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The Woodworker

December 2014

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welcome



There's nothing like a spot of travel to liven things up a bit, both while you're there and for the following days as well. New sights, places and people are almost always guaranteed to stimulate the imagination and to give the hungry woodworker an idea or two. During a couple of days in Bath (as opposed to the *bath*) recently, I started to feel as though I'd achieved one of my historical fantasies and actually managed to go back in time for real. Never having visited the place before, I was staggered to find myself in a city which, apart from a traffic light or two, seemed to consist entirely of original Georgian splendour.

Stone circles

The walk into the city centre was a succession of sumptuous stone buildings, each trying to outdo the other. Leafy square followed imposing crescent, and elegant street led into symmetrical circus, many dominated by superb mature trees which have flourished undisturbed since they were planted two hundred odd years ago.

Curved beauty

As well as the pleasure of observing the beauty of nature, I had nothing but admiration for the designers and builders of this select watering hole from another age. Every large house featured ornate doors and windows – all with elaborate interior shutters – and I couldn't help but wonder how much work would have been generated for the carpenters and joiners of the time.

Places such as the Circus – a Colosseum-inspired development of grand houses which took John Woods (1 and 2) and multiple teams of builders 14 years to finish – and Royal Crescent (John Woods again) underline the attraction of the curved frontage, and had me pondering furniture carcasses and columned decoration.

Deeply inspired

A visit to view top-class work from this era can always provide a rich source of classical inspiration for anyone with an appreciative eye, but sometimes the best ideas spring from the everyday things around us. I like to think that we at *The Woodworker* can play a small part in the genesis of a job, whether it be a straightforward magazine project or a variation on a theme. It's always good to see things other people make, so if you've just finished something you're pleased with, why not drop me a line – on a holiday postcard – and tell me all about it?

mark

You can contact Mark on mark.cass@mytimemedia.com



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ON DECEMBER 12TH

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WISHES**



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Our annual index lists all the projects, features and tests we've published in 2014. It's also available on our website, www.getwoodworking.com, along with indexes from 2006 onwards.

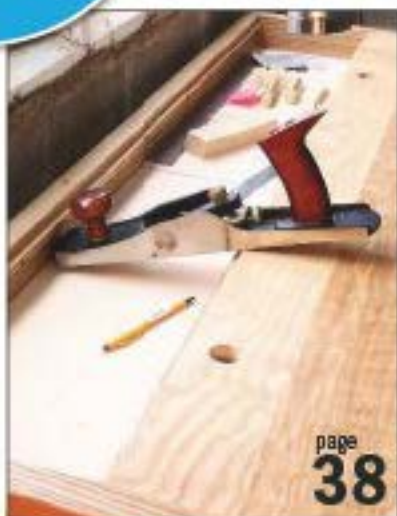
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Duncan Rose presents a trio of tables that will provide lots of useful space for teacups and books. It's a classic group of pieces that's also very straightforward to make

21 Calm and collected

Keith Smith creates a little offertory box as a commission from his local church. He says the design could be adapted for use as a key cupboard in the home or a suggestions box in the office

28 The Chief's Chair

Irene Banham's stunning chair was inspired by a traditional African design, but has been given a more contemporary Western feel

32 King of the castle

Ian Wilkie's magnificent toy castle, complete with towers, battlements and a working drawbridge, will keep your children and their toy soldiers busy for hours this Christmas

38 A bloke and his bench

Michael Forster describes the challenges and pitfalls he experienced in his search for a new workbench that met all the various design criteria he felt were essential for workshop success

45 Walking to work

Many people complain that going to work is like being a hamster on a treadmill. But a new interest in workplace exercise has put the fun back into the idea

49 The chair doctor 2

If you've got an old favourite chair that's past its best, you've probably wondered whether to scrap it or repair it. Peter Bishop has some more simple fixes

54 Fit for royalty

Back in 1955 the Caravan Club presented a miniature 'van to Prince Charles and Princess Anne. It's now on display at the National Motor Museum, and is well worth a visit

TURNING

57 Holy orders

Natural-edged bowls – those with the bark left round the rim – are great fun to make. Colin Simpson adds some decorative piercings to create an even more dramatic effect

65 Drink up!

All the medallists at the Commonwealth Games in Glasgow last summer received a small wooden drinking bowl called a quaiche instead of a bunch of flowers. Here's how to make one (or more) of your own

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The Woodworker & Woodturner

December 2014

Published by MyTime Media Ltd
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Edenbridge, Kent TN8 6HF

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Tel: 0844 848 8822
From outside UK: +44 (0)1332 912894
Email: customer.services@myhobbystore.co.uk
Website: www.myhobbystore.co.uk

EDITORIAL

Editor: Mark Cass
Email: mark.cass@mytimemedia.com
Production editor: Mike Lawrence
Email: mike.lawrence@mytimemedia.com

PRODUCTION

Design Manager: Sibhan Nolan
Designer: Malcolm Parker
Illustrator: Michael Lindley
Retouching Manager: Brian Vickers
Ad Production: Robin Gray

ADVERTISING

Business Development Manager: David Holden
Email: david.holden@mytimemedia.com
Tel: 01993 709545
Online Sales: David Holden
Email: david.holden@mytimemedia.com
Tel: 01993 709545

MARKETING & SUBSCRIPTIONS

Sarah Pradhan & Kate Scott

MANAGEMENT

Head of Design & Production: Julia Miler
Group Sales Manager: Duncan Armstrong
Chief Executive: Owen Davies
Chairman: Peter Harkness

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The Woodworker & Woodturner, ISSN 1752-3524, is published monthly with an additional issue in summer by MYTIME MEDIA Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent TN8 6HF, UK.
The US annual subscription price is \$9.95 (equivalent to approximately 90 USD). Airfreight and mailing in the USA by agent named Woodnet Shipping Inc., 155-15 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA.
Periodicals postage paid at Jamaica NY 11434.
US Postmaster: Send address changes to The Woodworker & Woodturner, Woodnet Shipping Inc., 155-15 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA.
Subscription records are maintained at CDS Global Ltd, Tower House, Sovereign Park, Market Harborough, Leicestershire, LE16 9EF.
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The FatMax Technician Case features a tough glass-fibre-reinforced polypropylene body with heavy-duty metal latches. Available in two models, the wheeled option includes an aluminium handle and smooth bearing wheels. Removable dividers and cups allow for internal customisation to enable flexible and accessible



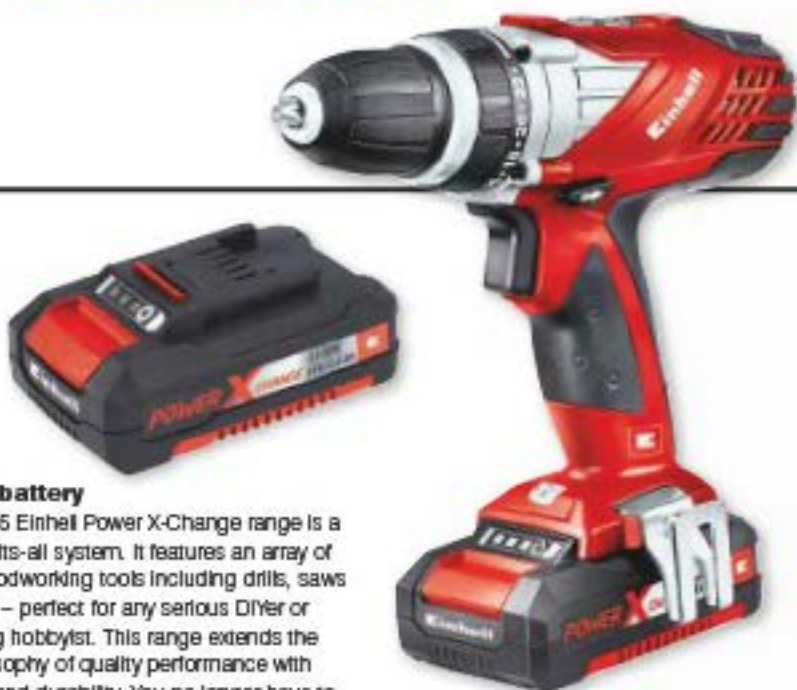
storage of all your essential hand and power tools.

The FatMax Dual Access Bag utilises every inch of space available, ensuring that essential kit is just an arm's reach away. Featuring a durable carrying strap and free-standing rigid structure, with a reinforced plastic base to protect tools from water and dirt, this latest addition to the range harnesses portability without in any way compromising functionality.
www.stanleytools.co.uk

Universal battery

The new 2015 Einhell Power X-Change range is a one-battery-fits-all system. It features an array of essential woodworking tools including drills, saws and sanders – perfect for any serious DIYer or woodworking hobbyist. This range extends the Einhell philosophy of quality performance with affordability and durability. You no longer have to buy expensive lithium-ion batteries and chargers for all your cordless tools; instead you simply load the Power X-Change battery into any member of the Power X-Change tool family and get the job done. Just the one battery will power the whole range of tools.

The Power X-Change system not only benefits



woodworkers. The battery also fits an array of garden machinery, and more tools are coming to the Power X-Change family soon. And of course all Einhell products come with a two-year warranty and after-sales assistance, including the availability of spare parts and accessories.
www.einhell-uk.co.uk

Young furniture makers

The Furniture Makers' Company recently hosted their annual Young Furniture Makers exhibition, sponsored by Axminster Tools & Machinery. There were exhibits from students at all degree levels, and from the numerous colleges and universities the Furniture Makers' Company supports.

Awards were made for a number of industry partnerships, where companies such as Burbidge, Ercol, Hands, Gordon Russell, Crofts & Assinder, Willis & Gambler and KI Europe worked with university students on specific projects.

Alex Stewart picked up the award for Young Furniture Maker of the Year for his contribution to the development of the group and the growth of its membership throughout the year. Joseph Kennedy, who has

just completed his MA in Design, Maker and Materials at Plymouth University, won an all-expenses paid trip to the Blum factory in Austria for having the best exhibit of the show: the Stern Table.

The excitement and clamour surrounding the event illustrates that there is a thriving industry wanting to actively engage with young talent,

helping to maintain skills and build a robust workforce for the future.

Axminster's Sales Director Alan Styles (pictured) said: "We have strong links with education and student development. We're proud to support the Young Furniture Makers and the furnishing industry to ensure there is continuity of these skills, which are the lifeblood and future of furniture design and manufacture in the UK."
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Help for Heroes

DeWalt is releasing a Help for Heroes XR Li-Ion promotional kit. The company will donate £10 from the sale of each kit to help support injured members of the Armed Forces.

The kit includes a DCD795 hammer drill/driver, a DCF886 impact driver and two 4.0Ah batteries, packed in a TSTAK box with an exclusive camouflage inlay. The 4.0Ah batteries offer users 33 per cent longer runtime than a 3.0Ah battery, yet are the same size and weight. The batteries have a charging time of 70 minutes and feature an LED charge indicator. www.dewalt.co.uk



Camvac Joins Record

Record Power has just taken over production of all Camvac products, including the range of workshop extractors that are well known to home woodworkers. The transfer fits into Record Power's long-term strategy of increasing their production in the UK, and all current Camvac machines and accessories will remain in production using the same tooling and manufacturing techniques. Record Power will also handle all sales, distribution, warranty and other enquiries about the Camvac range. For more details call 01246 571020 or visit www.recordpower.co.uk

Measuring up

The new FatMax Auto-lock tape measures combine versatility with professional quality to give a simple solution to an everyday task. With a patented reverse lock mechanism for greater control and increased blade life, coupled with a 3.33m blade standout for increased reach, measuring is made easy.

The new tape measures also include two additional hooks (one magnetic and one XL) for improved efficiency, and both can be stored in the tape case. The XL hook enables the user to hook the tape side-on to the structure, avoiding the need to twist the tape; this reduces inaccurate measurements.



The new tapes are available in 5m or 8m lengths, with either metric-only or metric + Imperial markings, and feature a Mylar-coated blade. Blade armour on the first 80mm makes them ten times more resistant to abrasion than traditional lacquered blades.

www.stanleytools.co.uk

Christmas repairs

Whether you're after a gift for someone who likes to repair their home or improve its decorative look, there's a Dremel kit for you to buy them this Christmas.

The Dremel Home Repair Project Kit contains the popular Dremel 3000 Multitool, three useful extras – the shaping platform attachment for precision sanding, the cutting guide attachment and the flex-shaft attachment – plus 105 high-quality Dremel accessories, including EZ SpeedClic versions for quick and easy tool changes. The kit also includes an Inspirational Home Repair Project Booklet, so whoever receives this gift can begin using the kit immediately. It comes packed into a soft bag and costs £79.99.

The Home Decor Kit contains a glue gun, multipurpose glue sticks and glitter sticks, an engraving tool plus engraving bits and templates, and an Inspirational Home Decor Project Booklet. It costs £39.99.

Both kits are available from www.dremel-direct.co.uk, www.tool-shop.com and many DIY stores. www.dremeleurope.com



DIARY

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19, 24 Christmas decorations

20 Pyrography: Coral Davis *

24 Penmaking *

25 Introduction to Leigh Jigs *

27, 28 Woodcarving (one day) **

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John Boddy's demonstrations

29 Woodturning: Simon Whitehead

Details as above

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21-23 North of England show (see above)

www.recordpower.co.uk

Robert Sorby demonstrations

21-23 North of England show (see above)

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DECEMBER

Aminster Skill Centre courses

1-2 Christmas decorations

3-4*, 4-5 Beginners routing

6 Turning peppermills *

8-9, 10-11* Beginners woodturning

10-11 Woodcarving: Ian Edwards

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MANUFACTURER: Festool
D&M GUIDE PRICE: from £389

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FESTOOL



NEW



GKS 10.8V-LI CORDLESS CIRCULAR SAW

MANUFACTURER: Bosch
D&M GUIDE PRICE: £189.95

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BOSCH



NEW



PRS2100 PRECISION BENCHTOP ROUTER TABLE

MANUFACTURER: Kreg
D&M GUIDE PRICE: £224.95

This new compact router table from Kreg offers all the features of a full-sized industrial model. It has a 406mm high rugged steel stand with vibration-dampening rubber feet, an impact-resistant Easy-Slide™ micro-dot skin and an edge-banded reinforced mdf tabletop measuring 610 x 406mm. The unique bottom-up levellers have eight contact points for accuracy. Suitable for use on site or in the workshop, the PRS2100 benchtop router table is a complete routing solution.



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In your own write...

Here are just a few of the latest letters we've received since the last issue. Drop us a line on paper or via screen and keyboard to add your voice to the woodworking crowd; you might be one of the lucky few who will manage to get their hands on a coveted Woodworker badge!

SNAIL MAIL OR EMAIL?

You can write to us at The Woodworker, MyTime Media Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF or send an email to mark.cass@mytimemedia.com

The Woodworker

HERE'S THE CATCH

Hello Mark

Regarding your search for hardware and catches, my 1998 campervan has these fitted to ensure that the contents of the cupboards remain secure while we're on the move. I would suggest that similar thumb catches are fitted to modern campervans, caravans and even cruising boats as well.

Regards

Colin Tufts

Thanks for that. I know the sort of thing you mean. There are a few boat chandlers down my way, and sometimes you can get a really nice surprise while browsing their stock. It's always pricey though, as it's generally stainless steel or bronze or something.

Hi Mark

I know I need to get out more, but obviously you do too! Here are some links to your missing catches. The thumb push catch is updated compared with the 1940 version, but appears to work the same. Enjoy!

Geoffrey Laycock

Thanks for the links, Geoffrey. I'll pass them on to anyone who wants to follow them. I know Shiners in Seaford, but I've never seen those slam catches there before. I liked the elbow catches too, but the thumb catches have to be the most disappointing of the three. I fitted some very similar to those in a people-carrier-to-camper conversion I got roped into doing recently. They looked fine, but were largely plastic and were prone to coming loose and generally being annoying.

Thanks to everyone who offered help in my ongoing search for disappearing ironmongery.

MISSING

You've all been there: I know you have. You're doing a job and you need item X. You know you've got it somewhere, but you simply can't find it...

Today was one of those days. I'd decided that I needed to get the workshop door ready for winter and renew the weatherboard. I found a piece of timber, transformed it into a suitable profile and fixed it in place, after first preparing the door for varnishing. Everything was now ready – paintbrush, dusting brush, tin opener, stick to stir it with, but (and there is always one of those) could I find the varnish?

I looked everywhere: no varnish. I took the shop apart, to no avail. I found three tapes, a lost roofing square and a mouse trap, but still no varnish. Then next door's cat wandered in. I gave it a stroke and noticed, just by where it was standing, a mop bucket with the missing tin of varnish underneath it. Now where was that blasted moogle two hours ago?

Mike 'Mr Grumpy' Pinnington

This all sounds distressingly familiar, Mike. I bet I'm not the only one with duplicate tins of all sorts on my shelves; with no helpful pets nearby, my only option is to purchase replacements.

VARNISH STORE

Hello Mark

A while ago you published an article about making and turning pewter decorations for a small bowl. I thought you might like to see my creative efforts at making a decorative container for my good lady's collection of nail varnishes. I cast, fitted and turned the pewter rim, and used American red oak and timber salvaged from our old windows, all hand planed and glued with Cascamite. It was certainly an interesting challenge.

Regards

Ian M Tolson

Now that's a very tidy piece of turning, Ian, and a great design too. Many thanks for sharing it with us, and I hope it's been well received by the good lady!





BY DUNCAN ROSE

Three wishes

Designed to compliment some existing lounge furniture, this trio of small tables provides lots of useful space for teacups and books. It's a classic group of pieces that's very straightforward to make

This nest of three tables was built for a friend and styled to match the existing lounge furniture. The tables were made using English oak, which is good-looking and easy to work. The heartwood is an attractive pale brown colour, and the distinctive grain reveals both irregular patterns and interesting figure.

Multiply by three

The table construction uses the traditional configuration of upper and lower rails along the three sides of the two larger tables. The construction is simple, but remember this is done in triplicate! Slips attached to the inside of the table frames enable the tables to be stacked for storage. The tabletops are made



1 Cut all the rails to length and form the mortises for the loose tenons



2 Rough-out the curved arc shape on each rail close to the pencil line



3 Fit each leg in turn in the jig (see the panel on page 17) and trim it precisely using the router



4 Round over the exposed edges of the legs and side rails on the router table



5 Assemble the frame with a couple of dummy front rails and clamp it up



with a plywood core that's topped and veneered with oak to give strength and stability.

The legs are square, with the upper and lower connecting rails shaped with a gentle arc profile. A moulding along the tabletop protects the veneer edges. The tables are finished with oil to protect the surfaces and enhance the appearance of the oak figure.

I used my CAD software to draw up the nest of tables for the customer's approval. This was particularly useful for setting out the dimensions to ensure the tables would stack neatly with a balanced appearance.

Preparing the parts

Start the construction by preparing all the leg and rail components. I made the legs and rails from sawn boards. Mark out your stock, selecting the best sections, before rough-cutting them to their approximate sizes. The rail lengths shown in the cutting list are for using loose-tenon joints. If you plan to use traditional mortise-and-tenon joints, remember to make them longer to allow for the tenons.

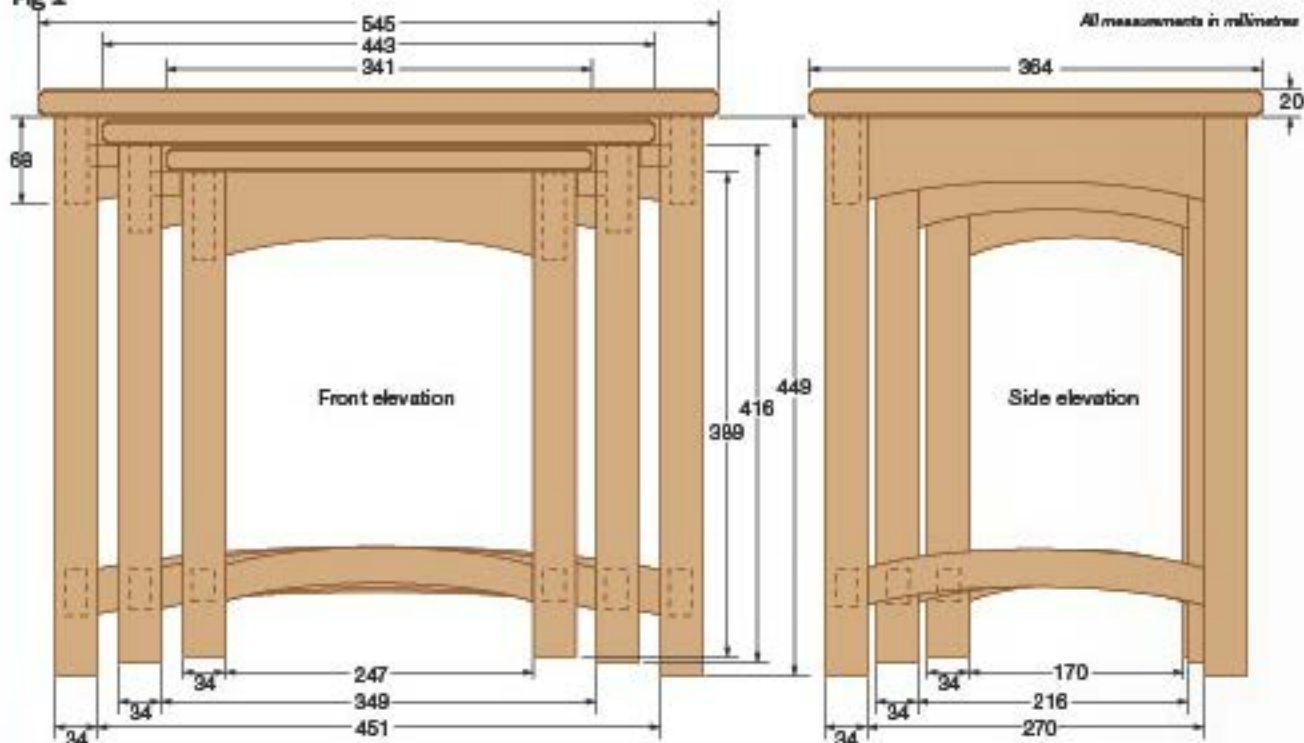
You can now plane the components with a flat face and then square up an edge.

Thickness the legs to 34mm square and the rails to 18mm thick. Make sure you leave the rails sufficiently wide to accommodate the arc profiles. Then mark and trim the rails and legs to length.

Cutting the rail joints

Now mark out the joint positions on the legs and rails and cut them. The leg and rails joints are more easily cut at this stage while the stock is square, before the rails are shaped with their arc profiles. The height of the lower rail joints differs between the

Fig 1



NEST OF TABLES CUTTING LIST All dimensions are in millimetres

Part	Qty	L	W	T
LARGE TABLE				
Leg	4	449	34	34
Lower rear rail	1	451	55	18
Lower side rail	2	270	45	18
Slip	2	270	22	18
Top core (ply)	1	505	324	18
Top lip (long)	2	545	20	18
Top lip (short)	2	364	20	18
Top veneer	2	537	356	0.6
Upper rear rail	1	451	68	18
Upper side rail	2	270	68	18
MEDIUM TABLE				
Leg	4	418	34	34
Lower rear rail	1	349	50	18
Lower side rail	2	216	42	18
Slip	2	216	22	18
Top core (ply)	1	403	270	18
Top lip (long)	2	443	20	18
Top lip (short)	2	310	20	18
Top veneer	2	435	302	0.6
Upper rear rail	1	349	68	18
Upper side rail	2	216	68	18
SMALL TABLE				
Leg	4	389	34	34
Lower front & rear rail	2	247	44	18
Lower side rail	2	170	40	18
Top core (ply)	1	301	224	18
Top lip (long)	2	341	20	18
Top lip (short)	2	264	20	18
Top veneer	2	333	256	0.6
Upper rail	2	247	68	18
Upper side rail	2	170	68	18

You will also need some offcuts for making the jig described on page 17.

tables, as shown in fig 1, so that they appear neatly aligned when the tables are stacked. Cut the joints using your preferred jointing method. I decided to use loose tenons, and cut the mortises using a proprietary hand-held cutter, photo 1.

Safe shaping

I had initially intended to shape the rails using a simple template and a bearing-guided straight cutter in the router table. However, in the past I've found that hardwood with an irregular grain direction has a tendency to snatch dangerously. I wanted to avoid this, so instead I made a simple jig (see the panel opposite) for shaping the rails quickly and safely.

The jig consists of two sides that are shaped with the required arc profile. In use the jig holds the rail to be profiled and a hand router, resting on the jig, is slid along the top as it cuts the rail to shape. The router is kept centred on the jig using a guide bush that locates between the jig sides.

Shaping both the upper and lower faces of the jig sides enables cutting of the concave and convex rail profiles. The jig is made a little longer than required to allow for cutter lead-in and out.

Shaping the rails

Now you can shape the rails using the jig. Start by marking the rails with their arc profiles, using the edge of the jig as a template. Then rough-cut the rails to within

about 1mm of the mark, photo 2.

Next, locate the rough-cut rail in the jig. I aligned the pencil markings on the rail with the base of the jig rebate, and then held the rail and jig firmly together using the bench vice (aided by a couple of quick cramps for the longer rails).

Rest the router on top of the jig and adjust the cutter depth to trim the rail by about a millimetre as it passes along the jig, photo 2. I used a type of cutter called a surface trimmer that's ideal for this type of surface cut. Avoid scorching the rail by keeping the router moving and using a moderate cutter speed and depth. I found that a single pass with the hand router usually completed the rail cut. Should a second pass be required, simply reposition the rail slightly higher in the jig before making the second cut.

Preparing for glue-up

Before assembling the table frames, soften the exposed edges along the legs and rails with a small roundover cutter, photo 4. Then sand everything to remove any pencil marks. Dry-assemble the frames and check that the joints all fit correctly. This is also a convenient time to prepare your sash cramps and spreaders, to save time during the glue-up.

I carried out the assembly in two stages, starting with the side assemblies. Cramp the frames, checking that they're square and the joints are both tight and flush all around. Remove any squeezed-out adhesive using a damp sponge. Once the side frames have dried, glue the rear rails in position. I temporarily inserted a pair of dummy front rails to make the cramp-up a little easier, photo 5.

Making the tabletops

Begin by cutting the plywood core panels to size, less the width of the lipping to be fitted all around. The two smaller tabletops are finished so they fit within the larger frames with about 4mm clearance at each side. I cut the panels from 18mm thick birch plywood, which allows a good strong hold for the fixing screws.

Next, machine some pieces of oak to make the lipping, with a cross section of 20 x 18mm. Trim the lipping to length with mitred ends and glue these to the core panels. I used low-tack tape to hold the lipping in position and cramped each assembly until the adhesive was dry,



6 Glue and cramp the mitred lengths of oak lipping to the three tabletops



7 Cut the pieces of oak veneer slightly oversize to fit each tabletop



8 Apply adhesive to the veneer and the core; spread it out evenly with a rubber roller



9 Press the veneered tabletop assemblies between two flat cauls. I used a veneer press



A



B



C



D

MAKING A JIG

Begin by marking out the required arc profile on two pieces of 18mm thick mdf that will form the sides of the jig. The profile corresponds to a full arc 700mm long and 62mm high. I drew this using the bow-and-string method, tensioning a 1m steel ruler with nylon cord and a stick trimmed to give the required arc shape, photo A.

Next, rough-cut the pieces of mdf to shape close to the pencil marks using a bandsaw or jigsaw, photo B. Then sand the cut edges on the two pieces until they're smooth to the touch.

Now cut a rebate along the edge of the inner faces, photo C. I cut these rebates 6mm wide so my 30mm guide bush would fit perfectly within the jig while it was holding the 18mm thick rails.

Align and then assemble the two jig sides, photo D, including a couple of 18mm thick spacers made from mdf offcuts. I used a pair of large nuts and bolts that were to hand; otherwise long screws would work just as well.



10
Trim the overhanging veneer flush using a sharp chisel or a plane



11
Cut the ovolo moulding all round the tabletops using the table router



12
Drill holes for attaching the tabletops using a pocket-hole screw jig



13
Centralise each frame and attach it to its tabletop with pocket-hole screws



14
Cut oak slips to fit between the legs and screw them to the side rails



15
Finish the tables with oil, cutting back between coats, and then wax them

photo 6. Then sand the lipping flush so it finishes flush to the panel edgess.

Veneering time

Cut the six pieces of veneer to cover the upper and lower faces on each lipped panel. Dimension the veneer pieces slightly oversize to ease their alignment during glue-up. I cut all the pieces from a single large leaf of oak veneer using a sharp knife and a straightedge, photo 7. Any tears in the veneer can easily be repaired using low-tack tape. If you're using smaller pieces of veneer, then a larger piece can be made up by cutting a butt joint and taping the sections together.

Next, glue the veneer to the panels. I used PVA adhesive and spread it evenly using a rubber roller, photo 8. Applying the adhesive to both the veneer and the panel surface helps ensure that the veneer bonds fully.

Applying pressure

Sandwich the glued assembly between two flat cauls and press it. I used my home-made vacuum bag press, photo 9, but alternatively you could place some weights on the cauls such as sheets of wood or plies of books. I also used low-tack tape to hold the veneers in position as the assembly was handled prior to pressing. I removed the tabletop from the press after about an hour so that the adhesive would dry better in the open air.

When it's dried fully, peel off any tape and trim the overhanging veneer flush to the lipped sides. You can do this using a sharp plane or chisel, photo 10.

Protecting the edges

The next task is to cut a small ovolo moulding along both edges of the tabletops, photo 11. As well as being

decorative, this moulding sets back the veneer from the tabletop edges, giving it better protection from knocks in everyday use and when stacking the tables. I cut the ovolo moulding, including just the one quirk (step), using the table router.

Attaching the tops

Now fix the tabletops to their frames. I used pocket-hole screws as these have no protrusions that could mark or obstruct the stacking of the tables. Mark the hole positions and drill them using a pocket-hole jig, photo 12. I drilled a hole in each of the upper rails on the smallest table and pairs of holes in the rear and side rails of the larger tables. Upright and centralise each frame on its tabletop and screw it in place, photo 13.

Fitting the slips

The final construction stage is to make and fit the wooden slips that guide and support the tables when they're stacked together. I cut these from oak offcuts and screwed them in position between the legs on the inside face of the side rails, photo 14. I cut the width of the slips so the tables stack with about 6mm of sideways movement. Position the height of the slips to leave about a 5mm clearance between the stacked tabletops.

Finishing touches

Separate the tabletops from their frames and check them over, removing any unwanted marks. Give all the parts a final sanding, wipe off the dust and apply your chosen finish. I put on several coats of oil with a foam brush, photo 15. Between coats and when dry, I used fine wet-and-dry paper with white spirit to give a really smooth finish. After the final coat I waxed the tables using a fine sanding pad. Finally, reattach the tabletops and the tables are ready to use.





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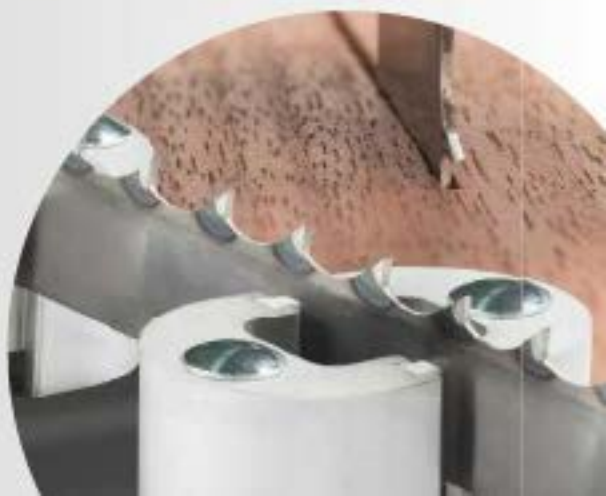
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BY KEITH SMITH

Calm and collected

This little offertory box was a commission from my local church, but the design could be adapted to create a key cupboard for the home or a suggestions box for the office

Leaving our local church after the funeral of a close friend, the weather suited the mood... dull and windy. The churchwarden had set up an offertory plate on a table in the churchyard and, despite the sadness of the day, I think I wasn't the only one who found the sight of said churchwarden collecting wind-blown money amongst the gravestones rather comical. My amusement was short lived, however, when on returning with a handful of wayward notes he said to me, "Keith, we need an offertory box – nothing fancy, just something to stop the money blowing round. Can you make us one?" "Of course", I said, "no problem..." and this little project was born.

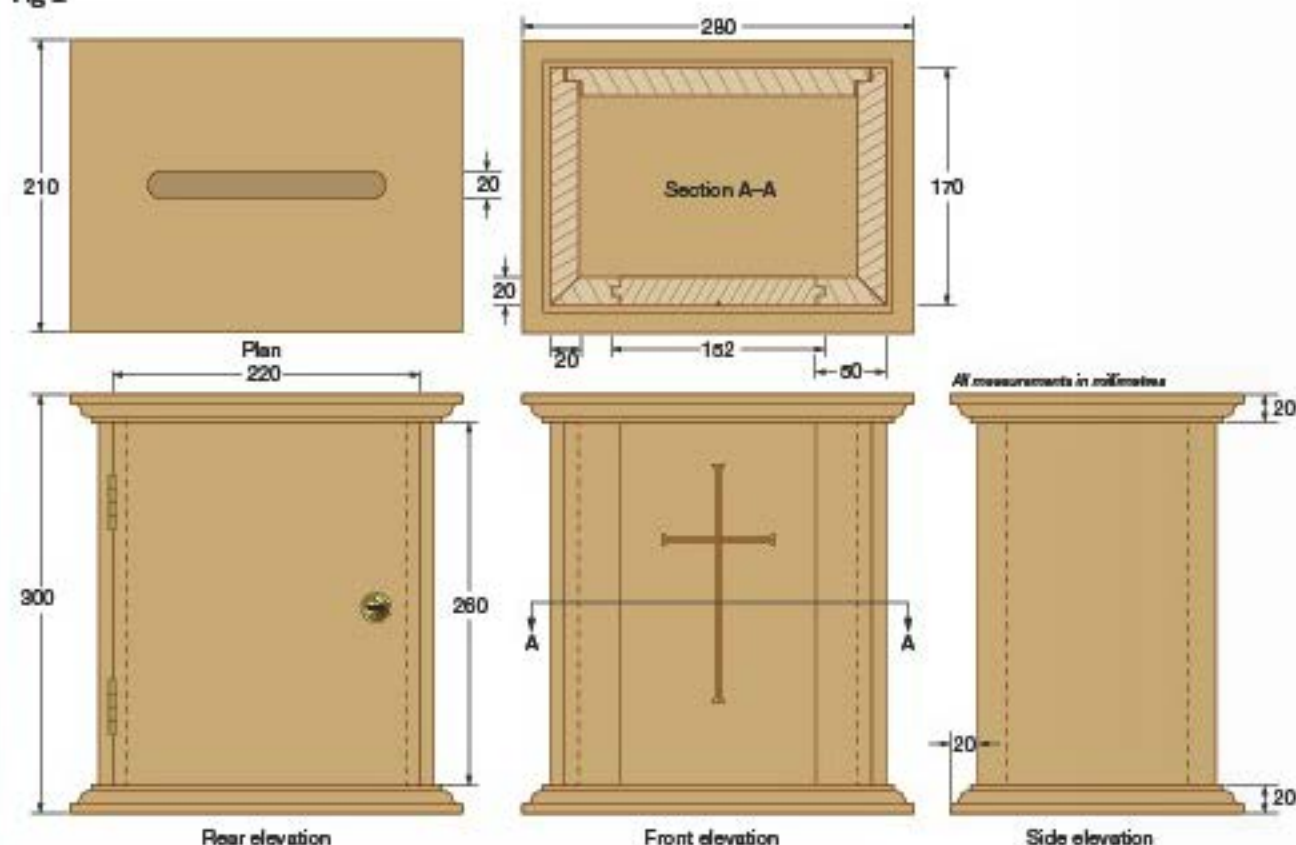
Looking for inspiration

I had never made anything like this before, so to begin with I had a look on the Internet at the various options available. The best-looking ones seemed to be American, and were generally bigger than I had anticipated. Talking to the churchwarden, I discovered that people often like to leave a card, so the box and slot would have to be sized accordingly. This meant that I would also need to fit a large lockable door to the rear of the cabinet.

The right proportions

This is a relatively simple box, but it can be difficult to get the proportions to look just right. I see so many pieces of furniture spoiled by having them slightly wrong, and

Fig 1



OFFERTORY BOX CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Top/bottom	2	280	210	20
Side*	2	260	230	20
Door	1	260	220	20
Front**	1	260	152	20

* This piece forms the mitred components at each front corner of the box.

** This piece includes an allowance for two tongues.

I always recommend drawing a project out to scale before any other work is done.

For simple projects a sheet of paper, pencil and a ruler is all you need, although a scale rule, a set square and a pair of compasses are very useful additions. If you have a computer, then SketchUp is a great option for drawing up projects. With it you can create a full 3D image and iron out a lot of the constructional issues before you even start cutting any wood, and it's free too!

I do use it occasionally but I generally prefer TurboCAD, as I find it quick and easy to produce working drawings for the workshop. Although this is a relatively expensive program, it's possible to buy earlier versions at a fraction of the current

version price which work perfectly well for us non-professional designers.

The design is born

After about an hour in front of the computer, I came up with a design I liked, fig 1. The box was going to be quite large at 300mm tall, 260mm wide and 210mm deep. I decided to split the front panel to help it cope with any movement, and would biscuit or domino the sides to the top and bottom pieces to keep the construction simple.

As for materials, oak is the best wood for country church fittings like this. I managed to cut the pieces for the whole box out of one sawn board; in this way the grain and colour will match when it's finished. I bought

a pair of solid brass butt hinges to hang the door and a good-quality cabinet door lock.

Planning for movement

The sides, top and bottom all have their grain running in the same direction, so no allowance needs to be made for wood movement in their joints. However, the front has its long grain running up against the top and bottom and, if no allowance is made for movement, the front would probably split at some point. I therefore decided to divide the front into three sections and to tongue and groove them together loosely. I mitred the joints at the front corners, to which I added biscuits to ensure the joint wouldn't open up in the harsh environment of an unheated church.

Preparing the parts

I started with a 1.7m length of 280mm wide sawn oak. It wasn't particularly flat, so I cut one length to 600mm and two to 550mm. This allowed me to plane each piece flat without too much wastage. I had intended to machine it down to 18mm thick, but as it was square and smooth at 20mm I left it that bit thicker.

I cut the top and bottom out of the 600mm length and used an ogee router bit in the

router table to mould all four edges, photo 1. It's a good idea to clean them up at this stage as they are so much easier to work on.

Matching the grain

I decided that it would look better if the mitred corners had their grain matching, rather than matching the grain across the front of the box; this has the added advantage that there would be no short lengths to machine up. So I cut a 52mm wide strip (slightly oversize to allow for cleaning up) off one of the 550mm lengths of oak. I then turned the wider board over and cut the edge to 45° to allow the grain to match on the outside face of the boards. This needs to be a really clean cut, so I passed the edges over the planer with the fence set at 45°, photo 2, to remove any saw marks before cutting a groove in the edge of the 50mm wide board to house the front panel, photo 3.

Preparing the joints

The door was to be rebated into the box slides so, after cutting the side piece to its 170mm width, I formed a 10mm rebate on the inside face and cleaned the resulting cut up with a shoulder plane, photo 4.

Still leaving the slides in one long length, I marked out the positions of the biscuits, taking care to avoid placing any that would be exposed when the slides were cut to length. As I cut the slots, I kept the jointer high up on the mitre to prevent the cutter from coming through the face of the board, photo 5. I then assembled the mitre joint and cramped it up, photo 6.

Tongues and dominoes

While this dried, I cut the front panel to size and machined tongues on the two long edges. I then set about carving the cross on the front face, photo 7. By the time I'd finished, the mitre joint had set and I was able to cut the two slides to length and clean up the inside and outside edges of the joint.

The next step was to mark out the positions of the slides and front on the top and bottom pieces. I then used my Festool Domino jointer to cut slots for the dominoes, photo 8. These joints could be biscuited or dowelled just as well if you don't have a Domino jointer.

The perfect slot

It was now time to cut the letterbox slot in the top of the box. I used the router table for speed, photo 9, but this operation is a bit tricky to ensure that there's no chance of a climb cut. It would be easier – and safer – to make a template from a scrap of mdf and then to use a bearing-guided cutter or a



1 It's a good idea to clean up the moulded edges on the top and bottom at this stage



2 To ensure a clean mitred joint, I ran the sawn edges over the planer at 45°



3 Keeping the narrow slides in one length made it easier to form the groove for the front panel



4 Rebate the back edge of the side piece to house the door, and clean up the edges with a shoulder plane



5 Set the jointer well up on the mitred edge to prevent the cutter coming through the face of the board



6 Biscuits can make it difficult to close up a mitred joint perfectly, so use plenty of cramps



7 I marked the outline of the cross in pencil before cutting it out with a very sharp chisel



8 Mark the mortise positions on the top and bottom pieces before cutting slots for the dominoes



9 I cut the letterbox slot in the top on my router table, using a push pad to protect my fingers



10 The hinge will set the gap between the door and the box side, and should sit flush with the door edge



11 This was a good-quality lock, but the keyhole is aligned primarily for use in a drawer



12 Drill a small hole through the door to mark where the pin protrudes from the lock case



13 I used a coping saw to enlarge the keyhole, but a fretsaw would have left a cleaner cut edge



14 I positioned four Bessey clamps to hold the box perfectly square while the glue set

guidebush in the router to machine the cut.

It took some ingenuity to clean up the edges of the slot as they need to be perfectly smooth. To make the slot even more user friendly, I then ran a very small diameter roundover cutter round its top and bottom edges.

Making the door

Next I cut the door to size, slightly smaller than the dimensions given to allow for clearance, and cut rebates on both long edges before marking and cutting the recesses for the hinges. The hinge knuckle should sit flush with the edge of the door, photo 10. I then dry-assembled the box and used the door to mark out the position

of the hinges on the cabinet side before rebating the cabinet to match.

I bought a good-quality lock for this project, photo 11, but as you can see from the pictures it's intended to fit on the top edge of a drawer rather than on the side edge of a door. For some reason, at our local Ironmongers at least, door locks were twice as expensive as drawer locks and, as this is one of those 'free' jobs that I'm often asked to do, I wanted to keep the costs down.

Fitting the lock

I cut the rebates for the lock in the inside face of the door, photo 12; it needed two – one for the lock body and a larger one for

the faceplate. I drilled a small hole through the door where the pin of the keyway projected out of the lock, and marked where the escutcheon would fit on the face of the door using this hole as my guide. I then marked the centre point before cutting a circular rebate with a Forstner bit mounted in a drill press; it's important to keep this cut very clean with no tear-out.

Next I loosely fitted the escutcheon and marked out the limits of the keyhole before removing it and cutting the waste away carefully with a coping saw, photo 13. I then fitted the lock and made sure the key worked easily without binding.

To mark out the position of the lock keep, I dry-assembled the box again and fitted the door temporarily. I then inked the end of the lock bolt with a marker pen, closed the door and turned the key to force the bolt against the cabinet side. This left a clear rectangular mark which I could use as a template for cutting the keep rebate.

Sanding and sealing

I then cleaned all the pieces up with a random orbit sander, going down to 240 grit before gluing the box together, photo 14, taking care not to get any glue in the tongue-and-grooved joints at the front of the box. Once this had dried, I fitted the door to make sure it had an even clearance gap all round, photo 15. I also checked that it opened and closed without binding and that the lock still worked smoothly.

All that remained was to clean off any glue marks and give the surface a light hand sanding where necessary before finishing. For this I used finishing oil (six coats in all), but a quicker option would be to use Osmo Polyx hardwax oil which would arguably give a more durable finish.

Finally the box was ready for delivery to the churchwarden, just in time for a wedding where I hope it attracted plenty of donations!



15 Before finishing the box, I fitted the door to make sure there was an even gap all round it

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The Chief's Chair

BY **IRENE BANHAM**
Williams & Cleal Furniture School

The Chief's Chair was inspired by a traditional African design, but I've given it a more contemporary western feel. Long before starting my furniture course, I'd already decided to make a chair based on its design





One of the many attractive design features of this chair is the use of simple engineering principles to make it stand up. The finished chair has two parts. The rear leg/seat component is not fixed in place, but passes through a hole in the chair back, from which it can be separated if required. This simple but effective design provides a very stable and strong chair.

Choosing my wood

Following the theme of the traditional chair design, I chose to use a native species of timber for the chair (native to Britain, that is), and decided on olive ash, which has a beautiful grain pattern resembling olive wood; the back and seat complement the plain ash rear leg. The timber was sourced from a local timber merchant, which allowed me to choose individual boards and get the olive effects I was looking for in the wood.

Lines and profiles

The outline shape of this chair is designed to give it pleasing but simple lines, with profiled areas that really show off the beauty of the olive ash in section. The inner face of the chair back is shaped, both for comfort and to provide additional visual interest, and relieved sections at the top of the chair enhance the look of the wood.

I've altered the normal proportions of the chair and produced a piece with a higher seat and a more upright back than the traditional design. These changes result in a very curved rear leg; the traditional chairs have a much straighter rear leg carved from a single piece of timber, but this isn't feasible in my design.

With a little help...

I decided to produce the rear leg by steam bending as this provides a solid timber section for the leg, and a relatively 'unprocessed' solution to the problem of obtaining a curved length of wood. I needed to bend a relatively



1 Bending the rear leg required a sturdy purpose-designed former



3 After cutting the back out, I marked up the areas that needed shaping



5 A compass plane was the ideal tool for shaping the inner face of the back



7 The spindle moulder was brought into service for trimming the curved leg



9 Another mdf template was needed for cutting out the V-slot in the seat



2 I drew and cut out an mdf template to give me the ideal shape for the back



4 I used an angle grinder to remove most of the waste from the shaped areas



6 Stretcher bars helped to keep the curved leg in shape while it dried out fully



8 Next, I routed the rear edge of the seat to match the profile of the back



10 The edges of the seat were carefully rounded over using a spokeshave



11 The next job was to shape the top of the seat before the leg was glued in



12 Shaping the profiles on the chair back required a lot of hand tool work



13 Some final edge shaping completed the top of the chair's back panel



14 This carefully shaped plywood tongue will locate the leg into the seat



15 The seat, the back and the plywood tongue are ready for assembly



16 It was now time for a dry assembly to test that everything fitted



17 The first stage of the assembly was to glue the leg into the seat slot



18 After finishing the back with oil, the chair was ready to be assembled

large 80 x 40mm section of wood, and there was some concern within the school as to whether this would be successful.

However, I spent a lot of time and effort in preparing a strong bending former and in planning where and how to do the bending. Fortunately, with the help of extra muscle from fellow students on the day, the steam bending was successful at the first attempt.

Shaped by hand

In line with the traditional theme, I felt that it was appropriate to produce all the shaped surfaces of the back and seat by hand. I used hand-held power tools such as an angle grinder and a power planer for initial material removal in some areas, but formed all the final shapes by hand with a variety of tools such as a compass plane, cabinet scrapers, spokeshaves and lots of abrasive paper.

One difficult joint

Before the inner face of the chair back was shaped, I had to cut an angled mortise through the chair back to take the rear leg. Once the inner face of the chair back had been shaped, I made a template to ensure that the rear edge of the seat could be cut to the exact shape and angle to fit into the back of the chair.

The steam-bent leg was eventually released from its former and after shaping, a loose tongue was used to fix the rear leg into the seat and make this into a single finished component.

The chair's final finish is several coats of oil, which has served to enhance the grain and to provide a hard-wearing surface.





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BY IAN WILKIE

King of the castle

This magnificent castle, complete with battlements, towers and a working drawbridge, will keep your children and their toy soldiers busy for hours. Ian Wilkie designed and built it

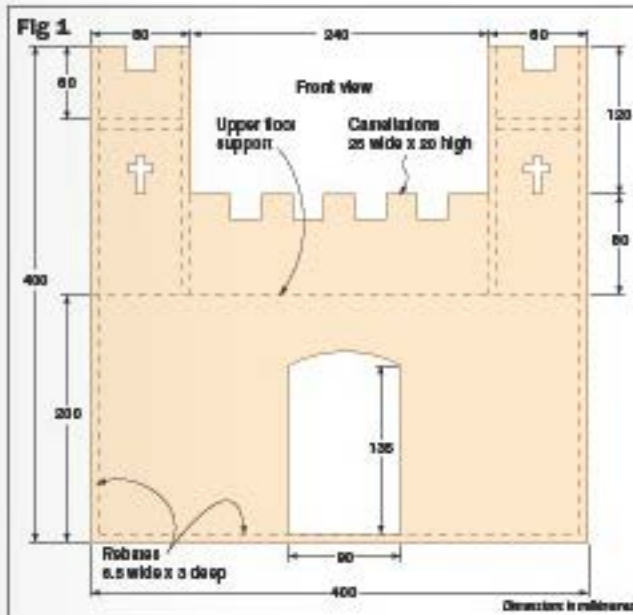
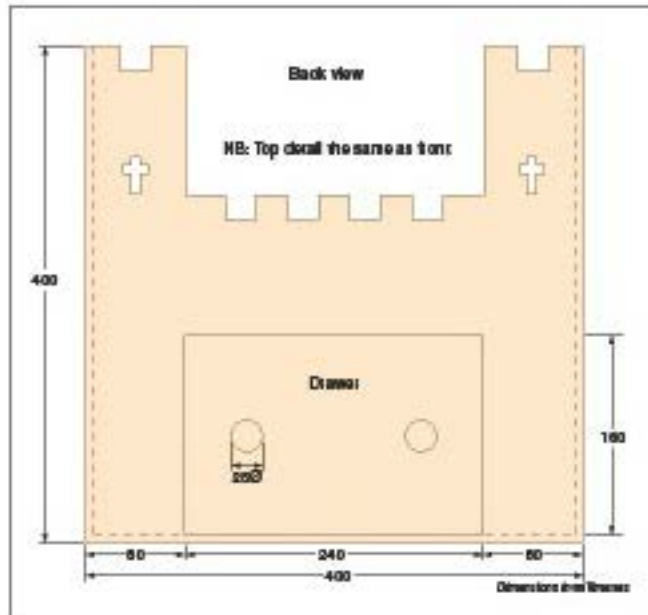
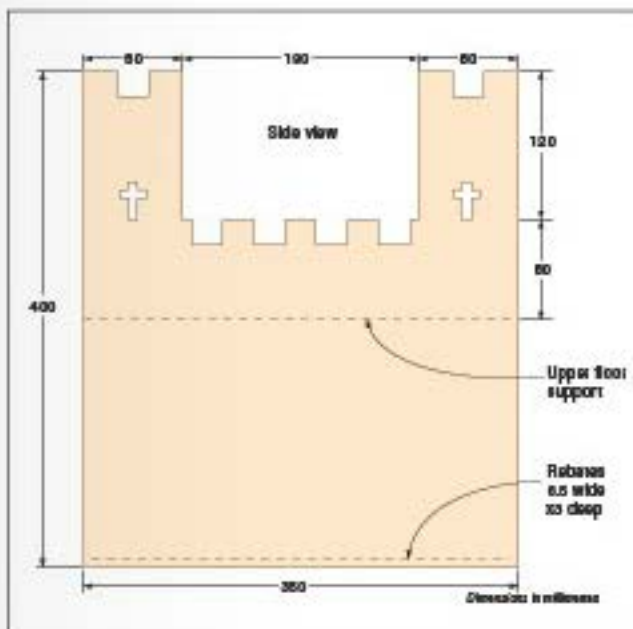
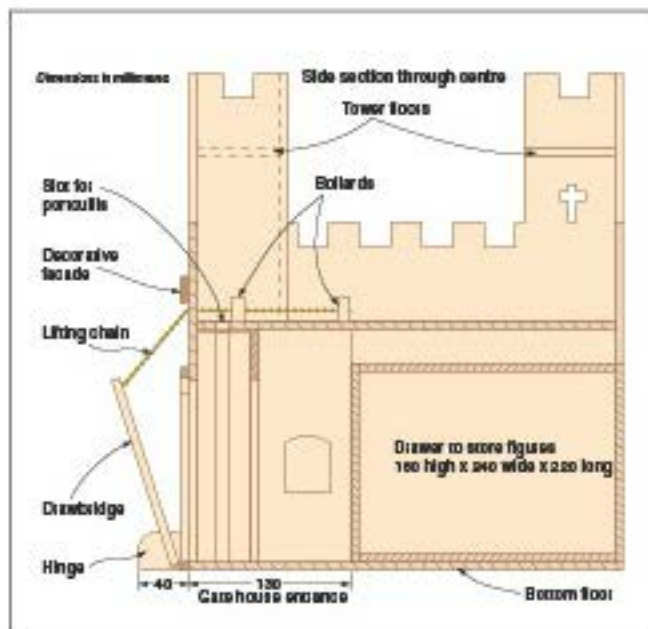
The traditional toy castle is always a firm favourite with children, and has been designed to scale for proprietary mounted knights with an overall height of 130mm and foot soldiers of 65mm. It's intended for children between the ages of 3 and 10, and will take pride of place in any playroom.

The castle is constructed in birch plywood, and a scroll saw is the only essential machine for making it; I used the Dremel Scrollstation. A small router will also come in handy.

Choosing materials

For this project, it's best to use good-quality birch plywood. Don't be tempted by the much cheaper plywood from DIY stores, because it's generally too coarse and will have a soft core. Toys for children need to be smooth and free from splinters. If you're unable to source suitable plywood you can substitute it with thin mdf, but the finished toy will be heavier and you'll also need to paint it.

My Russian birch plywood came from Severn Plywood in Stonehouse, Gloucester



(01453 826886 www.sevemply.co.uk), and a full sheet 6.5mm thick measuring 2440 x 1220mm cost approximately £30. I paid a small cutting fee to have it reduced to eight 610mm square panels, which fitted in the car boot and were easy to store flat when I got home. Five of these were sufficient to make the castle.

By the way, do measure the exact thickness of your ply when you get it home. You need to know this when you rout rebates or grooves so that you can choose the right cutter.

Good-quality PVA glue such as Unibond or Evo-Stik is extremely strong, and you won't need any screws to assemble this toy; all the joints are just glued and, where necessary, pinned. Make sure that the surfaces to be glued together are clean and dust-free, and use cramps wherever possible; F-cramps and spring cramps in various sizes are particularly useful. Where it

TOY CASTLE CUTTING LIST

All dimensions are in millimetres; all parts are 6.5mm thick plywood

Part	Qty	L	W
Front/back	2	400	400
Sides	2	400	350
Floor	2	400	350
Gatehouse wall	2	200	120
Tower side	4	200	80
Tower platform	4	80	80
Drawer front/back	2	240	160
Drawer side	2	220	160
Drawer base	1	240	220
Drawer bridge	1	160	105
Portcullis	1	200	85
Scalloped strip	8	400	25
Gateway arch etc	offcuts		

You will also need: panel pins; small hinge with brass pins; 1m fine chain; 2mm brass rod; picture-frame eyelets; 6 and 12mm dowel



1 Use templates to mark out the various battlements and arrow slits



2 Good-quality saw blades make all the difference when making cut-outs



3 Cut out the front, back and sides of the castle and sand all the cut edges smooth



4 Use abrasive paper stuck to an offcut to sand inside all the internal cuts



5 Rout rebates on the castle sides to produce strong corner joints



6 Horizontal strips glued to the walls support the upper floor



7 Glue plywood strips to support the gatehouse walls above and at each side of the entrance



8 Glue vertical strips on the inside faces of the gatehouse walls to form a groove for the portcullis

DESIGN CRITERIA

- **Safety** Careful choice of materials and any paints used. No sharp pointed turrets and flagpoles which could cause injury to eyes, and no sharp edges or splinters.
- **Durability** Strong and robust in construction. The drawbridge and portcullis should not be too elaborate, as they would be particularly vulnerable to damage.
- **Cost** Not too expensive on materials, and needing the minimum of tools and fittings.
- **Play value** Attractive and exciting to look at, with plenty of potential scope for imaginative play.
- **Storage** Needs to incorporate a drawer for the figures, horses and other accessories so that they won't get lost and damaged, and to encourage the children to tidy up after play. Some form of handle on each side will enable an adult to carry the castle easily from room to room.
- **Scale** Not too critical, but designed to suit readily available proprietary mounted knights and foot soldiers.

Isn't practical to use a clamp, some small but heavy weights come in very handy.

The carcass

Sand both sides of each sheet of plywood with an orbital sander first; it really is well worth doing this to get a smooth, whisker-free surface.

Make small templates to use to draw out the battlements and arrow slits. You may wish to add more arrow slits at a lower level. Take the measurements from the drawings (fig 1) and accurately mark out the front, back and side pieces using a straightedge, try square and pencil and your templates, photo 1.

Drill 1mm holes at the corners of the battlements to give a crisp corner when they're cut. Also drill holes for all the corners of the arrow slits and doors so that the scrollsaw blade can be threaded through for inside cutting.

Fit the scrollsaw with a No 7 PGT Olson reverse-tooth blade, to reduce tearing on the underside of the ply, photo 2.

Cut out the pieces with a scrollsaw and true up the edges with a plane or sander if necessary, photo 3. Keep all the cut-out offcuts of plywood as they'll be used later. Glue a scrap of abrasive to a piece of wood cut to fit between the battlements and the arrow slits and use it to sand the cutouts, photo 4.

Use a router fitted with a parallel flute cutter to form rebates 3mm deep x 6.5mm wide along the bottom and side inside edges of the back and front pieces and along the bottom of the side pieces, photo 5. Check the thickness of your ply carefully and do a trial run first so that you can adjust the width of cut if necessary. Routed rebates will produce a strong, neat carcass with larger gluing surfaces. If you don't have a router, use butt joints instead and reinforce the joints on the inside with strips of wood if you feel this is needed to strengthen the structure.

Glue on horizontal strips to support the upper floor inside all four sides, 200mm up from the base, photo 6. Also glue a vertical strip at each side of the arched doorway and across the top for the inner side walls to butt against, photo 7.

Inner gatehouse and portcullis

Cut out the two inner gatehouse walls and add any windows or arrow slits. These walls should be cut to fit exactly between the floors to give support; they also form a stop for the back of the drawer. Glue two vertical strips on the inside of each wall 8mm apart to form a groove to house the portcullis, photo 8.

Cut an arch to match the profile of the castle entrance and fit it between the gatehouse walls, photo 9.

Cut a piece of ply for the portcullis and sand and round off the top edges. Draw small squares for the areas to be cut out in the bottom two-thirds of the piece. Drill all the corners and a central hole in each square. Thread the saw blade through the central hole and carefully cut out the squares. Alternatively you may decide, as I did, to make more of a feature of the portcullis and glue strips of darker hardwood to it. The portcullis can be pulled up to enable the knights to pass underneath it into the castle, but it can also be completely removed during play if required, photo 10.



9 Glue the gatehouse walls into their grooves and fit the arch piece in between



10 Check that the portcullis slides easily in its grooves between the gatehouse walls



11 Cut the hatchway and the slot for the portcullis in the upper floor, and stick it in position



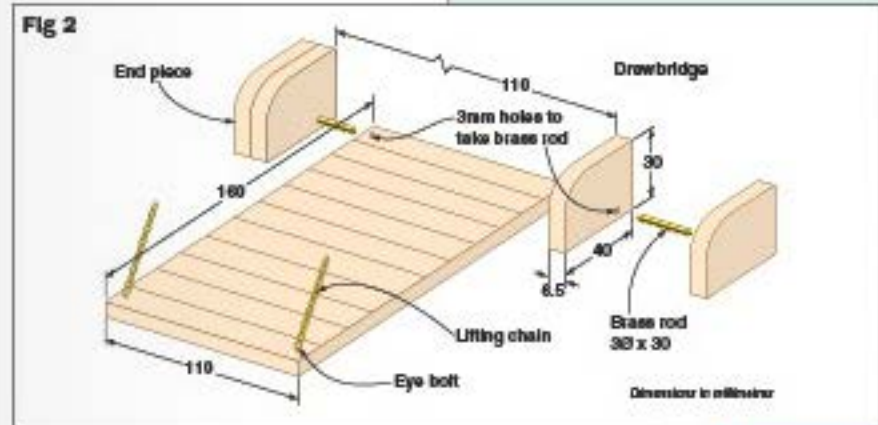
12 You can fit a hinged and barred hatchway in the centre of the upper floor



13 Glue up the front towers and hold the pieces securely with cramps while the glue sets



14 The rear towers are open, and have a glued-in look-out platform reached by a ladder



15 Assemble the arch and drawbridge, ready for fitting to the castle's front wall



16 This is the position of the front bollards and chain when the drawbridge is down



17 Position the second set of bollards and loop the chain round them to hold the drawbridge up



18 Glue the false door to the inner face of the storage drawer



19 Glue and cramp the scalloped lifting handles to each side of the castle

The floors

Cut out the bottom floor piece which forms the base and trim it to fit. Do a dry run putting together the floor and the four sides, then glue the carcass together. Tap in 1.5mm panel pins through pre-drilled holes along the rebates to hold the carcass firm and square while the glue dries. Punch in the pin heads, fill the holes and sand the filler flush.

Cut out the upper floor piece with a square hole for the hatchway and a slot for the portcullis, and trim it to fit. Check that the portcullis slides in easily, photo 11. Cover the hatchway with a hinged frame and bars, photo 12.

The towers

Complete the two front towers with their arched doorways and roofs, photo 12. The back towers aren't filled in and have look-out platforms which are reached by means of ladders, photo 14.

The drawbridge

The drawbridge is raised and lowered using a chain. This is simply looped around four bollards fixed to the first floor when the drawbridge is up, and around two when it's down. This is simpler than using a windlass.

First, cut an arch in ply to match the shape of the gateway, and add a base to

provide a frame to which you can hinge the drawbridge, fig 2.

Cut a piece of ply and score across it to represent planks. Round off the edge, which will sit in the entrance. Drill a 3mm hole through each side of the archway and through each side of the drawbridge to a depth of 30mm. Insert a 3mm diameter x 36mm length of brass rod into each hole to form hinges; once they're in place, cap the ends with wood, photo 15. Drill a hole at each outer corner of the drawbridge and glue picture-frame eyelets into the holes with epoxy resin adhesive to take the ends of the chain. Then glue the archway and drawbridge assembly in position.

Drill two holes in the castle wall above and at each side of the entrance, large enough for the chain to pass freely through.

Make four 25mm high bollards from 12mm diameter dowel and file a waist halfway down each one. Insert a smaller 8mm dowel in one end of each bollard to form a peg which can be glued in a hole drilled in the upper floor. Glue one bollard at each side of the portcullis housing on the upper floor.

Pass the chain through the castle wall, around the two bollards and out again through the castle wall. Cut the length of chain so that the drawbridge is fully down in

this position and attach the two ends to the drawbridge eyelets, photo 16. To find the position to put the other two bollards, pull up the chain to raise the drawbridge and stretch the loop out. Mark the two bollard positions, drill the holes and stick the bollards in place, photo 17.

The storage drawer and handles

The following instructions produce a simple storage drawer intended for storing all the knights and weapons. However, with a little tweaking this idea could be developed so it doubles up, when empty, as a separate defensive building. It could, for instance, have an opening door and arrow slits around the sides; there are endless possibilities!

Rebate the edges of the pieces for the drawer. Drill two 25mm finger holes with a Forstner bit in the back panel so that the drawer can be pulled out. Glue up the carcass and cut a bottom to fit. Glue two strips of ply on the castle floor, running from front to back, to stop the drawer skewing as it's opened and closed.

Make a false door to match the castle entrance and glue it to the back of the drawer so it can be seen when the drawer is in place and the portcullis and drawbridge are open, photo 18. Add two picture-frame eyelets as handles.

Cut six scalloped plywood strips. Glue two together to make handles on each side of the castle so it can be lifted up to put it away. Alternatively, cut these from solid hardwood scraps. Use the two other plywood strips as decoration above the front arch and the drawer opening at the back, photo 19.

Finishing touches

Give the castle three coats of clear acrylic varnish. You can then have some fun adding shields, ladders and torches and any other decorations you fancy before the knights and soldiers move in.

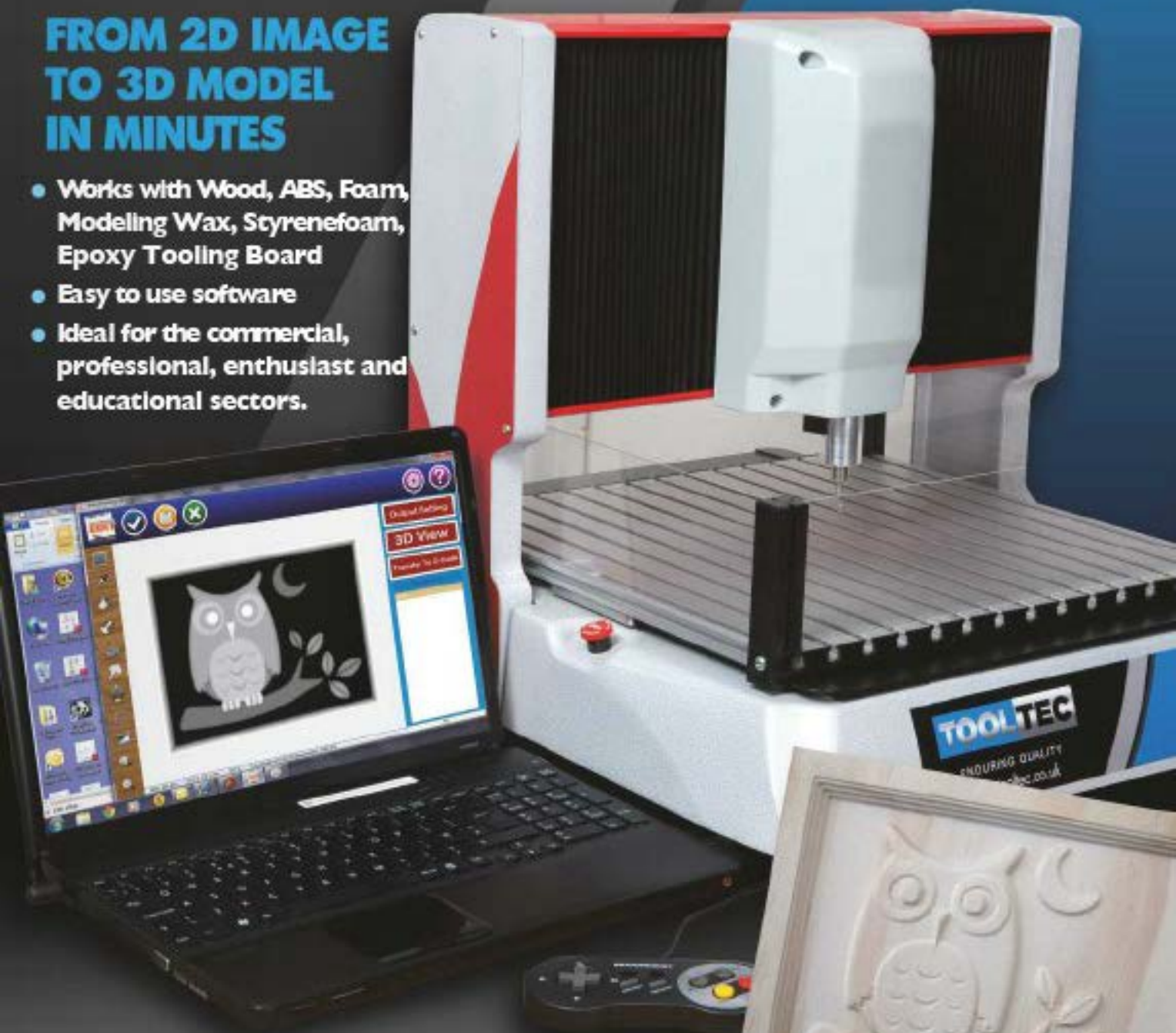


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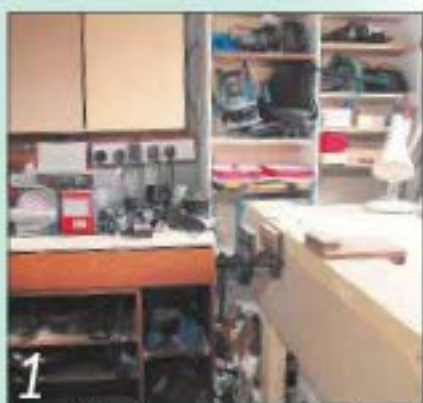


BY MICHAEL FORSTER

A bloke and his bench

What is a workbench? For many people it's just a table with a vice at one end... but if you take your woodworking seriously, it can be much more than that.

Michael Forster explains



1 In a workshop this cramped and cluttered, a large bench is of questionable value



2 A compact bench with a good work-holding system felt like a real blessing

I've never really thought much about benches until relatively recently. My earlier experience was in school, training or trade workshops where I just used what was provided. So my idea of a bench was two planks of wood with a tool well in between and a stout quick-release vice at one end.

At home – my parents' home, that is – it was an old kitchen dresser base with a little clamp-on vice clinging for dear life to the bull-nosed front edge! Then in my first home, as a poverty-stricken newly-wed music teacher, the benchtop vibrated like a drum and about its only virtue was that at least the vice had a square edge to get hold of.

Big isn't necessarily best

Returning to woodworking decades later, the first thing I did was to scrounge some reclaimed timbers from a local builder and concoct a bench. It was certainly robust, but it was far too big and I quickly learnt that, in the words of another woodworker, a big bench is like a big kitchen: it just gives you more to walk round. So I evicted the big bench and treated myself to a slender, seductive Swedish model. Of bench, I mean...

At first, I revelled in the

benefits of that bench, especially its compact size and its work-holding system. OK, it was the entry-level model and as such rather lightweight. However, once fixed to the wall it was undoubtedly better than anything I'd used earlier. Thanks to the combination of vices, dog holes and holdfasts I was able to hold workpieces of any shape securely, but over time the drawbacks became increasingly clear.

The drawbacks appear

It's all very well fixing a bench to the wall for support, but inevitably there comes a time when you need to move it out for some reason – and that means a lot of work that destabilizes the bench! As time went on, other entry-level economies began to show up, and the front vice became increasingly unreliable, demanding impressive levels of physical fitness in order to tighten it securely. I fixed a new, better vice in its place but that was never successful, for reasons that I only came to understand later.

To begin with, the aftermarket vice – which was actually a very good one – involved a lot of hardware under the benchtop, blocking off some of the dog holes. I drilled some others but it was never the same. Obviously, the manufacturer had placed those original holes where they were for a good reason...

The second problem with the new vice was that it was just too heavy for the relatively thin benchtop – and the third was that I didn't fit it.



3 For tasks like hand planing, a lightweight bench may need to be fixed to the wall



4 Some tasks involving cramps are much easier if the bench can be moved clear of the wall



5 This Little John bench from Richard Maguire needs no wall support, thanks to the raked rear legs



6 A higher bench is an advantage for dovetailing, but a raised centre of gravity affects stability



7 A tool well can be a positive benefit on a small bench, clearly defining working and storage areas



8 The tool well on this bench can be filled in when a wider flat surface is needed for assembly work



9 A shelf underneath the bench is useful, but it can also be a dust and shaving trap



10 Working at one end of the vice can cause the jaws to rack. I used to make little packing pieces to drop in at the other end



11 This aftermarket vice is very good, but poor fitting on my part and a lightweight bench meant it wasn't adequately supported



12 The leg vice on the Little John bench has amazing grip and allows one-finger operation



13 The pinless design means there's no need to bend down and move the pin to keep the jaws parallel



14 The Veritas wagon vice is ideal for a small workshop, as opening it doesn't change the overall length of the bench

very well. The inevitable outcome was that the vice became increasingly difficult to operate, and when I found myself working hand-over-hand to heave the jaws open the truth finally dawned: there's more to a bench than a table with a vice on it.

Build or buy?

I found myself facing some difficult questions. Should I buy another replacement vice? Probably not, as I'd simply be fitting it to a bench whose shortcomings were now only too clear. Replacing the benchtop and vice together was another option I quickly discounted, as the weight of the new top would expose the weaknesses in the underframe. Try as I might, I couldn't avoid the reality that my best course of action was to replace the lot.

I thought about building it myself – but

not for long. Yes, I could probably make some sort of a list of it, but the fact is that I simply don't enjoy heavy joinery any more. I've been much happier since I decided to focus on the smaller stuff. Apart from that, I'd learnt Something Really Important in the process so far: bench design is a lot less simple than it looks.

Stability matters

As well as the obvious questions about the thickness of the top and the work-holding system, I'd need to do some serious mathematics to resolve issues around the centre of gravity and the leg geometry. It might seem a simple question of building a solid underframe with four legs and eight rails, but it takes more than that to stop a small bench from moving under pressure. Most of

my work is hand-work, including planing (lots of planing) – and unless a bench is very heavy indeed that kind of work can soon set it off on its travels around the workshop.

Added to that, I have my bench set higher than most. That's because I do a lot of small detail work such as dovetailing, and had found myself experiencing lower back pain. Raising the bench had stopped it completely. That, of course, also raises the centre of gravity. And then there's the vice issue. By now I'd stopped thinking of the vice as something to add on, and started realizing that it needs to be considered at the design stage. That's the word: Design.

Specialist advice

It was becoming clear that bench design is something of a specialist area, so it was time to check out the experts. There are several very attractive benches out there, but the trouble is that all too often the smaller ones are, like my own, very entry-level. Once you move up the range they become a lot more solid, but by that time they're maybe eight feet long and that was just impossible in my shop.

Apart from that, a pretty hefty vice was by now high on my list of priorities. When cutting dovetails I'm working with the timber set right at one end of the vice in order to get it low enough to minimize chatter, and even the more upmarket replacement vice I'd fitted racked, which compromised the grip. The vice either needed significant depth in the jaw, which can result in the front jaw dropping, or a lot of weighty engineering to resist the rack. However, on a small bench that again raises support and stability issues, so not for the first time I'd come full circle.

This was not looking promising. If I were going to invest time, money or both in a new bench, I wanted it to be the ultimate: one that would last the rest of my life and serve my needs without any compromises. If I couldn't solve the Size v Stability Issue, I was going to have to reorganize my entire workshop to take a bench that was bigger than I needed, reducing the remaining work space and giving me 'more to walk around' – and that was not an attractive prospect.

Other considerations

To complicate matters, other aspects of the design began to interpose themselves in the debate. Should I have a bench with a tool well? Some say yes, some say no. What about storage under the bench? If cupboards come right up under the top they can impede the use of cramps. If there's a space, whatever's on that top shelf gets covered in dust and shavings falling through the dog-holes. Without cupboards,

the entire under-bench area is visible and accessible for cleaning.

In terms of work-holding systems, I was by now taking a couple of vices and some dog-holes for granted, but was also pondering the option of fitting a sliding board jack. This is simply a vertical board, perforated with 19mm holes, that slides along the front of the bench to allow the use of holdfasts and dogs to support long boards for edge planing. It did seem a wasted opportunity, as I was starting from scratch, not to include one, even if I didn't need it very often.

I have a dream...

All these thoughts were racing round in my mind while I was still trying to focus on the essential issue of Size v Stability, and lurking in the back of said mind was a British-made bench I'd seen at a show: Richard Maguire's Artisan model. Constructed from positively architectural timber sections, it certainly didn't have stability issues. It was also more than capable of supporting a massive vice, developed by Richard himself, which was clearly both designed and built integral to the bench rather than an add-on. This could be the perfect bench for me – except that it was huge!

So we're back to the old problem: any bench robust enough for serious hand work was going to be too big. Still, it couldn't hurt to enquire; maybe the master designer/maker would be able to solve the riddle and produce a smaller bench on similar lines. At any rate, he could settle this issue once and for all (and perhaps advise me on some of the others): if he said it couldn't be done, then I was going to have to admit I was asking for the moon and perhaps that would liberate me to consider more realistic options. So I called him...

Back to basics

It seemed that I wasn't the first to enquire about a smaller Artisan bench, but after long consideration Richard had concluded that the loss of mass would make it considerably less stable while not a lot cheaper than the big one. However, he had come up with a smaller bench designed entirely from scratch to be both small and stable.

The first thing I noticed was that the rear legs were raked at a severe angle, firmly bracing the bench against racking. It had a leg vice on the front – something I'd not used before – and a wagon vice (ditto) at the right-hand end.

This all looked very promising, but I was uncertain about the single row of dog-holes – my bench, like most Swedish examples, had two rows running from each vice

15

Between the wagon vice and a bench dog, the work is fully supported by the benchtop



Holdfasts are really useful, but these threaded ones can be a bit time-consuming to fit

position. So the next thing to do was to check out the videos Richard has made of the bench in use.

The proof of the pudding

Doing that, and discussing with woodie friends who'd actually been able to try the Little John (for so it was named), soon had me thinking that my search might be over. The videos clearly showed Richard vigorously hand-thicknessing a piece of timber with a coarsely-set jack plane, energetically putting his weight behind the plane and working rapidly. The bench not only held the wood securely but remained solidly stable in itself.

Other videos on Richard's blog also helped me to resolve other issues. Watching him at work was enough to show clearly the benefit of a tool well on a small bench, and the open area beneath it certainly looked easy to clean up. As for the sliding board jack – well, I'd pretty well answered that question already. My only remaining concern was the height issue. Richard promised to give this some careful thought and get back to me.

Personal tailoring

The outcome was that I splashed out and commissioned a custom-made Little John bench, 50mm taller than the standard height. It certainly cost more than the other small benches available – but not significantly more than their larger, more stable siblings that I couldn't accommodate anyway.

Since the bench was delivered, I've given it a good workout and it really does seem



Dog holes can take various holding devices, from plain bench dogs to these Veritas Wonder Dogs



The Tomes holdfast might look primitive, but it's set or released with a single hammer blow

that Richard has covered all the bases. Vigorous hand planing leaves the bench utterly unmoved, and the vices are perfect for it and for a small workshop. They grip like a Hitchcock thriller and can literally be operated with one finger. The single row of dog holes is absolutely adequate (as my trade friends assured me it would be) and yes, even the tool well is right – especially as it can be raised to give a wider flat surface or removed altogether to allow cramping from the rear edge of the bench.

What all this amounts to is one simple but vitally important conclusion. Bench design is a serious business, and whether you go for home-built or bought it's worth taking plenty of time to consider all the issues very carefully. I'm glad I did...

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Walking to work

Many people complain that going to work is like being a hamster on a treadmill. But a new interest in workplace exercise has put the fun back into the idea, as this amazing contraption demonstrates

There's a current trend amongst office workers – and quite a few craftspeople too – for working standing up instead of sitting down at a desk or workbench. This has been found to be very beneficial in terms of health, but there are some, including American artist Robb Godshaw and Instructables developer Will Doenlen, who have taken this idea a step further. Behold the 21st Century reappearance of the human treadmill!

Who needs brakes?

Instead of sitting in front of a computer screen, the keen employee can now exercise while he or she works. Walking slowly forward will rotate the treadmill on its four skateboard



Cutting out the curves: the OMAX waterjet cutter made short work of the 19mm plywood



Gluing the two layers of plywood together was a straightforward enough task



Leonardo Da Vinci's Vitruvian Man comes alive within a circle of plywood



Free-running skateboard wheels mounted on the base make the perfect treadmill bearings



The 60 plywood surface slats are cut to length one by one on the chop saw



Screwing on the slats required teamwork. Don't worry, there are only another 57 to go!



Cleaning up the slat edges was a slow, repetitive job. Now where's that intern?



The finished treadmill is soon pressed into action. Form an orderly queue, hamsters!

wheels. According to the designer, he did consider adding brakes to the design but then settled on a 2m diameter plywood wheel to allow fluid rotation without the need for a conventional axle.

What's in the wheel?

The treadmill was made from four sheets of 19mm plywood, four skateboard wheels, two steel pipes, some threaded steel rod, sundry bolts and woodscrews, glue... and a fair bit of patience.

The arc pieces are perhaps the most difficult to cut out as their precision is essential for smooth operation of the wheel. You could scribe the arcs with a line from a template and cut them with a jigsaw, or use a router on a trammel; there are several ways of achieving an accurate duplication.

However, the makers of this one had access to some impressive kit; their wheel components were cut using a large OMAX waterjet cutter. This computer-controlled machine uses a high-pressure water jet mixed with a granular abrasive to cut through any material up to 75mm thick.

Building up

Gluing the layers of each ring together was straightforward enough, so long as the joints between the arcs were staggered. The layers were built up and bolted together for extra strength and stability.

The 60 slat components that span the two rings of the wheel were ripped down on a table saw and cut to length on a chop saw. It might have been easier to use 150 x 25mm pine boards, but plywood had been chosen for the job so that was that.

Standing up

The base was cut out with a jigsaw, and bolted together using the two steel pipes and two lengths of threaded rod. The skateboard wheels were then fixed to the base using machine screws with two washers and locknuts. After a trial run, the wheel was rigged up in the office and pressed into immediate service!

The way forward

Asked if he had a message for anyone else anxious to try his idea, Robb Godshaw had this to say: "Rise up, sedentary sentiments, and unleash that untapped potential within you by marching endlessly towards a brilliant future of focussed work. Step forward into a world of infinite potential, bounded only by the smooth running arcs of a wheel."

This could be just the thing for those of us with fond memories of our childhood pets!



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BY PETER BISHOP

The chair doctor 2

If you've got an old favourite chair that's past its best or has been damaged, you've probably wondered whether to scrap it or try to repair it. This second article in the series will help you to tackle some more of the most common repairs

Chairs: I hate them! If I'm asked to make one, the enquirer looks bemused at the price quoted; they simply don't understand how many joints, thus man hours, are involved in making one. And, to pour oil on the fire, I always seem to be inundated with chair repairs whichever way I look. So I thought, how about showing what can be done to bring

back to life something that would otherwise be junked. The result is as follows; the second in a series of short pieces telling you how I've overcome a few of the problems faced and created some solutions. It's quite challenging but, in the end, very satisfying to repair something that might otherwise have been thrown out.



1 The side stretcher on this wooden kitchen chair had been repaired before with a length of dowel which had then snapped



2 The new stretcher is turned to match the old, damaged one and the centre stretcher socket hole is then drilled on the lathe



3 To match the chair's colour, I first turned and then stained the new stretcher



4 The new stretcher is set in place and all the loose joints are glued up and cramped



5 This is how the Gorilla glue expands and exudes from the assembled joint

1: REPLACING A TURNED STRETCHER

Another kitchen chair turned up recently that needed some care and attention. I guess the manufacturing methods associated with this type of chair mean that things get loose and break; that's if the woodworm doesn't finish them off first. This one had some loose joints and a badly repaired stretcher that needed to be replaced.

Simple turning

I started by pulling a loose leg out so I could examine the side stretcher. At some point a dowel had been inserted into the end of this stretcher where it had broken. This wasn't a good idea; it must have broken again not long afterwards. So I set a chunk of beech between centres and started shaping a new stretcher to match the old one. This time I turned the finished profile straight away, leaving the waste on both ends. Once this was ready I drilled out the hole for the centre, smaller stretcher after taking the size and angle off the original.

To get a better finish I slightly dampened the surface, left the turning to dry and then inverted it between the centres. By doing this, the grain runs in the opposite direction to that in which it was originally turned. Wetting the surface raises the grain and gives a finer finish once it's been sanded.

Matching the colour

I took the nearly finished stretcher off the lathe, popped it into a small turning chamber into which I then released some ammonia solution, and left it for 24 hours. The ammonia reacts with the natural chemicals in wood, and can have a dramatic effect on the colour. Never use it on a finished piece without testing it on some scrapwood first, though!

Oak is best, as turning really darkens it. The process works with beech too, but not so well. Once this was done I then enhanced the darker colour by using a spirit stain followed by a sealer coat. When this had hardened, the

piece went back on the lathe. I cut back the surface lightly, followed by a second coat of sealer, cut back again and applied some dark wax to finish the job.

Fitting the new stretcher

Next I trimmed the ends off and fitted them into the existing legs. After dampening the joints slightly, I put the chair on a level bench so it stood squarely, applied some Gorilla glue and cramped everything up tight.

To hold the loose leg in the seat I then put a 56lb weight on the seat itself. There was no way the glue would push this joint out with that weight on top! A useful tip is to have a number of these old weights in your workshop. They often come in handy as an alternative when you can't quite get a clamp on something.

Once the glue had cured, I cleaned off the squeeze-out and the whole chair was polished: job done.

2: REPAIRING A BROKEN ARM

The next kitchen chair that arrived in my workshop looked as though it had been in a fight. One arm and its turned support had been broken off. Some earlier damage had seriously weakened their joints, so it was no surprise they had come away. The gist of it was that the end of the turned support had snapped off, along with the area around where the arm joined the rear vertical rail. Patching rather than replacing was the order of the day. Firstly I had to get all the pieces apart, clean off the old glue and remove any shrapnel I found.

The splice is right

I decided to splice a new section of wood into the turned support and then to turn that to the shape required. This support was in beech, so I used a piece of the same wood for the insert.

I cut a V-shaped notch into the bottom, damaged end and matched this with a square of new stuff. I used Cascamite to fix it in place, guaranteeing a really rigid joint once it set. I then turned the newly-spliced end on the lathe to fit its socket and stained, sealed and waxed it ready for reassembly.

Invisible mending

The arm, which was elm, had broken right through just short of the end. As it was an old chair I decided that I'd try to retain as much of the old wood as possible; I'd leave the top and fill in underneath.

With some Cascamite again I joined the broken pieces together. Later, from the bottom, I cut out a section across this repair, matched the cut-out with a blank, also in elm, and glued that in place with Cascamite once more. I then shaped and profiled it to match the old arm as well as I could.

Extra strength

A barrel nut and bolt set into the back of the arm and the vertical rail sorted out this joint, with plugs to cover the holes, and the others were simply glued and cramped up. The excess glue was cleaned off once it had set, and the whole lot was touched up and stained to match the original. Some wax and a good polish completed the restoration.



1 This old kitchen chair was in a sorry state, with one arm wrenched right off



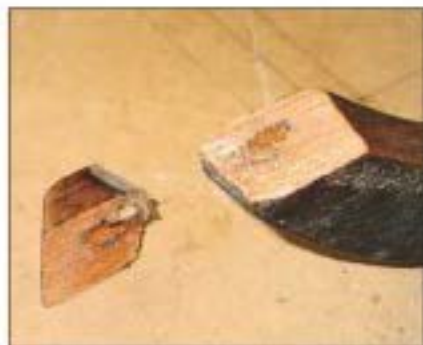
2 Taking the various pieces apart was fun; loads of nails held them together



3 I spliced a new piece of wood into a notch in the lower part of the turned arm support



4 Once the glue had set it was a simple job to turn the new wood to the correct shape



5 There was a clean break on this part of the arm, meaning an easy repair with adhesive



6 The two pieces were simply glued back together and held tightly with masking tape



7 Once the glue had cured, a section was cut out and a new piece of wood was grafted in



8 Repairs made, all the parts were glued back together and stained to match the original

3: REPAIRING A BROKEN SEAT RAIL

This was the worst of seven matching upholstered chairs that arrived in my workshop for attention. They were part of a set of twelve balloon-back mahogany chairs which probably dated from the early mid-Victorian period. Unfortunately not of great value today, they were still well worth rescuing and keeping as a complete set.

Apart from some old woodworm, loose joints and bits of missing veneer, the other six chairs in the group were sorted out

fairly easily. The seventh one needed a bit more thought and attention, though.

Battling woodworm

It was clear that the rail had given way due mainly to the invasive attack of woodworm, but the whole picture was not yet clear. So the first thing to do was to strip back the upholstery cover so I could take a closer look underneath.

It was clear that the woodworm attack was extensive. The question was how far to

go and what to do to fix the rail. The chair could be completely stripped and the reupholstered, but this would cause a problem matching the top cover; it would also be expensive. The second (and chosen) option was to try to get the existing rail back together and then to strengthen it. Having made this decision, I began by treating all the infected timbers with woodworm killer and left it to dry off.

Good old Gorilla

After moistening the wood I applied Gorilla glue to the break, then held it together with a couple of sturdy old G-cramps, plus another for luck. I was hoping that this expanding glue would bind into the woodworm cavities and give the rail back some of its original strength... or enough anyway so that it would hold in place and could then have a reinforcing piece fitted behind it.

The glue foamed well and the joint held firm once the cramps were taken off. I removed the excess glue and moved on to the next stage.

Internal reinforcement

The existing rail was curved, and fitted into a shaped front and back rail. I started out by making a thin template from a piece of mdf. Once I was happy with the shape, I cut a chunk of beech exactly to fit. One end of this strengthening piece would lock in behind the front leg once it was in place, and I left a little extra on the other end so I could screw it into the back rail. More Gorilla glue and plenty of cramps soon put the job to rights.

With the excess glue cleaned off, I then drove a couple of locking screws through the new piece into the back rail. Finally, just for luck, I 'stitched' the old rail to the new piece by driving a series of screws into it from the outside.

Final fixes

I had to make a few adjustments to the upholstery to get it all back on. There was also a piece of beading to re-fix where it had broken on the front of the rail. Once this was back on, filled, stained and re-polished, we were almost there.

The final job was to finish off the other six chairs and then to fit a series of corner braces under the seats on all of them so the strength of these joints was improved. After a bit of a polish, off they went to join the rest of the set.



1 After pulling back the seat cover, all the wood was treated with woodworm fluid



2 Although it was still very fragile, the broken rail was soon glued back together again



3 Here you can see how the foamed Gorilla glue has filled the gaps and secured the break



4 I used a curved mdf template to help shape the piece that will strengthen the rail



5 The strengthening piece is glued and then locked in place with a couple of screws



6 From the outside, a series of countersunk screws stitches the old wood to the new

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Fit for royalty

Woodworkers love making things at less than their normal size – think dolls' house furniture, for example – but scaling down a caravan is one of the most unusual projects we've come across

Caravans have been known to provoke all manner of emotions in the heart of many a woodworker and, depending on whether you're an impatient motorist or a romantic dreamer, they can be anything on the scale from very bad to extremely good.

I'd like to think most of us would be amenable to spending a few nights away in a cosy container for two, but can you imagine making something like this for your children or grandchildren?

Rolling along

Built using traditional construction techniques by Rollalong Caravans of Ringwood, Dorset, this charming scaled-down version of a standard caravan of the time was presented by The Caravan Club – established in 1907 – to the young Prince Charles and Princess Anne in May 1955.

The miniature vehicle came in at just over 2m (6ft 9in) long, and was fully roadworthy and functional, apart from the hotplate in the galley. It came complete with a set of Beatrix Potter books, a copy of Captain Marryat's *Children of the New Forest* and a Poole Pottery tea set.

On display

On delivery day the van was hooked up to a Hillman Husky estate – the very latest offering from the Rootes Group, with a top speed of 65mph – for a tootle around the Palace grounds. For the record, our photo below shows an Austin Somerset as the tow car, just in case anyone was getting ready to write in and tell us off!

After a spot of tidying and restoration by original makers Rollalong, who currently specialise in permanent modular buildings delivered to site, the Royal Caravan was first displayed to the public in 1962 at the Earls Court Camping & Caravanning Show.

A recent refurb

Proving popular wherever it was showed, the miniature rolling residence was completely refurbished in 2007 by (yes, you guessed it) Rollalong, and continued its crowd-pleasing role as a special attraction at a variety of events and exhibitions.

Following a recent appearance at the Royal Childhood exhibition in London, the caravan can now be seen in its current home at the National Motor Museum, where it is on permanent loan. This could be well worth a visit: just imagine the fun of actually owning such a scaled-down conveyance!

Many thanks to the Caravan Club and Angela Willis at the NMM

FURTHER INFORMATION

- The National Motor Museum
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The chassis is checked over before the caravan's timber frame is fitted. This young man might still have been at the firm for the first overhaul in 1982...



The caravan, now fully framed up and insulated, has a wheel arch support fitted. Note the pierced holes at the rear to lessen the weight



The saloon table folded down just like the full-sized version would have done. We love the craftsman's apron protecting his suit



It was all hands to the pump here, in a well-staged publicity shot that evokes a time of burgeoning prosperity and full employment; jobs for all and a golden future awaits ahead...



The original 1950s interior was a very fine job. Note the Poole pottery set (replaced with an interior chintzy set in 1982), the set of books and an intriguing artwork on the wall



Looking like a surly giant at first glance, this is probably a Rollalong man mentally preparing a snagging list. It gives a good illustration of the van's scale however



Here the diminutive domicile is shown tethered to the back of a sturdy Austin Somerset, ready for a trip on the open road...



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BY COLIN SIMPSON

Holy orders

Natural-edged bowls – those with the bark left around the rim – are great fun to make and nearly always sell more quickly than my ‘standard’ pieces. It’s easy to add some decorative piercing for an even more dramatic effect

The one problem with natural-edged bowls is that to keep the bark on the wood the cambium layer – the cells between the bark and the outer sapwood – needs to be intact. This normally means that the wood must be reasonably fresh so that fungal spores haven’t had a chance to break down the cambium cells.

One year old

The ash I used had been felled for about a year so, although it was still very wet, I wasn’t sure that the bark would stay on. I therefore decided to turn the piece very thin and decorate the rim in another way.

Having chainsawed a blank to a manageable size, I cut it roughly round on



1 Screw a hardboard disc to the blank to use as a template on the bandsaw



2 Drill a hole through the bark into solid wood to take the drive centre



3 Balance the piece on the lathe using your finger on the toolrest as a reference point



4 Use a pull cut with a fingernail gouge to flatten the base of the blank...



...and to start cutting the chucking spigot to size to match your chuck jaws



6 Wood can be so frustrating sometimes. This split will have to go!



7 Use the same fingernail gouge to bring the blank gradually to round...



8 ...and also to do the initial shaping of the outside. Keep the tool handle down low



9 Finalise the external shape of the bowl using a shear cut with a smaller gouge



10 Keep checking the tightness of the chuck. Remember that this is wet wood

the bandsaw, photo 1. You can see that I've screwed a hardboard disc to the top of the bowl and used this as a template. This is a much safer way of cutting the blank, as its flat surface is on the bandsaw table.

Setting up

I like to hold natural-edged pieces between centres to begin with, so I drill a hole that matches the diameter of my four-prong drive through the bark into solid wood, photo 2. Mount the blank between centres with the four-prong drive in the hole and bring the tailstock up.

I think these pieces look better if the two high points and two low points of the natural edge are level with each other. I use my finger as a reference point, photo 3, and rotate the lathe by hand to check that the high point on the other side of the bowl is level with my finger. If it isn't I can adjust it by slackening of the tailstock and pivoting the blank on the four-prong drive. When I'm happy with the high points I repeat the process with the two low points and then tighten the tailstock up fully.

Spotting the split

Use a fingernail profile bowl gouge to flatten the bottom of the bowl, photo 4 and the tip of the same gouge to start cutting the chucking spigot, photo 5. Having cut the spigot, I stopped the lathe to check the blank and noticed a small split in the wood, photo 6. It had to be removed, and this meant that the bowl would be about 25mm shallower than I had originally planned. This is the Uncertainty Principle – just one of the potential problems we face when using the medium we've chosen!

Shaping the outside

Having re-cut the spigot, I used the same gouge to true up the edge of the blank, photo 7, and then started shaping the outside, photo 8. Note here that I'm keeping the handle of the tool down low. This allows me to make a bevel-supported cut, with the shaving coming off the side wing just round from the tip of the tool.

When I was reasonably happy with the outside shape, I turned the bowl round and mounted it on the spigot in my scroll chuck. I also brought the tailstock up for additional support. I then finalised the shape using a shear cut with a smaller gouge, photo 9. It's important to remove any tear-out at this stage, so persevere with the shear cut until the surface is perfect.

If this stage takes you a long time, it's a good idea to keep checking the tightness of the chuck. Do it again before removing the tailstock, photo 10. Remember this is wet wood which shrinks as it loses moisture, so it could become loose in the chuck.

Inside out

Start the hollowing process in the normal way, photo 11, but don't take too much waste out from the centre of the bowl just yet. I cut to a depth of about 25mm below the bark, being sure to leave some mass of wood in the middle to support the thin walls, photo 12. Keep working towards the rim, and be sure to hold the gouge right over on its side on the entry cut, photo 13, and to use the tip of the cutting edge.

I needn't have worried about the bark becoming loose; it remained quite sound, so when the rim was about 4mm thick I decided to remove the bark by hand, photo 14. I then reduced the rim thickness to 3mm, photo 15.

Sanding when wet

For thin, wet bowls like these it's best to work in steps, so the next stage is to sand the top 25mm of the bowl. Wet wood will clog the abrasive immediately, so I use a technique called wet sanding, using water as a lubricant.

Remember that water and electricity don't mix very well, so take care with the lathe's electrics. When wet sanding, keep the bowl wet and reduce the speed of the lathe to stop excess spray. Take great care of your fingers when sanding the uneven rim, photo 16; you may need to support the outside of the bowl with your other hand to prevent it from flexing too much. Keep washing the slurry away from the abrasive; an old toothbrush is useful here, photo 17.

Thinning the wall

I sanded the piece down to 400 grit; I then went back to the bowl gouge to remove a little more waste from the middle, again working towards the rim, photo 18.

There are several points to note on this photo. Firstly, I have still kept some waste in the middle of the bowl to support the rim. Secondly, I've placed a lamp close to the outside of the bowl so it shines through the wood and gives me an indication of the wall thickness. This should only be used as a guide; remember that the light will shine more easily through the endgrain than through side grain.

Thirdly, the shavings tend to cling to the



11 Start hollowing out the bowl in the normal way, but don't go too deep at this stage



12 Work on the first 25-35mm of the rim before going any deeper



13 Keep the tool well over on its side to stop it from skating across the wood



14 If the bark hasn't come off already, break it away now by hand



15 The final cut reduces the rim thickness to 3mm, ready for sanding



16 Take great care of your fingers when wet-sanding the uneven rim



17 Wash the abrasive frequently in water to remove the sanding slurry that builds up



18 Finish this step before moving on. A lamp behind the work helps to reveal the wall thickness



19 Three of the bowl gouges I use have very different bevel angles ground on them



20 The steeper bevel angle allow me to cut round sharp curves more easily



21 Use double-ended callipers frequently to check the wall thickness



22 I used my flexible rotary drive shaft and a selection of small cutting burrs...



23 ...to cut a freehand pattern of piercings around the rim of the bowl

side wall of the bowl – more so if the rim is undercut as in this case. These shavings can interfere with the progress of the gouge, which could be critical when working on a 3mm thick wall. They can also obscure the light coming through the wall, so stop the lathe frequently to get rid of them.

Technical aside

Photo 19 shows the business end of three of my bowl gouges. The gouge at the top is my fingernail grind and I have used this for the vast majority of the work on this bowl up until now. The middle gouge and the one at the bottom have much steeper angles of

bevel on them, and I've also ground away the back of the bevel on the middle gouge.

These steeper angles allow me to cut round sharp internal corners more easily, photo 20. I don't have to swing the handle quite as much as I would with a shallower angle, and I can keep the bevel rubbing all the way round the curve.

Avoiding disaster

Keep working down the inside of the bowl in steps, and remember to wet-sand the previous step before moving on. If like me you've reduced the wall thickness to about 3mm, there will be very little strength in the bowl, so don't be tempted to go back to a previous step once you've cut the subsequent one. The bowl is likely to flex too much and may well explode!

Check the wall thickness regularly with double-ended callipers, photo 21. Then carefully turn away the central mass that remains in the base of the bowl.

A different finish

You could finish the bowl at this stage. Wet-sand the last step, reverse the bowl and turn away or tidy up the chucking spigot. Leave it to dry for a few days and then oil it. However, I decided to decorate the rim with some irregular piercings.

Photo 22 shows my rotary flexdrive shaft and a number of small cutting burrs. These burrs cut on their side and can pierce holes quickly and easily, and they're what I used to decorate the rim of my bowl. I removed the chuck from the lathe with the bowl still in it, and cut a random pattern working freehand, photo 23. This left a lot of unwanted wisps of wood around each cut, and the easiest way to remove these was with a small butane pen torch. You could, of course gently sand them away.

A final bleaching

I was a little disappointed to find that there was some staining on my ash, so I decided to immerse the whole bowl in household bleach overnight to see if this would remove the stains. It did.

Photo 24 shows the piece after the overnight bleaching but before it has dried completely. The bleaching has made the piece more translucent, and at this stage it was very pliable. It will stiffen up once it has dried, and will probably become a little more opaque. All in all I was quite pleased with the result!



24 Bleaching the bowl to remove stains gave it a translucent look

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BY IAN WILKIE

Drink up!

If you watched the Commonwealth Games in Glasgow this summer, you'll have seen all the medallists receiving a small wooden bowl called a qualche instead of the traditional bunch of flowers. Here's how to make one of your own

A qualche (pronounced 'quake') is a small wooden bowl with two handles or lugs, and was traditionally used for drinking whisky in Scotland. Qualches were common in the 17th and 18th centuries, and the more elaborate ones were made up from slim staves and bound with silver rings and a silver rim. They were usually about 115mm in diameter and 38mm high; the larger ones sometimes had four lugs. The Commonwealth Games qualches were

made from elm trees that had fallen in the Glasgow area, and made a highly unusual souvenir of the event.

In this article I'll show how to make a qualche in detail, and suggest two other variations. These small bowls don't take up too much timber and can be turned in all sorts of attractive woods. If you don't want to drink out of yours, you can use it for serving peanuts and nibbles, or even keep your small change in it!

Fig 1

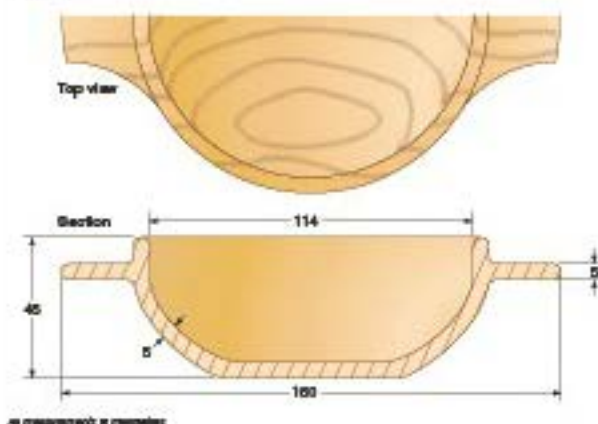
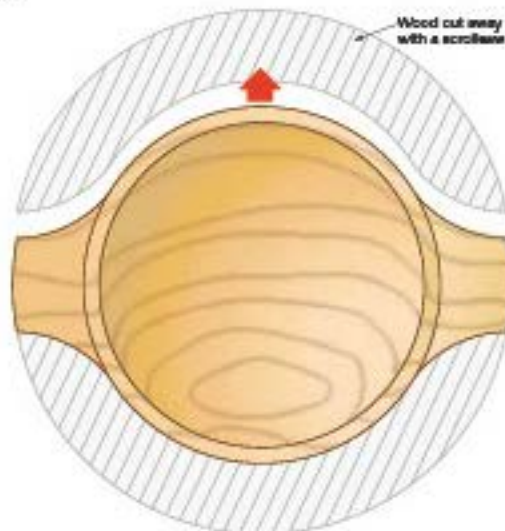


Fig 2



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TOOLS AND EQUIPMENT

The equipment I used to turn the quaiches included my Supernova Mk2 woodturning chuck, a screw chuck, large and small Cole jaws, a bowl gouge, a parting tool and a skew chisel. My Kirjes sanding system came in handy for smoothing the work, and a scrollsaw was invaluable for shaping the lugs.

A super chuck

I've been very pleased with the performance and accuracy of the Supernova chuck, which I bought from Turners Retreat (see the panel below for contact details). It's very well finished, and with its hex key you can mount work with one hand. The Mk2 version is enclosed at the back so dust and debris are kept out. The interchangeable screw inserts enable me to use the Supernova on both my Myford and Jet lathes, which have different threads.

The standard jaws supplied are strong and vibration-free, and there are other accessory jaws in the system which will cope with all your needs, while the woodscrew chuck insert supplied with the chuck gives a good, firm grip.

The large and small Cole jaws are ideal for double-chucking, and the screw-in rubber pegs allow various shapes to be held without marking the wood. If I was starting all over again, this is definitely the chucking system I would go for!

A handy sander

Kirjes pneumatic drum sanders are available from Classic Hand Tools (see left). The basic KJ100 kit shown here contains a hand pump and three sanding drums, in diameters of 20, 26 and 42mm, plus a 45mm bowl sanding drum. The thin-walled rubber body of each sander is fitted with a soft cloth sanding sleeve, and as air is pumped in the sleeve is locked into position. Inflate the body gently and it's pliable enough to sand convex, flat and concave surfaces; pump it up hard and it acts like a regular drum sander. The shaft of the sander can be held directly in a drill chuck on the Kirjes motor unit, or can be used with a flexible drive.

This is a safe and quiet sanding system and the results are very good; a silky smooth finish is produced with very little effort, particularly on curves and concave shapes. However, it is comparatively expensive.



1 The Supernova chuck, small Cole jaw plates with rubber plugs, and a screw chuck



2 The Kirjes motor unit can be bought separately or as part of a kit



3 The basic Kirjes system includes a pump and four sanding drums

A TWO-HANDLED QUAICHE



1 Form a dovetail spigot and then turn the outside of the bowl up to the rim



2 Mark the top edge of the rim on the edge of the blank with a pencil



3 Reverse the bowl onto the chuck jaws and hollow it out with a bowl gouge



4 Complete the rim, turning down to the pencil line on the outside edge



5 Check the outside diameter of the rim with a pair of spring bow callipers



6 Mark the handle positions on the rim and cut them away on the scrollsaw



7 I used my Kijes drum sander on a flexible drive to tidy up the outside edge of the cut

Start with a blank 150mm in diameter and 50mm thick. I chose a light coloured wood (alder) because it shows up better in the photographs. Drill a suitable pilot hole for your screw chuck, mount the blank and set the lathe speed to 1500rpm.

Turn the blank to a diameter of 140mm, face it off and turn a dovetail spigot to suit the chuck you're going to use in compression.

Forming the rim

Turn the outside of the bowl to shape, photo 1, leaving an 18mm wide rim about two thirds of the way up as shown in fig 1. This should slope slightly upwards when viewed from below. It is this rim that will later be cut to form the two handles. Mark its thickness (5mm) on the edge of the blank, photo 2. Then sand the surface.

Remove the partly turned bowl from the screw chuck and hold the dovetail spigot in the chuck jaws. With a bowl gouge turn the inside of the bowl to give a 5mm thick wall, photo 3. Then complete the rim, turning down to the pencil line on the outside edge, photo 4. Check the diameter with spring bow callipers, photo 5, then sand and burnish it.

Creating the handles

Place the bowl upside down on a bench and mark out the position for the handles with a soft pencil, as shown in fig 2. Fit a No 5 scrollsaw blade in a scrollsaw and cut away the rim, photo 6, to produce the two handles. If you don't have a scrollsaw, a hand fretsaw will do the job just as well. Use a sanding drum to smooth and tidy up the cut edges, photo 7.

Removing the spigot

The next task is to remove the spigot from the base, and there are two ways of doing this. If you have chuck jaw plates such as the set of small Nova Cole jaws shown in photo 8, the bowl can be held by the rim. If you don't, cut a piece of 8mm thick mdf and turn it to a diameter of 200mm. Then turn a groove in it to match the diameter and width of the bowl rim, photo 9.

Bring up the tailstock fitted with a revolving centre to give support, photo 10, reposition your toolrest and turn the spigot down to the minimum. Remove the remaining waste wood with a small carving chisel when the bowl is off the lathe and sand it smooth.

The last step is to apply a suitable finish. I treated the alder quaiche with Rustin's



8 Hold the bowl in the Cole jaw plates so you can turn away the dovetail spigot



9 Alternatively, turn a groove in an end disc to hold the rim of the bowl...



10 ...and bring up the tailstock for support. Then turn away the dovetail spigot



11 Sand the quaiche smooth inside and out and apply your chosen finish

Plasticote which gives a high shine and a wipe-clean surface, photo 11.

Making a four-handled quaiche

It's easy to make a quaiche with four handles rather than two. The only difference is to mark out and cut four handles at 90° intervals. The example shown on page 65 is made of gongolal, also known as zebra wood.



1 Glue the two blanks together, clamp them securely and set them aside to dry



2 Turn the underside of the blank to shape as you did for the standard quaiche

3 Reverse the blank on the chuck jaws and complete shaping the rim

4 Finish this decorative quaiche with a mix of beeswax and carnauba wax



A TWO-COLOUR QUACHE

The woods selected for this example should give a good colour contrast. I used a large piece of ash for the rim and handles, and a much smaller blank of bubinga for the bowl. This saves wasting expensive wood.

Start by cutting and thickening the blanks accurately so the surfaces to be glued together are absolutely flat. Then use PVA adhesive to glue them together. If time is not an issue. If you want to get on and turn them immediately, use superglue instead. In both cases it is advisable to clamp up the assembly, photo 1.

Next, mount the blank and turn the underside of the bowl as for the two-handled quaiche, photo 2. Then reverse it on the chuck jaws so you can complete the shaping of the rim, photo 3. Then cut and smooth the handles as before.

I finished my two-colour quaiche with Ock's beeswax and carnauba wax polish, photo 4. This is available from Ockenden Timber (see page 66 for details).

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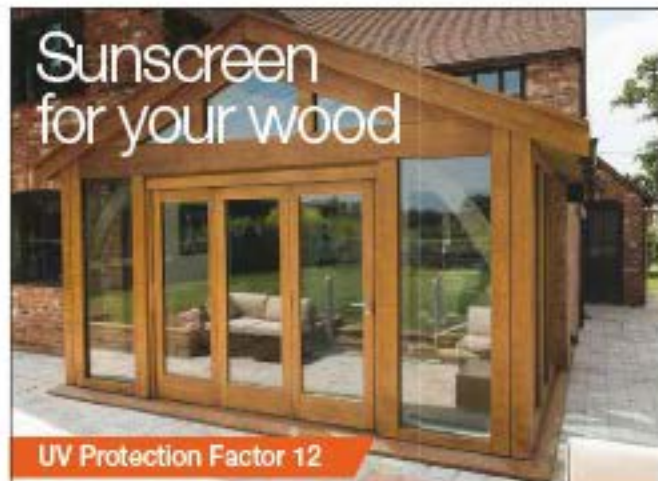
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Storing wood in the workshop is a challenge for many woodworkers, who often end up stacking it under the bench or piling it up in a corner. A dedicated wood storage rack could solve the problem permanently

Triton WRA001 Woodrack storage system



You can't beat a bargain, and this neat self-assembly racking system is a real steal! If you have a bit of spare wall in your workshop and want to put a few shelves up to store tools and equipment, this will be ideal for providing the brackets. However, its real purpose is as a racking system for your timber.

Simple but solid

The system is made from powder-coated square-section steel tubing, with black bungs you insert to finish the open ends of the tubes, so it's suitable for internal or external locations.

The kit consists of two uprights and 12 support brackets, with six support positions available, and the spacing of the uprights is ideally between 1.2 and 2m, depending on what you're storing. It's simple enough to use a couple of sets or more if you have longer materials or need more storage space.

£40

Fast fitting

It's a quick system to set up. All you have to do is to drive a small self-tapping screw into the upright, slide the support bracket down until it rests on the screw, and then repeat the process for the next support.

The brackets sit slightly raised at the front to give a cantilever effect and throw the weight back to the upright so that all the weight isn't resting directly on the screws.

Sturdy fixings

Fitting the brackets to the wall is achieved with the packing pieces that keep the whole set-up away from the wall and allow room for the cantilever effect on the brackets.

You need to supply your own wall fixings, and with each position capable of holding up to 50kg, you need to be sure you choose wisely if you intend to load up the brackets to their maximum.

This is an unobtrusive and durable storage system for getting easy access to your timber, and doesn't cost the earth. **AK**



The kit consists of two square-section uprights, 12 supports and a set of bungs



Drive the small self-tapping screws into the uprights to set the support positions



Each support is slid along the upright until it meets the next screw

SPECIFICATION

DIMENSIONS	1040 x 1140 x 305mm
MATERIALS	Powder-coated steel tube
STORAGE LEVELS	6
MAX LOAD PER LEVEL	50kg
WEIGHT	7.8kg per pack

VERDICT

This is a neat, solidly built and cost-effective support system for your timber.

- PROS**
- Simple design
 - Easy assembly
 - Good load capacity

- CONS**
- You have to supply the wall fixings

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Triton Tools
- 0844 576 0266
- www.tritontools.com

There have been some excellent hand tools emerging from the Far East in recent years, with bench planes in particular catching the eye for their excellent engineering and keen prices. Here's another one...

Wood River No 5½ jack plane

This new Wood River jack plane is the V3 version, and has had input from Rob Cosman in its development. It is aimed to compete with the established premium brands already on the market from Clifton, Lie-Nielsen and Veritas.

As tends to be the case with premium planes, they're based on older designs and this one follows the Stanley Bedrock design. The beauty of the frog design is the ability to adjust the frog position without stripping the plane down. The retention pins through the frog secure it to the casting with conical ended screws that allow the frog to slide along by turning the central adjusting screw.

Quality components

The blade and cap iron are top quality, with the fit between the two achieved with a small raised lip on the cap iron. It's an ultra-tight fit between the mating surfaces, offering little chance of a shaving working its way between them and choking the plane.

The quality of the double iron is such that setting the cap close to the cutting iron for finer work is incredibly easy, as there's no springing in the cap to contend with; you simply slide it along to the desired position and tighten off.

The composition of the steel used for the blade is T10 – water-quenched carbon steel hardened to Rockwell RC63 – so it holds an edge well and it doesn't take an age to raise and remove the wire edge.

Using the plane

With such a fine finish on the casting it would have been disappointing if the plane didn't perform out of the box, and it really is a dream to use. If such things about flat soles concern you, the Wood River tolerances meet British standards for square and flatness and are equal to or better than ± 0.0015 in. The iron adjustment is superb, with the large brass wheel easy to adjust with the index finger for fine-tuning the cut.

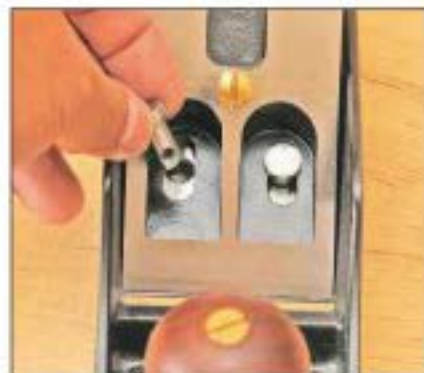
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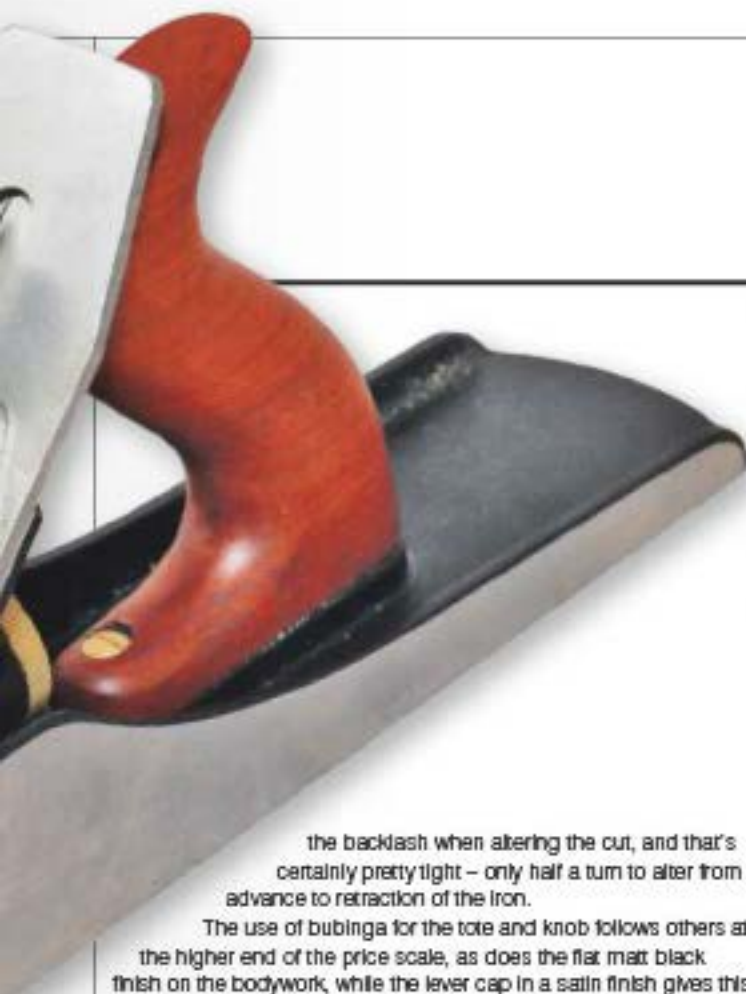
The close fit between the blade and the cap iron is exemplary



Features such as the screwed lateral tab show great attention to detail



Two screws secure the frog and link up with the push-fit retention pins



the backlash when altering the cut, and that's certainly pretty tight – only half a turn to alter from advance to retraction of the iron.

The use of bubinga for the tote and knob follows others at the higher end of the price scale, as does the flat matt black finish on the bodywork, while the lever cap in a satin finish gives this bench plane a classy look that easily backs up its performance at the bench itself. **AK**



After honing, the plane made short work of flattening an uneven benchtop

SPECIFICATION

LENGTH	380mm
WIDTH	73mm
BLADE	T10 steel
BLADE WIDTH	60mm
WEIGHT	3.2kg

VERDICT

This is a plane that will perform well and last for generations to come.

PROS ■ Superb quality throughout
■ Easy-to-adjust Bedrock design

CONS ■ None

VALUE FOR MONEY ■ ■ ■ ■ ■
PERFORMANCE ■ ■ ■ ■ ■

FURTHER INFORMATION

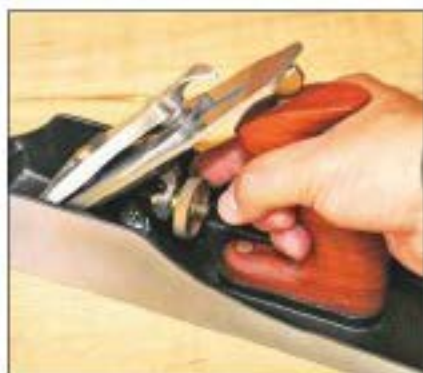
- Woodworkers Workshop
- 01684 594683
- www.woodworkersworkshop.co.uk



It didn't take long to get a smooth surface ready for a coat of finish



The central frog screw allows a very fine mouth aperture to be set



The tote is comfortable and puts you in close control of the advance wheel



The design of this part of the Y lever shows Rob Cosman's influence

Coupled with its measuring rail, this laser measure also does double duty as a digital spirit level. It tackles a wide range of tasks with astonishing accuracy

Bosch GML 80 laser measure + R 60 measuring rail

Digital measuring has come a long way from the original ultrasonic rangefinders, which were pretty unreliable for anything but very basic estimates. Now laser-based devices such as this are not only highly accurate in the distances they can record, but also offer a range of other functions as well.

The GML 80 is certainly a case in point; it features so many options that you'll need a bigger memory than the unit itself to remember all it can do! Luckily the manual has instructions to tell you

£189.95

how to do the basics, but you need to be using it quite regularly to retain the more complex functions within your own memory bank. Fortunately the actual measurement functions are easy to access and understand.

There's also an inclinometer for determining and setting angles. So, for example, you can set the device on a rafter or handrail and determine the pitch, or simply tilt it to a desired angle and mark the laser dot where it strikes for setting up an angle.

The more the merrier

This is just the tip of the iceberg, as this is a very powerful little box of tricks. Once you've toggled through to the mode you want to use, its easy-to-understand graphic display shows you which

measurements to take to determine the calculation required. There's a built-in memory that stores the figures, so you can recall a more complex set of values as well as do basic addition and subtraction within a set range as well.

On the level

Where this device really has added value is when it's clipped into the R 60 measuring rail. This is a small spirit level in its own right, but becomes a digital level once the GML 80 is fitted to the body. It automatically detects the unit to set it up for this particular work, and the display shows the angle as well as giving an audio signal as the level hits plumb or horizontal. It even displays arrows to indicate which side needs of the work needs to be adjusted to bring it to its correct position.

The measuring rail increases the overall length of the inclinometer functions as well, to give additional accuracy when checking such measurements. It's a great extra.



All the functions are accessed through the various handset buttons



Firing the beam at a top and bottom position gives the overall height involved



Here the unit is set to measure room volume; each press takes one measurement



Placing the measuring rail on an angle such as a staircase or a roof lets you check the pitch



The USB charging point is protected from dust and moisture by this neat rubber shroud

Ideal tasks

Digital measuring devices are a big help for fast surveying jobs such as determining timber required for long runs, replacing a whole houseful of skirting boards or working out floor areas for carpets or laminate. They're also good for doing volume and basic height calculations where using a tape measure would take forever.

Fitting kitchen or other built-in units that need careful adjusting is another area where this kit can help out. Having to monitor the level constantly and then tweak the adjustable legs or brackets on the units is speeded up immensely by the audio signal telling you that you're on the button.

These functions combined makes this a very powerful addition to the toolkit, and with the additional functions built into the GML 80, you should be able to take any standard or complex measurement you want in a matter of seconds.

Easy recharging

Finishing this all off is the built-in Li-Ion battery that charges via the USB port, using either the supplied three-pin mains adaptor or a computer port. Once fully charged, it will take around 25,000 measurements before it needs a re-charge. That's pretty impressive!

Summing up

Modern technology always packs more and more in as it moves on to the next level, so to get some features, others are often there as a bonus. With Bosch's own stand-alone digital level hitting the £100 mark and a cut-down version of the rangefinder selling for a similar price, having a top-specification kit such as this for less than the cost of two separates is well worth the outlay, even if you have little or no use for the more complex functions on offer. **AK**

SPECIFICATION

SIZE (GML 80)	111 x 51 x 30mm
WEIGHT	140g
BATTERY	3.7V Li-Ion
DISTANCE RANGE	50mm to 80m
ACCURACY	± 1.5mm
ANGLE RANGE	0°-360°
RAIL LENGTH	610mm
RAIL WEIGHT	600g
ACCESSORIES	R60 measuring rail, charger, protective bag

VERDICT

This kit offers more functions than most users will ever need, but delivers them all faultlessly.

- PROS**
- Digital measuring and levelling in one unit
 - Illuminated display
 - 20-measurement memory
 - Automatic deactivation after 5 mins

- CONS**
- Quite pricey
 - Quite complicated until you've practised using it

VALUE FOR MONEY ■■■■■

PERFORMANCE ■■■■■

FURTHER INFORMATION

- Bosch
- 01895 838743
- www.boschpowertools.co.uk

The flip-out leg allows you to take accurate corner-to-corner readings across a room



Clipping the GML 80 into the R60 rail creates a versatile digital level and inclinometer

On level and plumb work, arrows show which way to adjust the work



Belfast ceramic sinks are coming back into fashion as kitchen designers seek to fuse the traditional with the ultra-modern. Fitting one that's free from leaks can be tricky, but this jig will help

£118.97

Trend Belfast sink jig

The aperture for a Belfast sink is normally made to allow a small overhang into the sink so any water on the worktop flows back into the sink, not under it where it can cause rot. The front edge of the sink is normally set so it projects just proud of the front of the worktop. With these as starting points, it's simply a matter of measuring the internal dimensions of the sink to calculate the opening you need to rout.

Easy adjustments

The Belfast sink jig can be used in two ways. You can use the location pins against the front edge of the worktop to set the back edge distance, or, if the sink is very wide, you can position the jig with the pin edge at 90° to the worktop edge to allow extra cutting width.

Standard backsets using the pins range from 340 to 500mm in 20mm increments, so it's easy to get the jig set if your sink has a standard depth. It's easy to alter should the need arise by simply placing packers between the jig pins and the worktop edge to alter the setting by the correct amount and gain the overhang required.

Easy setting out

Using the jig in this orientation, the maximum sink width you can rout is 630mm. Wider sinks up to 1050mm can be routed by swinging the jig through 90°, but now you have to rely on setting-out marks to ensure you're accurately in position.

That's easy enough, as the jig has a set of datum gauge lines scribed at the corners and at the end of the routing slot. These set the jig to the correct backset, allowing for the 20mm guidebush the jig uses when fitted with a 1/4in diameter cutter.

A loose datum gauge block is supplied to set the jig on the layout lines where the end is flying on beyond the top and the scribe line cannot be used. Simply dropping it into the jig opening allows the jig to be positioned correctly and cramped ready for routing.

Different corners

As the jig comes, using the standard slot gives a 25mm corner radius. If you want a tighter radius there's a small corner aperture within the jig that takes the radius down to 7mm. You need to rout the corners first and then join them using the jig to rout the straight runs. Again, datum scribes are used so that the jig aligns correctly if you opt for this particular radius setting.

Cutting two ways

The cut has to be made with the cutter engaged from the left so it doesn't break out the front edge of the top. This means you have to



After placing the pins you can easily shim the jig to alter the backset



The jig comes with a datum gauge block to help set it up to the layout lines



Cramp the jig securely and make the cut in two stages to avoid breakout



The result is a crisp, clean rectangular cut-out, ready to receive the sink.

route one half of the worktop, then flip it over and reposition it to route the other half.

You need to transfer any layout marks accordingly by squaring the width across the edge and onto the flip side, as well as marking and setting the depth if you aren't using the pins.

Making the cuts in a few passes (as is normal with this kind of cut) leaves a great finish to the end grain as well as a clean aperture, but make sure you have a sharp cutter and work at a decent pace as the end grain and corner radii can be especially prone to scorching otherwise.

You should also be aware that the waste piece is quite heavy and although it's cramped to the jig during the cutting process, it will still prove a dead weight once it becomes free of the worktop.

Forming drip grooves

A second aperture in the jig is for cutting the drip groove. This needs a 16mm guidebush as well as a small core box cutter of around 2.5mm radius.

There's no need for any pins or alignments to datums for this operation. It just needs the outer edge of the jig aperture to sit tightly to the newly cut opening in the worktop. This gives the correct backset for the cutter to allow the drip groove to sit directly over the sink edge once the worktop is fitted. Again, this is a two-part operation, cutting from the left and then flipping the jig to cut the right-hand side.

Summing up

This is certainly a jig that removes the stress involved in calculating what to cut and working out the overhangs. However, it's hard to justify the cost for a single job unless you're working with a very expensive worktop. *AK*

SPECIFICATION

MATERIAL	CNC-machined phenolic plastic
LENGTH	655mm
WIDTH	600mm
THICKNESS	12mm
WEIGHT	3.6kg
MAX SINK SIZE	1050mm wide 440-515mm deep
ROUTER SIZE	min 1300W, 1/2in shank

VERDICT

This jig does exactly what you'd expect of it – nothing more, nothing less.

PROS ■ Easy set up
■ Assured results

CONS ■ Expensive for a one-off job

VALUE FOR MONEY ■■■■■■
PERFORMANCE ■■■■■■

FURTHER INFORMATION

■ Trend
■ 01923 249911
■ www.trend-uk.com



The drip groove is also formed in two stages using the jig and a small box cutter.



Take a series of several shallow passes for the best results.



The worktop is then flipped over so the set-up marks can be transferred.



The jig set-up is repeated and the second half of the cut is made.

Mitre saws have become one of the most popular woodworking machines available, with every manufacturer offering several models. Most are the sliding action type, a feature that considerably increases their capacity

Axminster MS210S sliding mitre saw

This mitre saw is built mostly of aluminium castings, with very little plastic to be seen. The turntable is at the heart of a mitre saw; this one has nine pre-set stops, giving all the most common mitre angles needed.

The support offered to the work by the turntable is extended at each side to give a span of 500mm, and this is further increased to 670mm when the outer parts of the base are drawn out. These give very solid support to the wood, as they are designed to rest directly on the bench surface on which the saw is standing. In addition, there are length stops built into these extensions.

Versatile fence

The fence is 400mm long, with the face on the right-hand side graduated in Imperial units. The left-hand side of the fence is in two parts, with the upper part being adjustable laterally when making a bevel cut to give good support to the wood. The fence can also be adjusted to ensure the cut is square when the turntable is set at 90°.

Cutting angles

Bevel cuts are controlled by a large locking lever at the rear of the machine. This allows the head to tilt, with a protractor scale

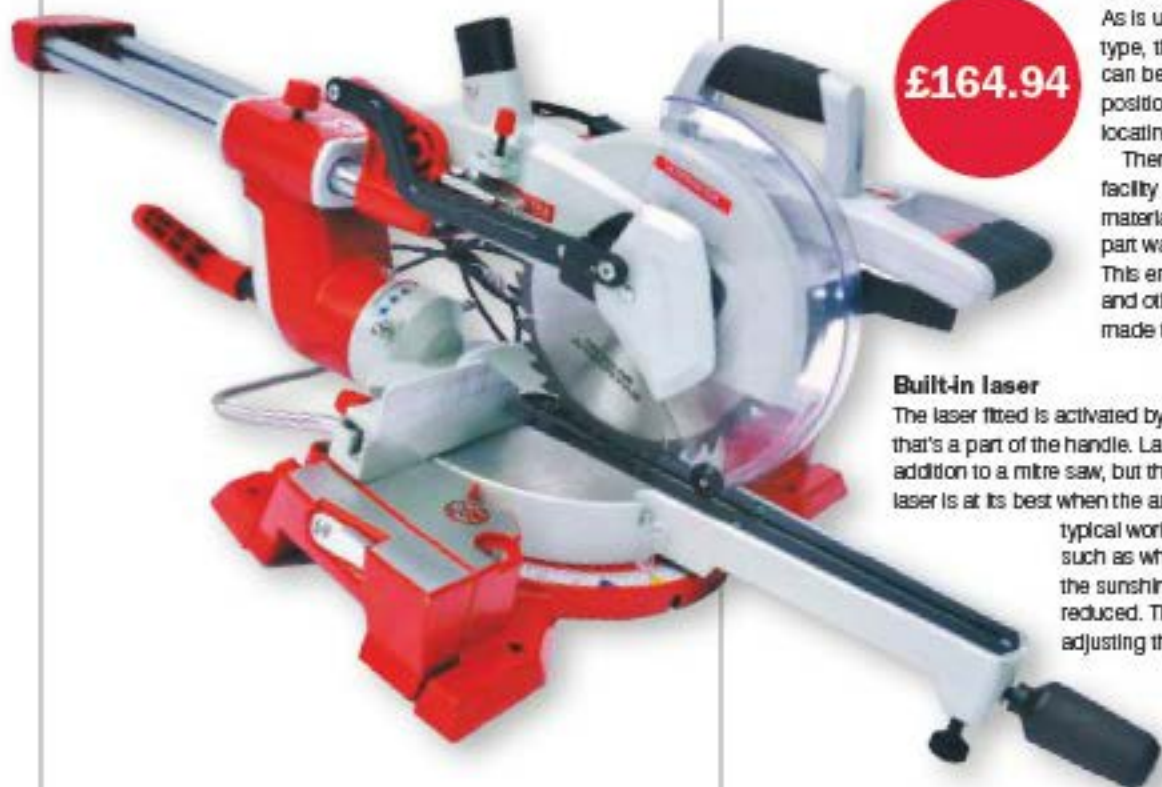
indicating the angle chosen. As is usual with saws of this type, the head of the machine can be locked in the lower position by a turn of the locating pin.

There is a depth control facility for use when the material is to be sawn only part way through its thickness. This enables tenons, trenches and other similar cuts to be made to a precise depth.

£164.94

Built-in laser

The laser fitted is activated by a simple rocker switch that's a part of the handle. Lasers are always a useful addition to a mitre saw, but the beam cast by the laser is at its best when the ambient light is that of a typical workshop; in bright light, such as when working outdoors in the sunshine, its effectiveness is reduced. There is provision for adjusting the line of the beam.



The turntable is clearly marked with all the main angles required



There are support extensions to the left and right which include length stops



There's a small protractor scale to indicate the angle of tilt



Making a compound cut such as this is straightforward and accurate

Using the saw

The most common use of a miter saw will be for cross-cutting at 90°. Normally the piece being sawn off will be to the right of the blade, which is why the length scale on the fence is at this side. When the length stop can't be used, a stop can be cramped to the fence, but again the range of lengths is limited. If the wood being sawn is long or heavy, additional support is always desirable.

Although the turntable can be adjusted to a range of pre-set angles when cutting mitres, any intermediate angle across the range available to the left and right can be set.

Bevel cuts can only be made with the head of the machine tilted to the left. This is not a problem unless compound cuts are being made in material which is not of symmetrical section; here the range available is restricted. Again this is a limitation of all miter saws on which the head tilts just to the left, and is the reason why more advanced designs of this type of saw allow for the head to tilt to both the left and right. You pays your money...

Summing up

So how did this Axminster saw perform? There was sometimes a tendency for the work cramp to be a little less than efficient, because the vertical part of this feature relies on friction where it locates in the base and it sometimes slips. A locking screw here would solve this problem. On the plus side, all parts which need adjusting in order to gain maximum accuracy can be readily fine-tuned, and overall the saw performed well due to the sound design and good materials used. The home woodworker buying this saw will be well pleased with his choice. **GW**

SPECIFICATION

MOTOR	1500W
BLADE DIAMETER	216mm
MAX MITRE RANGE	± 45°
MAX BEVEL RANGE	0°-45° left
MAX CUTTING CAPACITY	at 90° 305 x 62mm
	at 90° x 45° 305 x 30mm
	at 45° x 90° 215 x 62mm
	at 45° x 45° 215 x 30mm
WEIGHT	17kg
ACCESSORIES	work cramp, side supports with stops, dustbag

VERDICT

Don't be put off by the 'Hobby Series' label. This is a serious machine that's capable of serious work.

PROS

- Good design and materials
- Adaptable fence
- Useful extension arms

CONS

- Work cramp can tend to slip
- Bevel tilts only to the left

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Axminster
- 03332 406406
- www.axminster.co.uk



Bevel cuts can be made with the blade tilted only to the left



The fence to the left has an adjustable upper part that's useful when bevel sawing



An extraction vacuum hose can be fitted into the dual diameter dust outlet



The laser works best when the ambient light level is not too bright

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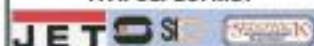
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PROJECTS AND FEATURES

A

ABC for woodworkers
part 12
Ark

B

Bag, caterpillar shoulder
Barometer
Bazaar projects, turned
Beads for bracelets
Bed, single oak
Beds, convertible bunk
Bedside cabinets
Bench
cast iron slatted
choosing
oak garden
Bench mortiser, setting up
Bench polisher conversion
Blanket chest
Bookcase, donkey
Bookshelf units
Bowl
bronzed
patchwork-edge
pierced rim

Jan 19
Aug 28

Apr 31

Jul 14

Feb 53

Jan 53

Jul 40

Mar 35

Sum 40

Oct 21

Dec 38

Jun 21

May 36

Sum 45

Apr 14

Mar 14

Oct 14

Aug 56

Jan 65

Dec 57

potpourri
triangular
Bowls from logs
Boxes, oval
Bunk beds, convertible

C

Cabinet
bedside
bow-fronted drinks
Glacier display
Candlestick, three-part
Canoe, plywood
Caravan, miniature
Castle, toy
Chair
Chief's
Corvair concept
repro Mackintosh
Chair repairs 1
Chair repairs 2
Chairs, utility
Clock
wooden 1
wooden 2
wooden 3
Clothes peg rail
Coffee table
cherry
glass-topped
mobile
nest of three
Coffin, green
Cordless tools, wireless recharging
Corner joint holders
Cupboard, housekeeper's

D

Desk
alcove
portable
Dish, carved fruit
Display case for medals
Door wedges, turned
Doors, routing panelled
Drawer lock joint jig
Drawer unit
Drill press, setting up
Drinks cabinet

May 56
Sum 65
Feb 59
Aug 21
Mar 35

Sum 40

May 26

Feb 50

May 65

Sum 14

Dec 54

Dec 32

Dec 28

Oct 45

Jul 21

Nov 53

Dec 49

Aug 40

Aug 14

Sep 35

Nov 39

Jul 60

Sum 49

Jun 54

Oct 39

Dec 14

Sep 45

Jul 45

May 54

Nov 14

Sep 14

Jan 22

Aug 35

Apr 41

Sum 55

Nov 34

Feb 21

Jun 14

Apr 26

May 26

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The Woodworker & Woodturner



EF

Egg storage tower, turned
Extractor, overhead boom arm
Footstool, restoring

Jun 58
Feb 41
May 31

G

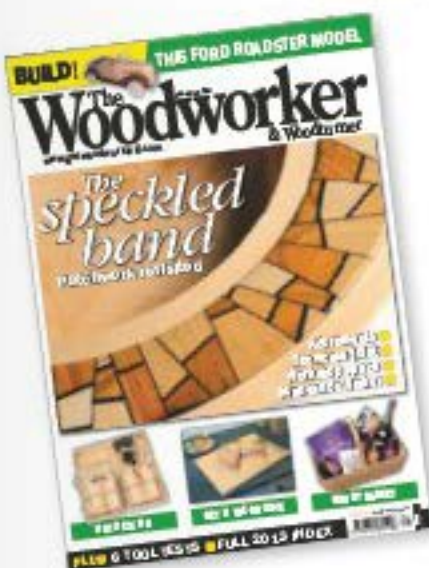
Gardening tools, turned
Glacier cabinet
Green wood turning

Apr 53
Feb 50
Sum 58

H

Hats, miniature turned
Hinge recesses, routing
Hinges, fitting butt

Feb 64
Jun 29
Nov 45



[illegible]

Jewellery casket	Feb	27
Jewellery chest	May	19
Jobs in construction	Oct	49
Joint		
bridle	Aug	49
showcase	Jan	44

Kebony ('new' wood)	Jan	47
Kit, choosing quality	May	49
Kitchen island	Sep	28
Knitting needle case	Jun	35

Lamp, standard	Jul	55
Lathe steady	Jun	65
Lock gates, restoring	Feb	44

Marking out work	Apr	47
Marking out: the triangle method	Aug	31
Marquetry		
part 1	May	43
part 2	Jun	45
Measuring tools, laser-operated	Aug	45
Meat mallet	Apr	57
Merry-go-round, child's	Aug	61
Mirror, half wall	Sep	21
Model farm cart		
part 1	Sum	35
part 2	Jul	35
Model Ford car	Jan	14
Mortise-and-tenon joints, pinned	Feb	47
Mortiser, setting up a bench	May	36
Music stand	Feb	14

Nest of tables	Dec	14
New Designers 2014	Sep	39
Olfactory box	Dec	21

Paper knives	Mar	59
Pencils, making	May	14
Pens, turning	Mar	53
Pizza cutting board	Jan	27
Planes, improving budget		
part 1	Jul	29
part 2	Oct	35
Planing techniques	Jun	49
Platter, turned winged	Nov	58
Potpouri bowls	May	56
Quiche, turned	Dec	65

Radiator cabinets	Oct	29
Rot repairs	Jun	40
Router trimmel	Nov	21

Sawing techniques	Jun	49
Shoe rack, concept	Nov	49
Showcase joint	Jan	44
Snooker cue	Mar	65
Spheres, turning	Oct	59
Staircase renovation	Sum	29
Stool, meditation	Sep	49

Table		
cantilevered dining	Apr	21
glass-topped	Mar	41
pedestal wine	Nov	29
slatted garden	Jul	49
'Iron Bridge'	Jun	54
round tree-trunk	Sum	21
Tea light holders, turned	Jul	67
Timber preparation	Mar	47
Toy castle	Dec	32
Toy tea set, turned	Nov	65
Tray, tea	Feb	35
Treadmill, office	Dec	45
Trug, gift	Jan	40
Turning for beginners 3	Jan	59
Turning guide		
part 1	Aug	52
part 2	Sep	64
part 3	Oct	64

Bazaar projects	Feb	53
Beads for bracelets	Jan	53
Bowl, bronzed	Aug	56
Bowl, patchwork-edge	Jan	65
Bowl, pierced-rim	Dec	57
Bowl, triangular	Sum	65
Bowls from logs	Feb	59
Bowls for potpourri	May	56
Candlestick, three-part	May	65
Clothes peg rail	Jul	60
Door wedges	Sum	55
Egg storage tower	Jun	58

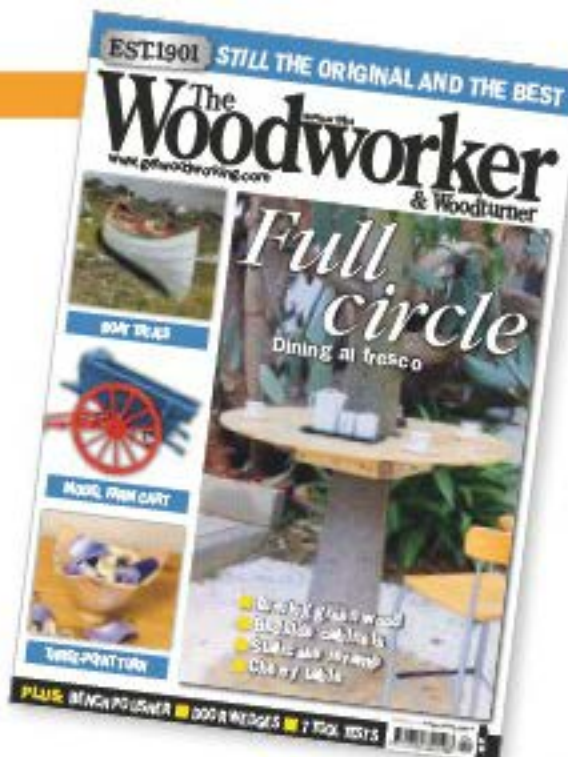
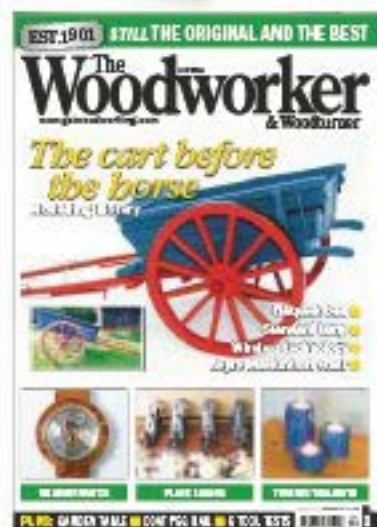
Gardening tools	Apr	53
Green wood turning	Sum	58
Hats, miniature	Feb	64
Hollow form	Sep	59
Lathe steady	Jun	65
Meat mallet	Apr	57
Merry-go-round, child's	Aug	61
Paper knives	Mar	59
Pens	Mar	53
Platter, winged	Nov	59
Potpouri bowls	May	56
Quiches	Dec	65
Snooker	-Mar	65
Spheres	Oct	59
Tea light holders	Jul	67
Toy tea set	Nov	65
Using gouges	Aug	52
Wine table	Apr	65

Vase, hollow form	Sep	59
Veneering basics		
part 1	Sep	53
part 2	Oct	53

Wardrobe, Shaker flatpack	Mar	24
Wine table, turned	Apr	65
Woodworkers' ABC		
The letters U to Z	Jan	19
Workbench		
choosing	Dec	38
drop-down	Mar	19
Work station, portable	Jan	22
Workshop expansion 2	Jan	33
Worktop joints	Apr	35



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Angle finder, Trend

B
Bandsaw
Draper BS200A
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Scheppach hbs20
Belfast sink jig, Trend
Bits, flat wood
Bosch Selfcut Speed

C
Chisels
Narex Premium
Wood River
Chuck, Record RP2000
Chuck and tool set, Trend Snappy
Chuck set, key-operated
Cutting gauge, David Barron

D
Digital angle rule, Trend
Dowel former, Veritas
Drill, combi
DeWalt DCD995
Einhell TH-CD 18-2
Drill, cordless
Draper CD180VA 18V
Drill driver
Bosch GSB 18V-Li
Triton T12DD
Drill, hammer
Festool PD 20/4E

Aug 78

Apr 82

May 76

Jul 80

Dec 76

Mar 77

Apr 80

Nov 73

Aug 79

Nov 81

Jun 75

Nov 82

Feb 71

Sum 75

May 80

Jan 72

Feb 81

Jun 79

Mar 82

Jun 80

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Fretsaw, see Scrollsaw

G
Grinder, bench
Scheppach bg 200
Grinder finisher
Scheppach bgs 700

H
Hinge jig, Trend skeleton
Hinge mortise plane, Veritas
Holdfasts
Tomes
Veritas fast-action
Impact driver, Triton T12ID

J
Jigsaw
Bosch GST 10.8V-Li
Bosch PST 650
Draper JS110NK
Joiner, Festool Domino DF500

L
Laser measure, Bosch GLM 80
Lathe
Charmwood W815
Jet JWL-1221VS

Jul 72

Sep 72

Aug 70

May 75

Jul 82

Feb 75

Jan 74

Jan 75

Jul 78

Jul 83

Feb 82

Sep 77

Mar 82

Oct 74

Jan 73

Sep 76

Apr 72

Dec 74

Jun 82

Jan 76

PRODUCTS AND TESTS



WIN

Marking gauge, Veritas dual
Mortiser, bench
Amnister AW16BMST2
Jet 701
Multi-tool
Bosch GOP 18V-EC
Bosch GOP 3000 SCE
Nail sets, Stanley Fatmax

P

Plane
Veritas trimming
Wood River jack
Planer, portable
Draper PT610V
Triton TPL180
Triton unlimited rebate
Planer thicknesser
Draper BPT200 benchtop
Pullsaws, Axcaliber and Bahco

R

Rotary tool, Bosch GRO 10.8V-Li
Roughing rasp, Liogier Bastard
Router
Bosch GMF 1600CE
Bosch GOF 1250LCE
Draper MR1350K combi kit
Proxon MCF Micro

S

Sander, cordless
Bosch PSM 10.8Li
Sander, delta
Einhell TE-DS 20E
Sander, disc
Amnister AWDS12H

Mar 78
Nov 78
Oct 82
Jan 11
Mar 79
Jan 71
May 82
Dec 72
Sum 72
Feb 72
Jan 78
Jun 72
Feb 74
May 71
Apr 77
Feb 78
Aug 72
May 72
Aug 82
Feb 83
Aug 69
Oct 78

Sanding plates, Brimarc
Saw, circular
DeWalt DCS391M2
Saw, folding hand
Trend flush-cut
Saw, plunge track
Bosch GKT 55 GCE
Festool TS 55 REBO
Triton TTS1400
Saw, sliding mitre
Amnister MS210S
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Makita LS0815FL
Milwaukee M18 SMS216
Saw, table
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Einhell TH-TS 1525U
Schepach hs80
Screwdriver set, Stanley Fatmax
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Scroll chuck, Chamwood Viper 2
Scrollsaw
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Schepach ds 405v
Shaper, Proxon micro
Shelf stud jig, Keg KMA3220
Spirit level, Stabila 196-2 LED
Spokeshave
Lee Valley cast round
Veritas miniature
Spray system, Bosch PFS 3000-2
Storage rack, Triton Woodrack

T

Turning tools, Hamlet

Feb 80
Nov 83
Mar 80
Sep 78
Sum 76
Apr 78
Dec 78
Jul 76
Nov 76
Sep 82
Mar 72
Oct 80
Aug 76
Sep 80
Mar 74
Jun 78
Jun 76
Sum 83
Feb 76
Aug 80
Sum 78
Apr 75
Sum 82
Mar 81
May 83
Nov 74
Dec 71
Oct 76



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BY MICHAEL FORSTER



A perfect set of dovetails was what I had in mind



An inadvertent twist of the chisel wrecked the job



Cutting to the wrong line compounded the error

Yesterday wasn't a good day in the workshop... except from a learning point of view. Oh, yes: it was definitely a great day for learning.

I'd accepted a commission for two memory boxes of slightly different designs. They were a little larger than most of the stuff that I do, so I'd had to edge-joint some boards to get the height of the sides. And I hadn't allowed enough labour charge on the quotation (Error No 1), so I was already playing catch-up and couldn't really afford any set-backs... which, of course, is exactly when setbacks occur.

Twist and shout

Don't ask me how it happened: I thought I'd covered all the bases. It was time to chop out the waste between the tails on one of the box sides. I removed the bulk with a jeweller's saw, chopped carefully back taking thin shavings until I got to maybe half a millimetre from the gauged shoulder line, lodged the chisel firmly (or so I thought) in the cut and tapped it with the mallet for a clean, precise shoulder.

So how, after all that, did the firmly-seated

chisel twist as I hit it? Well might you ask, dear reader – and well might I, because I've done a good few hundred of these and, take it from me, that just doesn't happen. Except that it did (Error No 2).

Cutting things fine

I pondered for a while (you really don't want to hear the things I was calling myself as I did so), and decided that as the box was large I could lose 12mm on the length without detriment. The client, I knew, would be more than happy to accept a small discount for a reduced box – and that would save me prepping and jointing up a new panel. So I bandsawed the tails away, re-trued the ends of the damaged board and its pair and quickly (Error No 3) marked out the dovetails.

The wrong line

Well, perhaps if I cracked on with things (Error No 4) I could at the least end the day where I'd started rather than somewhat behind. So I started on the cheek cuts. I got as far as the second one and realized something didn't look quite right. Gradually, the penny

dropped. I'd struck a rogue pencil line across the edge (Error No 5), and corrected it by striking another (Error No 6). But I hadn't erased the first one! When marking the tail cheeks, I'd marked to that line and had now cut to it (Error No 7). This time there was no escape. The same trick wouldn't work twice. There was nothing for it but to prep, edge-joint and glue up a replacement board.

Short measure

I took a deep breath, control of my nerves and hold of the jack plane, and surprisingly quickly I had the board cramped up. It seemed I'd got my form back, so maybe while the glue was going off I could turn to the second box and crack on with the dovetails on that one. Then I might still end the day ahead.

Er... no. I left the glue to go off overnight and locked up the shop early. Tomorrow is another day, and it might well be a better one. There are some days that just need to be kept as short as possible.

We've all heard the wise saying 'Quit while you're ahead'. Sometimes, 'Quit while you're behind' is even wiser. After all, to err is human...

Every picture...

You can't tell a book by the cover, as the saying goes... especially if it's a hardback that's lost its jacket. But a magazine is a different creature altogether, declaring itself at first glance

We're all used to lavishly coloured pictures on the covers of our magazines these days, but there was a time in publishing when the cost of photographic reproduction necessitated a more simple treatment for the printed page. As befitted what was essentially a technical journal of the day, an easily printed illustration was entirely adequate for the task in hand, livening up the front page to entice the potential purchaser.

Technology on show

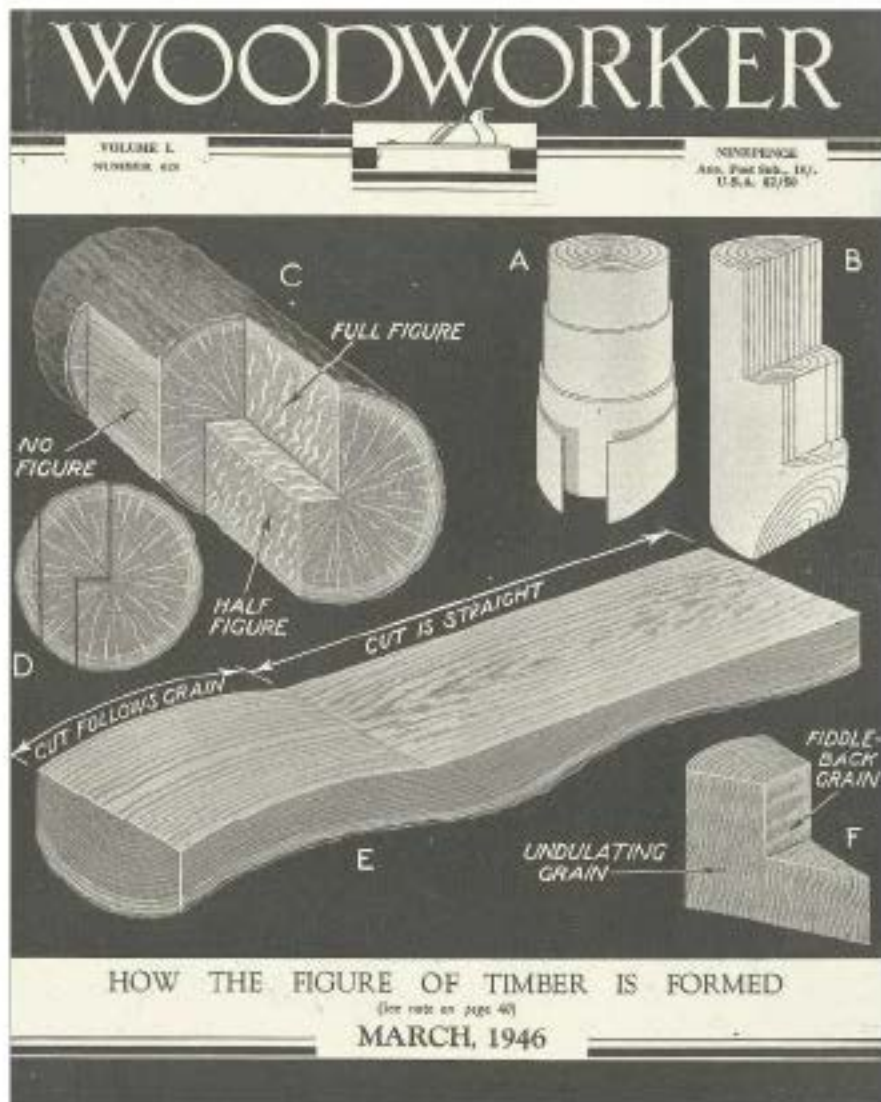
I found this cover picture from *The Woodworker* of March 1946 strangely intriguing when I first laid eyes on it. I think we may be looking at what was the best part – or possibly all that could be found after an office mishap – of a general article about timber technology, as it's known today in schools and colleges.

As well as offering a certain amount of visual appeal, the illustration is surprisingly informative (and I for one was educated on a couple of points of wood grain growth and log conversion), but its placement on the front cover makes you realise just how valuable print space resources must have been at that particular time (this issue was a scant 20 pages long, and was priced at nine pence). It really is a good example of canny editing.

Short shift

It's not often you get nearly a whole article reproduced on the front cover of a magazine, but anyone looking forward to more of the same inside would have been sadly disappointed in this issue. As the cover informs us, the article is continued on page 40, and is actually little more than a couple of short paragraphs.

These consist of a very brief description of one or two botanical aspects of timber growth (A & B), some information on wood conversion (D), and a few lines on medullary rays (C) and fiddle-back grain (F). The most interesting thing, however, is an additional and separate note which further explains diagram E – essentially a comparison of a sawn cut versus a riven one, and the pros and cons thereof.



Cut to size

I strongly suspect – and I would bet money on it – that the preliminary short paragraphs are all that was left from a heavily cut article, and the additional note was a late addition to both fill a small space and to make a very important point about riven boards. This would have been especially relevant at the time for work such as agricultural equipment and the rungs of ladders for instance.

They say that every picture tells a story,

and this was mine for the reproduction shown above. There are no immediate plans for *The Woodworker* to emulate this type of informative pictorial cover, but I do quite like it.

Your comments, as ever, are entirely welcome.

Mark

More from *The Woodworker* archive next month...

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