Event Centre,
Spalding, Lincolnshire
<https://chestnutproducts.co.uk>

Snainton Woodworking Supplies Open Day, 10 August 2019, 10am-3pm
Free admission. Barkers Lane, Snainton,
Scarborough, North Yorkshire,
YO13 9BG
www.snaintonwoodworking.com

South Downs Show, 17-18 August 2019, Queen Elizabeth Country Park,
nr Petersfield, Hants, PO8 0QE
www.southdownsshow.co.uk

Biddenden Tractorfest and Country Fair, 17-18 August 2019, Woolpack
Corner, Tenterden Road, Biddenden,
Kent, TN27
www.tractorfest.co.uk



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Michelham Priory, Upper Dicker, Hailsham

Pashley Manor Gardens Contemporary Craft Show, Saturday 24 to Monday 26 August 2019 - Bank Holiday
<https://thesussexguild.co.uk>

Henley Country Craft Show 23-26 August 2019, Stoner Park, Henley-on-Thames, RG9 6HF

www.thecraftshows.co.uk/henley-on-thames

Stock Gaylard Oak Fair 24-25 August 2019, Stock Gaylard Estate, Sturminster Newton, Dorset, DT10 2BG
www.stockgaylard.com

Web links for you

Youtube

29 Amazing Woodworking Projects You Have To See
Yeah, right. Well, I know videoclips are often 'bigged up' but there are some genuinely impressive projects here, such as building a wooden canoe wrapped in a fibreglass skin or a fancy carved box. Great ideas and techniques shown.



Twitter

@ace_national
Arts Council England – is it art or is it craft? That age-old question, but if you are interested in arts and culture you can find out the latest creative goings-on around the country by following this twitter feed.

Instagram

therestorationlady
Lots of interesting ideas and examples of her work on mid-century furniture which is so very 'now'.



AXMINSTER Bench mortiser

The **Editor** decides to see if Axminster's latest machine can really cut it

New to the Craft range is this chisel mortiser – the AC16BM benchtop model that accepts up to a 16mm-diameter chisel featuring lateral and longitudinal geared bed movements. It isn't designed for overhanging the bench to mortise frames and other large components, only those that will fit within its capacity as separate workpieces. First and second impressions are that it is well built and also very heavy. Two people are needed to move it from box to bench to avoid personal injury. The cast frame at the back is very rigid and the slideways are all accurately milled and plenty of heavy, well-finished castings.

There is only a limited amount of assembly required and the essential oiliness everywhere needs a good wipe down, apart from where the cog mechanisms mesh together and the slideways. Threads on components are generally quite tight, which is better than sloppy thread-forms. The machine was already well set up so the pressure plates in the slideways didn't need any adjustment, although you can alter if necessary when wear eventually sets in.

The manual suggests the pull-down mortising lever can be adjusted – in practice it can't, there is one position so you do have to reach back a bit to get it from the rest position when mortising. Equally there is a suggestion that the head block when retracted can be stopped short of the rest position but that doesn't seem possible either. In practice it is fine, it works and the operator's reach isn't overextended.

It uses a gas piston, as is standard now for giving return



Making sure the chisel is square to the fence



The range of movements and lock knobs clearly visible



The Japanese chisel cut cleanly and easily

pressure to lift the head block. I do miss the old-fashioned counterweight on older industrial machines, but this is fine, it retracts as intended.

On the mortising bed the front jaw drives in and out with an angled thread but just clears the bed when fully forward. There is a series of bolt and metal dowel holes for adjusting the jaw casting to suit different stock widths. The bolt holes had rough standing edges from being tapped, which spoils the otherwise almost mirror-finish bed. I took a snail countersink to them to chamfer the thread starts which neaten it up. Both front and rear jaws are accurately ground but retain a coarse finish to help grip the wood to resist the pull of a mortise chisel on the up stroke. However, taking no chances I rubbed the front jaw on abrasive paper but found no evidence of unevenness that could cause surface marking on workpieces. To the right of the machine are the depth stops and swivelling haunch stop. The front handwheel for sideways movement is large and the travel of the mortising bed can be limited by setting the end stops on the chromed rods at each side.

The major thing is the chisel and the fitting of it – it only accepts $\frac{3}{4}$ in shank bits. Axminster had wisely provided a Japanese 12mm mortise chisel. There are cheap ones on the market, but

don't bother with them, the Japanese have got precision toolmaking off to a fine art even though they may seem a bit expensive. Cheap, poor-quality bits will cause burning, need more effort and blunt quicker. Normally I have to grind or hacksaw off the auger shaft but this one was just the right length to fit in the nicely engineered true-running chuck, which is easily accessed at either side of the headblock. The manual gives useful advice about setting up. With the chisel assembly resting on a piece of softwood, I placed the blade of an engineer's square between chisel and rear fence before tightening to ensure the chisel was parallel to the fence. Rather than Axminster's 'penny offset' trick for keeping the auger clear of the chisel, I just pressed both admittedly sharp components on my forefinger and let the auger drop a fraction before tightening it, which was fine.

In use

I chose a piece of 75 x 50mm PAR softwood for my initial cuts. The machine noise is 'bright', which is caused by the running of the auger – ear defence is sensible as it is a bit annoying. Firm downward pressure produced a nice, clean hole with freely ejected chipping. Successive holes were fine and the finished mortise was a neat job. I tried the same thing with

a piece of oak. This needed a bit more pressure but still cut cleanly, smoke only occurring when I lingered in the wood to take a photo. The motor was never under any strain.

Conclusion

This is a well-turned out piece of kit. It doesn't take up too much space but is very heavy and must be bolted down. It was easy to set up and use and the good-quality chisel cut very neat mortises very quickly. With ingenuity you could mortise awkward-shaped components too. This machine is perfect for the home woodworker and for light trade use. You can easily create wide mortises so you aren't limited by the maximum chisel size. If you need to do a lot of joint construction work, this is highly recommended for the task. ■

Axminster AC16BM bench mortiser

Motor input: 375Ws, 240V supply

Chisel stroke: 100mm

Chisel size: 16mm in hardwood and softwood

Centre of chisel to back distance: 70mm

Height capacity with 12.7mm chisel: 110mm (160mm if optional spacer block is fitted)

Overall size: 275mm(l) x 440mm(w) x 640mm(h)

Weight: 42kg

Price: £259.94

Axminster can also supply a range of chisels from 3-16mm, spacer block, drill chuck for use as a pillar drill and a sharpening kit as required

<https://www.axminster.co.uk>



Using a snail countersink to clean up the bolt holes



A good clean mortise without any fuss

Let there be light

Mark Baker shows how to make a simple, decorative tealight holder



Tealight holders may seem a bit old hat or not something often thought about as a prime project for turning. That is a shame because they are functional, well-liked as presents, they sell well at craft events and, depending on the grain orientation selected, are either spindle turning – a squat or tall form of a wide candlestick – or, if faceplate grain-oriented timber is selected, the processes used are the same as those used for turning bowls but with a smaller internal hole. These are great items on which to practise and refine your turning

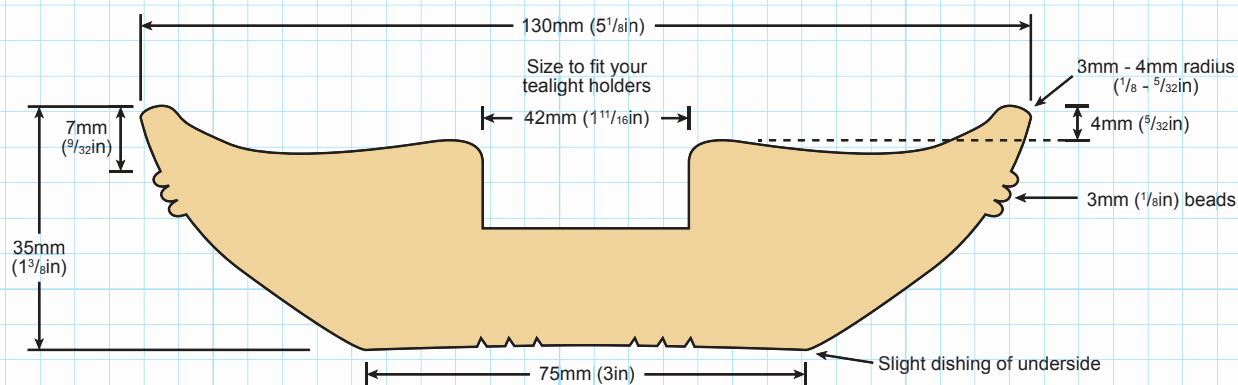
skills. There are myriad design options to explore and you can choose almost any timber you like, whether it be figured or plain.

Tealight holders do not take a lot of timber so are low cost – unless you splash out on a rare or highly figured piece of wood – and can be very quick to make, so are ideal for us time-poor turners who want to have fun and make something useful when we get time in our workshop. This article shows how to make one and also gives you a few design variants.

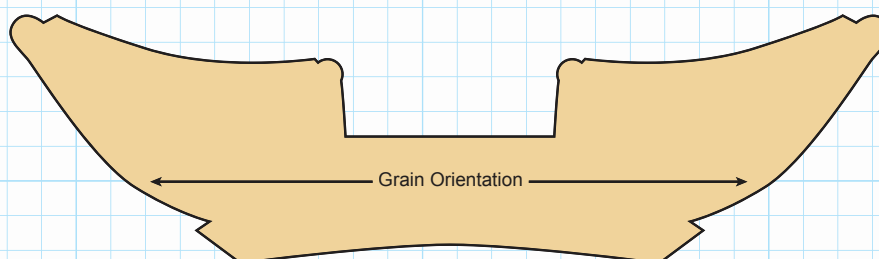
Health and safety

- There is much debate as to whether one does or does not need to use some form of heat shield/insert between the tealight and the item it sits in. There may – depending on the country one lives in – be specific laws or guidelines to cover this and, if there are, follow them accordingly. But if they are ambiguous as to whether you should or should not have a heat shield in place, my opinion is why take the risk of not using a purpose-made glass or metal holder? That way you know that you are minimising the risk of something untoward occurring for minimal cost. The inserts can be incredibly attractive too and add something extra to the piece.
- No matter what height you make the tealight holders, always ensure that the base is wide enough to support the piece without it toppling over if accidentally knocked.
- If you do stick the glass or metal holders in place, use a heatproof adhesive and, if using glass, make sure that you leave a little bit of an expansion gap between the hole and the glass holder to allow for any wood movement.
- Never leave a lit tealight or candle unattended or place one near any flammable material.

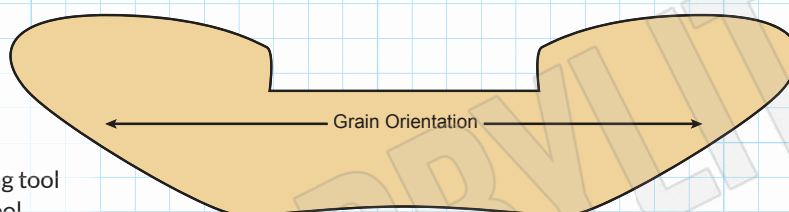
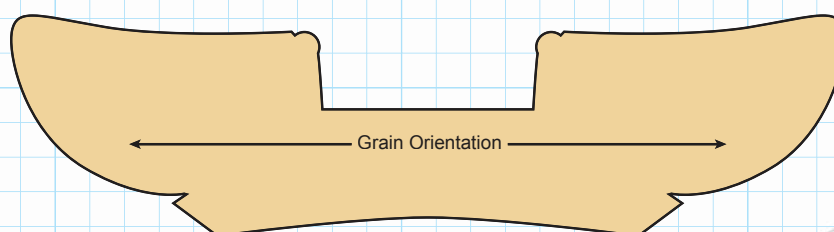
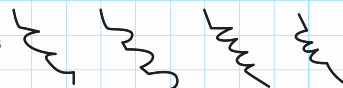
PLANS AND EQUIPMENT



ALTERNATIVE DESIGNS



Leave the body plain or decorate.
Beads, coves or V cuts are simple & effective ways
of achieving a different look.

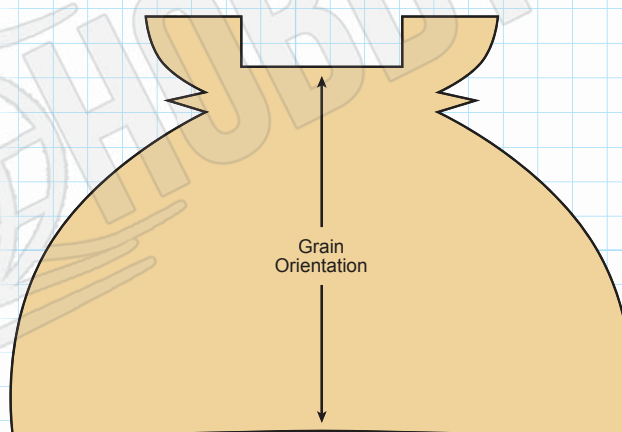


Tools

- 10mm bowl gouge
- 3mm bead forming tool
- 10mm beading & parting tool
- 2mm or 3mm parting tool
- Square end or angle-edged scraper
- Round-nosed or French-curve scraper
- Callipers
- Tealight insert of your choice

Materials

- Timber of your choice – I chose pear for this project
- Finish of your choice



1 Decide on your timber choice and grain orientation. I chose a small pear (*Prunus* spp.) bowl blank. I chose to drill a hole and mount it on a screw chuck. It is quick and simple. The hole drilled will eventually be turned away to fit the tealight holder in. I decided to initially mount this piece on a screw chuck.

2 Once the work is mounted on the lathe begin to shape the underside of the tealight holder. A 10mm bowl gouge is ideal for this. You will need to mount this timber in a chuck later to turn the top and a spigot or recess can be used. I chose a spigot, so roughly set out the approximate size when you start removing waste material. Use a combination of a pull cut with no bevel rubbing to quickly remove the bulk of the waste prior to moving to a push cut to create fine finishing cuts that refine the shape and remove any damage caused by the pull cuts.

3 One thing I do is to not make the push cut straight through to the top edge of the piece. I have found on fractious timbers, no matter how slowly one cuts to the top edge, there is a risk with micro or larger shards of timber breaking off. So the last cut I reverse the cut to just trim that final bit away.

4 Continue to refine the shape with the gouge until you get to the shape you require. Use a scraper after the gouge to refine the shape a little if required. But at this stage, do have the width of the eventual base determined and make sure you have cut a tenon to suit your chuck jaws.

5 Whether you leave the outside shape plain or choose to decorate it is up to you, but I like some decoration and chose beads in a band. To turn lots of small beads of the exact same size by hand is a wonderful skill to have and learn, but a simpler and effective way of creating uniformly-sized beads is to use a bead forming tool.

6 The trick with these is to never use them to reduce the diameter of the work, only cut to the surface you have shaped and make the last cut to fully form the crown of the bead with the cutting edge in trailing mode to minimise fracturing the crown of the bead. Once you have cut one bead, repeat the process until you have the number of beads you require.



7 You can leave the beads flush with the external profile or create a raised band of beads, but refining the shape either side of the bands of the beads. A combination of a bowl gouge...

8 ... and scraper will allow you to depress the surface of the tealight



holder so you have a raised band of beads. The shape of the depressed bodyline should mimic the arc that the beads follow or you will have a visual disjoint as far as the flowing body curves and the raised bands of beads.

9 Once shaped, sand and apply a finish of your choice. I tend to use an oil finish. Then remove the piece from the screw chuck, mount it in your chuck jaws and use a bowl gouge to true up the face of the wood.

10 You now need to check and measure the sizes and shape of your tealight insert. This metal one I am using has a plain body that is 20mm deep and 40mm wide with a rim that has a 2-3mm flare on the lip to cover the rear hole, making the hole simple to cut. Tapered ones need a bit more care in measuring and cutting.

11 Transfer that width measurement of the insert to the face of the blank and either drill the hole using a Jacobs chuck in the tailstock fitted with the correct size bit or just smaller than that required, or make a parting cut into the wood with a parting tool on the inside of the marked size to just shy of the depth required.

12 Now use a bowl gouge to remove the bulk of the waste, then use a combination of a beading and parting tool to refine the hole and corners. The depth of hole cut is slightly deeper than the cup due to there being a slight dished profile in the top of the tealight holder. Note the hole in the bottom for the screw chuck. This will be covered later by the insert which will be glued in place with heatproof adhesive, so I tend not to worry about that.

13 Create the slight dished profile from the rim leading down to the inner hole then slightly radius the top outer edge of the holder and inner edge of the tealight insert hole. Next, refine the shape with a round-nosed or French-curve scraper if you need to. Once done, sand and oil the piece and once again check the insert for fit.

14 To finish the base of the piece I tend to use a jam chuck to hold it while I refine the base. To do this, mount a piece of end-grain material and cut a tapered tenon that will lock into the hole cut for the tealight insert.

15 Adjust the tapered tenon until you know you have a secure fit, place some kitchen towel over the tenon and mount the tealight holder on to the tenon using the tailstock to keep everything in place at the moment. Once secured, use a gouge to remove



the waste material on the underside of the tealight holder to get the shape you want. I like a slightly dished underside – I know it will sit well on a surface. I used the corner of the beading and parting tool to create a series of V-cuts in the bottom to create a little bit of decoration. Once done, stop the lathe,

remove the tailstock, check the piece is securely held on the jam chuck and remove the stub left from the tailstock. After this, sand and finish as required.

16 Now all you need to do is glue the insert in place and you have a simple and effective tealight holder. ■

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From boxwood to Bakelite

Jo Morgan uses her polishing skills to replicate the missing parts of an Art Deco cocktail cabinet

The handles of this Art Deco cocktail cabinet were made of Bakelite. Some of the long profiles were broken and parts were missing. It was possible to cut and glue some of the broken parts together to form new handles, but it still left a number that were missing completely. One option was to make a mould and create the handles using modern resin, but this would most likely still have had to be coloured and aged in some way to match the old ones. A second option was to form the handles out of a fine-grained wood such as boxwood (*Buxus sempervirens*) and then colour them. I decided to try this and see how things developed. The challenge was to produce something that would give the effect of Bakelite by using the materials readily available to a furniture restorer.

One of the most notable qualities of Bakelite is the blending of colours that can happen within the resin. This means that any paint applied needs to have a wash effect using something that allows the colours to blend and disperse. A background colour is needed and then the addition of the colours seen in the handle with something that is neutral to give the wash effect.



PHOTOGRAPHS BY JOHN HARTNETT



A handle before being taken apart



A handle reformed using pieces that have been cut and then glued together

Bakelite

Bakelite, also known as polyoxybenzylmethylenglycolanhydride, was an early form of synthetic plastic developed by Leo Baekeland in New York in 1907. Baekeland was attempting to find an alternative to shellac and experimented with strengthening wood by impregnating it with a synthetic resin. By controlling the pressure and temperature applied to phenol and formaldehyde, Baekeland produced a

hard, mouldable material, which he named Bakelite. The material's electrical non-conductivity and heat-resistant properties made it suitable for use in electrical insulators and radio and telephone casings, as well as kitchenware, jewellery and toys. Bakelite items are highly collectible and there is even a Bakelite museum in Somerset.

www.bakelitemuseum.net



Bakelite pendulum clock

PHOTOGRAPH BY DUTCHSCENERY/SHUTTERSTOCK

THE WOOD



I planed the boxwood to the same thickness and, using an original handle as a template, traced and then cut the wood to the same shape using a coping saw. Then I drilled a hole to the same size at each end and sanded all the edges with a 120 grit and then a 240 grit wet/dry paper.

THE BACKGROUND COLOUR



Buff titanium and yellow ochre paints before they are mixed



Mixing the acrylic paints to match the lighter background colour in the original handle



Applying the acrylic paint with long brush strokes

I used acrylic paint as it forms a good strong base and does not react adversely with the sanding sealer and powdered colours to be used later in the process. The handles varied slightly in colour and pattern, but there was a common, light background to them all. I matched this background by using yellow ochre and buff titanium. With a fairly wide, flat-

profiled brush I painted the handle with long, even strokes until the top and sides were covered. When the paint was dry I did the same with the back. Once that was completely dry I lightly sanded the handle with a fine 600 grit wet/dry paper to give a smooth finish.

MIXING THE COLOURS

I mixed all the colours I could identify in the Bakelite in separate containers using sanding sealer as the mixer for the powder colours, which were brown umber with a little red oxide, flake white with a little yellow ochre and black. When practising this process on spare wood pieces I realised that time was of the essence as sanding sealer dries quite quickly on the brushes, on the handle and even in the jar lids I was using as mixing plates. I found that drying times could be increased if larger quantities were mixed, but then there was some wastage. I also found that each colour and the sanding sealer needed its own brush in order to avoid colour cross-contamination.



Use a separate container and brush for each colour



Mixing the flake white with a little yellow ochre and sanding sealer

APPLYING THE COLOUR



Applying the spots and streaks of each colour to match the original handle



Using light brush strokes in a diagonal direction to blend the colours using sanding sealer



Drier spots of colour may need a little time to loosen

Using an original handle as a template I put small spots or streaks of colour in the same places as the original. I then used the sanding sealer to wash the colours into the streaks and blurs seen on the original. Where the dot or streak of colour had dried a little too much, a little patience and wiggling of the brush over the spot loosened it. As the sanding sealer dried, some spots that had seemed very small

grew more in size than I had expected, but as every Bakelite handle is individual this didn't matter too much. I also found that I could carefully add more colour while the sealer was still wet, so if a lighter area needed more brown or a black area had become too dark I could change this fairly readily. It did tend to cause a slightly lumpy effect in the sealer, but allowed me to increase colour where needed.

DRYING AND PAINTING THE SIDES

Depending on the air temperature, the sealer dries over a number of hours. Once dry, I was able to add corresponding colour to the sides, for example where the edge of the handle showed brown I continued the brown over to the side.

LACQUER

When the handles were completely dry I gave them a light sand with a 600 grit wet/dry paper to reduce the lumpiness in the sealer. Then I did two coats with an acrylic lacquer allowing it to dry with a fine sand between coats. ■



The finished product next to an original handle



The Tudor shipwright

By Richard Johnstone-Bryden

The Mary Rose Trust and the International Boatbuilding Training College (IBTC), Portsmouth, will be bringing shipwright skills used in the Tudor era back to life within the Portsmouth Historic Dockyard as part of this year's national Festival of Archaeology from 20-28 July. The demonstration will take place within the home of IBTC Portsmouth, Boathouse 4, and at the Mary Rose Museum. It forms part of the Trust's ongoing Tudor Shipwright Project, which started in 1995 and is currently focused on the building of a replica ship's boat for *Mary Rose* and reproducing the different types of timber that were used in the construction of *Mary Rose*.

Choosing timber

A shipwright would begin the construction process for a ship such as *Mary Rose*, or even a ship's boat, by visiting a forest to select the trees that were likely to yield the right type of wood for each component. Not surprisingly, building a ship of *Mary Rose*'s size required a lot of wood and it is known that 36 acres of woodland was cleared to obtain 600 large oak trees for the construction of *Mary Rose* in Portsmouth. The trees located in each part of a forest are ideally suited for different parts of a wooden vessel. For example, the tallest trees in the middle of a forest have long trunks that can be turned into large beams or long planks, while trees along the edge have branches that grow out at roughly 90° which are perfect for making the L-shaped brackets, known as knees, which connect the beams to the side of the ship.

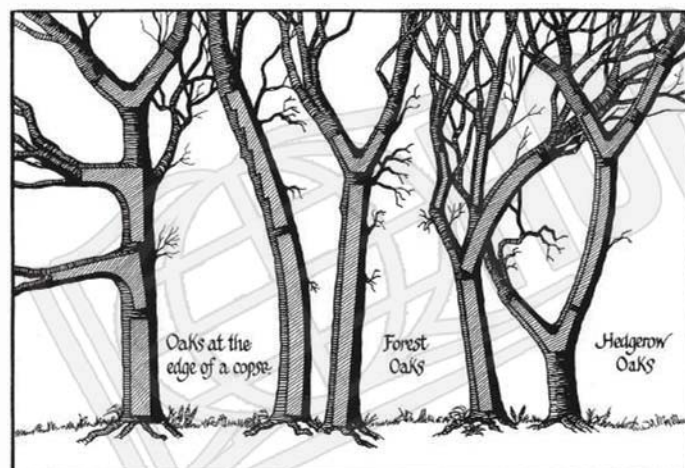
Cleaving and splitting

Once the selected trees had been felled, they were brought to the shipyard for transformation into the required components. Some of the trees were transformed using a technique called cleaving, which relies on controlled



IMAGES © THE MARY ROSE TRUST

The tools and methods used are very similar to green woodworking today



Trees were cleverly chosen by location to create specific components

splitting and requires a tree with very straight grain. The first stage is to split the trunk in half by creating a straight split from one end and carefully extending it towards the other end to produce the two halves. The shipwright starts by removing a strip of bark along the length of the trunk so that he can see exactly where to place the wedges along the grain of the wood. Using the right level of force at just the right moment is absolutely key to the success of this technique because the split must be as straight as possible. Therefore, the wedges are gently tapped in at first before greater force is carefully applied as the split develops. The shipwright will work along the length of the trunk from one end using a metal wedge to start opening up the split. As he moves along the trunk, the shipwright will insert a wooden wedge beside the metal one which is then pulled out and moved to the next point to continue opening up the split. ➤

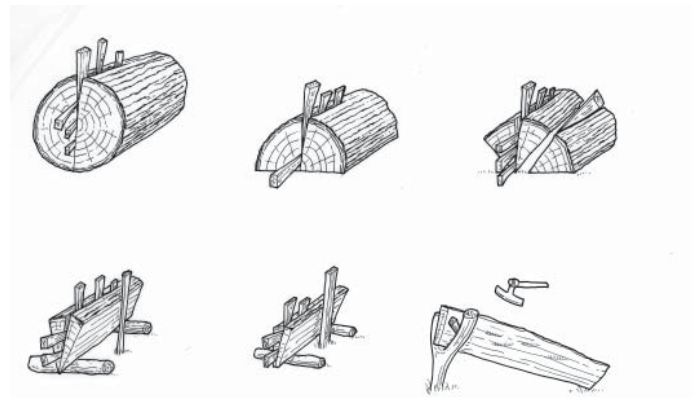




Taking careful aim with an adze to level a piece of timber



Using a hand axe to transform a naturally L shaped piece of wood into a knee for fitting in a boat



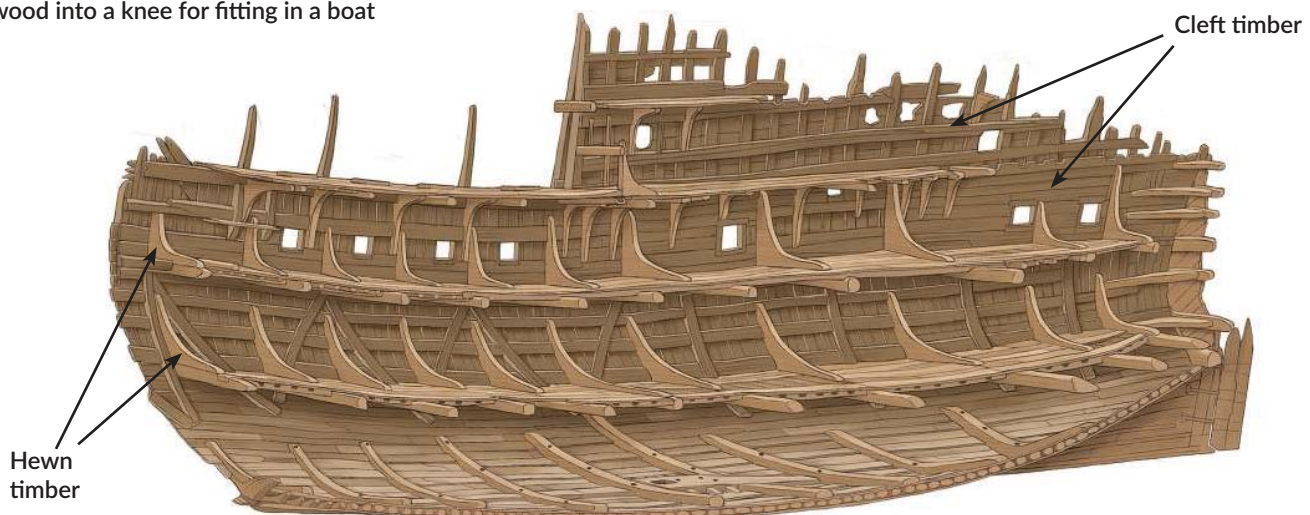
The process for cleaving a trunk into useable sections

To keep the split going, he will progressively drive in all of the wedges working from the starting point to the other end of the trunk until it has been split into two halves. Depending on the final size required, the process will be repeated to split the trunk into quarters, eighths or even sixteenths. Once the timber has been reduced to roughly the desired dimensions it is dressed with an axe to create a smoother plank. Planks made with this technique are called 'clef' timbers and were used in the construction of *Mary Rose* above the waterline high up in the castles, because their straight grain made them very resistant to cracking, bending or warping.

Hewn timbers were also made without the use of a saw and included knees and V-shaped timbers such as the rising floors at the bottom of the forward section of the hull. These L or V-shaped timbers were carved from an appropriate-shaped part of the tree using an axe and/or an adze – a process simply referred to as 'hewing'. The technique begins by using an axe to remove the bark and sapwood from the L or V-shaped timber. On completion of this, the shipwright will switch to an adze, which can be used by a skilled craftsman as an axe, a plane or even a chisel, to achieve the desired result for inclusion within the structure of a ship or boat.

Using the pitsaw

Other timbers were cut roughly to size using a pitsaw, which is a long, two handled saw operated by two people, one of whom stood above the timber while the other person stood underneath. To provide enough space for the movement of the saw and the lower woodworker, the piece of timber would have been placed either on two trestles or over a saw pit. Interestingly, archaeologists can tell whether a piece of wood was cut to size over a saw pit or on trestles from marks





Working with a drawknife on a shaving horse

on the wood because the woodworkers did not have to turn around halfway through the cut when using a saw pit. The use of trestles enabled the shipwrights to cut the timber wherever they wanted, although it did have the distinct disadvantage of forcing them to lift the timber, when it was at its heaviest, approximately 6ft high up on to the trestles.

Boathouse 4 does not have a saw pit, so the timber was placed on trestles during last year's demonstration of the technique when the Trust made the keel for the replica ship's boat, known as a Jolywatt. The original open rowing boat would have been approximately 25ft long and one of three types of ship's boats that were carried by *Mary Rose*. These boats would have played an essential role in support



For maximum strength, naturally L shaped pieces of timber are used to make a boat's knees



A two-man pit saw being used to cut through a squared off log

of *Mary Rose* by helping to anchor the ship, take on supplies and transporting people to, or from, the ship. Sadly, no trace was ever found of these boats during the Trust's underwater excavations of the wreck and surrounding seabed, apart from one timber, which might have been a tiller from one of the boats. However, the famous contemporary illustration of *Mary Rose* within the Anthony Roll includes a ship's boat, and an inventory of King Henry VIII's ships from 1514 reveals that the fleet's larger sailing ships, such as *Mary Rose*, typically carried three types of ship's boats, consisting of a 'Grete bote,' a 'Cock bote', and a 'Jolywatt.' In the absence of the *Mary Rose*'s original Jolywatt, the Trust is using the dimensions and shape of the timbers found in the Poole Foundry excavations as the basis for the replica Jolywatt's components. These timbers are thought to be spare or stored timbers from a 15th-century boatyard and would have been used in the construction of a 25ft open rowing boat along similar lines to a Jolywatt. Therefore, Dr Damian Goodburn, who is acting as the Trust's master shipwright for the Jolywatt, is using this information to create a 20ft-long replica Jolywatt. In contrast to modern boats, which are usually designed either on paper or on a computer-aided design system, the Trust is using the proven old-fashioned method of building the replica by eye as it would have been done in Tudor times. During last year's demonstration, the Trust and IBTC Portsmouth managed to shape four of the oak frames and saw and hew the oak keel. The task of building the replica is expected to take approximately 10 years, because the work is only carried out during a single one/two week period each year to fit in with the IBTC Portsmouth's training programme. During the course of this year's demonstration, the Trust is hoping to make further frames and shape more parts of the stem and stern. This will enable visitors to witness the hewing and pit saw techniques. ■

Further Information

For more information about *Mary Rose*'s history, opening times and ticket prices, go to www.maryrose.org or call 02392 812931



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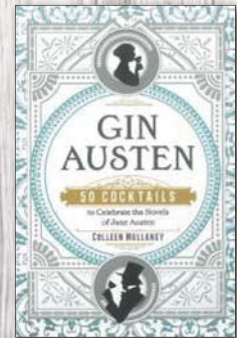
The **Editor** likes to think he is an educated sort of fellow – he found these worthy tomes both ‘meat and drink’ to his literary taste

Gin Austen – 50 cocktails to celebrate the novels of Jane Austen

Colleen Mullaney

Jane Austen is seen as a modern-day role model, yet from the past, for young women everywhere. She is celebrated and quoted frequently and with good reason as she was, in her societally restrained way, a rebel when women were not supposed to be so. There is much gentle humour in her writings, with many sharply directed observations on the manners and behaviour of her social peers placed artfully into much-respected novels of renown without directly giving offence to her acquaintances. So it should be no surprise that an authoress, herself of note, should concoct cocktails that celebrate and elevate the characters contained within Jane’s stories to a much higher plain, which only the refined extract of the juniper berry, so refreshingly imbibed, can sublimely create.

According to the good book you should have an adequate array of glassware to suit every occasion since etiquette demands this. While Jane did indeed partake of many social occasions, early in the book we are treated to a recipe for Jane’s Addiction – I feared for the poor girl’s sanity. However, there are many additions in the way of syrups and spirits with which to sweeten the enterprise. As you might expect, the book is divided into chapters named according to the novels themselves – *Sense & Sensibility*, *Pride & Prejudice*, *Mansfield Park*, *Emma*, *Northanger Abbey* and *Persuasion*. Each contains a variety of gin-based creations – Just A Dashwood, The Middleton Muddle, Netherfield Punch, ‘Salt & Pemberley and Fanny’s Folly, with many more to explore. Drink like a Georgian – but not to excess, I hope.



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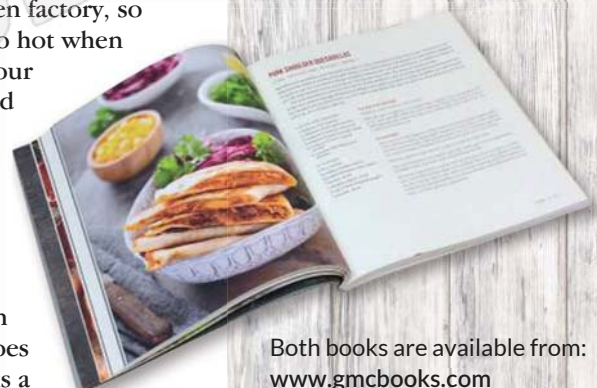
Who among you can remember boil-in-the bag meals? A few of the older ones I guess – I’m showing my age. Well, this book is all about posh boil in the bag, canning jars or other suitable vessels. That might be the essence of it but it’s more complicated than that, much easier once you get the hang of it. You put your intended meal ingredients into a sealed container complete with herbs, juice etc., heat it for a set amount of time and then usually sear afterwards to complete the cooking. The author gives explicit information about food safety, including correct cooking temperature, since this food is made from ingredients freshly prepared by you, not out of some microbe-zapping, chemical-laden factory, so understanding safe preparation and cooking is essential – it is also hot when it arrives at serving time, so be careful. Pretty much any form of your standard protein diet – including beef and lamb, pork, poultry and eggs, fish and shellfish plus fruit, vegetables, grains, custards and sauces can be cooked in this way. Then there are infusions – I didn’t think that would float my boat until I read you can create alcoholic limoncello and cherry-vanilla rum. Wow! And some different-flavoured vinegars to boot. May I tempt you with filet mignon with cognac cream sauce; rack of lamb with cherry chutney glaze; pork chops with vegetable stir fry; duck breast with mango slaw; mushroom, spinach and gruyère egg cup? The list goes on and on. Suddenly my jaded palate is positively drooling. This is a must-have-a-go book for sure.



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Log cabin planter

Michael Huntley's planter is constructed in the manner of a log cabin and is screwed from the inside

This planter is built to last and is finished to withstand whatever our fickle weather can throw at it. The slats allow for necessary drainage. It is deliberately constructed to be heavy, so place the completed planter in position before planting out, rather than after.

Preparation

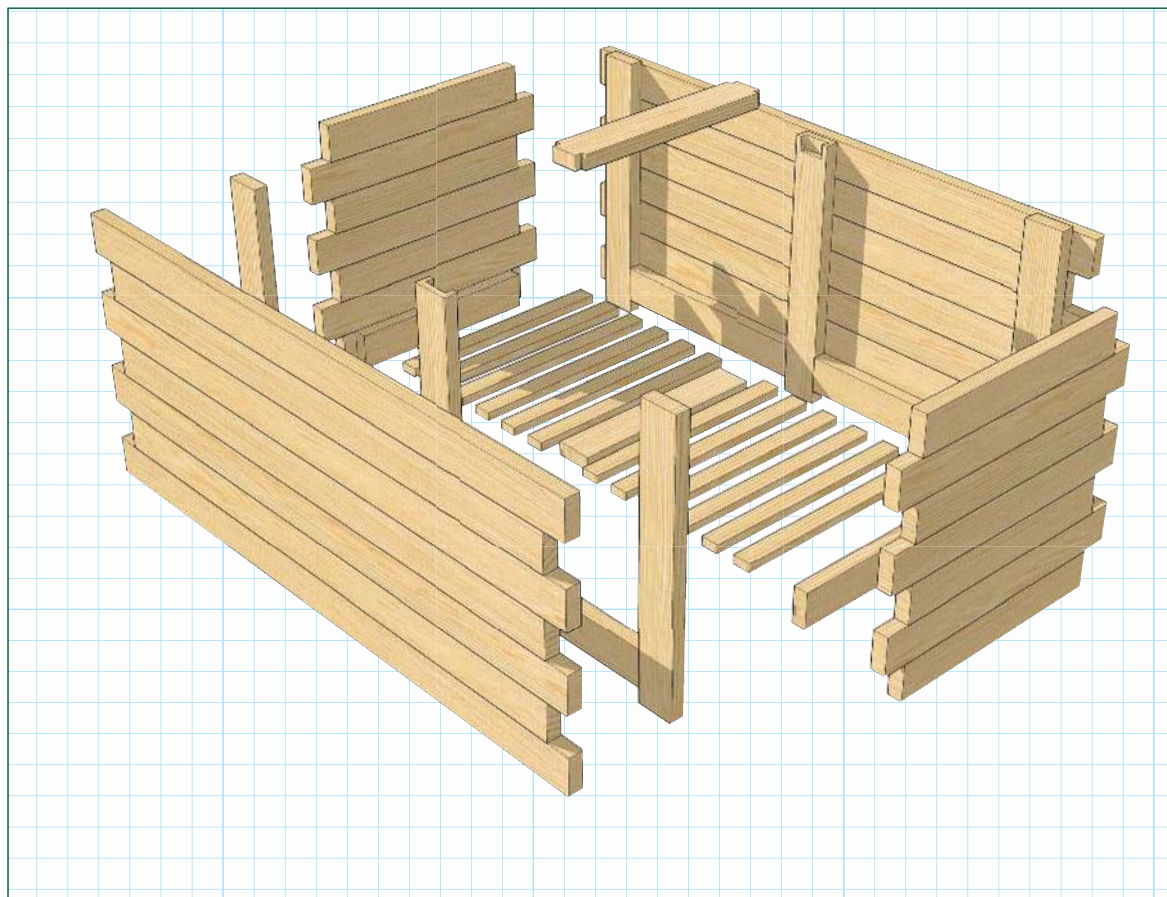
Cut the timber to length using a chapsaw or handsaw. Clean up ragged edges. Mark a line 40mm up from the base of the

legs. This is the underside of the first round of rails. There will be seven rounds in a 740mm-high planter.

Lay the timbers on the legs and mark their height on to the legs. Extend the lines around the inside of the leg with a carpenter's square. Mark the position of the short rails with a pencilled letter S. Lay out a short rail with a leg lying across it at right angles. Balance the other end of the leg with an offcut.

Technique

The construction is log cabin style. This means that a long end rests on a long side rail. As we are starting with a short side rail in order to give us the exact distance between legs, the short rail must be placed between the second and third storey lines, NOT the first and second lines. If this is unclear, lay out all the cut pieces and do a dry run – the construction sequence will then become obvious.



Cutting list

Long side rails	8 @ 100 x 38 x 1650mm
Short side rails	6 @ 100 x 38 x 1524mm
Long end rails	6 @ 100 x 38 x 748mm
Short end rails	8 @ 100 x 38 x 621mm
Legs	4 @ 100 x 38 x 750mm
Bearers	4 @ 100 x 38 x 620mm
Central leg	2 @ 700 x 100 x 38mm
Cross-tie	1 @ 100 x 38 x 620mm
Slats	18 @ 50 x 25 x 620mm
Offcuts for slat supports and central floor beam	

Always save offcuts to use as balancing pieces or as test pieces for staining and finishing.



1

It is easier to tap a timber into place than to try to push it with your fingers

1 The screws are on the inside of the planter so that you don't see a line of rusty screws on the exterior. Using your fingertips, set the rail back just inside the line of the leg and make sure that the leg is dead square to the rail, then place a weight on the leg to stop it moving. Drive in one screw and then check again for square before driving in the second screw.

Leg, bearers & rails

Fit the leg at the other end of the short rail, then fit a long rail below the short rail.

2-3 To give a small expansion gap use a metal rule as a spacer, then fit all the other rails, long then short, with expansion gaps between each rail. Make up the other long side using the same technique. ➤



2

For locating ends square to each other a roofer's square is very useful



3

Using a metal rule to give a space for expansion between each rail



4

Fitting the bottom bearers



6

Final screwing of end rail. Don't cut the slats until you can measure the actual gap

4 Fit the bearers to the bottom rails with screws and glue. These take a lot of weight so gluing is a good idea here.

5-6 It will now be possible to stand both long sides up and loosely fit a couple of end rails. Once all is square and tight screw the end rails into position. Fit the final end rails and screw them into position.

Stand the central legs in position and screw them to the rails.

7 Fit the top tie bar using the longest screws you have because you are screwing into end grain. This screw head will be seen, so it could be plugged.



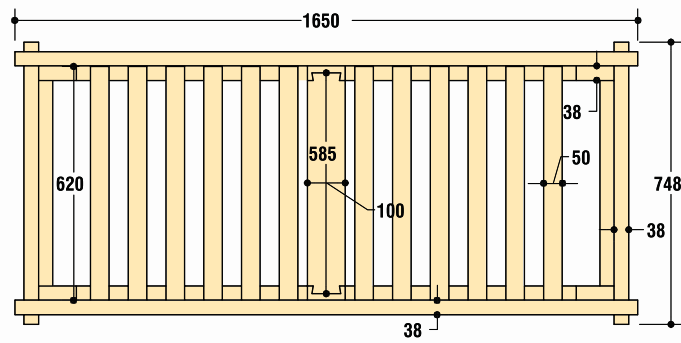
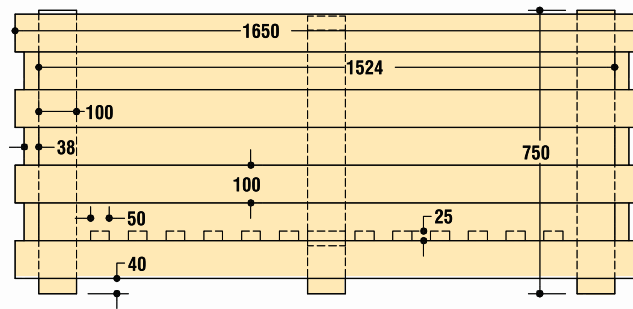
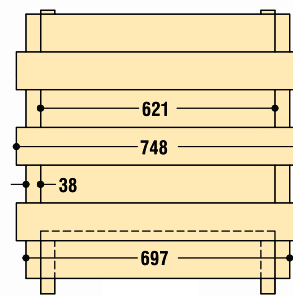
5

The sides can be stood up and held in place by loosely placed end rails



7

The finished box. This is best assembled where it is going to stand as it's rather heavy

PLAN
1 : 20FRONT ELEVATION
1 : 20SIDE ELEVATION
1 : 20

8

Detail of end bearer



9

Support for central floor beam, which can be an offcut



10

Central beam fitted



Slat work

Now you can measure the gap for the slats. Don't cut them to length until you have checked the actual gap on your project.

Finally, fit the slats in the base with single screws before covering with mesh and lining the interior with plastic.

8-10 You will be left with a slat-free gap at each end and in the middle. The offcuts will make bearers for infill strips at each of these places as shown in the detailed pictures and the drawing.

Before assembly, move the planter components from the workshop to the area where it will stand, treat it with a preservative of your choice and allow it to dry for 48 hours. Don't forget to put drainage holes in the plastic before backfilling with broken polystyrene blocks and growing medium. ■

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PHOTOGRAPH BY STEPHEN HEWORTH

Biscuit jointer TRICKERY

Are you getting enough from your biscuit jointer? The **Editor** shows you some great ways to do more with it

The biscuit jointer – do you own one? Does it get a lot of use? Is it simply a jointing tool or can it do more? The answer should be yes, especially if you plan its use into a project, specifically taking account of its amazing ability to do more than just straightforward carcass joints.



Drawer boxes

Making a drawer box accurately and with strength can be a bit of a bore, especially if you need to make a set of drawers. If you don't need dovetails for their looks then you can make very neat drawers, including fitting the drawer bottom, using a jointer. You do need 'plant-on' fronts to cover the front exposed edges of the drawer box. It therefore suits modern 'easy runners' and similar types perfectly. You need to make a simple but effective jig for slotting the drawer sides and front and back.



1

Cut the drawer box components – the sides overlap the front and back. Clamp each component against an L-jig and create the groove for the drawer bottom



2

The L-jig has two uprights added so each component slides across to enable two biscuit slots, avoiding the drawer bottom groove



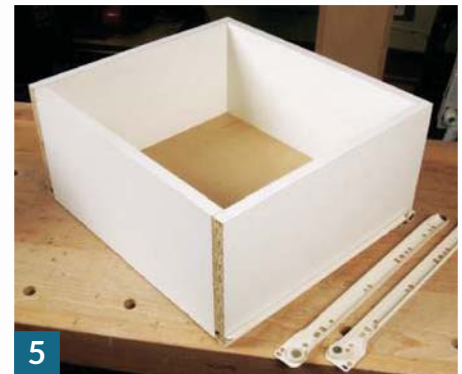
3

Now for the drawer back and front slots pushing against a fence. The blade-to-base distance is always to the outside face



4

One set of components ready to assemble. Note how the biscuits slots have been offset to avoid the drawer bottom groove



5

The assembled drawer box and easy runners. Once fitted the 'plant-on' front can be screwed on from inside the drawer

Mitre joints

You probably haven't attempted making mitre joints, but if you own a compound mitre saw, bevel cutting is quite easy so long as the machine is properly adjusted to give accurate 45° mitres. Some jointers are even capable of a down-fence setting, which allows machining what you might call 'trapped mitres', making it really easy to get the slot position correct. You do need to set the blade to be close to the inside of the joint components so there is no danger of the blade cutting right through. Similarly, choose the right biscuit size to suit the stock thickness. Flat mitres are easy to do although you need a cam jig to hold the components firmly. To do double slotting, since you are using the machine base as datum and for stability, use a thin packer to raise the jointer slightly for the second cut. ➤



7

A few machines can manage an acute 'trapped mitre'. As with any end-joint machining, plunge slowly to avoid a kick aside



8

A cam jig for slotting a flat-frame mitre, the jointer can be fixed down if you prefer



6

Most jointers allow an obtuse fence setting when mitring. Note the blade is set high up the face to avoid cutting right through



9

Twin biscuits make a stronger frame. Slot only from one face and use a packer to lift the jointer for the second slots

Sawing

The jointer is basically a form of mini-circular saw. Remove anti-slip rubbers or retract spikes if they are fitted and you can the plunge and slide the jointer but only in the direction of blade rotation as indicated on the casing. You can use the fence or clamp a batten as a guide, allowing for the blade offset distance. You can use it for cutting manmade boards to size, slitting open a wooden box you may have made, trimming a door in situ and more besides. Do use extraction on account of the dust output.



10

Before you start sawing retract grips or remove non-slip rubbers but replace them once you are done



11

Cutting a board to size by running along an aluminium straightedge. Note the all-important extraction



12

Cutting open a box project. This ensures the lid will match the bottom. Note the packer while held in the vice



13

Trimming a door in situ. This can be useful if the door is hard to remove or there is a sloping floor to take into account

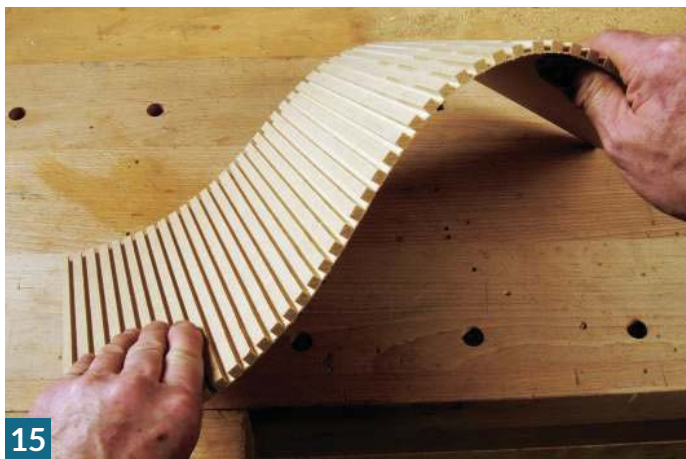
Kerfing

A kerf is a saw cut which sounds just like sawing as above, but the difference here is placing slots close together for a specific purpose. First, creating your own bendy MDF. If you want to buy a sheet of flexible MDF it is expensive where the ordinary stuff is not by comparison. Reasons for wanting a flexible material could include making curved skirting for a bay window or a modern but simple chair design with a continuous seat form.

Kerfing a piece of MDF most of the way through. The screw is a visual means of spacing the slots and is below cutter depth



14



15

The result is a piece of very flexible material which should ideally be glued to another matching piece with slots inwards



16

Dentil moulding in progress with the jointer held down with screws and repair washers. In this case spacing is visual only

You need to cut the board to size first to make work easier, then use a saw guide or batten to run against after having marked all the slot positions. Extraction is essential.

You might want to add to furniture detail such as a frieze or dentil moulding. This requires a jig and biscuit jointers work really well when fixed down for working in static mode. The periodic spacing is determined by having a registration biscuit to put in place after the first slot is cut.



18

Machining a frieze strip. It isn't obvious but once the end appears in front of the jointer a biscuit is placed in a registration slot behind it to keep the spacing even



17

The finished result glued to two other mouldings for a traditional appearance



19

The finished result, which will be coloured down to blend in with the wood

Repetition slotting

If you need to fix a series of components, such as bed slats that fit inside a bedframe as an example, fix the slat support rails along each side using biscuits, and glue of course. Biscuits work well in downward 'shear loading'. Now use the slat support rails as the datum for the base of the jointer and make slots for all the slat positions.

Next make up a jig for your jointer on a piece of board, with two battens for each slat to sit between with the jointer fixed at one end. The board is the matching datum to the slat support rails. Now push each end of each slat up against the jointer and make the slot, which needs to be '20' size. It is very repetitious to do but quite quick and accurate.



20

One of a series of bed slats sitting in a jig with the jointer fixed down



21

Repeat slotting has created a neat drawer pull ready for sanding



22

To create interesting detail for blind slots the jointer blade needs to be set close to the fence, which may have a slight recess

Functional detail

Coming back to drawers, you can create a half-ellipse shape as a form of flush drawer pull. Set the fence so the first cut is just into the surface of the drawer front. Do all the drawer fronts before raising the fence slightly so the blade cuts lower down, fractionally overlapping the first cut. Repeat this operation at lower and lower depths until the blade has cut a pull shape right the way through the drawer fronts. Now sand the edges smooth. The trick is to line up the cuts on the strike mark exactly to give the neatest result. You can also use this trick to create a decorative feature for a dresser or a similar piece of furniture. ➤

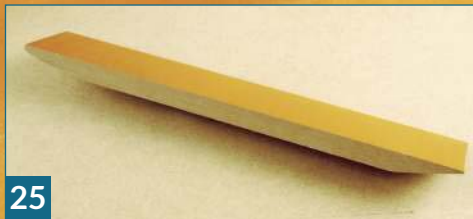


23

A very quick way to add interesting visual detail on a piece of furniture

This jig for creating cableways acts as a fence and also has stops at each end

A shaped infill piece is cut to fit the new opening while allowing cable access

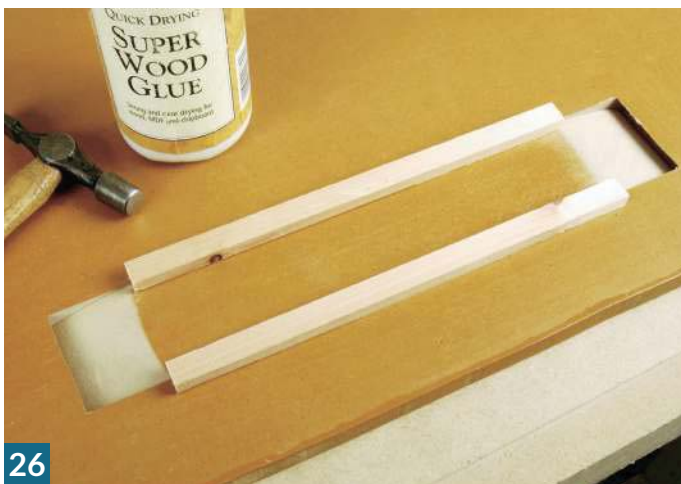


25

24

Cableways

Cable management in the modern home is often still a bit of a nightmare, even with wifi connectivity. Desks and audio visual installations can be littered with cables, so having a hidden trough underneath to carry all the spaghetti of cabling can be a visually neat solution. Using your jointer as a saw, and doing repeat overlapping saw cuts with a start and stop point exactly defined by stop rails, allows you to create an opening with radiused ends that naturally allow for the flow of the cables as they lie in the openings at each end. Cut a matching piece of board that is slightly shorter and shaped underneath so the it sits flush in the gap.



26



27

Two fillets glued on underneath keep the infill in place

The final effect is very neat and the cables and sockets can sit in trunking underneath

Cutouts

Sometimes you may need access and no proper means of gaining it. An example might be creating pipe access in the rear of a kitchen cabinet without accidentally cutting through the very pipes you want to access, which could cause a leak. Set the jointer blade to a fraction more than assumed back-panel thickness – usually 6mm. You can use the carcass as a guide to saw against or fix a spacer in place if you don't need a big opening. The corners where the jointer cannot reach can be cut through carefully, using just the tip of a jab saw to complete the cuts. A new cover panel can then be cut to sit over the remaining edges once the plumbing is completed.



28

Here a kitchen back panel has been slotted all round with the jointer and a jab saw used to complete the cuts



29

Slotting an oak wall panel to accept matching skirting boards

Skirtings

If you want to make your own skirting boards in hardwood it is much easier to cut a flat bottom board and then add a separate moulded shape on top using a biscuit jointer. You can even do this in a panelled room such as a study, by inverting the jointer and aligning it with a level line along the panel to make a series of slots for the lower, flat section of skirting.



30

Slotting the top of the skirting board ready to accept a moulding



31

A piece of oak quadrant with biscuit slots is tapped into place using biscuits and glue

Kitchen worktop upstand

A worktop in a kitchen needs a neat upstand to close the gap where it meets the wall behind. If the worktop is laminated, solid wood or Corian you can use your jointer to create a series of slots with matching slots in the underside of the upstand so you can biscuit and tap the upstand into position. The same idea also works if you want to fit a lighting pelmet under the top cupboards. However, this is easier to do before hanging the cabinets so you can avoid trying to slot upwards in situ, which is not so easy to do. This operation is done with the doors off so the fence can sit against the carcass. You can also discreetly mount cabinet end panels using a jointer.



32

A packer behind the jointer ensures the slots avoid a slight gap at the back of the worktop



33

A blind end panel and a lighting pelmet added to the underside of a kitchen cabinet

Panel extension

Sometimes a panel isn't quite wide enough. It is easy enough to butt-joint thicker board material but you can successfully joint right down to 6mm board edge to edge if you set the fence really accurately. As there will be 1mm left either side of the 4mm-thick blade, 9mm thick is safer. This technique is useful for cabinet back panels. A warning, however – the biscuits will swell up, causing slight puffing of the surface which is dangerous to sand flat as there may be precious little left 'thinness' afterwards.

Although the biscuit jointer isn't capable of creating shaped mouldings it will do pretty much anything else if you put your mind to it and plan and prepare what you are going to ask of it. A very versatile tool, I think you will agree. ■



34

9mm veneered ply being extended widthwise using carefully placed biscuits

KITTED OUT

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

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Making a fire

Hunter Gather Cook founder
Nick Weston tells you how to
make a perfect fire for
cooking in the wild



Extract from:

Hunter Gather Cook

Adventures in Wild Food

By Nick Weston

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I'm a firm believer that if you are going to cook over fire, you should know how to make it from scratch. We're not talking matches and firelighters here, more about really getting back to basics: fire by friction, firesteels, tinder and wood selection. Being able to understand the fundamentals behind fire lighting and how fire burns not only makes you better at cooking with fire, but helps you get to grips with managing it over a sustained period.

As with most recipes, fire has its vital ingredients, of which there are three: fuel, oxygen and heat. In order to work efficiently there must be a combination of all three to enable air to pass through the fire and transfer the heat from one piece of fuel to the next. If your fire is too loaded with fuel, then you will restrict airflow. If your fuel is too sparse, then the heat transfer will burn out. There are lots of factors to consider, and while we certainly aren't a bushcraft or survival school, we only cook with fire and the aim is to teach people those skills, which is why fire workshops are a prominent feature of almost every course we offer.

When it comes to making a fire and cooking over it, one of the main considerations is fuel. Being in the middle of the woods, we're not short of it. The deciduous woodland we are based in has four prominent tree species that fire our kitchen: birch, hornbeam, oak and ash. All of them burn slightly differently, have certain uses and even their own flavour profiles. They also come in a variety of different sizes, from the smallest twig to a hefty section of tree, so to get from setting fire to A to cooking over B there are quite a

few steps in between. This is why if you work in the kitchen at Hunter Gather Cook, a good solid axe is a very necessary part of your knife roll.

When we light our fires each day at the Treehouse, the first job is to split these logs down further with an axe in order to start with small bits of kindling to get the fire going and then gradually work up to the point where we can load whole logs on to heat the plancha (griddle) in the kitchen. When they burn down to coals we transfer them across to sit under the grill plate for grilling. We do also use charcoal, mainly for its efficiency in being ready to cook over a lot quicker as well as the different flavours they are available in.

All the fuel that fires the kitchen is cut from the wood we're based in. The wood is often seasoned in the round for up to two years before being split down into logs and left for a further six months. By the time we get a log drop at the Treehouse it's got a moisture content of below 20 per cent, perfectly seasoned and ready for a good burn.

Knowing how to make fire from scratch gives you the ability to cook virtually anywhere. To be able to look at the landscape around you and recognize which fuel is available and other natural materials to help you achieve this is a wonderful freedom that breaks us away from the conventional kitchen and back to how we always used to cook. The woods are not just for fuel: there are skewers, spits, asador crosses, grills and all shapes and sizes of pokers, tongs and pot hangers. The woods are not just a great place to cook; they're quite a useful workshop, too.

FUEL SELECTION: FLAVOURS & USES

There are two distinct types of fuel you're likely to use when it comes to cooking over fire: wood or charcoal. We mostly use wood at HGC, but both work slightly differently and have their uses, depending on what you're cooking on and what it is you are planning to cook. For open fire pits, raised or on the ground, wood is preferable, as you have plenty of space to be able to have a 'feeder' fire constantly burning to produce coals you can then sweep across to one side to grill over. For kettle-style barbecues with lids, charcoal is preferable, as you are restricted on space and may not

wish to spend the time burning down logs to grill on.

Although charcoal is a very efficient fuel source, wood provides more smoke and therefore more of an intense smoky flavour to whatever you're cooking. I like to have plenty of both regardless – always keep your options open. For getting a grill up to speed quickly, charcoal is perfect. Place it in a chimney starter and light with a roll of newspaper underneath. Provided it is good-quality charcoal, you can be ready to cook in about 20 minutes. With wood, you can double that time and maybe add a bit more. ➤





When it comes to choosing wood to cook with and what's best to use, always go for what is most locally available to you. This might not seem easy if you live in a town or city, but there are plenty of online suppliers that can deliver to your doorstep. Only ever use deciduous hardwoods for cooking on, never coniferous softwoods. The wood we use is grown, cut and seasoned locally and provides us with a wonderful mix of useful fuel for our kitchen.

The following quartet of hardwood is hard to beat, so track them down if you can. Just remember: the golden rule with wood is to never grill anything over an open flame as it will taint the food with a black, acrid soot that will be very unpleasant.

FUEL SIZE & GRADING

When you go for back-to-basics fire lighting, preparation is key. Having all your fuel graded and ready to use is tremendously important. That way, once you ignite your tinder, you're in a good place to be able to gently feed the fire and watch it grow. This is the build-up before creating the spark that will ignite your birch bark or cramp ball fungus (see page 68).

When looking for your primary sources of fuel, NEVER look on the ground. The ground holds a certain amount of residual moisture, which will make getting the fire going that much harder.



Silver birch

Betula pendula

One of the best to get a fire started. The bark contains a lot of natural oils so it makes excellent tinder. Small twigs make for a great primary fuel and burn fast, as do larger ones for a secondary fuel. It splits easily, burns bright and is the ideal wood for a campfire as it kicks out plenty of light. Great to cook on once it's burnt down to coals, but make sure all bark is burnt up before any cooking commences because it lets off a heavy black soot. Flavour is slightly sweet with faint aromatics.



Ash

Fraxinus excelsior

Ash has always been seen as useful due to its low moisture content, to the point that it will burn when it's 'green', as in freshly cut. Due to its structure, it splits very well and doesn't actually produce that much smoke when seasoned. Burns reasonably fast and has a fairly mild flavour with hints of sweetness.

Other woods to use

Some alternative woods that are worthy of a mention, as we do use them depending on where we are cooking and what's available, include: beech, hazel, hawthorn and elm. And of course there are the fruitwoods, apple, plum and cherry, which add an amazing fruity sweetness to proceedings.



Hornbeam

Carpinus betulus

This is a proper slow burner. A truly 'hard' wood, it's actually related to the birch but looks more like beech. This is the ultimate wood for good solid embers – it burns very hot and very slow. A favourite for the clay oven and the underground oven, it isn't easy to split as it does spalt, so the axe ends up chipping bits off rather than giving a solid split. Smoke is quite punchy but faintly sweet.



Oak

Quercus robur

Another ultimate slow burner that produces amazing fierce embers. Really good for grilling over and a great one for asadors and whole animal cookery. Not so easy to split, but the kindling from oak will give a solid heart to your fire once it's going. The smoke is quite a heavy one, but is distinctive, with hints of spice and a depth of smokiness.

Also, never use any freshly cut or 'green' wood, as it won't burn. Always look up to see what's hanging off other branches: these hanging twigs will be dead, air-dried and with little or no surface area to catch any past rainfall. That's what you want.

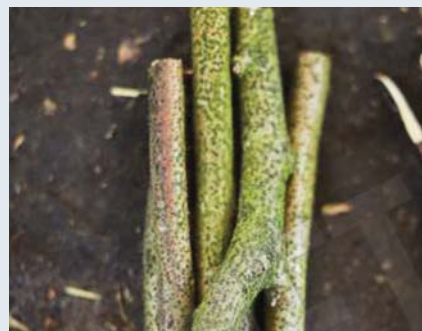
For other fuel grades, look for dead, dry standing wood, or dead limbs on trees. If it has a solid crack when snapped, it will be a good indication of dryness.



Fuel grading comes down to four main components:

Tinder

Birch bark is one of the best tinders found in the woods. Essentially, it is a natural fire lighter due to its high oil content. When harvesting birch bark, just strip the fine peelings off live trees by hand. Honeysuckle bark, Old man's beard (*Clematis vitalba*), dead bracken, dry grasses and cotton wool are all good contenders, too.



Primary fuel

Birch twigs. These also have natural oil present and will go up very quickly if gently fed onto the fire. You can make a bunched nest and carefully place it over the lit tinder and leave it to grow gradually.

Secondary fuel

Once the primary tinder is going, gently start placing slightly larger twigs on, such as birch, hazel or hornbeam. Again, give the fire a chance to grow and don't blow on it unless all the flames have completely disappeared.

Tertiary fuel

This is the final step before you can move on to split kindling and small logs. These should be roughly 2.5cm (1in) in diameter and carefully added to ensure plenty of airflow. By now, the fire should be quite well established. Birch, ash, hornbeam, hazel and oak are all good contenders at this stage.

IGNITION

Both of the following techniques are designed to work with the Afterburner method. Once you have all your fuel ready, before attempting to light using either technique, you must first prepare the ground. Start by clearing the ground of any dead leaves and twigs so you have a patch of bare earth, then lay down some of the tertiary fuel as a platform to light your fire on. This will protect the tinder from the damp

ground and form a solid heart to the fire once burning. It helps to place a small log or larger stick at the back to rest your primary fuel on so it sits at a slight angle to allow for plenty of airflow.

Firesteel and birch bark ignition

Using a firesteel is the main way we teach everyone to light fires down at HGC. Lighters and blowtorches are

all very well, but a firesteel will rarely let you down once you have become proficient with it.

Firesteels are made up of a ferrocerium rod and a striker. They work even when wet and can last for up to 3000 strikes. The bright sparks that fire out can ignite a huge range of tinders. You can also get purpose-made knives that work specifically with firesteels. ➤



1



2



3

1 Take a small handful of birch bark, rub it between your hands to fluff it up a bit (this is called 'buffing'), then place it on your platform. When using the firesteel, you want to gently push the steel into the centre of the birch and place the striker on the steel. Keep the striker hand rigid and still and pull away with the steel so all the sparks are directed into the centre of the birch bark.

2 After a few strikes, a spark will land in the right place and the birch will catch light.

3 Once your birch bark is alight, carefully place on your primary fuel of small twigs and give the fire a chance to take hold, grow and burn well before adding more.

Cramp ball fungus and dry grass

1 Cramp ball fungus or King Alfred's cake (*Daldinia concentrica*) is a round black fungus found on dead ash trees. When growing, they are slightly brown and quite heavy as they're full of moisture. When dead and dry, they're similar to a piece of charcoal in look and weight.

2 Before lighting make sure you have a tinder bundle of dry grass or straw ready and buff it between your hands to break up the fibres and fluff it up. Arrange your tinder bundle so it roughly resembles a bird's nest with a slight depression to place the cramp ball in once lit. Break the cramp ball fungus in half and place it on the floor. Using the firesteel, begin showering sparks directly onto the inside of the cramp ball. With a good strike, a spark will catch on the fungus and you will see it glow.

3 At this point, pick it up and blow on it to make the ember grow. Once well established, hold the other half of the cramp ball against it and continue to blow to get that one burning – this will be your plan B in case the first one burns out.

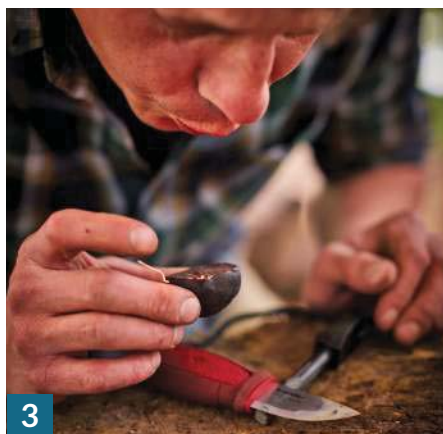
4 Place the smouldering cramp ball into the tinder bundle, hold the



1



2



3



4

bundle between both hands and press together gently. Ensure the bundle is downwind from you before you blow on it. Start by blowing gently and then build up towards the end of your breath. Move the bundle away from you, inhale and then repeat. Make sure

you have good contact with the tinder and the ember. Eventually a thick yellow smoke will start to emerge, which means it is about to burst into flames. Once it does, place it on your platform and carefully place on your primary fuel. ■



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Ask the experts



ANTHONY BAILEY
Editor,
Woodworking
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Another batch of awkward questions for the **Editor** to answer

A YEARNING FOR LEARNING

‘I’m thinking of doing woodworking for a living because I’m quite practical and learned a lot from my grandfather, who always encouraged me when I used to try making things in his workshop. I don’t know whether I should do a carpentry course or try to find a furniture-making course – there don’t seem to be many of those around. Do I need to be competent at woodworking before joining a course? I don’t think my joints are exactly great but I think I can improve. Any advice on going about a career in woodworking would be welcome.’

Nigel Grace

Anthony replies: The building industry is crying out for skilled trades because of the vast amount of housing being built at the moment. However, on large residential developments speed is of the essence, so it isn’t the most satisfying carpentry work – better to be working on smaller building projects. There are plenty of carpentry courses across the country and what you learn will form the basis of skill and understanding of woodworking that can be applied across the spectrum of woodworking activities. You will need maths and English GCSEs to join a course but you will learn everything you need to know on the course. You can gain an NVQ or BTEC qualification and possibly get training as an apprentice too.

Furniture design, as such courses are usually called, are few and far between, there are a limited number of institutions still offering such courses. Generally you need to have a reasonable level of academic achievement before you can apply for a course. A good way to find out if such a



Jamie Ward, furniture course leader at Leamington Spa College, in discussion with a student

vocation is for you is to find a part-time course, such as the Level 1 Furniture Making course at Rycotewood, Oxford, which is free to both 16 to 18-year-olds and adults, whereas fees will apply for a full-time BA course. Numerous private furniture schools have sprung up to fill in the glaring gaps in state provision, but fees apply and usually have to be paid upfront. You can check online to see if there is anything of interest near you or, if a BA course, you may need to live in student accommodation. University courses don’t concentrate solely on practical work, whereas private schools do and course lengths are therefore shorter. Good luck seeking your career path.

IN THE PINK

‘I inherited a small cabinet from my grandmother, who said it was Edwardian in age. It is quite a nice design and colour, I think it is mahogany but very pale – a sort of light yellowy with almost a veil of white. It looks very nice, better than my description. I tried cleaning it with furniture reviver but it suddenly started going a very pink colour, so I stopped. That was just on one end so it isn’t too obvious. What have I done wrong and is it permanently damaged?’

Ben Harrowby

Anthony replies: After the very dark, heavy Victorian period of furniture, it generally became lighter in build and colour. It sounds like your grandmother’s cabinet was finished in a white French polish that is not dewaxed. As the French polish has aged the waxiness has made it go lighter – you referred to a veil of white and that is the effect. Using a reviver puts oils back into the wood and the French polish finish and may even contain a fine abrasive compound. It has the effect of bringing out the colour of the mahogany, which can be an alarming salmon pink depending on the actual species and veneer ‘cut’. It is as well that you stopped when you did. Hopefully in time the colour will start



Overzealous cleaning and reviving can damage the patina and finish on a surface

to fade back and be less noticeable. This is quite important to retain its developed patina and not make it look too raw.

A GAME OF TWO HALVES

‘I’ve been reading your joints series so I thought I would try making my own joints instead of using just glue and screws. The results are a bit disappointing – it’s my lack of skill, I know. Is there anything I should try doing to improve on them?’

Kirsty Lang

Anthony replies: Well done for having a go, that is the first step. We can only do so much in printed articles, hands-on learning in a teaching workshop makes a big difference. In fact, this is really a follow-on from the previous question about teaching. My advice is, first of all be as accurate as possible with your marking out, secondly use sharp tools in good condition and thirdly, that is just practise, practise, practise does make perfect.

Woodwork students learn to make a frame sometimes called a lap joint frame, although two joints usually include a blind mortise and tenon and a through, back-wedged mortise and tenon. The other two are a lap mitre and a lap dovetail joint. You could have a go at this because it teaches you several things and demonstrates competence. You learn to make four different joints, how to mark them out correctly



How a neatly finished joint frame should look when done correctly

and basic technique. Marking out is critical because if one joint is the wrong way round, the frame won’t go together, so mark each joint A-A, B-B, etc on the top face to avoid the mistake.

DOES IT NEED TO BE A BIG ONE?

‘I found your remembrance seat article interesting because there were a lot of useful techniques I might be able to use, although the project is too complicated for my level of skill. One thing that caught my eye was the DeWalt router you were using. It has two bases and various extras. Is it better to have a machine like that rather than a 1/2in router? It seemed to do a lot of different cuts so it must be quite versatile.’

Barry Redmond

Anthony replies: I’m lucky enough to have a variety of routers at my disposal, both new and vintage. For that particular project I decided to use the



A swap-body router can allow different ways of working from freehand...

twin-base DeWalt for a change. There wasn’t one task it could not handle so I would say it was a definite win. I did change bases sometimes, which is very easy to do. I found it most useful with the fixed base fitted – it has a clear overhang soleplate which makes



...to completely controlled using the plunge base and fences

vision of the cut easy and gives the user something to press down on when edge machining. It would also facilitate table mounting, although I didn’t need to do that. So, to answer your question, only buy a big router if you really need large cutters. Size isn’t everything.

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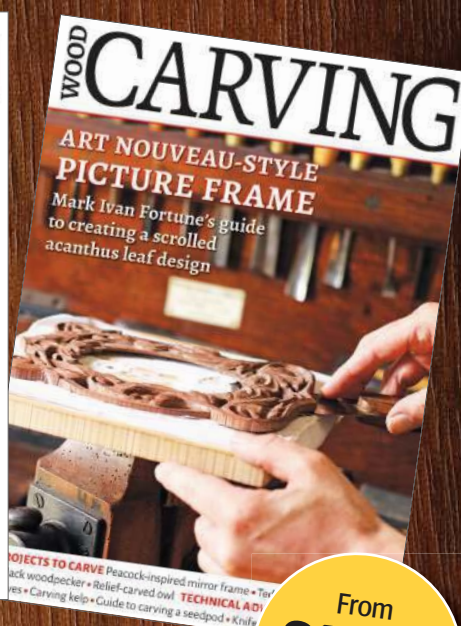
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WOODWORKING JOINTS

Mortise & tenons

Part I

PHOTOGRAPH BY JOHN BULLAR

PHOTOGRAPHS BY GMC/ANTHONY BAILEY EXCEPT WHERE OTHERWISE STATED

This joint which goes back a thousand years or more is one we still rely on to this day

Mortise and tenon is the polar opposite of a dovetail joint. The former is a construction joint for making framework, often on a big scale, while dovetails are an assembly joint for carcasses, drawer boxes, etc. However, you still need care to make a really neat and fully-functional mortise and tenon. A loose joint doesn't work well or look good. Mortise and tenons come in various types – some hidden, some exposed – and different methods apart from glue for locking them in place, such as dowels or fox-wedging. If you can make either of these, then you can tackle other types as well.

Before you begin, you need to decide how you are going to make the joint. It can be by hand using a mallet, chisels and handsaw, or with a router or a chisel mortiser if you have access to one.

MORTISING BY HAND

It is important to cut the mortise first because it needs to be accurate for the tenon to fit. It also requires more effort and setting up than for tenoning.

Constructing a stub mortise and tenon joint

1 The component with the tenon can either be the same width or narrower than the mortised component. If the tenon component is wider than the mortise component, it not only looks wrong, but the joint strength won't be right and the tenon shoulders won't have enough area to rest on. Prepare the stock properly, including its squareness.

2 Mark the area of the component to be tenoned on to the other piece. Do this accurately so you know ➤



Tools required for creating mortise and tenon joints



exactly where it is going to fit. Decide how big the mortise needs to be. Common sense suggests the tenon should be slightly wider than the sides of the mortise, because the width of those combined would be greater than tenon width otherwise. However, some woodworkers believe in the third-third-third width principle instead.

3 Mark across to define the ends of the mortise. Use a mortise gauge to mark the width. You may need to take note of the width of a router cutter or the chisel in a mortising machine. You can increase the width of a mortise by using repeated passes.

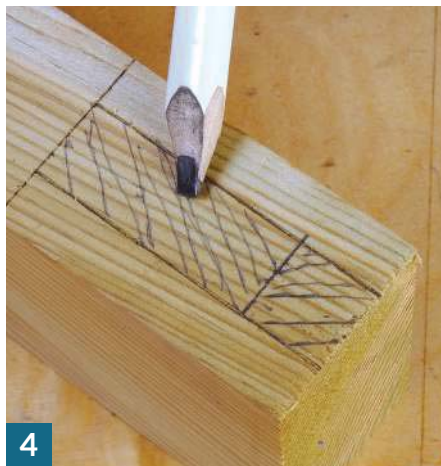
4 Because this one is going to be right at the end of a leg joint, we need to cut a haunch. This means the last bit of the mortise will be quite shallow. Mark the joint clearly so you don't forget this difference in depth.

5 Mortises can be quite deep so a wide bradpoint drill, flat bit or other suitable bit and cordless drill combination can be used to remove the bulk of the material. Put tape around the bit so you know when you have reached the correct depth. The mortise needs to be slightly deeper than the tenon to allow space for glue to escape into. Keep the drill perpendicular – having a try square next to it can help as a visual guide.

6 Alternatively, you can choose to chop the mortise out entirely with a mallet and chisel. You need two very sharp chisels: one the width of the mortise and a second wide chisel for paring down the sides of the mortise. Make a series of cuts with the mallet and chisel, making sure each end of the mortise is defined carefully.

7 Do repeat cuts going down gradually to depth and chop the ends square and perpendicular. Clear the chippings as you go, so you are chopping into a fresh layer of wood each time.

8 Now use the wide chisel to pare the long sides of the mortise straight and vertical. If you used a drill to take out the bulk of the waste, now is the time to clean the ends and sides of the mortise in the same way.



9 If a haunch is needed, i.e. at the end of a component, the safest method is to cut the sides of the haunch with a fine-tooth saw. Chiselling downwards will split the cheeks of the mortise – pads and a clamp are needed to prevent this. Sawing is a safer option as the saw already has the cut mortise opening to slide into.

10 Finally, pare the haunch waste away working from the end. Once that is done, it is a good idea to use the wide chisel to pare the sides of the haunch – this will make sure they are flush with the deeper mortise.



MORTISING BY MACHINE

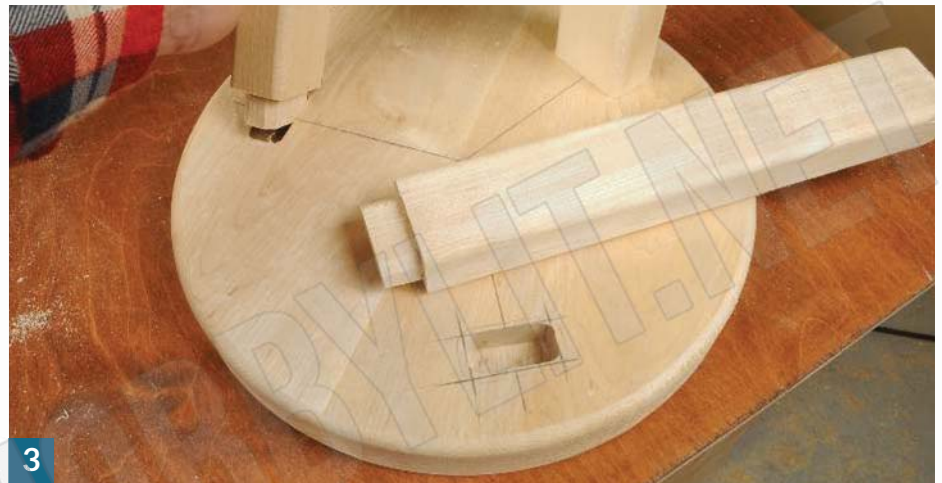
1 If you are lucky enough to have access to a chisel mortiser, there are two critical things. One is having a really sharp boring bit fitted inside the chisel and two is really good clamping to prevent the workpiece from lifting when you push the head of the machine up after each downward stroke.

2 More likely, you will have a router, which can be used with either two fences and longish fence rods...

3 ...or, make up a guidebush template that sits on the workpiece with a slot for the guidebush to run in...

4 ... or, thirdly, make up a mortise box that the router can slide along.

5 Whatever routing method you decide to use, deep mortises need more than a straight cutter can manage, so you may need to finish the holes with a drill and large boring bit instead. ➤



CUTTING TENONS

1 This can be done by hand and is a good way to practise your handsawing skills. This method is similar to the way we have previously cut lap and rebate joints.

2 Alternatively, the bandsaw can be set up with a decent blade and the fence adjusted with a stop block beyond. Choose a blade that isn't too coarse so the tenon faces are reasonably even.

3 Equally, you can machine tenons on the router table. A large tenoning cutter is the best solution, but a standard straight cutter will do a reasonable job.

4 Loose tenons are very effective and you can make your own tenon materials, which can be cut to fit slots created with the router. Make sure the radius of the tenon matches the mortise radius and don't forget the glue relief slot done with a V-point cutter.



CONSTRUCTING A FOX-WEDGED MORTISE AND TENON JOINT

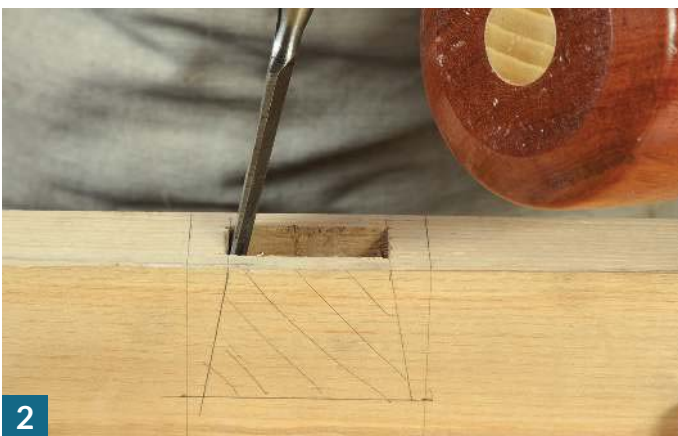
I first used this joint on a 'Glastonbury chair' when I was 19 years old. I wanted a joint that wouldn't separate or be visible and it worked perfectly. Proceed by doing all the making steps for a standard stub mortise and tenon. Remember the tenon needs to be slightly shorter than socket depth to allow for glue squeeze-out and for the wedges to be under pressure for a tight fit.

1 Judging the angle of the enlarged mortise is a matter of practice, but if you use a sliding bevel to draw lines on one face of the component you can sight down them. It may help to start the slope slightly down from the top of

the mortise, so the first part will be straight.

2 Use a chisel, the width of the mortise, to chop downwards at an angle to cut the desired slope. This needs to be done in several goes until you reach the final angle position. Some wood will come away naturally, but cleaning up the dovetail shape requires some artful chisel work to try to get right into the corners.

3 It helps to cut all the tenon shoulders first, ensuring they all line up. Using a sharp chisel to create a bevel up to the knife line for the blade to sit in helps.



4 Start by cutting the tenon cheeks almost down to the shoulder line, sawing from both sides in order to follow the mortise gauge lines. Then, turn the workpiece 90° and cut the narrow pieces away to create the shoulder before going back and finishing the wide cheek cuts. That way, for accuracy purposes, you keep the marked lines visible as long as possible.

5 Mark two kerf lines down the face of the tenon and drill a small hole near the base of each one. Then use a tenon saw to cut down to these holes. They should help relieve the stress on the wood when it is wedged.

6 Saw two slim wedges that mimic the shape created by opening out the base of the mortise. They can be cut with a fine-tooth saw or on the bandsaw. In length they need the depth of the mortise to the top of the drilled holes, not to the tenon shoulder line.

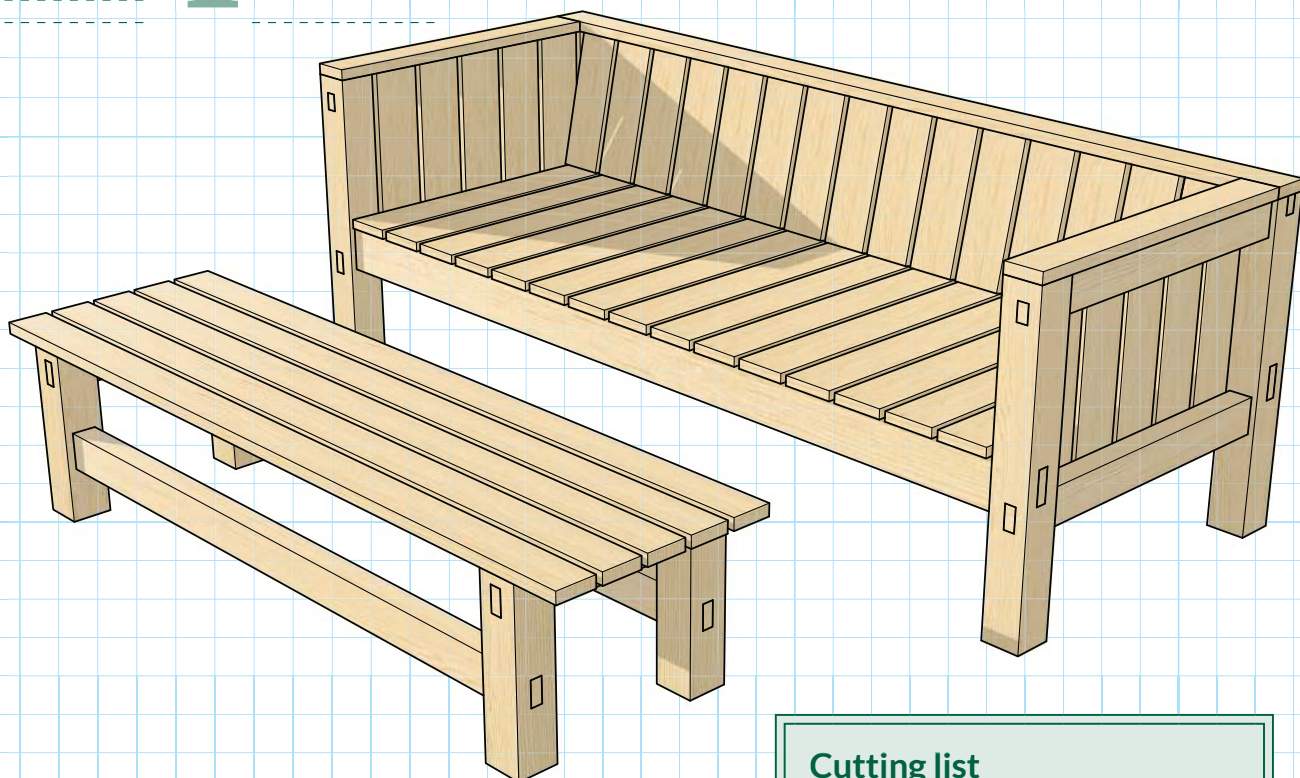
7 Insert the tips of wedges in the kerfs. Whether you use glue is a matter of choice but it should not be necessary as the wedges will lock the joint. Insert the tenon in the mortise. Use a mallet to drive the tenon home and the wedges should be forced right into the kerfs. Once the joint has closed, possibly helped with a sash clamp as a last push, the joint should now be locked tight.

8 Cutting a test joint open shows what actually took place. It is worth mentioning that some woods suit this joint better than others, because they are a bit less brittle, oak (*Quercus robur*) and ash (*Fraxinus excelsior*) are certainly suitable. ■



In the next issue we look at all the different types of mortise and tenon joint.

PLANS 4 YOU



Garden sofa and coffee table

Simon Rodway has a suite solution for outdoor seating

As a contrast to the traditional garden bench, this garden sofa and coffee table combination could lend a bit of modernity to an outdoor space. Additionally, by focusing on readily available timber sizes, both the table and sofa should be relatively simple and cheap to build, and construction should be possible with only a basic set of tools, including a saw, chisel and hammer and a screwdriver.

With the exception of bridle joints at the tops of the back legs, all joints are through mortise and tenons. The sofa front and back seat rails are increased in depth for extra strength, and the tenons are offset relative to the side-rail tenons to give maximum depth without intersecting them. You could offset the lower side-rail tenons as well, and even drop their location a fraction more to achieve full-depth tenons on the long rails. The top side-rail tenons are also fully offset to cross the back top-rail tenons, which are in a bridle joint, and will be hidden by the capping sections fixed down on to the tops of the rails and legs.

The lower side rails themselves are set down relative to the seat rails, and a side panel is formed using side slats fixed top and bottom to the inner faces of both pairs of side rails with a 12mm gap between each slat. This gap is carried through on the seat slats, which are fixed front and back to the tops of the long seat rails, and also on the back rails,

which are angled at 12° by fixing the bottom ends to a bearer or support which runs along the back edge of the slats. The top ends are fixed to the back top rail, which is set back far enough so that the slats sit just under the back capping piece.

To accompany the garden sofa, I've included a simple coffee table using the same construction techniques. The top of the table is formed using the same section sizes as the sofa capping pieces, and overhang the table frame at each end. The end rails have offset through tenons into the legs which, again, are the same section size as the sofa legs. Long stretcher rails at the sides with through tenons complete the construction. Finish off the table top, the seat, back and side slats and the capping pieces on the sofa with a decent sanding to render all surfaces user-friendly as well. ■

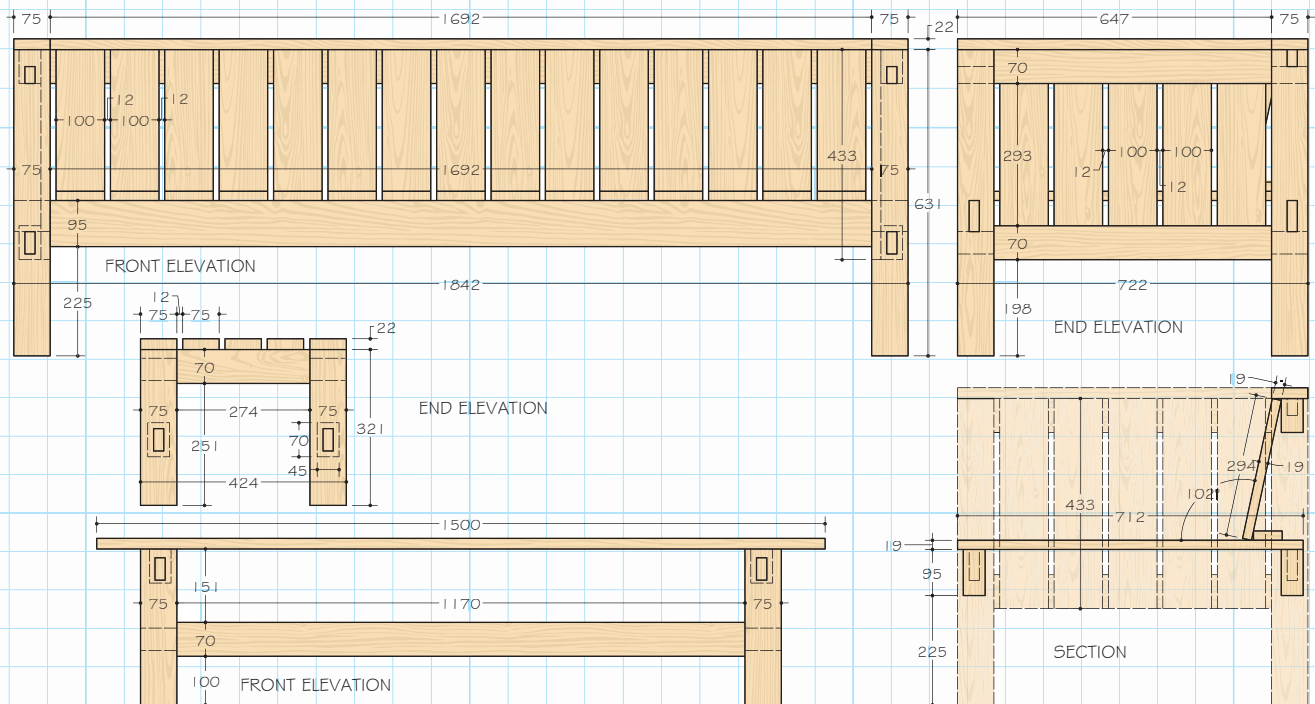
Cutting list

SOFA

Legs	4 @ 631 x 75 x 75
Front/back rails	2 @ 1842 x 95 x 45
Back rail	1 @ 1842 x 70 x 45
Capping	1 @ 1842 x 75 x 22
Capping	2 @ 647 x 75 x 22
Side rails	4 @ 722 x 70 x 45
Side slats	10 @ 433 x 100 x 19
Seat slats	15 @ 712 x 100 x 19
Back slats	15 @ 294 x 100 x 19
Back slat support	1 @ 1668 x 75 x 22

COFFEE TABLE

Top	5 @ 1500 x 75 x 22
Legs	4 @ 321 x 75 x 75
End rails	2 @ 424 x 70 x 45
Stretcher rails	2 @ 1320 x 70 x 45



70 X 45mm side rails, top rail has tenons offset front and back, with side vertical panel from 100 x 19mm slats fixed both ends

Matching coffee table, top from 75 x 22mm slats screwed into frame and legs

75 x 22mm capping pieces run across tops of back rail and end frames

Seat back from 100 x 19mm slats angled at 12 degrees, fixed top and bottom

Seat from 100 x 19mm slats fixed front and back to seat rails

70 x 45mm stretcher rails tenoned to legs

75 x 75mm legs joined at ends by cross rails

95 x 45mm front and back long seat rails with offset tenons both ends

End frames of sofa joined using 70 x 45mm rails. Lower rail offset relative to front and back seat rail tenons

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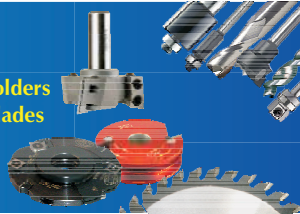
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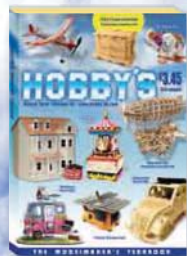
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Tricks of the trade

It's cheap, it's versatile and it's everywhere – masking tape

Masking tape is an invaluable resource to keep in the workshop. It can perform various functions, such as its utility. An obvious one is marking drilling depth by taping around a drill shank. It is an excellent way to reduce or prevent breakout if you are using a jigsaw or circular saw to cut veneer or melamine-faced manufactured board. Better still, you can mark an intended cut line on the tape using a pencil or felt-tip pen without the risk of marking or denting the surface underneath – a pencil line on wood needs sanding away, on tape it doesn't.

If you are working on more delicate surfaces as you would find on antique furniture, then low-tack masking tape is the thing to use. Joints need clean, bare wood to glue together properly but it is often better to pre-finish components before assembly. Use masking tape to cover vital joint meeting areas so you can then apply hand or spray finishes and still keep the areas that need to bond clear of anything that would interfere with that.

Although masking tape cannot be relied on as a high-strength material, it can sometimes be used on the lathe to keep already glued components together while working on another area of the turning. Masking tape can also act as a lower-power means of clamping mouldings and edgings in place, which would be difficult to do otherwise as it would need heavy three-way clamps instead.

Masking tape can also be used in conjunction with a knife to show exact cutting marks when machining. Finally, masking tape applied to a shiny surface not only allows you to mark a drilling position but reduces the tendency for a drill tip to skid away from the desired position. All in all, masking tape in different widths and tack ratings is an invaluable tool – you can even use it for writing your name on the workshop tea caddy. ■

Masking tape, although very thin, can prevent a drill bit from skating

Taping a turning to reduce the risk of it separating

The old trick – a masking tape depth gauge

Masking tape is perfect for drawing on and it prevents splashing

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Focus on...

Opposable thumbs

The very thing we humans take for granted – the ability to grip...

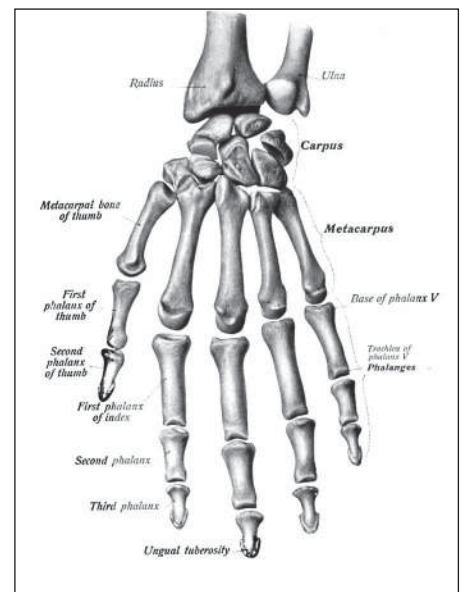
There has been plenty of research about the opposable thumb and the grip it enables us to use, by primatologists, anatomists and other researchers. It is a big subject for such a simple digit and its evolution extends back eons to *Homo habilis*, the forerunners of *Homo sapiens*. It is very complex in terms not just of bone arrangements but also the range of muscles and tendons that we use with nerve and brain signals to transmit commands that operate our whole body for practical tasks, our hands and wrists in particular. There are two main forms of grip. There is the power grip, such as when used with a hammer – the fingers and possibly the palm clamp an object



Using a precision grip to make face and edge marks

with the thumb exerting opposing pressure. Then there is the precision grip, used for tasks such as holding a pen or pencil or opening a jar held between thumb and fingertips. We take this ability for granted but if you stop for a moment to consider the range of activities undertaken by any craftsman it soon becomes clear that, although we use our eyes and our brains to perceive things, almost no task – from making tea to answering the phone, designing a project and then making it – would be possible without this vital anatomical facility, let alone getting dressed in the morning.

However, each gripping situation is different. Just as an elephant can rest its foot on an egg without breaking it, so we use grips differently. Starting with a handsaw, holding it is a palm and fingers power grip with the extended forefinger resting against the side of the saw handle to help guide it. Holding a chisel for paring requires two different grips – the back hand uses a thumb, palm and fingers power grip to hold and push the chisel, while the forehand uses precision thumb and fingertips only grip to guide it. Holding a dovetail gauge and knife or pencil also requires thumb and fingertips of



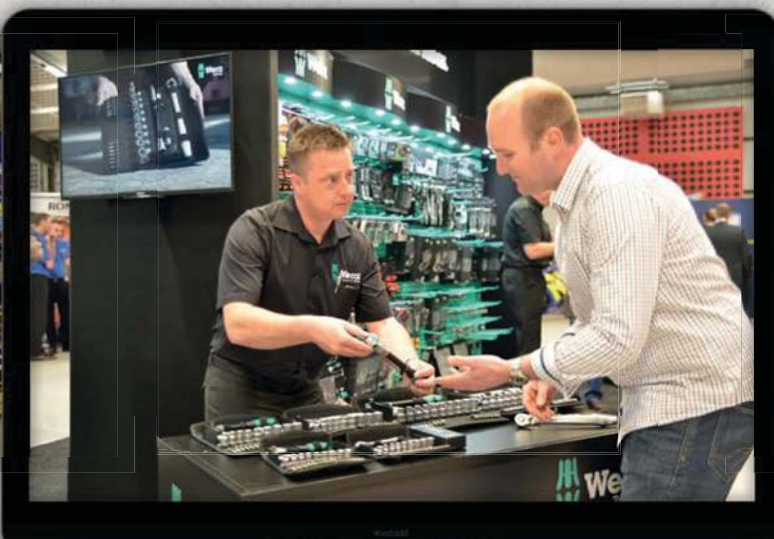
The bone structure of the human hand gives us an evolutionary advantage

both hands to hold both items. We increase fingertip pressure if needed, in order to hold the gouge in place so the knife or pencil cannot accidentally move off line.

All the time we are monitoring and adjusting our grip to suit each task based on nerve sensations in our digits, our eyes and even our hearing if a sound changes. If we were to rank in order of importance the things we need to make anything from wood it would be: opposable thumbs, timber and, lastly, tools. ■



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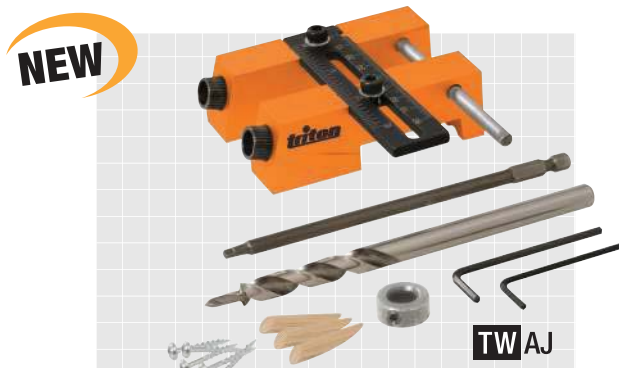
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