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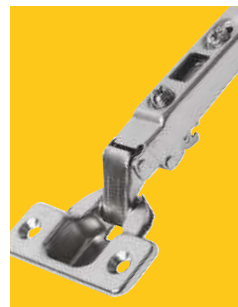
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Welcome



Changes or not, the workshop remains a great place to be...

Over the years, a lot has changed in the world of woodwork but, I'm glad to say, a lot has remained the same. With slightly refined tools – or even authentic vintage ones – it's possible to make any number of furniture or joinery items in pretty much the same way as our ancestors would have done hundreds of years ago. Excepting that small hardcore of purists who still swear by Scotch glue (the heated animal derived adhesive), the only modern improvement most of us employ these days will probably be PVA or similar.

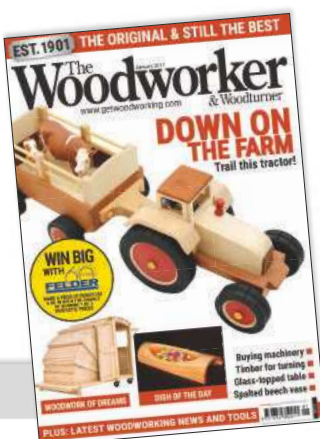
It's an interesting thought, that for two apparently identical pieces, one could be made entirely by hand and the other predominately created with the help of the latest power tools, machines, jigs and work aids. Both will be equally of worth and both will be a source of satisfaction to the maker, but which is best? And would the end user or new owner be unduly concerned about its origins? Certainly the high-end items created these days by the top few highly skilled and successful craftspeople will command a much higher price, but consider and compare the pleasure derived from similar items commissioned by private individuals two or three centuries apart. Both of these, say a new dining table for instance, would have been created in different ways, but ways which would have been the norm for their specific time.

Both customers would likely have selected the materials from those offered by the maker, and would have accepted without question whichever method of construction had been chosen as most appropriate for the job and budget in hand. If the only technology (or preferred method) available is the hand-cut mortise & tenon, then that will be it; should a Domino jointer be waiting at the workshop then this is how the job would be done; both techniques being entirely suitable to construct a robust and (hopefully) attractive piece of furniture.

But it's not just about long-lasting workmanship, it's about our own relationship to old things and the past in general. Stemming from a simple frugality that took pride in making things last and a 'if it was good enough for my father, etc.' attitude, much old furniture has stayed around for reasons other than beauty and appearance. Will this feeling of lasting stewardship survive into later generations and attach itself to new things? I think it will, and, as I look at my own simple dining table (mahogany drop-leaf, circa 1760), I can only hope that much of our contemporary furniture will survive a couple more centuries of use and still find favour among its owners; no change is needed here.

Mark

You can contact Mark on editor.ww@mytimemedia.com



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To celebrate their 60th anniversary, Felder are running a fantastic competition in conjunction with *The Woodworker* and *Good Woodworking* magazines to find three of the best furniture makers across the UK – there's also some fantastic prizes up for grabs

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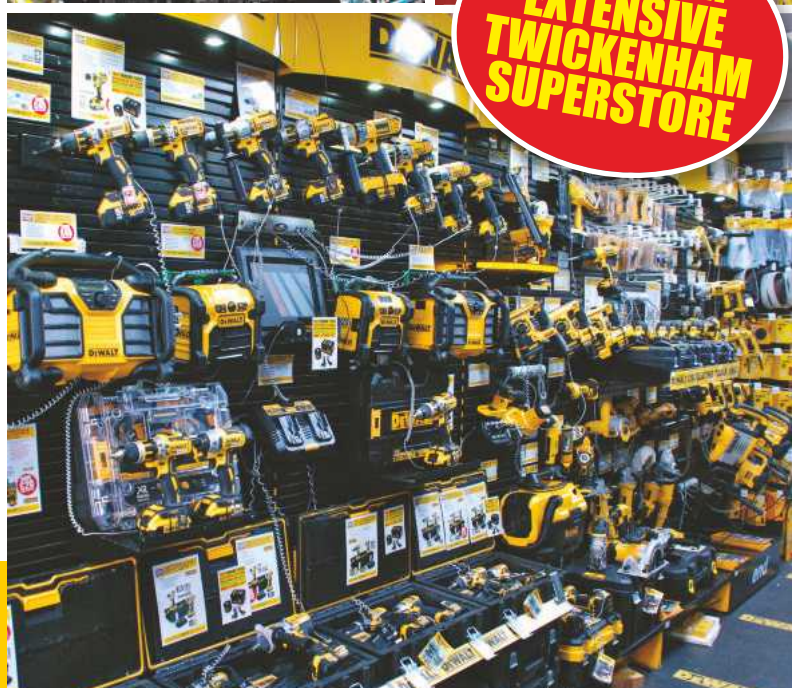
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In brief...

ANY OTHER BUSINESS

There's a lot to be said for a change, and nowhere is it more satisfying than in the workshop. All it takes is the acquisition of a new piece of kit or a small machine and before you know it you've redesigned the place to accommodate it. I've just had a clear out today at my 'shop and finally took the bull by the horns to resolve an irksome situation which has been annoying me daily for far too long. By rearranging a timber rack support I can now swing my chop saw from mitre to mitre without having to shift stuff about. I really should have done it sooner...

One change inevitably leads to another, though, and the clearing and rearranging continued throughout the day, to the effect that part of the workshop now looks almost respectable. It's all good, and if I keep at it the place will soon be something to be especially proud of. The big problem, however, and I'm sure most readers will

agree with me here, is getting rid of stuff, especially offcuts, but sundry useful-looking ironmongery is also an issue at my place.

There seems to be some sort of rule which governs this dilemma; do I get rid of it now and regret it two weeks later when a cast-iron need will come about, or do I keep it under the bench for another 10 years on the off-chance that it will probably come in handy very soon? And there's no way of kidding the workshop fates either; you can't just move it to another location, it has to be gone for good for the need to arise.

So, whatever you decide to do, whether chuck something out or get something new in, my advice is to get started right now and actually make it happen. When you stand back and reap the rewards of a clear bench-top or a more efficient working area, you'll not regret it.

Mark



DESIGN GUILD MARK CALL FOR ENTRIES 2017

The Furniture Makers' Company is now calling for submissions for the Design Guild Mark Awards 2017. The Design Guild Mark is recognised in the furnishing industry as a major mark of excellence in British design and is approaching its 10th year.

The Design Guild Mark Awards promote excellence and raise the profile of British design and innovation. They recognise and reward designers working in Britain or British designers working abroad. The award demands the highest standards in the design of furniture for volume production.

The Design Guild Mark judging panel for 2016 was:

- Simon Alderson – twentytwentyone
- Joanna Biggs – GA Design
- Barbara Chandler – *Evening Standard*
- Sebastian Conran – Sebastian Conran Associates
- Diana Monkhouse – SpacelInvader
- Jeremy Myerson – Royal College of Art

- Philippa Prinsloo – John Lewis
- Pernille Stafford – Resonate Interiors
- Paul Tanner – Marks & Spencer Furniture

Sebastian Conran

"It is good to experience some of the finest British designers explain the thought, detail and craftsmanship that goes into their designs. Often it is the intangible things that are the most important and yet difficult to discuss, as it is often a question of that ghastly word, 'taste.' I would like to recall Josiah Wedgwood noting that, "fashion is often more significant than Merit" – something worth considering when judging's one's peers' work."

Philippa Prinsloo

"The diversity of submissions were reflected by thoughtful and challenging debate throughout the day. To see and experience design excellence across such different substrates and solutions, methods of make and manufacture, was impressive."

To submit your product, visit www.furnituremakers.org.uk and complete the call for entries form. The closing date for entries is 24 February 2017.

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17* & 17 Bandsaws
21 Introduction to Leigh Jigs*
26 Fine-tuning hand planes*
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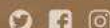
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VC3012M M-CLASS DUST EXTRACTOR

MANUFACTURER: Makita
D&M GUIDE PRICE: £399.95

The new Makita VC3012M M-Class dust extractor removes 99.9% of dust with Limit Value for occupational exposure $>0.1\text{mg}/\text{m}^3$. This means that this high specification dust extractor achieves performance levels better than the minimum legal limit for dust when working with hazardous materials, including silica sand in brick, masonry, concrete, gypsum and wood dusts and plastic composites. The new Makita VC3012M extractor is available in 110V with a 1,000W motor, or 240V mode with 1,200W motor. The 240V model has power take off at 1,800W to automatically link to the power tool.

Maximum airflow is $3.2\text{m}^3/\text{minute}$ for the 110V machine and $3.7\text{m}^3/\text{min}$ for the 240V extractor, with maximum suction of 23.0kPa and 25.0kPa respectively. An airflow sensor gives an audible beep warning when flow is reduced by a full tank, blocked filter or other obstruction. The 'push and clean system' switches the air flow routing to quickly clean the main input filter, dropping the waste into the container in just seconds. The motor turbine is protected by a washable PET cartridge filter, which holds back fine dust and debris. The lightweight yet robust plastic container has two main wheels and two steering castors for excellent stability and manoeuvrability. The overall weight is just 10kg with a tank size of 30 litres with a disposable bag of 23.5 litres and a wet capacity of 19 litres.



TM30DWAE 10.8V CXT MULTI-TOOL

MANUFACTURER: Makita
D&M GUIDE PRICE: £154.95 with two batteries, charger & case

Makita has added a slim, lightweight yet powerful multi-tool to the increasingly popular 10.8V range of cordless tools. The performance of these advanced 10.8V tools is proving very attractive for many 'lighter' operations, such as kitchen and bathroom installations and interior fit-out, where the power of the market leading 18V Lithium-ion tools is not essential.

The new Makita TM30D CXT multi-tool uses the OIS adaptor with 12 posts to take the many alternative blades and abrasives available in the Makita accessory range. Blades can be fitted at 12 alternative angles at every 30° , from $0-360^\circ$. The oscillation angle is 3.2° per stroke and the new TM30D will run between 6,000 and 20,000 oscillations per minute.



DEWALT TOUGHSYSTEM STORAGE MODULES

MANUFACTURER: DeWALT
D&M GUIDE PRICE: DWST175694 – £82.99;
DWST175668 – £109.99

DeWALT has added new items to their already extensive **ToughSystem** storage range. The DWST1-75694 is a modular wall-mounted workshop racking system consisting of a pair of supportive legs and five pairs of height-adjustable and removable brackets suitable for storing all ToughSystem cases. The DS450 is a mobile storage trolley with a telescopic handle, which features side latches for stacking extra modules.





Down on the farm

A new generation in his family has given Ian Wilkie the opportunity to make some tried and tested wooden toys, namely this tractor and trailer, which is intended for the 3-5 age group

A new generation in our family has given me the opportunity to make some tried and tested wooden toys once again, which I originally made for my own children and grandchildren. The toy farm was always a popular favourite and I have designed and made this simple tractor and trailer for the 3-5 age group. Schief make an excellent range of plastic animals to a high standard and this is roughly the scale I have chosen. The cow is one of the largest animals and measures 60mm high x 130mm long, so as long as she fits comfortably in the trailer without falling out the child should be happy!

Criteria

A toy for this age group should be simple but safe and strong, as it is likely to get rough treatment and detailed parts will snap off or become damaged. For this reason, I have avoided a tip-up chassis and a tail-board, which drops down in the case of the trailer, and concentrated on making it

stable and capable of taking a reasonable load with a simple hole and peg linkage. I have chosen a variety of fine-grain, splinter-free woods in contrasting colours. The wood is sanded to produce a really

smooth surface and I painted the tractor and trailer wheels using products certified suitable for toys. There is no attempt here to make an accurate scale model; it's all about play value! [www](http://www.ianwilkie.co.uk)

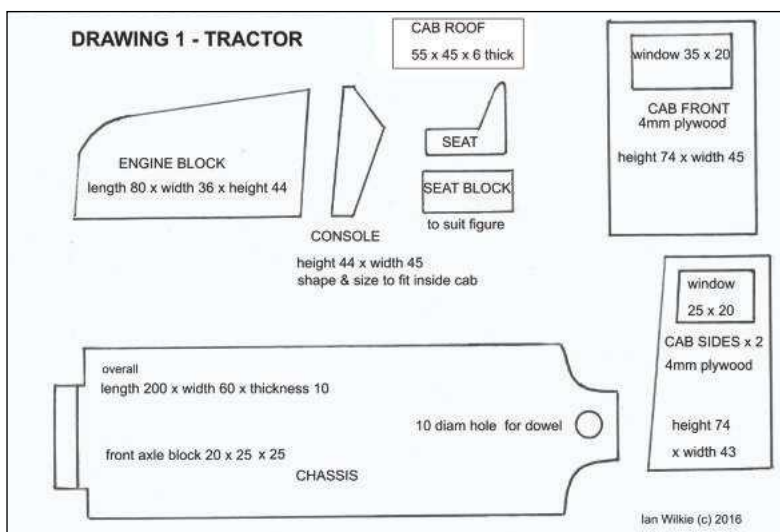


Fig.1
Tractor

The tractor

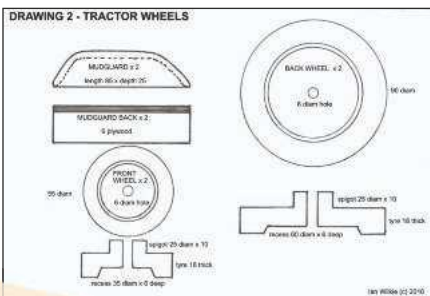


Fig.2 Tractor wheels

Making the wheels



The wheels on a real tractor draw attention due to their impressive size and tread. I turned the tyres and hubs in one piece, simulated heavy tread on the tyres and then painted them black with contrasting hubs



To make the wheels cut out 2 x 90mm and 2 x 60mm blanks in 27mm thickened hardwood. Centre pop each blank and drill a 6mm hole through the centre using a drill in a stand or a bench drill. Mount the first blank on a mandrel; this can be either a DIY version or you could utilise an adjustable pen mandrel if you have one, in which case you will need to drill the centre hole to match the rod diameter. Hold the mandrel in the MT in the headstock and bring up the tailstock fitted with a revolving centre and locate the point in the centre pop at the end of the rod. Turn the blank to the round and then make a 25mm diameter x 10mm deep spigot on one side; this matches the Record RP2000 scroll chuck fitted with standard jaws. I have used this chuck for most of my projects recently and it has proved to be excellent and accurate. The spigot can be parallel, rather than dovetail, which is an advantage; the jaws have serrations on the inside and outside and this guarantees a very good grip. Clearly if you are using another chuck you will need to adjust the diameter of the spigot to suit your jaws. Repeat the process for all four wheel blanks and then remove the mandrel



Mount the first large blank in your chuck jaws and turn the inner recess on the face to represent the wheel hub. Slightly round off the edges of the tyre and then sand to a very smooth finish



Off the lathe, hold the wheel in the soft jaws of a vice and cut grooves with a saw across the tyre to represent the cross tread

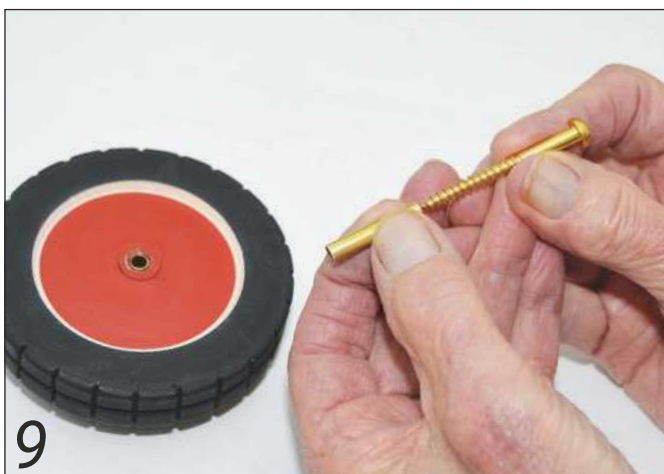


5

To achieve a crisp demarkation between the red and the black paint, re-mount the wheel and cut a small groove between the colours. Several coats of varnish will give a good, hard finish. All paints should be clearly certified safe for children's toys

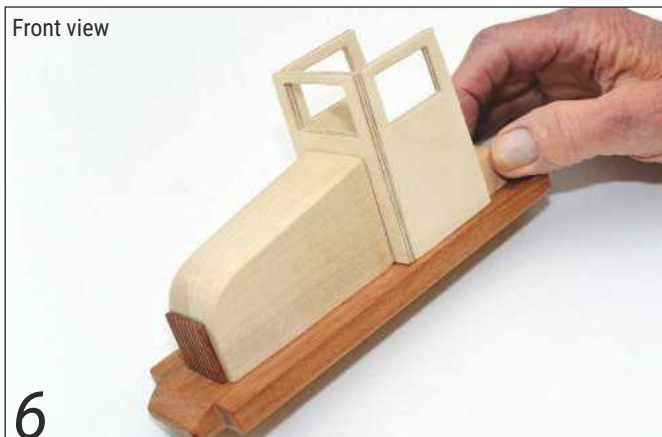


7



9

The wheels are attached to the tractor with round-headed brass screws 51mm long x 5mm, and these form the axles. Each screw slips into a brass bush in the centre of the wheel ensuring that it will run smoothly and there is no risk of seizing up or rusting



6

These parts are made from simple shapes with the dimensions shown in the drawing. The offcut box will probably yield suitable small pieces of timber and plywood. Cut the chassis out first and screw the shaped engine block in position from the underside. Cut out the three pieces, which form the cab. Shape the console dashboard block to fit exactly into the cab and then glue the cab front and back around it. Screw the console to the engine block, add a steering wheel and glue a radiator grill to the front



8

Cut out the driver's seat with a block underneath to suit the height of the figure and glue it in position before putting on the roof



10

Drill 2 x 4.5mm pilot holes each side in the chassis for the back wheel screws



11

Cut a front axle block the width of the chassis and the height to match the back wheels. Drill a 4.5mm hole at each end to take the wheel axles and another through the centre to screw the block to the underside. Screw on the smaller wheels and check that the tractor runs smoothly. Note: Albion Alloys produce a range of brass, copper and aluminium sections, which can be found in most model shops. The 6mm (outside diameter) brass tube (ref BT6m) is sold in packets of 3 x 305mm long sections at around £5 a pack. Cut 8 x 27mm long sections to slide into the centre of each wheel hole to act as a bush



12

Use a scrollsaw to cut out two mudguard shapes from solid wood. Glue a piece of plywood behind each one and trim off the excess, then glue to the cab behind the wheels

The trailer



13

Drill a hole in the bonnet to take a stub to represent the exhaust pipe. Keep it short so that it is not a hazard

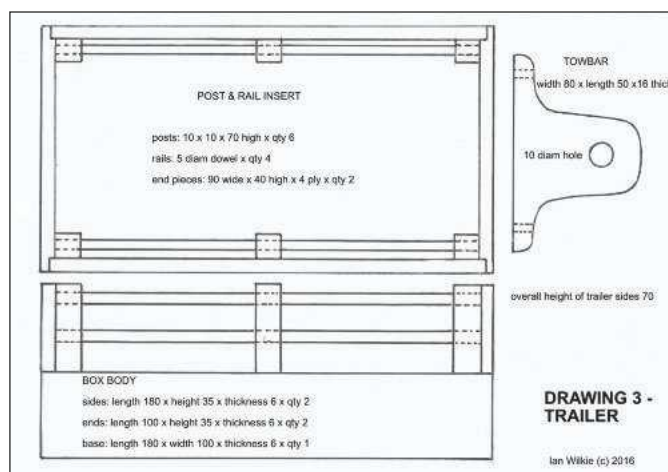


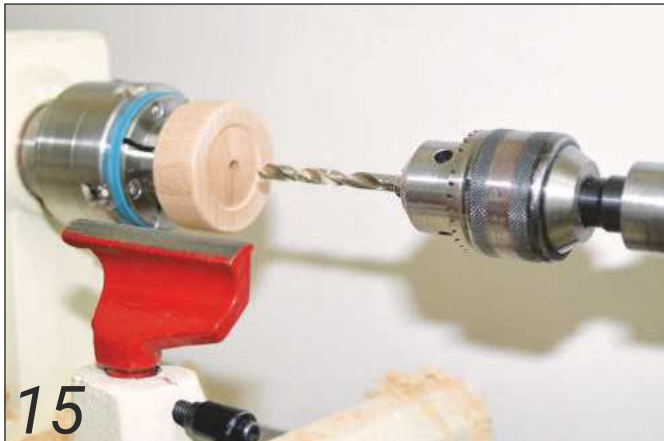
Fig.3 The trailer

Wheels



14

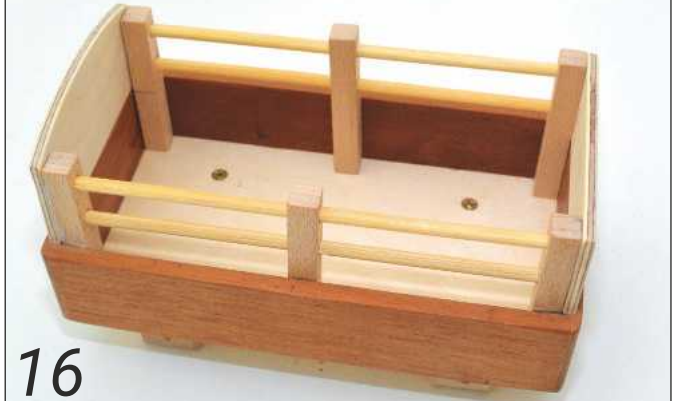
The four trailer wheels are similar to the small tractor wheels but have an outside diameter of 50mm. They can be turned from one cylinder. Hold the blank between centres and turn to a diameter of 50mm. Mark out the positions of each wheel and make a cut with a parting tool at the line. Widen out the cut and form a spigot 20 x 10mm long. Start cutting through first with a thin parting tool and finish with a fine hand saw to separate the wheels



15

Mount each wheel in turn in the chuck jaws by its spigot and drill the centre hole 6mm for the brass bushes as already described

Chassis & sides



16

Cut out the four pieces and a base and glue up to form an open box with solid sides. Make an insert with six upright posts, a solid front, back and railings, then glue into the box



17

Cut two axle blocks, drill pilot holes ready for the axles and screw to the bottom of the box. Screw on the wheels making sure they are all level



18

Cut out the tow bar and drill the hole. Position to match the tractor and screw or dowel the tow bar firmly into position



19

The tractor has a Wolfcraft dowel glued and hammered into a drilled hole in the chassis. It is important that the linking for the tractor and trailer is robust



The completed tractor and trailer should look something like this

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- Please note that finalists must cover the costs of transport to the judging ceremony as well as any costs involved in transporting their piece of furniture
- Entry is open to UK residents with a permanent UK address
- The closing date for entries is 17 February 2017. Pieces will be judged on Friday 17 March 2017, so please ensure you are free on that date in case your entry is chosen as one of the final five
- All entries should be emailed to tegan.foley@mytimemedia.com and should be sent no later than 17 February 2017 – postal entries will not be accepted
- Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd and Felder Group UK are not eligible to enter this competition
- To view our competition terms and conditions in full, please visit www.getwoodworking.com/competitions

Over the next month, we will be running this fantastic competition in conjunction with Felder Group UK to discover who can make the best piece of furniture. The competition is open to anyone over the age of 18, regardless of skill level. The piece you enter can be any size, from a small bedside cabinet up to a large wardrobe – the choice is yours! Simply decide on the piece you'd like to make, document the process, then submit it by following the entry details below.

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In your own write...

Here are just some 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!

The Woodworker
& Woodturner

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START 'EM YOUNG

Dear Mark,

I'm a 49-year-old old reader from Finland who teaches upper-level class students with special needs. Pictured here is my daughter Jemina, a little lady who is aged just one year and six months. She really loves to read your magazine, more than our son, Valtteri, who's four. My wife Outi wonders why I read your magazine, but my dream is to make something as great as the best woodworkers – some day!

We live in the middle of Finland, in a tiny village called Sievi.

Best wishes,

Jukka Santavuori

Well that's great, Jukka – start 'em young is what I always say! And the best way of making your woodworking dreams come true is to just sharpen your tools and start making.

Good luck, and all the best

Mark



Jemina from Finland may just be our youngest reader!

HELLO FROM DOWN UNDER

G'day Mark!

I'm a potential subscriber from the Great South Land! Would you please tell me whether your two magazines (yes, I know your name is only against one) use the imperial or the metric measurement system for plans, dimensions, etc.? While I grew up under the reign of inches, feet, yards and miles, my 'feeling' for those measures is long dead. Thanks in advance!

P.S. I'm putting your magazine on my Christmas list confident that the AUD will seamlessly metamorph into the GBP in a very busy workshop near the North Pole. Now, I must get into mine!

John White
Brisbane, Australia

Hi John,

Most of our stuff is in metric, but some things like antique furniture and green timber working seem to suit imperial measurements better. We're mostly metric in the UK, but at the timber merchant you still hear people asking for 2.4 metres of 2 x 1 (yes, me too sometimes...)

Cheers, and a safe and happy woodworking year to you **Mark**

GRUMPY'S SHED

Hi Mark,

I enjoyed the recent setting up article of the turning 'shop'; however, I realised a long time ago that a workshop is a very personal thing to each workshop owner. While on holiday I bought an American book called *Workshop Lust*, the inside of which would make the average hobbyist this side of the pond quite ill – with the size of their 'shops and what is in them, the book is very aptly named. However, it has prompted me to send you a few views of 'Grumpy's Shed'. I have also enclosed in the pics a desk and chair made for my then nine-year-old grandson, the design of which I got from an Argos catalogue and modified to make it stronger. P.S. The workshop photos were taken a while ago and it has since been remodelled, but should win untidiest workshop of the year!

Regards

Mike Pinnington, aka Mr. Grumpy



Mike Pinnington, aka Mr. Grumpy's workshop, which has since undergone a remodelling

Thanks for all the photos, Mike – it looks like you've been keeping yourself out of mischief. Other people's workshops are always interesting to see, and there's guaranteed something there that you wish you had in your own (clamp rack in this case). And untidiest workshop? Not a chance, old boy! **Mark**

GET IN TOUCH!

Don't forget, we're always keen to see your photos, so please don't hesitate to send them in if you've snapped something of interest recently. Email me at the new address: editor.ww@mytimemedia.com



1 The tree is taken down in sections with a chainsaw. Often tree surgeons will be happy to let you take some away

Timber for *turning*

An expert in all things turning, Bob Chapman explores the vast subject of timber for turning and suggests some excellent tips and things to look out for

A question every turner faces is 'where will I get my timber?' Often the beginner to turning has already done some other form of woodworking and may well have a pile of offcuts on which to practice. Unfortunately these will usually consist of various species of softwood, usually 'pine' of one kind or another.

In general terms, pine is not a very cooperative wood to learn on. It takes quite a lot of skill to get a good finish on pine straight from the tool, and it may encourage a reliance on extensive sanding,

which in turn is likely to destroy any fine detail in the piece. I advise beginners to try to obtain some straight-grained sycamore or beech on which to practice. The large DIY stores, which most people think of when they need timber, rarely stock hardwoods and this advice is almost always met with the question 'but where from?'

Timber suitable for turning is almost in a category of its own. It can be freshly felled and sopping wet, it doesn't have to be straight-grained nor free of knots and burrs and other features; in fact such 'blemishes'



are often much sought after. It doesn't need to be planed smooth or thickened to a particular size; it can be any odd lump that may have been thrown aside. As a timber merchant once said to me 'you turners want the bits that no-one else wants' and, to a large extent, he was right.

Found wood

My ears are attuned to the sound of a nearby chainsaw, and I can never resist going to see what might be available (**photo 1**). There was a time when I couldn't pass by any piece of wood without considering its possibilities for turning. Come to think of it that's still true, but over the years I have learned to be much more selective about what I carry home with me (**photo 2**).

When my local council was trimming back some yew trees in the local cemetery, a friend whose house overlooked it gave me the tip-off. I went for a quick look and found several pieces large enough to be useful, and



2 Carrying out conservation work in a local park, these two wardens were happy to let me take as many of the birch logs (bottom left) as I wanted. Unfortunately I could only carry one

a quick phone call to the council gained me permission to help myself. They were quite pleased that I had asked, applying the simple logic that the more I took away, the less they would have to deal with.

We sometimes find skips full of rubbish, often with bits of wood in them. We may come across someone pruning a tree or cutting one down or, worse, we find the country lane where someone has dumped their prunings rather than disposing of them properly. These are all potential sources of free wood and almost always you will be providing a service by taking it away (**photo 3**). However, do ask the owner first. If you take it without permission, it is theft. In my experience, permission is rarely denied, but conservation groups sometimes deliberately

leave piles of branches or small trunks to act as habitats for local wildlife as they slowly rot. They call these log piles 'hotels' and won't be best pleased if you wander off with them.

Once word gets around that you are a woodturner, a surprising number of people will start to offer you timber. Sometimes it is a gift; yours for the taking away, and if you want the timber you could try to repay this kindness by making some small item from it in return. There is almost nothing to lose in this sort of arrangement except the time taken to collect the timber and perhaps tidying up what you don't want (**photo 4**).

A few years ago a lady rang me to say that she had just had a laburnum tree cut down as it was in danger of pushing the garden wall over. It was, she said, 'about



3

The birch plywood for this small bowl came from a skip. The afrormosia strips were from an old bench top I was given. The bowl measures 230mm dia. x 50mm deep



4

On holiday in Spain, I spotted this lump of olive in my host's firewood pile. The bowl measures 180mm dia. x 150mm tall



5

This laburnum bowl, approximately 300 × 50mm, was made in return for a very large laburnum log



6

The amount of metal buried in this tree would make it a turner's nightmare. Sawmills are not keen on urban timber for this very reason. A damaged bandsaw blade can set them back far more than the timber is worth

a foot in diameter' and she didn't want to see it chipped if it could be used. When I went to look, the trunk was actually a good 18in in diameter and she had retained a section about 3ft long. I took it gratefully and promised a bowl in return. The wood is beautiful and, she says, so is the bowl which she received about 18 months later. We were both happy with the deal (photo 5).

Occasionally, however, monetary payment is suggested, and this introduces all sorts of problems in trying to establish what the timber is worth to you. Unfortunately garden timber can be of very variable quality. Often the tree has been felled because it is rotten. It may have been felled some time ago and the wood might already be badly cracked or starting to rot. Garden trees are notorious for containing various bits of metal – nails and so on – which have been hammered

into them over the years and have been overgrown, sometimes leaving no external trace of their presence. Even if the wood is clean, sound and freshly felled, given the high risk of it cracking beyond use, it may yet prove to be worthless (photo 6).

Unaware of these difficulties, the owner sometimes has a very inflated idea of the value of the timber, comparing it with the price of well prepared faultless blanks from a specialist timber supplier. In these instances, I usually find some reason to explain why the timber is unsuitable for my purposes, and I leave it at that.

Specialist suppliers

Around the country there are retailers who specialise in supplying timber to woodturners and other woodworkers. Some of them have vast warehouse-like buildings full of circular bowl blanks, square carving blanks, planks, natural-edge burrs and so on. They are treasure houses for turners and often also sell all the other tools, machinery and accessories a woodturner could desire.

Buying your timber this way may seem expensive (photo 7) but, as is often the case, you get what you pay for. All the work has been done for you: tree felled, cut up, transported, sawn, planed and cut into circles. You can expect your timber to be kiln-dried to an acceptable moisture level, the end-grain sealed and the whole piece to be free from splits, cracks and other defects. It will be instantly workable and you would not expect it to move very much after turning. If you did discover a significant defect during turning you could probably return the piece for a replacement or refund, although this is a matter for the individual retailer. It's a good idea to ask before you buy.

If you are turning as a hobby and want it to be trouble-free with a minimum of pre-turning preparation, then this is an excellent way to buy your timber. There are hundreds of different species of hardwood available from all over the world. The major suppliers are well aware of the need to conserve rainforests and are able to claim that their supplies are obtained from sustainable, properly managed sources (photo 8), which is reassuring.

Sawmills

Not everyone has a local sawmill, but try looking for them in your phone book or online and you may find that you have. My local sawmill is the place where I get most of my wood (photo 9). For the price of three or four bowl blanks from a specialist supplier, I can buy a couple of sycamore



7

A collection of ash, spalted beech and oak burr, from various specialist suppliers. Each piece is a perfect example but the total cost came to almost £80

boards that will yield 10 or more blanks of a similar, or bigger, diameter. I can go and buy a single board or several, but I'm not expected to purchase in industrial quantities. However, after buying a board I have to deal with it myself. The man in the sawmill might cut it in half for me, so I can get it in the car, but he won't convert it into bowl blanks (photo 12).

This is an affordable source of good quality timber but it has its limitations. Don't expect to find exotic timbers in the sawmill, but native sycamore, oak, ash, beech, lime, etc. are readily available in thicknesses up to about 100mm, together with occasional 'finds' such as oak, elm and other burrs (photo 10), and sometimes pieces of yew, holly and laburnum. As these native species are the timbers I use most, the sawmill suits me very well and I recommend others to search out their nearest sawmill and give it a try.

The wood at the sawmill is usually air-dried and I can ask how long it's been in the stack, so I've a good idea of how dry it will be. If in doubt, buy a simple moisture meter to tell you the moisture content (photo 11).

Air-dried timber is likely to have a moisture content of around 18-22%, depending on

time of year. It tends to be highest in winter for obvious reasons. Kiln-dried timber has a lower moisture content but it will depend on how long the timber has been out of the kiln and where it has been stored. It will gradually re-absorb moisture and approach the air-dried figure.

Dealing with newly felled wood

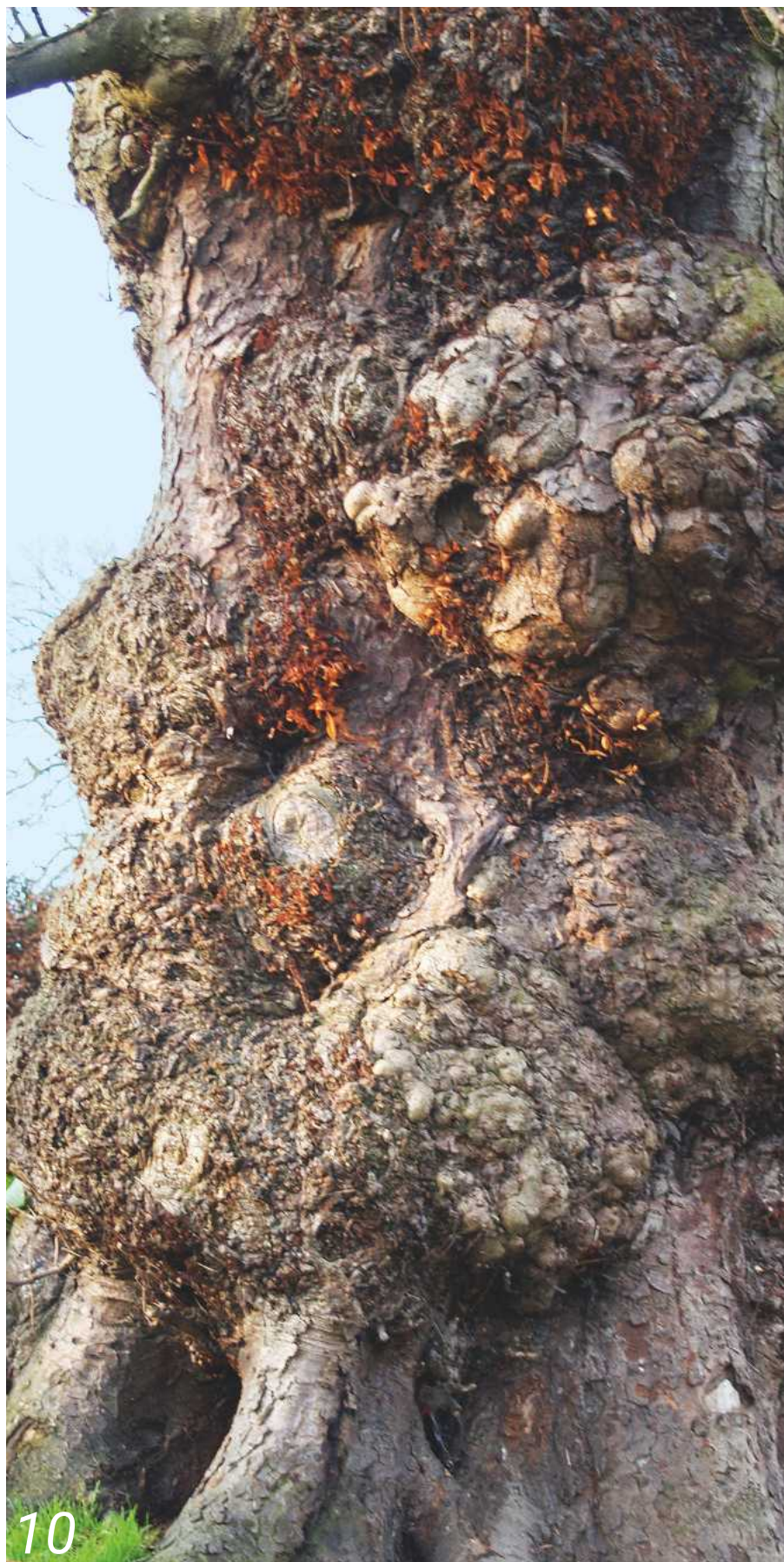
Entire books have been written on converting freshly cut timber into a useable form and most of it is far outside the scope of this article. Drying timber without it cracking is as much an art as a science, and a great deal of luck seems to also be involved. The timber



Specialist timber suppliers carry extensive stocks of foreign hardwoods as well as native species. This is Craft Supplies UK in Bradwell, Derbyshire before it became part of Turners Retreat



My rather untidy woodstore. The planer/thicknesser is under the blue dust cover. The holly trunks in the corner were given by a neighbour and I've had them for three years now. The boards on the right are from the sawmill



I buy is usually fairly dry already but when I have to deal with green wood I usually adopt one of two approaches.

The first is to seal the end-grain as best I can with whatever might be available. I've tried old paint but because it doesn't adhere very well to a damp surface it was only moderately successful. I've dipped the end-grain in molten wax, but again adhesion is poor on a damp surface. I found that by standing the wood on end and re-melting the wax with a blowtorch I was able to increase penetration and improve the seal. This worked very well on the laburnum mentioned before, which gradually dried with virtually no cracking of the timber. I've also used cheap PVA adhesive – cheapest from a builder's merchant where it is sold as a cement additive and, because it is water-based, it has no problem with surface moisture. I brush it in well with a paint brush, leave it to dry and then add a second coat.

The general advice for air-drying is to leave the timber for one year per inch of thickness, but for logs over about 100mm in diameter this rule soon breaks down and thicker logs may take significantly longer to dry. Some turners rough turn bowls from wet timber leaving the walls overly thick so they can be re-turned to the final thickness when they have dried properly. By removing most of the waste the drying time is much reduced. They rough turn bowls today, which will be finished in, say, three months time. The bowls they finish today are the ones they began three months ago. I've tried this and it works but I'm not a production turner and I've no real need to adopt this production-line technique.

From time to time I get calls from people who have just had a tree felled and would like some memento of it made from the wood. I used to take the timber and attempt



This inexpensive moisture meter works well and is easy to read. At 17% the moisture content of this air-dried board is low for the time of year, but it will be stored inside for a couple of months before use

10

A horse chestnut tree showing extensive burls all around the lower trunk



12

This air-dried sycamore board, slightly taller than me, is 355mm wide × 76mm thick and cost £25. The ripple in the wood is clearly visible, even on the rough-sawn surface

Is it seasoned...?

When I used to sell my work at craft fairs and the like this was the most frequent technical question I was asked. Everyone, it seems, knows that wood should be 'seasoned'. In practice what this actually means is that the moisture in the wood is in equilibrium, or balance, with the moisture in the surrounding air. If it is, the wood will neither lose nor gain moisture and should remain perfectly stable; that is it will not suffer any further warping or cracking associated with changes in moisture content. At that instant in time, in that particular place, the timber is seasoned.

However, if this same piece of seasoned wood is then taken somewhere else, let's say into the warm, dry atmosphere of a centrally heated room, then its water content is likely to far exceed that of the surrounding air. It is no longer 'seasoned' and will begin to lose moisture to the air in the room until that equilibrium is re-established. As it loses moisture it will probably shrink a little and change shape a little. These changes may not be major changes but they will happen to some degree. If the loss of moisture is small, then the piece is unlikely to crack but may do so in some instances. A similar argument applies if the piece is taken into a damp room, where it will begin to absorb moisture. In other words, whether a piece is seasoned or not depends on where it is and how long it's been there. Seasoning is a relative term. My usual simplified answer was to explain that the wood was seasoned but 'it would be best not to put it in a warm place. Avoid the shelf over a radiator or the mantelpiece or on top of the television'. [www](http://www.getwoodworking.com)

to dry it before turning it but this was fraught with difficulties. It meant that the customer was committed to waiting a couple of years or so before receiving the finished piece, and there was always the very real possibility that the wood would crack so badly as to be unusable. Not only would the customer end up with nothing, but they always seemed to regard it as my fault. From my point of view, I'd have wasted time and energy collecting and storing the wood and, for my trouble, I would have gained a disgruntled customer. This was obviously not good for business. Now I give a little advice on storage (cool, dry place and not in contact with soil) and suggest the customer hangs on to the wood

for a couple of years before contacting me again if it hasn't cracked.

Alternatively, my second approach is to turn the finished item immediately, being well aware that as the wood dries it will warp and distort and possibly crack. If it is a commission I explain to the customer that there is no telling exactly what might happen, and I take care to emphasise that the wood will definitely warp and may very likely crack as well (**photo 13**). Not everyone sees such things as flaws in a piece and if the customer is happy to go ahead on this basis, then a deal is struck and the piece is made. I have produced some very attractive pieces in this way (**photo 14**).



13

This simple holly bowl was perfectly round with a level rim when it was first turned from newly felled wood. As it dries and shrinks the surface takes on a textured effect, which I find very pleasing. The bowl measures 200mm dia. × 100mm deep



14

This shallow pear wood plate has distorted as it dried out until it has an appearance almost like leather; I called it 'The Crisp'. The platter measured approximately 230mm dia. when it was round

A hand-made classic

Rick Wheaton shares a 25-year-old project with us that still looks good to this day

I'd always wanted to try my hand at making furniture, but – equally – always lacked the skill and patience to make 'proper' joints, such as mortise & tenons, or especially dovetails. However, my work (grip moulding) had got me familiar with the astonishing strength of epoxy resins, and I wondered if two-pot adhesives would work well enough to get around my clumsiness with mallet and chisel.

Butt-jointed legs

I trialed a simple butt joint, gluing two bits of scrap with epoxy two-pot, hardening overnight. The next day I tried pulling them apart with my hands, and failed. Bringing knee, boot and floor into the equation had no effect, and I ended up clamping one piece in a vice and giving the other a good smack with a lump hammer. The wood failed but – amazingly – the joint held.



1 Inside corner detail. The screws through the matt black ply are plainly seen



2 Inside end view, without glass

This gave me the confidence to go ahead with butt-jointed legs, a cautious approach that, 25 years later, seems ridiculous given the every day convenience of modern adhesives. I had some nicely grained planks – 33mm thick x 150mm wide – perfect for a 360mm high table. When I sketched it out, a glass top looked good but I didn't like the butt joints on the sides and ends.

Creating a 'feature'

Adopting the maxim 'if you can't hide it, feature it', I made an inner frame from 18mm ply, painted it matt black, and screwed it to the inside of the four legs, the sides and the ends. The 'feature' was the chunky 10mm gap where you'd expect to see an engineered joint. I think it looks cool; and the ply holds everything together – as well as supporting the glass. Also, it was dead easy to do, and friends are often puzzled, looking at a table whose main sections seemed to have floated apart.

A useful tip is worth mentioning: the top needed to be a nice, tight fit to the timber, but I was concerned my woodworking skills weren't up to providing the exact rectangle needed, so I started with the glass.

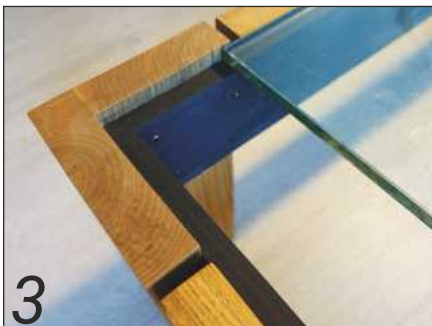
I wanted a piece 1,200 x 600mm and went for 10mm toughened PAR (polished all round). This was by far the most expensive item, but the table has withstood two and a half decades of abuse, and I'd say the heavy top was worth every penny.

With a bit of old blanket protecting the

glass on my bench, I laid out the legs and frame around it, effectively making the table upside down. This might seem odd, but it did the job, and all I had to do was take care with the assembly.

By the way, IKEA, etc. now sell toughened glass table tops in various sizes, sensibly priced, so it's worth looking for one that suits your glass needs. Just adjust my the sizes to fit your table top. Good luck! [www](http://www.getwoodworking.com)





3 The glass top sliding into position

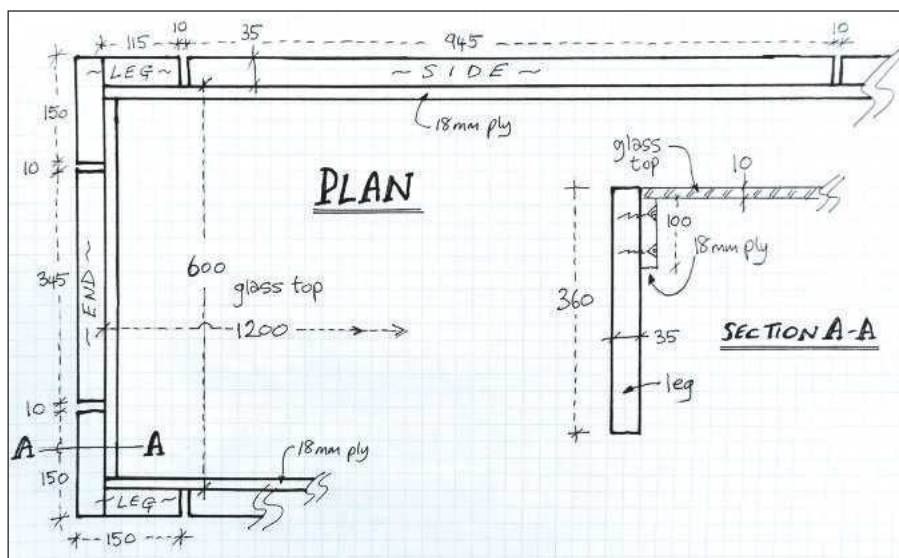


Fig.1 Dimensions for the glass-topped low table



SUGGESTED SEQUENCE FOR MAKING THE TABLE

1. Glue eight pieces to make four legs
2. Lay the glass onto a protected bench
3. Put the legs in position and screw the ply inner frame to them
4. Put the ends and sides in position and screw them to the ply inner
5. Carefully lift the table, leaving the glass on the bench
6. Even more carefully, drop the glass into position (a two person job)

CUTTING LIST

Glass top: 1,200 x 600 – 10mm toughened PAR

12 pieces of 35mm timber:

4 No. 360 x 115 (legs)

4 No. 360 x 150

2 No. 945 x 140 (sides)

2 No. 345 x 140 (ends)

4 pieces of 18mm ply:

2 No. 1,200 x 100 (inner frame)

2 No. 574 x 100

Filing systems A-Z

In this excerpt from *The Woodworker* of December 1908, a reader seeks help with the design and manufacturing details of a large filing cabinet suitable for an office – a truly impressive piece

Although we have a letters page in our magazine, a specific questions page does not exist, and nor has it for many a year. Leafing through a copy of *The Woodworker* (and *Allied Crafts Journal* as it was back then) from December 1908, I came across this fine example of an actual questions page.

In a nicely worded letter, the enigmatically named F.E.C seeks help with the design and manufacturing details of a large filing cabinet suitable for an office. With 24 opening pigeon holes framing two cupboard doors, it really looks an impressive piece, and we can only hope the writer went on to make it, and successfully too. Certainly sufficient advice was provided (the answer runs to a second page), together with opinions on cornice and plinth sizes, and a number of variations on making the let-down doors.

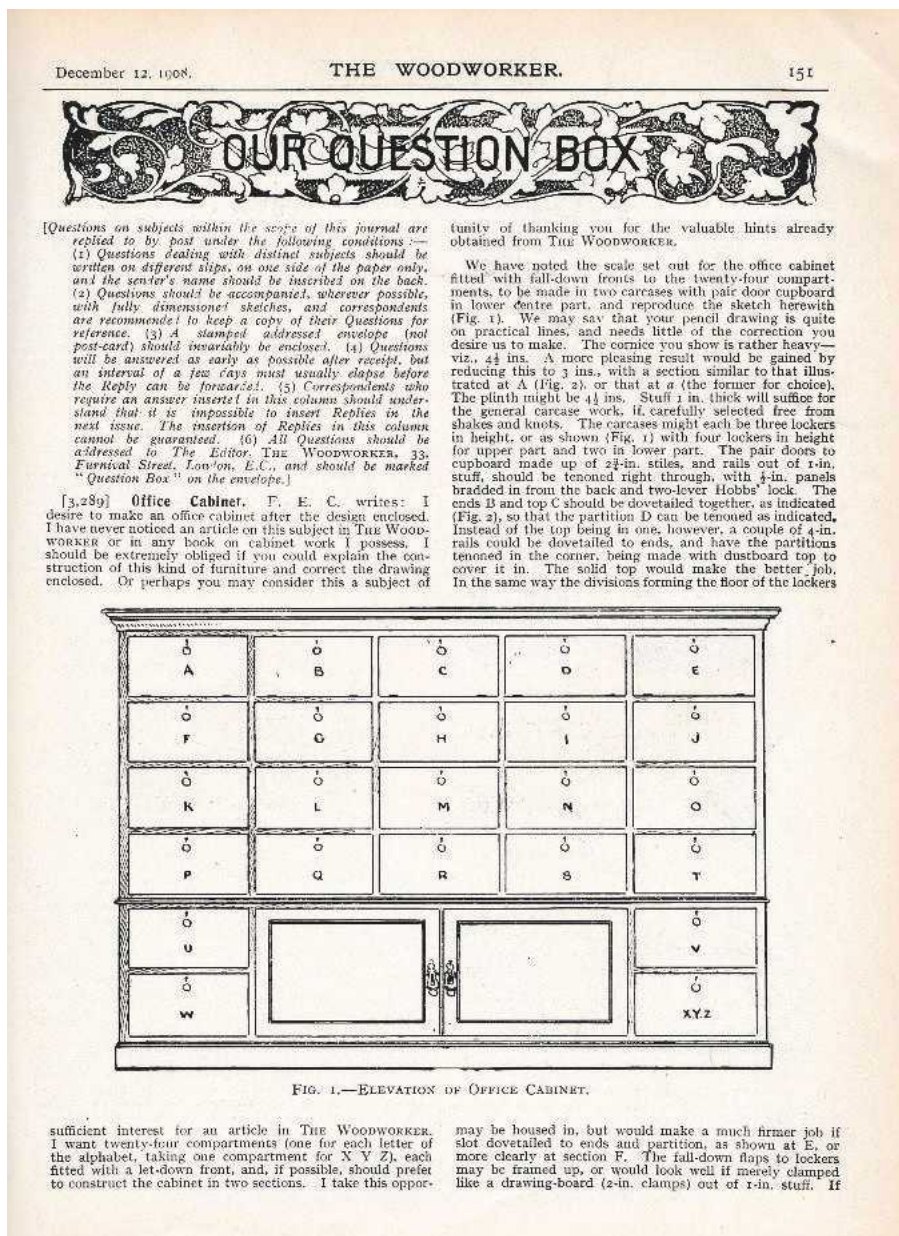
Pigeon holes

All these alphabetised pigeon holes suggest a host of filing requirements for someone and today, while there is still a call for paper filing (most notably at accountants' and solicitors' offices), fewer businesses require large wardrobe sized cupboards in which to store their day to day paperwork. And although the much lauded paperless office is still some years away, there remains a need for some documents to be available.

The finished job

Certainly I think we'd all like to have seen the finished job, and perhaps someone reading this actually has. There's a good chance that this fine storage unit did indeed see the light of day, and that it served its intended purpose for as long as was required. If it did survive the ups and downs of commerce over the years, there's a strong likelihood of it passing through the hands of an antique furniture dealer as a result of an office makeover, and may well even now be residing in a smart kitchen in a fashionable large house, somewhere in a posh part of town.

Mark



DO GET IN TOUCH

If any readers have memories and photos of things they or their forebears made from *The Woodworker*, please get in touch as we'd love to see them. Just email me on the new address: editor.ww@mytimemedia.com and we'll get them in the mag

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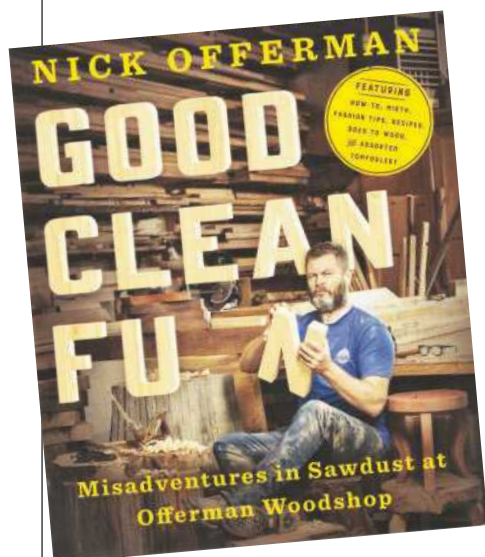


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Good clean fun

Containing an eclectic mix of woodworking projects, entertaining text, techniques, stunning artwork and sketches, this new book by Nick Offerman is definitely worth a look

I've read a good many woodworking books over the years, and – not surprisingly – the vast majority fall into the dry, reference/non-fiction category of writing. *Good Clean Fun* by Nick Offerman is an altogether different type of read and comes very close to fiction (or at least autobiography) in places, and is a really enjoyable read. This is a book I can imagine a non-woodworker picking up out of casual interest (or maybe because it was the only book in the room) and being pleasantly surprised. I certainly was.

Something for everyone

Based in Los Angeles, Nick runs a large workshop (make sure you check out the floor plan, it's enormous and has space for numerous machines and benches as well as a piano, jukebox and a whole load of other stuff you wouldn't really expect), which he shares with an interesting assortment of fellow workers (they'd probably be described as a wacky bunch of oddballs in a Hollywood movie). Between them they turn out a wide range of furniture-based items, as well as a variety of craft, experimental and simply fun work.

Each member of the crew has contributed a project or two and there's a baker's dozen of opportunities for instruction or just (just!) inspiration. There's pretty much something for everyone, as well as sensible advice on the basics of timber, including tips on visiting the timber (or lumber) yard and really good chapters on setting up a workshop and tools and machinery. In between each of the projects are portraits of other craftspeople who have influenced Nick's work, and these make for interesting and informative reading. I enjoyed learning about Christian Becksvoort, a well-known maker in the States who is a specialist in Shaker furniture and has been making for over

50 years (and is still going). The book is unashamedly American, but as we all know, the language of woodwork is universal and always a pleasure to listen to, regardless of local accent.

A delight for the eyes

Nick came to woodworking in a roundabout way and as such has learned most of it as he's gone along, a method I'm sure is familiar to a lot of us. What I found particularly heart-warming was the enthusiasm that was evident in every page; to a man and woman everyone involved in the book comes across as keen as mustard and, when you're in an environment with other like-minded people, invariably things just keep on improving as everyone encourages and incentivises each other. Not to mention the constant learning that is an inevitable effect of working with others of like mind.

It's a big book – 344 pages – and as well as being a treat for anyone keen on a spot of learning (I guarantee you will learn something you didn't know) it's also a delight for the eyes as there are many illustrations, great photos and a bit of graphic art as well. All in all, it's a fun book – it made me laugh out loud – but as serious as it needs to be when the making is taking place. Worth a look. [www](http://www.getwoodworking.com)



Nick Offerman is a man of many talents

FURTHER INFORMATION

- Published by Dutton
- £25
- www.thegmcgroup.com



Nick making his berry stool



R H Lee making the slumber jack bed

Precisa 6.0 / 6.0VR Precision Circular Sawbenches & Forsa Series Panel Sizing Saws

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Precisa 6.0 and Precisa 6.0VR (latter including patented pre-scoring unit) are the flagship models of the Scheppach Precisa series of classic circular sawbenches. Now complimented by the popular Forsa series of panel sizing saws, Scheppach offer a superb range of sawing machines to choose from. All models combine an excellent depth of cut for solid timbers with a choice of cutting strokes from 1.6m (Forsa 3.0 not illustrated) to the Forsa 9.0 with 3.2m capacity. The patented self powered cast iron pre-scoring unit enhances the quality of these superb cutting machines. The choice is yours.

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Cutting Stroke

Forsa 4.0

1080mm

107 mm

1600 mm

Cutting Stroke

Forsa 4.1

1080mm

107 mm

2100 mm

Cutting Stroke

Forsa 8.0

1300mm

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Cutting Stroke

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Forsa 8.0-P3	Inc Pro STC + TWE + TLE + rear support table + clamp + scorer	NA / 6.5 + 1.0	107 mm x 2600 mm	£5,250.00	£6,300.00
Forsa 9.0-P3	Inc Pro STC + TWE + TLE + rear support table + clamp + scorer	NA / 6.5 + 1.0	107 mm x 3200 mm	£5,395.00	£6,474.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

All prices effective as of the 1st January 2017.

The workshop of **DREAMS**

The Workshop of Dreams, the American Hardwood Export Council's latest creative collaboration, celebrates great Spanish design and wood craftsmanship



Photographs by Uxío Da Vila

The Workshop of Dreams is a creative journey, initiated by the American Hardwood Export Council (AHEC), IE School of Architecture & Design and Hay Festival, that brings together four of Spain's most exciting architects and designers, with inspiring talents from diverse cultural fields, in a celebration of Spanish creativity and craftsmanship with wood.

The participants have played the roles of designers and inspirers and have been paired together in four teams to realise their dreams into thoughtful and tangible objects. The resulting pieces, wonderfully crafted in a variety of sustainable American hardwoods, were recently exhibited during the 2016 Hay Festival Segovia.

THE AMERICAN HARDWOOD EXPORT COUNCIL (AHEC)

For over 20 years the American Hardwood Export Council (AHEC) has been at the forefront of wood promotion in Europe, successfully building a distinctive and creative brand for US hardwoods. AHEC's support for creative design projects such as The Wish List for London Design Festival, Along the Lines of Happiness at Milan Design Week or Rotunda Serotina for Wallpaper* Handmade demonstrates the performance potential of these sustainable materials and provides valuable inspiration. See www.americanhardwood.org to find out more



Martha Thorne and Benedetta Tagliabue with their 'Family of Tables'



Family of Tables

Commissioned by Martha Thorne and designed by Benedetta Tagliabue (Miralles Tagliabue EMBT) – made from American red oak, American tulipwood, American walnut and American gum

At first, Martha didn't have a clear idea of what she wanted: "As we were talking, we came to the conclusion that what I value most is the time I spend with my friends. They are like my family in Spain and, although the time we share is limited, when we do meet I like it to be in a comfortable environment in which the focus is on sharing. And where can you share best – whether food, a book or a cup of coffee – than around a coffee table," says Martha.

Benedetta carried out extensive research and the result of her work materialised in a set of coffee tables, made up of two models: the 'Ribbons' model is characterised by its subtle wavy shape, while the 'Profiles' model carefully combines the profiles of the faces of Martha and Benedetta to create a piece of strong personality, which is deeply engaging at the same time.

The small 'Ribbons' tables were manufactured by gluing layers of veneer. They were the pieces with the most artisanal and tricky manufacturing process.



1 Wooden models of 'Family of Tables' at Benedetta Tagliabue's architecture studio



2 Benedetta admires a model of her design based on Martha Thorne's dream



3 A carpenter at the La Navarra workshop working on a section of veneer for 'Ribbons' tables



4 Detail of joint section for 'Ribbons' table



5 Aerial view of 'Ribbons' table



6 The full set of 'A Family of Tables'

Cercas Territory

Commissioned by Javier Cercas and designed by RCR Arquitectes – made from American cherry

The two activities which take up most of Javier Cercas' time are reading and writing, and for this reason his dream was to have a comfortable seat to work in. However, as the writer talked to RCR Arquitectes, his dream evolved until it became a desire for a more versatile space, which would allow him to switch between different activities, such as relaxing, meditating, reading, or thinking.

RCR Arquitectes' vision for their design was to fuse highly technological methods with the subtlety of natural forms, in order to obtain a fascinating object. Traces of the body scanning that was performed on the writer can be seen in the shapes of the final object: an ergonomic piece, which has been totally tailored to his body shape.

The piece was manufactured using a CNC (Computer Numeric Control) machine, to achieve its complex form. About the choice of timber, the craftsmen from La Navarra said: "Cercas Territory was manufactured using American cherry, which is a very fine wood. It's not only beautiful and has an extremely high quality, but it is also a pleasure to work with."



1 Carme Pigem, founder of RCR Arquitectes, with writer Javier Cercas moments before the writer had his body scanned



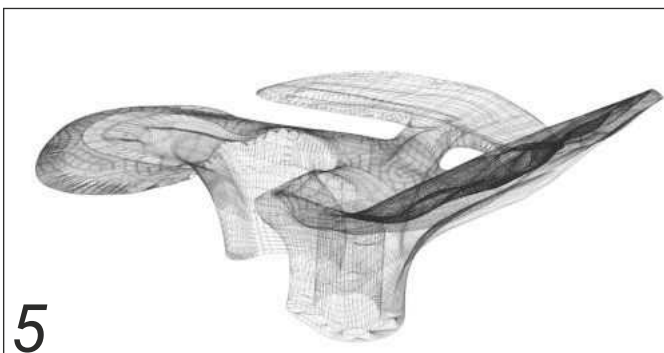
2 American cherry components for 'Lounge Chair' glued and clamped



3 American cherry components being glued into place



4 Assembling the American cherry pieces for the chair



5 3D model of 'Lounge Chair'



6 'Lounge Chair' – side view



7 The reclining back of the 'sitting up' position

Limiting Factor

Commissioned by Juan Luis Arsuaga and designed by Jacob Benbunan (Saffron) – made from American tulipwood

Juan Luis Arsuaga, one of Spain's most acclaimed scientists, refers to 'limiting factors' as those elements or conditions without which a human life couldn't survive. Therefore, developing from this concept, his dream was to have a portable wooden cabin that covers all the limiting factors, or in other words, all the basic requirements, so that a person could spend a few days living in the mountains, enjoying nature.

Jacob Benbunan and his team at Saffron sought to go back to basics when realising the paleoanthropologist's dream. With their interpretation of Arsuaga's desire, they intended to create a refuge capable of being taken into and indeed left in the mountains, blending into its natural surroundings. As Jacob explained: "this way, architecture gives way to the person and to nature."

Félix Larragueta, director at La Navarra, describes the resulting object as "quite a special piece made of a series of fans, which unfold to create a cover." It was manufactured using a single American hardwood; tulipwood. And he adds about this timber: "Tulipwood is pleasant to work with; it doesn't twist and it doesn't warp. Moreover, this timber is light, meaning that 'Limiting Factor' weighs relatively little for its volume."



1 Tulipwood roof fold out sections



2 Tulipwood shell



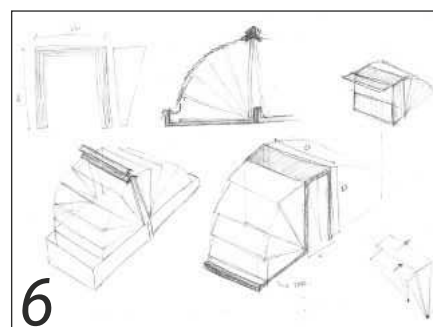
3 Window view



4 Finished roof fold out sections



5 Door detail



6 Initial sketch of 'Limiting Factor'



7 Arsuaga and Benbunan meet their creation



8 'Limiting Factor' folded back...



9 ... and unfurled

A Window to the Arzak Universe

Commissioned by Juan Mari and Elena Arzak and designed by Izaskun Chinchilla – made from American tulipwood, American red oak, American hard maple, American soft maple, American cherry and American alder

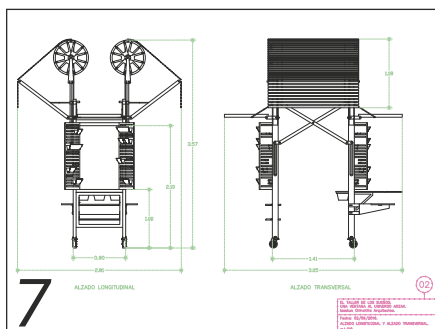
According to Juan Mari and Elena Arzak their cooking utensils are the key tools that allow them to create innovative, fun and experimental dishes. "It would be wonderful to have all our utensils close at hand, while we are cooking," Elena pointed out.

Izaskun Chinchilla added one more ingredient: "Would it not pique the diners' curiosity to see this cloud of kitchen utensils, giving them a better understanding of the process behind each dish?" Her design presents a window for each of the two major players in the Arzak world: the cook and the diner. It allows the cook to give the diner a peek into the kitchen, the diner to eat at the table where the dish is prepared.

'A window to the Arzak Universe' is directly related to the sustainability of the American forests. It uses six different species, mirroring the volume in which they grow – using the most abundant species for the largest pieces and the less abundant ones for the smallest pieces. www.izaskunchinchilla.com



Detail of American cherry elements



Initial design of the piece viewed from the side



Tulipwood wheel components for the pull out blinds



Detail of wheel components for the pull out blinds



Tulipwood wheels for the pull out blinds



Curved pieces for the pull out blinds



Detail of American maple components



'A Window to the Arzak Universe' folded out...



... and folded away

In brief...



W16 & ELEMENTS: THE REVIEW

With increased visitor numbers, exhibitor re-booking figures exceeding 80% and over 50% of visitors already committed to returning in 2018, 2016's woodworking machinery and materials exhibition, W16, was hailed as a huge success.

More than 200 of the industry's most influential names exhibited at the long-standing manufacturing exhibition, which took place alongside the brand-new furniture components show, Elements. Spanning over 11,000sq.m – a 15% increase on W14's blueprint – the exhibition was a hive of activity, with product launches, live demonstrations and new interactive zones adding to the show's interest.

The new exhibition format, which



was headed by London-based exhibition specialist, Montgomery, saw the very first Elements of Innovation Awards taking place live at the show and a unique, four-day competition that saw four woodworking apprentices put their skills to the test and compete for the coveted 'W Challenge' title and £500 worth of Felder vouchers. This, alongside an interactive Best Practice Zone and the addition of the UK's only dedicated furniture components show, Elements, has set the bar high for future W shows.

W18 will take place from 30 September–3 October 2018 at the NEC Birmingham. To be kept up-to-date with the latest exhibition news, visit

www.wexhibition.co.uk.



LIAM MARTIN WINS W CHALLENGE

Bristol-based woodworking apprentice, Liam Martin, 19, has been crowned the winner of W16's very first woodworking and joinery competition, the W Challenge. Run by training provider, Didac, the talented finalist was given four days to follow a strict brief that would see him and three further students put their skills to the test to create a curved door panel.

The brief, which was kept under wraps until the first day of the competition, was designed to challenge the students and get them to use a wide range of skills that had been learnt during their apprenticeship training.

The judging process, which was headed by BWF's Dave Campbell and Didac Supervisors, Paul Stevenson and Shane Stenning, looked at the whole manufacturing process and assessed the students throughout the competition. Sean explains: "While the students' understanding of the

brief was a crucial factor, they were also marked on their house keeping skills. Safety, time management, conservation of timber and planning were all essential and marked accordingly. Each finalist had to show their efficiency in the work place and meet the brief in its entirety. It was a big ask but after seeing them in the heat stages, we knew they were more than capable."

Shane adds: "The camaraderie between the finalists was brilliant and the skill set was very high but Liam maintained a high level of accuracy throughout the competition. He was very proactive and had a clear plan from start to finish. We couldn't fault his work and I wouldn't think twice about employing him. Liam has a very bright future ahead of him."

On winning the competition, Liam adds: "Curved work is always a challenge and you have to be painstakingly accurate. If you don't follow the measurements to the millimetre, your design won't work. The brief wasn't easy but I concentrated on the job in hand and I'm so pleased I won. I don't think it's really sunk in yet."

Liam's prize was £500 worth of Felder vouchers and each finalist was given a personalised plaque to mark the occasion – see www.wexhibition.co.uk.

ULTIMATE TRADESPERSON IS CROWNED

Nicola Butcher from Stevenage, Hertfordshire, has been named IRWIN's Ultimate Tradesperson following a nationwide search. Nicola, a 21-year-old carpenter from Stevenage, will receive an apprentice to help grow her business in 2017.

Now in its second year, the competition gives IRWIN the opportunity to celebrate and reward the quality work of professional tradespeople and those who go above and beyond. Nicola impressed judges on IRWIN's Xpert Panel made up of four panellists, including editors from *Woodworking Plans & Projects* and *Woodturning* magazine alongside BBC Three's Young Carpenter of the Year, Tibby Singh Choda.

Nicola demonstrated that, at only 21-years-old, she is already thinking about the next generation of UK tradespeople – flying the flag for women to take up carpentry, she volunteers and mentors students in her local area, as well as running her own business, which she started in 2015.

The announcement was recently made in front of a huge audience at The Build Show in Birmingham, including 'Restoration Man' George Clarke, alongside some of the biggest names in the building and construction industry.

Nicola said: "I feel very proud to have been named IRWIN's Ultimate Tradesperson. I have spent just over a year building my business in and around Stevenage and have always taken pride in the work I do. I look forward to working closely with an apprentice to ensure they take just as much pride in their work and do my bit to help nurture a new generation of brilliant tradespeople." To find out more, see www.irwin.co.uk.



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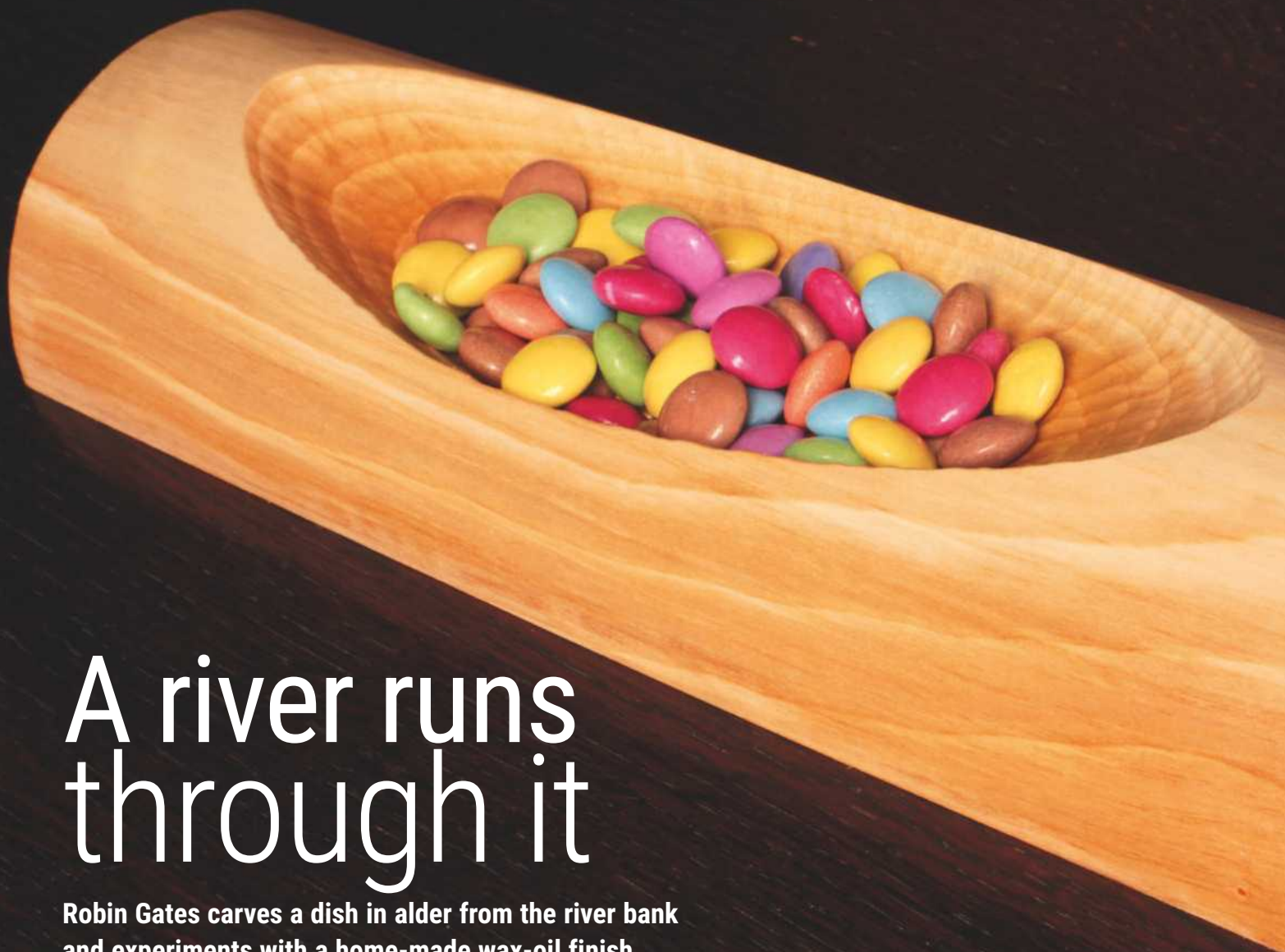
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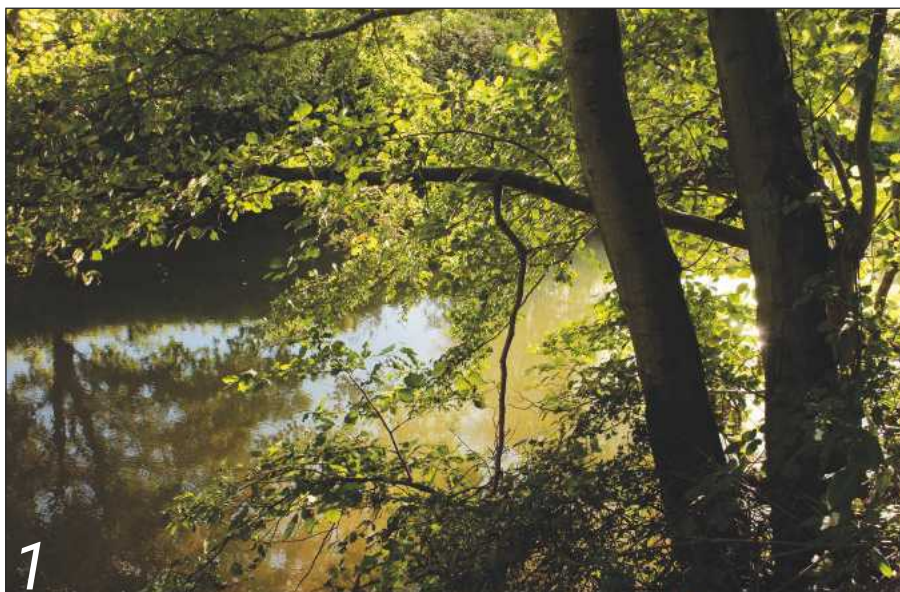
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A river runs through it

Robin Gates carves a dish in alder from the river bank and experiments with a home-made wax-oil finish



1

Alder trees overhang the River Lugg

After 14 years in a seaside holiday resort, it was something of a culture shock to wake up deep in the Welsh Marches, where a hint of the fermenting cider apple scents the air instead of candy floss, and a string of borderland fortresses stands between me and the nearest sandcastle. All I really miss is the sea itself, but a redeeming feature of old towns in this part of the world is that they've grown up beside rivers. In Leominster I can walk from the town square to the wooded bank of the River Lugg in minutes flat and it never fails to restore my flagging urban spirits (**photo 1**).

Picking my way through the undergrowth I see the river shining and swirling through the branches, and my heart almost skips a beat. I've been here in all seasons, when boughs are creaking like strained mooring ropes in an autumn gale, when winter frost makes glittering jewels of the dead leaves,



The grain echoes the river's leisurely summer flow



Grey vertically fissured bark and blunt wavy-edged leaves



Dark brown woody cones



The dramatic red hue of recently felled alder



Timber after seasoning for one year



First flattening of the split surface with the side axe...

and when spring downpours are shot-blasting the water's surface. But it's in summer I appreciate the river bank the most, watching damsel flies shimmer over the water and, if I'm lucky, a kingfisher flash by like a bolt of electricity.

It's the trees that make this stretch of water so special, closing around it like a magician's cloak. They shut out the nearby roads and railway line so that I could be a hundred miles from town. A key species here is alder, which thrives in damp and water-logged soil. Where it overhangs the river its roots emerging from the bank under water almost touch its leaves brushing the surface. The blunt wavy-edged leaves glow green like tourmaline in sunlight reflecting up from the river, and the grey fissured bark is thrown into relief (**photo 2**). In late summer, alder bears dark brown woody cones (**photo 3**),

about 10-20mm diameter, shedding tiny winged seeds on the wind.

Startling hue

Logs of freshly-felled alder seen at a distance are positively startling. Their cut surfaces take on a dramatic blood-red hue and glare from the undergrowth like raw wounds (**photo 4**). You can see how alder has stirred ghastly deeds in the imagination and lurid myths have grown around it. But as the timber dries and the bloody hue mellows to a light cappuccino, it's easier to appreciate alder's entirely peaceful and easy-going nature.

Alder is a more soft-hearted hardwood than most, it dents easily, but it also works without fuss and its watery upbringing makes it more than averagely durable in wet surroundings – characteristics once valued by 'cloggers' who travelled the northern

woodlands making soles for clogs by the hundred, stacking them to dry before moving on. By all accounts alder also turns well, with closed pores and a fine, even grain that yields a smooth surface easily.

Last summer while rummaging through timber in the shed, I found a piece of alder from the river bank, which I'd de-barked and split with the froe a year earlier (**photo 5**). I was impressed by how it had dried with barely a split despite the high initial water content and me having left its end-grain uncoated – evidently a forgiving timber.

Another historical use for alder was making half-round broom heads, and from the two halves of this split log I could see how that would work. But it was something for my wife Omi I wanted to make, and suspecting that neither a broom nor clogs were high on her wish list, I decided on a carved dish for sweets.

Side axe

Preparing this alder for carving was my first opportunity to wield a beefy side axe I'd recently restored to work. It's a 1.8kg axe made by the long-gone firm of William Hunt & Sons at the Brades Steel Works, Birmingham, in the 1930s. Forged in one piece so as to avoid the weakness of a weld it's fitted with a nicely shouldered hickory handle and was, according to contemporary literature, 'severely tested on lignum vitae before being sent out' – so no problems were expected with a docile piece of alder.

The side axe has a wide single bevel and an almost flat back – like a plane iron. This enables hewing almost parallel with the surface, paring away thin shavings, and so it's ideal for flattening a ragged split face left by the froe. The eye for the handle is forged offset to make a flat plane from cutting edge to poll, and the handle itself

is cocked outwards to leave knuckle room when working close to the timber. This axe is for a right-hander but being of the symmetrical Kent pattern, it could be reversed simply by fitting a new handle to the opposite end of the eye.

Using a side axe isn't something you pick up in five minutes, I discovered, and what had looked perfectly flat on the garden chopping block proved slightly warped in the more straight-lined surroundings of the bench (**photo 6**), so the next step was to take a scrub plane to the surface that would eventually be the base of the dish (**photo 7**). I clamped the half-round piece with flat face uppermost using a combination of two bench dogs, a batten and a G-cramp. Within minutes the bench was carpeted in golden alder shavings, and if alder has a particular aroma I should have noticed it by now, but there was only that dry smell of an empty matchbox.

The scrub plane revealed a fine lengthways split in the heart of the piece so I ploughed on until reaching a clear surface; this plane has a hungry bite, taking shavings about 0.5mm-thick (**photo 8**). The net effect of its heavily cambered blade was a rippled surface (**photo 9**) which, together with the wavy greenish-

brown streak emerging in the heartwood, seemed aptly reminiscent of a shady stretch of river. Next I sawed the ends square, using another improvised clamping arrangement of bench hooks and 'crook' holdfasts (**photo 10**) (made from sweet chestnut walking sticks), and using wing dividers, I marked concentric semicircles on the ends to outline hollows that would become the handles (**photo 11**).

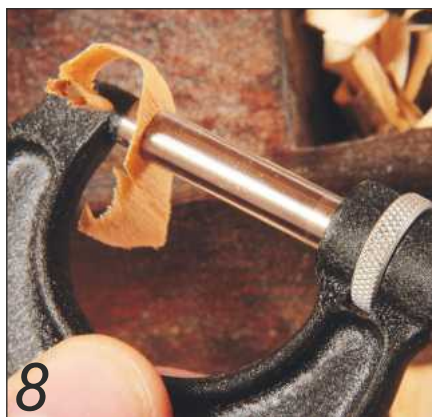
Everything is inside

I'd compare a plain log to a seed about to germinate, in that everything it will become is already inside, and there's a similar degree of mystery in how each will turn out. Just as no tree is like another, no two hand-made things will be the same. You can begin with an idea of what you're going to make but the details will be influenced by the wood itself, and there a good deal of subjectivity in deciding when a thing is finished. In the absence of a formal plan, it's the eye and touch which have the final word.

The problem now was how to clamp the rough half cylinder so that I could plane it. Holdfasts would get in the way of the plane, as would wedges, besides which I needed to raise the work so as to plane a full quadrant of it from edge to apex. After



... followed by the scrub plane



Scrub plane shavings about 0.5mm-thick



The rippled surface left by the scrub plane



Sawing ends square supported by bench hooks and holdfasts



Scribing a handle with wing dividers



Raised support system for planing

much fruitless experimentation, I fell back on the door stop system (**photo 13**), which I use to locate a big bench stop, temporarily attaching two door stops to the flat base and jamming these into holes bored in a block, which was clamped to the bench by holdfasts. With the work anchored as if by magic I felt very smug, and knew myself well enough to go away and do something else until the feeling had subsided because otherwise I'd be guaranteed to do something stupid.

Now I could plane the convex upper surface close to final form, then turn my attention to the handles. These amounted to hollow quarter spheres and, thinking laterally from the technique of making close-together saw cuts to ease chiselling a housing or rebate, I tried the same here before gouging out the waste. The technique proved frustratingly slow and awkward, so for the second handle I cut out the waste with a coping saw. Sawing to a semicircle on two faces simultaneously required more concentration but proved much quicker and tidier.

Making this cut was a good opportunity to compare the regular 14tpi Eclipse blade I'd used for years with some 20tpi Pégas blades I'd bought from Workshop Heaven.

Although the Eclipse blade was more aggressive, I also found it harder to push than the Pégas which, despite its finer teeth, got the job done faster. Nothing is going to displace my old Eclipse 7CP coping saw, with its turned beech handle and chromed steel frame, but henceforth it'll be fitted with a Swiss-made Pégas blade (**photo 16**).

Now I could focus on carving the dimpled surface I had in mind, a tool-marked texture to suggest the wind-ruffled river and those pockets of erosion you find where water swirls among rocks. To support the work while carving in the hollows, I made a semicircular cradle in a piece of softwood left long at one end to be held down by a holdfast (**photo 18**). For these areas I used a somewhat battered 19mm gouge, which, down the years, has been ground short and this makes it very controllable, like a butt chisel.

Hidden depths

I find carving is a great way to explore the hidden depths of an unfamiliar timber. Working with chisels and gouges, probing the grain from all angles, I can't help but give the timber my full attention. Unfiltered by ear defenders, dust mask or safety

specs, the timber is being worked right there under my nose and I love it. I can't say I'm always satisfied with the results but the process at least is a pleasure, and that's a good 50% of woodworking for me.

The holdfasts again came into play with a pair of bird's mouth battens (**photo 20**) which, pinching the work from each end, made an alternative clamping arrangement while further refining the convex surface with the block plane. At this point I wanted to be as close to final form as possible before getting properly stuck in with the 25mm gouge and excavating the elliptical main hollow of the dish.

With the piece again mounted on door stops I made a tentative dig with the gouge, just testing the water so to speak. By this stage the piece was invested with a fair amount of effort and hope, and in my own mind had been transformed from a nondescript log into something precious. Happily the setup proved solid, the gouge cut cleanly and under the influence of my old branch mallet the chips were soon lifting like breaking waves (**photo 21**).

I turned the piece frequently so as to work equally from each end, all the while judging the emerging hollow for symmetry. Removing progressively smaller chips as



13 Door stops located in holes anchor the work



14 Making saw cuts prior to hollowing a handle



16 The coping saw with a 20tpi Pégas blade...



17 ... was much quicker



15 Removing waste with a 25mm gouge

the hollow grew deeper and wider, I finished with a small fishtail gouge (**photo 23**) to give the surface that look of little wavelets I was after.

The tricky area was at the lowest point of the hollow, where the tool cutting down-slope would dig into the up-slope if I overshot a fraction, which I did repeatedly despite putting the brakes on with my left hand. It took a good few changes of direction, trimming tiny areas of lifted grain, to achieve an acceptably smooth transition by which time the darker annual rings of the heartwood were showing like ripples radiating where a fish has jumped.

Carving left the hollow with a randomly scalloped edge that was a little sharp and vulnerable, so I scraped over it with a chisel just enough to round and strengthen it (**photo 24**).

I made some final passes with the block plane (**photo 25**) to leave the surface just visibly faceted, then re-used the semicircular carving cradle in shooting the end-grain of the handles and smoothing the base with the Stanley No.4 (**photo 26**).

Beeswax and baby oil

For the finish I only wanted something to protect the wood from handling and perhaps enhance the grain, while being food-safe. Previously I'd used a mix of beeswax and walnut oil on some cherry beakers and spoons but the walnut oil was quite yellow and I wanted to preserve

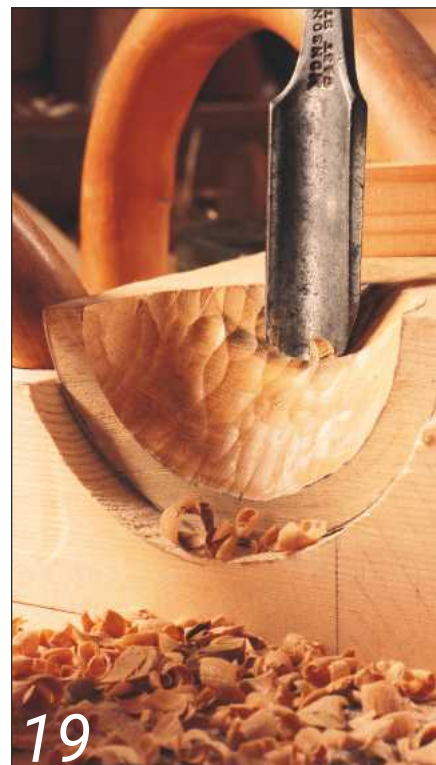


18 Shaping the carving cradle with a rasp



20 Bird's mouth battens clamp the dish for further planing

the alder's subtle shades, if possible. Eventually I settled on a 1:4 mix of beeswax in a clear baby oil, which is essentially liquid paraffin, also known as mineral oil. Liquid paraffin wasn't available over the counter in local pharmacies, and it's a bit pricey online



19 The cradle supports an end while carving with a 19mm gouge

in small quantities but packaged as baby oil on offer in the supermarket it was only £1 for 300ml – and that was ample. I found a 30g bar of beeswax in the local DIY store for £1.99. To assist mixing, I heated the oil in a water bath on the cooker and grated



21 Getting stuck in with the 25mm gouge and mallet



22 A mallet's view of progress



23 Finishing the surface with the aid of a small fishtail gouge



24

Rounding the edge by scraping with a chisel



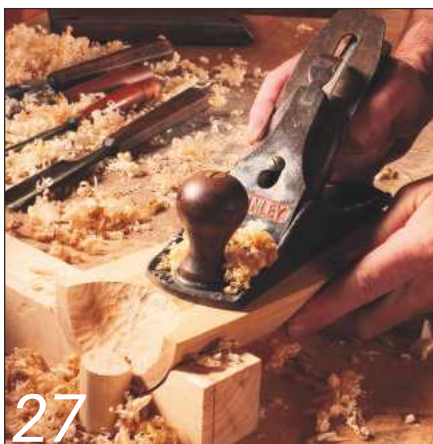
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Finishing passes with the block plane



26

Shooting the end-grain of the handles using the cradle



27

Levelling the base with the Stanley No.4



28

Ingredients for the wax-oil paste



29

Mixing grated beeswax into the oil using a hot water bath



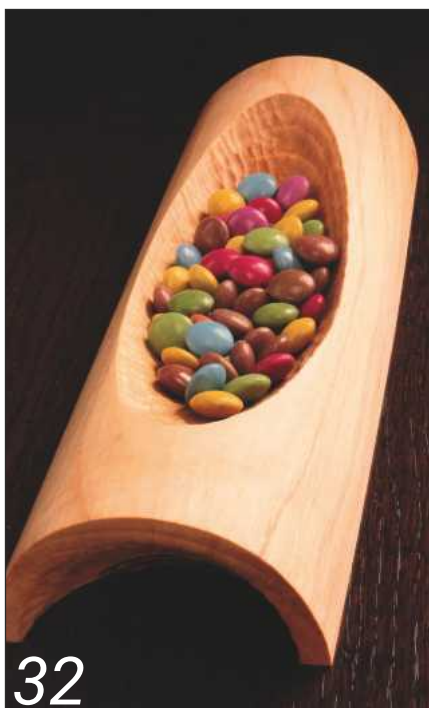
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Applying the finish with a cotton cloth



31

Test piece for the wax-oil paste



32

Anyone for Smarties?

the beeswax, stirring it in and also adding a couple of drops of lemon grass oil for its refreshing citrus scent (**photo 29**).

The wax-oil mixture cooled to a pale paste, which I first applied to a test piece of the alder with a cotton rag (**photo 30**), where it dried to a pleasant matt sheen (**photo 31**). Given the all clear for using the paste on the dish, the actual finishing touch was a packet of Smarties – no expense spared! (**photo 32**).

The river runs through this little dish in its flowing grain, and the dimpled hollows bring back pleasant memories of dappled water below the trees on a lazy summer day. Alder is a timber I'll be returning to, which means I'll be going down to the river bank again – and that's always a happy thought. [www](http://www.getwoodworking.com)

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In brief...

PULP FRICTION: NEW WOOD TO SHAKE UP FURNITURE INDUSTRY

A hardwood substitute has been developed to effectively end the need to log native forests. Researchers from the Flinders Centre for NanoScale Science & Technology (CNST) in South Australia have collaborated with Australian company 3RT Holdings Pty Ltd to develop a method for converting cheap pulpwood into a highly sustainable tropical hardwood substitute. 3Wood contains the same properties as tropical hardwood but maintains a stronger dimensional stability as well as eliminating wastage.

3RT managing director, Peter Torreele, said the availability of the new 'smartwood' will make it easier to reduce the carbon footprint of the manufacturing industry. "There are a lot of materials with a very high carbon footprint, whereas wood has a very low carbon footprint," he said. "Almost 40% of all logs in the world are being cut into chips for the pulp and paper industry. 3Wood makes the harvesting of native forests unnecessary. We are aiming to replace all applications where today hardwood would be used if it were available – furniture, floors, frames and various other possibilities – it's endless."

3Wood is made from a complete log, includes waste wood, and does not bleed out or stain nearby floors or walls. It is developed using ordinary pulpwood, which is cheap and accessible, followed by a unique water-based adhesive that reacts with the fibres in the wood, thus making it stronger.

This process is known as lignocellulose manufacturing technology, which works to compress softwood to create a new product that is denser, harder and more durable than the original.

The wood is then exposed to a combination of temperature and pressure to form it into a rectangular shaped 3Wood block with dimensions of 120 x 13 x 5cm.

According to the World Wildlife Fund about 46-58,000 square miles of forest are lost each year. CNST Director and co-developer David Lewis said 3Wood helped eliminate wastage and was a more environmentally friendly alternative to other products. "We can manufacture blocks of wood out of pulpwood with the same strength as a 100-year-old tree but without the problems," he said. "There is a lot of wastage in current hardwood production. If you take a big tree, only a small percentage of that becomes hardwood; the rest is chipped and burned. We use a glue to stick it (the wood-waste) together and reconstitute it, get it into one block and do it in an environmentally friendly system. Our adhesive is formaldehyde-free."

He said that changing the form makes it easier to manipulate the wood and shape it into different products without the downsides of normal hardwood. Tertiary college TAFE SA has designed a table from the new product to help give the research team a better understanding of the properties and demonstrate its effectiveness.



REVIVE WOODEN FURNITURE WITH OSMO

Wood has long been a popular material for furniture due to its durability, versatility and striking natural appearance. However, whether it's 10 or 100 years old, every day wear and tear can take its toll on wood, deteriorating the furniture's quality and look.

Unknown to many, one of the most effective and common methods of restoring wooden furniture is simply to revive the surface. Worn wood can be sanded, cleaned and re-finished to present a fresh canvas with an as-new appearance. For furniture pieces that have a build-up of wax, unsightly finger prints or white rings, an abrasion technique may be required.

Many good furniture finishes are designed to be thick to prevent any impermeable damage from penetrating the wood. For example, white rings are a common wooden stain that has soiled the wax, polish or finish, rather than the wood itself. An abrasion technique will allow you to 'wear' away the damage that is on the finish, revealing the undamaged, original wood underneath. To achieve a smooth, consistent finish, the abrasion method will need to be applied to the entire surface of the wood before applying a finish.

Once cleaned, it is important to examine the wood closely to see if there are any scuffs which need to be repaired. If there are any dents or small scrapes, then use a wood filler product to even out the damaged wood surface.

To finish, it is recommended to use a high quality product that is compatible with your specified finish; this will ensure that once the wood has been cleaned, sanded and the final finishing treatment applied, the repaired surface will be camouflaged against the rest of the wood without leaving unsightly marks. The natural features of wood can be enhanced with a clear protective finish or be individualised with colours and different textured finishes.

Made from sustainable, environmentally friendly materials, that will help restore any wooden furniture, Osmo has a product to suit every need; see www.osmouk.com for more information.



FLEXCUT MICRO TOOL SETS

Flexcut have just introduced six new sets of Micro Tools. All sets consist of four tools with well-shaped ash handles, which fit perfectly in the hand and give the user exceptional control when carving fine details. The overall length of each tool is 142mm and all sets are priced at £80.46.

The new sets

- **Flexcut 4-piece 90° Parting Micro Tool Set:** four 90° parting or 'V' tools, comprising MT39 1.5mm, MT40 2mm,

MT41 3mm and MT42 4mm.

- **Flexcut 4-piece 60° Parting Micro Tool Set:** four 60° parting or 'V' tools, comprising MT35 1.5mm, MT36 2mm, MT37 3mm and MT38 4mm.
- **Flexcut 4-piece 45° Parting Micro Tool Set:** four 45° parting or 'V' tools, comprising MT31 1.5mm, MT32 2mm, MT33 3mm and MT34 4mm.
- **Flexcut 4-piece Shallow U-Gouge Micro Tool Set:** four micro shallow U-gouges, comprising MT23 1.5mm, MT24 2mm, MT25 3mm and MT26 4mm.
- **Flexcut 4-piece Deep U-Gouge Micro Tool Set:** four micro deep U-gouges, comprising MT27 1.5mm, MT28 2mm, MT29 3mm and MT30 4mm.
- **Flexcut 4-piece Micro Sweep Tool Set:** four micro gouges, comprising MT19 1.5mm, MT20 2mm, MT21 3mm and MT22 4mm.

To find out more, see www.brimarc.com.

Spalted wonder

Colin Simpson rescues a piece of beech from the firewood pile and turns it into a wonderful vase complete with a textured surface

I recently decided to sort out my wood pile and came across a slab of beech that I had cut about a year ago but had not yet got round to using. It looked in a very sorry state (**photo 1**) with some rather deep splits and it had started to rot in places. I thought it was now of no use other than keeping me warm by burning it in my woodburner. I started cutting in into burnable chunks on my bandsaw but found that there was some very usable wood in the middle and that it had spalted rather well. The slab was about 125mm-thick, so I cut a 125mm square about 280mm long. I decided to make a vase from it.

Mount your octagon

I like to cut the corners of a large square to make it octagonal before turning it between centres, as it speeds up the turning. If you can tilt your bandsaw table to 45°, this can be done easily. I can fit 300mm under my bandsaw, so, rather than tilt the table, I cut it on its end (**photo 2**). Note the use of the push-stick to keep my fingers well away from the blade.

Mount the octagon between centres and

convert it to a cylinder using a spindle roughing gouge (**photo 3**), square off both ends and turn a chucking spigot on both ends (**photo 4**). Mount what will become the top of the vase in the chuck and mark two reference points: one on each spigot so the grain can be aligned later (**photo 5**). I like to mark these reference points on the spigots so they aren't accidentally turned away when shaping the vase. Next, part off a slice about 15mm long at the tailstock end (**photo 6**) and put it aside; this will become a plug in the bottom of the vase.

Shaping the outside

Use a spindle gouge to shape the outside of the vase (**photo 7**). Spalted wood can look attractive but it can also tear-out quite badly (**photo 8**). A good tip when this happens is to give the entire piece a liberal coat of thinned down sanding sealer (**photo 9**). While this is soaking in, sharpen your fingernail profile bowl gouge. Use the gouge to make a planning cut across the surface of the wood (**photo 10**). This is a bevel supported cut, using the tool well over on its side. The cut is very similar to



A very sad looking piece of wood, hiding some nice spalting



Remove the corners of the square before turning...



... to a cylinder with a spindle roughing gouge



Cut a chucking point on both ends





5 Mark a witness point on both spigots to help with alignment later

making a planning cut with a skew chisel. It is worth practising this cut – **photo 11** shows a close-up of the cutting edge on a practice piece of wood – as it leaves you with a very good surface finish. **Photo 12** shows the surface after one pass with the bowl gouge. There is still work to be done, so I gave the piece another coat of sanding sealer and repeated the planning cut until I had an acceptable finish.

Texturing the surface

After this process, I decided I would texture the surface, so I cut a series of 'V' cuts into the piece using the corner of a skew chisel (**photo 13**) and then brushed it lightly with a bronze brush (**photo 14**). You might well ask why I went to the bother of getting a good surface finish before 'roughing it up' again? I believe that texture applied as a surface finish should be made on a good surface. If it is applied to one that is rough, it can look like you are trying to disguise a poor finish.

Give the outside a light sanding and then drill out the inside using a spade or Forstner bit (**photo 15**). You don't have to



6 Part off the plug and put aside



7 Shape the piece using a spindle gouge



8 Spalted wood can tear-out very badly



9 Give the piece a liberal coat of sanding sealer...



10 ... then make light planning cuts with the gouge



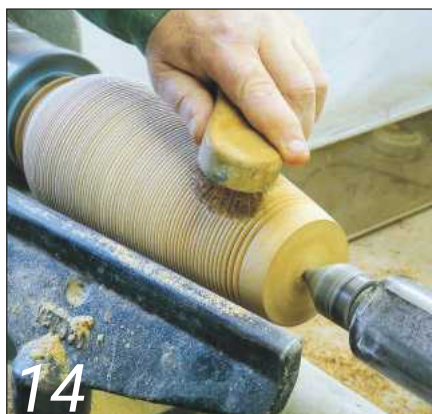
11 Practice this cut, keeping the cutting edge at about 45° to the wood



12 As you can see, the surface is greatly improved



13
Use the point of a skew to make a series of 'V' cuts...



14
... then lightly brush this texture with a bronze brush



15
Drill about three-quarters of the way down...

drill right the way through the piece at this stage – I drilled about three-quarters of the way up. The rest of the hollowing can be completed from the top at a later stage. Next, open out the hole in the bottom of the piece. I used my Rolly Munro hollowing tool (**photo 16**) but, for this shape, you could use the fingernail profile bowl gouge right over on its side, using the bottom wing as a scraper.

Cutting the step for the plug

Next, cut a step in the bottom for the plug.

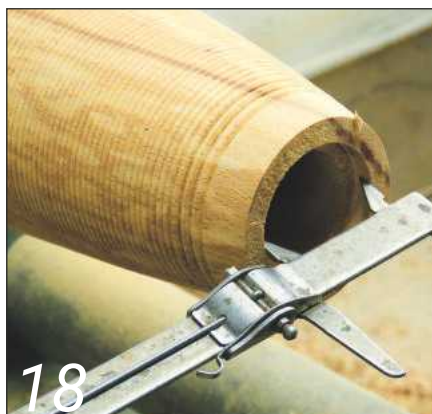
I used a hardwood scraper for this (**photo 17**). The step needs to be about 15mm deep to give the plug some strength. Measure the diameter of this step using Vernier callipers and, at the same time, make certain that the side walls are parallel (**photo 18**). Remove the vase from the chuck and load the plug. Transfer the diameter of the step to the plug (**photo 19**) and then turn the plug down to a tad larger than this mark. Now cut a small chamfer on the corner of the plug going just smaller than the mark (**photo 20**). Offer the step in



16
... then open up this hole



17
Carefully cut the step in the bottom for the plug...



18
... measure its diameter...



19
... and transfer this onto the plug



20
Cut a small chamfer onto the plug...



21
... then offer up the vase and make a small burnish line on the chamfer



22
The burnish line clearly shown on the chamfer

the vase up to this chamfer (**photo 21**) and apply enough pressure to make a light burnish mark on it (**photo 22**). I held the vase onto the chamfer longer than necessary to create a burn line so it would show up on the camera. Now turn the plug down to this burnish line, making sure the sides are parallel. It should fit perfectly. Glue the vase onto the plug (**photo 23**), making sure you line up the two reference marks made at step 5, and use the tailstock as a clamp until the glue goes off.

Shaping the neck

When the glue has dried, complete shaping the neck of the vase with a spindle gouge and then drill a hole in the top. Go gently because at some point you will break through into the cavity in the vase. Open up the hole in the same way as you did earlier. I also needed to

use my swan-necked scraper to under-cut the neck of the vase (**photo 24**). Note here that the toolrest is set further back than normal to allow the straight part of the shaft of the tool to rest on it. If you allow the swan-necked part to rest on the toolrest, the tool will twist down and you will have a very difficult time controlling it.

Sanding & finishing

Sand the neck and apply a finish – I used Danish oil. Reverse the vase onto a dome-shaped dolly, held in your chuck, and bring the tailstock up to the pop mark in the spigot at the bottom of the vase (**photo 25**). Turn away most of the spigot, leaving a small stub for the tailstock. I cut a couple of grooves in the base to disguise the joint of the plug. Remove the vase from the lathe and cut the remaining stub off with

a sharp chisel. **Photo 26** shows the bottom of the vase with the grooves in – which one hides the joint? [www](http://www.getwoodworking.com)



23
Glue the vase into the plug and clamp with the tailstock



24
Finish the neck, drill a hole and complete the inside of the vase



25
Reverse chuck the vase onto a dolly and remove the chucking point



26
A cleverly disguised plug in the bottom of the vase



27
The completed vase should look something like this

In brief...

STAY PROTECTED WITH AN ELIPSE

The new Elipse Integra combined eye and respiratory system is a compact, lightweight and flexible design, which adapts perfectly to the face and offers a unique and innovative combined protection, reducing risks of non-compatibility, non-conformity and mist building up. There is a large central non-return valve, which allows for a reduction of the user's breathing resistance and keeps moisture build-up inside the mask to a minimum. Lightweight, non-slip straps are easily adjusted in four positions for improved comfort and also allow safe



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The Elipse Integra has a huge field of application and conforms to EN140: 1998 and EN166 2.F.K.N, and filters conform to EN143:2000 P3.

For more information or to find a local stockist, see www.johnsonstools.co.uk.



GO BRUSHLESS WITH MAKITA

Makita has launched two new 18V Brushless motor LXT drills: the DDF483 13mm drill driver and the DHP483 combi drill. Both new products are notable for their very compact size: the drill driver has an overall body length of just 162mm and the combi drill has a very neat 176mm overall length. Both are ideally suited for tight space installation work, such as the fitting of kitchens and bathrooms.

The DDF483 drill driver will run up to 1,700rpm in high mode and 500rpm in low mode and with 20 torque settings and drill mode, this tool generates 40Nm

of tightening torque in High mode and 23Nm in Low mode. It is also capable of drilling 13mm in steel and 36mm in wood. The DHP483 combi drill will generate up to 25,500ipm in high mode and 7,500ipm in low mode and is capable of punching a 13mm hole in masonry and steel, and 36mm in wood.

These two new 18V tools are powered by the innovative Brushless motor, which generates less friction and heat, delivering maximum machine performance and longevity. Both offer 20 torque settings plus drill mode, which is selected by the single sleeve keyless chuck; have two-speed mechanical gear train for rugged reliability; an electric brake; twin LED job lights; ergonomically designed soft-grip handle and convenient belt hook.

The power and compact design of these two new tools will prove popular with many tradesmen and both products are supplied in body-only form in rugged MAKPAC cases. To find out more, see www.makita.co.uk.

BLUM ECODRILL

When it comes to fitting cabinet doors by hand, getting the hinges to line up accurately is no easy feat. However, the Blum ECODRILL has been specifically designed to simplify this process and drills precise holes every time.

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to accurately cut the hole.

Priced at £189.60, this product helps to save you both time and effort, making it an essential product for any toolbox. To find out more, see www.ironmongerydirect.co.uk.



INDUSTRIAL FAN HEATERS FOR WARM WORKSHOPS

These rugged electric fan heaters are the ideal heating solution for small- to medium-sized workshops. Stainless steel heating elements are housed inside a tough steel cabinet with a durable enamelled finish, and feature insulated handles for safe handling. They also feature an adjustable heat output with thermostatic control to achieve a desired room temperature without fail.

Models in this range are available with outputs of 230V or 400V, and the high-end models in this range can deliver a heat output of up to 20kW with the best selling DEVIL 6003 delivering a maximum heat output of 3.5kW. Prices in this range start from only £59.98.

There is also a range of tough industrial electric heaters, which are fan only, with high and low heat settings plus adjustable thermostatic control to achieve desired room temperature, and insulated handles for safe handling. For safety, they also feature thermal cut-out overheat protection. Models in this range are available with outputs of 230V or 400V, and high-end models include wheels for easy movement and can deliver a heat output of up to 30kW, with the DEVIL 7003 delivering a maximum heat output of 3kW. Prices in this range start from £71.98; see www.machinemart.co.uk for more information.

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STC034	3/4" 19mm	STC50	50mm
STC078	7/8" 22.2mm	STC02	2" 50.8mm
STC25	25mm	STC2.14	2.1/4" 57.2mm
STC01	1" 25.4mm	STC60	60mm
STC27	1.1/16" 27mm	STC2.12	2.1/2" 63.5mm
STC1.18	1.1/8" 28.6mm	STC2.34	2.3/4" 69.9mm
STC30	30mm	STC03	3" 76.2mm
STC1.14	1.1/4" 31.75mm	STC80	80mm
STC1.38	1.3/8" 35mm	STC3.14	3.1/4" 82.6mm
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Against the grain

Tony 'Bodger' Scott comes clean on a project that went wrong



1 Running the grain horizontally across the carcass made the sides vulnerable to splitting. This crack, along the line of an earlier repair, was the worst: it went right through the side, and was up to 12mm wide in places



2 The crack looked even worse inside. By the way, the odd-shaped pieces set in above the crack are deliberate. They were sliced from a discarded bowl of camphor wood, and glued in to keep out moths. Note, too, that the corner posts, made of wenge, aren't solid; they're two thin slices, mitred and glued into an 'L' shape

Just between ourselves, have you ever made anything that was completely perfect? Me neither, although other people might coo and say our creation is wonderful. The mistake (more often mistakes) we made might not even be visible in the finished project, but we know, deep down and quietly, that the mistakes are there.

Mistakes in the thinking

In this project, my mistakes weren't so much in the making, they were more in the thinking. And they've taught me to pay more heed to traditional customs; there's usually a reason for this.

Let me start from the beginning. An ageing relative had moved from a house into a one-bedroom flat. She wanted a small bedroom tallboy containing a couple of drawers with a cupboard below. It was to hold clothes and act as a shelf for a bedside television.

I had just acquired some planks of nicely figured sweet chestnut from a *WW* reader in Wales, and I had a brainwave. Wouldn't it be interesting – and unusual – to have the grain running horizontally and continuously all the way round the piece: across one side, through the drawer fronts and cupboard doors, and across the other side (the back would be plywood).

I knew but ignored the convention that grain should run vertically in cupboard

doors and carcasses. The wood was already well-seasoned, I thought; it'll do fine. But once the completed tallboy had spent a few weeks in her centrally heated flat, my error began to bite.



3 The horizontal grain across the cupboard doors caused two problems: bowing, which was fixed by attaching a rigid fin to the inside (the reddish wood on the left)...



4 ... and shrinking, which buckled the piano hinges and made the doors difficult to open. Cutting out the middle section of each hinge solved that problem





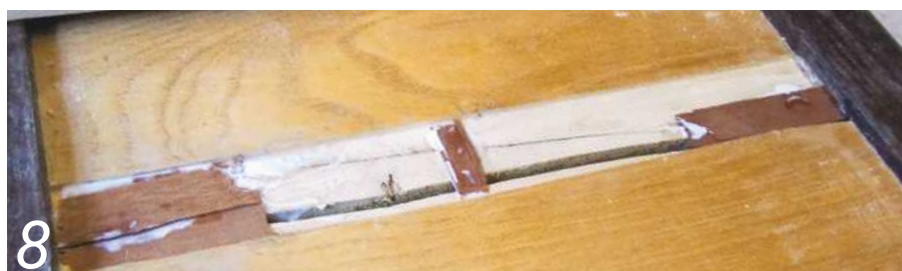
5 A slim split of constant width turned out to be just wide enough to take an edge-on slice of matching wood



6 Once the glue had dried, a few minutes of work with a scraper reduced the damage to a barely visible pair of parallel lines



7 Rather than cut out the whole of the damaged area, I cut a shallow trench over it. The block beyond the router acted as a fence; the pine pieces beneath allowed me to cut right up to the sides...



8 ... a little chisel work cleaned up the corners...



9 ... and a few shims of veneer lifted the new slice to the correct level for final sanding



10 Some parts survived intact. The dovetailed beech frame (from an old kitchen worktop) didn't shift, and the magnets let into the bottom (behind thin pine lids) continued to work. Note that the bulk of the corner post doesn't reach the frame. It's simply a small wenge block glued into the L-shaped corner for appearance



11 With the repairs finished, sanded and oiled, the piece was ready for a new and more elegant life. One mistake stayed untouched: the front leg near the camera still bows out to the side at the bottom. But, even at its worst, the gap is less than 5mm – too small, in my view, to justify major reconstruction

First, the whole piece began to shrink, little by little. Cracks up to 12mm wide split the sides of the carcass (**photos 1 & 2**), then the cupboard doors started bowing outwards, top to bottom. So much so that I had to fix fins to the inside to hold them flat. At the same time, the piano hinges on the folding cupboard doors buckled under the strain (**photo 3**).

The tallboy still worked. Indeed, it stayed in the flat for four more years, but its defects continued to bother me. I got the chance to fix them only last summer, when my ageing relative had no further need for the piece.

Repairs turned out in the end to be relatively straightforward: a hacksaw cut

out the middle section of each brass piano hinge (**photo 4**); a small split was just wide enough and straight-sided enough to take a slice of the chestnut on edge (**photos 5 & 6**); and an even smaller split was filled with a mixture of PVA glue and sawdust from the same wood. On the largest crack, I cheated a bit: a couple of shallow passes with a router created a rectangular trough over the largest crack (**photo 7**), which allowed me to glue in a thin slice of the chestnut, using veneer shims to raise the patch to the correct level (**photos 8 & 9**).

Scraping, sanding and oiling finished the job, so my little tallboy now has a new life in my spare bedroom (**photo 11**), but every time

I pass by, I'm reminded of what it has taught me. I wonder how many other useful lessons readers have been taught by their mistakes. **WW**

SHARE YOUR DISASTERS!

If you've got a similar story to Tony's regarding a woodworking project that didn't quite go to plan, then we'd love to hear about it. Perhaps you also managed to overcome adversity or maybe you chose to live with the slight change of direction? Either way, do drop us a line here: editor.ww@mytimemedia.com and we'll do our best to feature your story

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You will be able to pick from a list of projects before you arrive that I believe you can complete in 5 days or less so that you will go home with one of them and you can proudly say "I made that".

I cover the teaching of how to handle tools by getting you started on your project and, as you need to use a new piece of equipment, I show you how. This means that the instruction is fresh in your mind and you do the task there and then.

On all courses there will only be a maximum of 4 at a time, this will mean that I will be available when you need help and advice.

Woodwork Course 2 (Wood and Things)

This is a continuation of course 1 (tools and things) with the emphases on timber, what are acceptable defects in timber and what isn't, how do you write out a cutting list that means something to your supplier, what to look for when buying wood and what to avoid.

You will ideally have done course 1 (tools and things) or have a good working knowledge of how to use hand tools and have used hand held power tools.

The projects for you to pick from will be more complicated and will involve the use of the more sophisticated hand tools and hand held power tools and will include using some of the static power tools in the workshop. We will also be looking at buying timber, making cutting lists and drawing plans.

Woodwork Course 3 (Project Days)

The advanced course is rather different from the previous two.

To come on this course you will need to have done both the other courses and have used your skill at home on your own projects and be ready to take on something more difficult.

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Top tips for buying WOODWORKING MACHINERY

Alex Dalton, managing director of Daltons Wadkin, takes a closer look at some of the top things to consider when making a woodworking machinery purchase

Whether hobbyist or industrial, woodworking machinery offers time and labour saving advantages over manual techniques, and guarantees a level of accuracy. Buying woodworking machinery for your own personal use, or for use in a commercial workshop, can be a significant investment. With woodworking machinery there is a huge variety, consisting of both portable hand-held power tools, and stationary machines. This wide range of machinery is easily and readily available in the market, so, it is not unusual for customers to find it difficult to source the right machine for their woodworking needs. Here are some important things to consider when trying to find the right woodworking machinery.

Safety

Before we get stuck into the attributes of new versus used equipment, we must mention safety. According to the Health and Safety Executive, the woodworking industry has one of the highest accident rates in manufacturing, not to mention accidents from hobbyist use. Before buying or operating any equipment ensure it has been checked by a competent person with all the necessary guards, extraction and safety features in place, and that it is functioning correctly. You also need to make sure you are suitably trained in the safe setting and use of the equipment.

The Provision and Use of Work Equipment Regulations 1998 (PUWER) details the responsibilities of people and companies who own, operate, or have control over work equipment. Increasingly we are asked to carry out PUWER assessments and all too often come across illegal machinery. We also provide in-house and site-based certificated

operator training for all woodworking machinery to ensure every area is covered.

New or used

If purchased brand-new, woodworking machinery can be expensive, therefore many businesses or individuals look to buy used machinery as a way to save as much money as possible while obtaining quality machines. Indeed, some of the older-style machines are built far more substantially than anything available new.

With new machines you need not compromise; you will get the exact specification you need coupled with a manufacturer's warranty.

If you've decided that you wish to buy used machinery, then there are a few things that you should be aware of, such as condition, age, and brand of the machine in relation to price. Difficulty in obtaining the information is often a stumbling block for buyers, mainly due to where the machine is being purchased from. Anyone supplying second-hand woodworking machinery for use at work must ensure that it is safe and without risks to health. Ask the seller for any information on what servicing has been carried out.



High volume cross-cutting at Forest Garden Products



It's also important to verify the condition of the machine, especially taking age into consideration as well as the manufacturer and comparing it against the price. Sellers often use ambiguous terms such as 'checked and tested' and 'refurbished'. I must stress that buyers should find out as much as possible when looking to purchase second-hand machines.

Also, it might seem like an obvious point, but do check the guarantee! New machines normally carry at least a 12-month warranty, but what does that cover? Parts only, or is labour included? Even used machines should have some form of warranty, so make sure you know what you are getting.



Bespoke bed manufacturing at Pluss Organisation



FURTHER INFORMATION

To find out more about Daltons Wadkin and the range of new and used woodworking machinery they offer, visit www.daltonswadkin.com

Get the right specification

Consider what the intended use is for the machine you are buying, and how your requirements may change in the short to medium term. Also ensure to factor in a certain amount of future proofing. Quality is key. While on paper the specifications for equipment may seem identical, in practice the longevity and overall performance will depend on the build quality of the machine. What specification are you looking for? No different from buying a new TV or car, there are many optional extras, so make sure you're not paying for things you don't need.

And don't forget tooling. The machine will only ever be as good as the tool and can be a significant part of the overall machine investment, especially with moulding machines or CNC routers. Check to see what tooling, if any, is included. If you have existing tooling will it fit the new machine?

Many consumers select a product purely because they prefer the brand, or specific features, even if it's not the best machine for their needs. Buying a well-known brand gives you reassurance, but an important consideration is that some of the older UK woodworking machines are no longer made, so check availability of spare parts.

Personal budget

If you buy the right woodworking machine it will prove a valuable investment, but your budget is another significant factor to consider. Woodworking machines are not cheap; in fact, many superior quality machines are very expensive but if you buy right, you need only buy once.

Workshop space

"We never have enough space" is a comment I hear daily from our customers large and small. Check the size of the

woodworking machine and especially the overall working footprint. Some machines will allow you to fold parts away when not in use. Combination machines can offer up to five or six different functions in the same unit and while it limits use to one operator at a time, can save significant space.

If you take all of these factors into consideration before parting with your cash, then you should find that the machine you choose will do the job you need it to very well, last for many years to come, and most importantly, be safe to use. **WWW**



Automatic angle cutting on a Salvador S600



British-built Stenner band re-saw

In brief...



ERGONOMIC SANDING GETS SMARTER

Mirka is upgrading its DEROS sander with the latest technology to safeguard users from HAVS (hand arm vibration syndrome), challenging the status quo in the market place by developing innovative products and tools to resolve key issues in production environments.

The new Mirka DEROS has an integrated vibration sensor and is equipped with Bluetooth low energy technology, which can be connected to a mobile device with

the new 'myMirka' app, which is available to download free of charge through both the Apple Store and Google Play. It indicates vibration levels on a colour-graded scale, and advises on how to lower the vibration if required. Additionally, the speed can be visualised in a separate graph. An in-app purchase will enable users to track the daily vibration in relation to European standards.

The Mirka DEROS has a low profile design, so the hand is close to the vertical surface, delivering good control over the sanding process. Its long body encompasses an ergonomic grip, which assists in reducing arm fatigue, thus minimising the risk of HAVS.

To find out more, see www.mirka.co.uk.

LIGNA 2017

LIGNA, the world's leading trade fair for machinery, plant and tools for the woodworking and timber processing industry, is gearing up for its 2017 season (22–26 May). With the opening day six months away, the organisers can already speak of an excellent turnout, with 90% of the available exhibition space having already been booked.

The central focus of the upcoming show will be on intelligent concepts for integrated manufacturing across all links in the wood processing chain. Integrated manufacturing opens up major opportunities for companies seeking to develop new business areas, boost productivity and build their competitive edge. LIGNA 2017 will showcase the close interplay between and ongoing integration of the virtual and real worlds across the entire value chain of the timber processing and woodworking industries.



Other big highlights include a comprehensive display of solutions for processing plastics and composites, a series of training courses for joiners, cabinetmakers, carpenters, assemblers and installers, the Wood Industry Summit and the 'Fibres in Process@LIGNA' showcase – a technology transfer event in two parts: one featuring processes and technologies from the pulp and paper industry that are relevant for the wood industry, and the other featuring materials made from paper, pulp and wood – see www.ligna.de.



CHARNWOOD 2017 CATALOGUE

A new machinery catalogue is available from Charnwood, which features 48 pages packed full

of woodworking and woodturning products. New items for woodturners include four pages dedicated to pen turning, a new midi bench lathe with built-in indexing and a selection of foam sanding pads. A new trade-rated 305mm panel saw and tilting spindle moulder are both introduced for professional woodworkers and Charnwood's

two cast-iron floorstanding router tables have both had a face lift, following customer feedback, with larger fences and improved mounting system.

Back by popular demand is the W570 305mm thicknesser to complete their range of planer/thicknessers and for all important dust extraction, there is a new vacuum dust extractor – the DC50 – priced at under £120. Also, all upright extractors now have optional 1 micron cartridge filters available.

Pick up your free copy, available from local distributors, or call 01530 516 926 to have one posted to you. See www.charnwood.net.

STAY DUST-FREE WITH FESTOOL

According to a survey of UK tradespeople conducted by Festool, those without dust extractors waste up to



four days a month cleaning up. Research showed that tradespersons spend roughly one to two hours every day cleaning up after a job, but with a dust extractor, this time is drastically reduced as the dust is cleaned up as you go, therefore creating a more pleasant and safe working environment.

The survey concluded that 97% of people would recommend the use of a dust extractor to help with the time efficiency of jobs, together with many health benefits.

Findings also highlighted that some 54% of respondents believed that cleanliness is the main benefit to using dust extraction, ensuring customers' properties are less impacted by the dust and fewer hours are taken up at the end of the job cleaning up.

Mark from Lancashire, a Festool customer, said: "I have been using Festool RTS400EQ+ and RO90DX sanders attached to my Midi dust extractor for 18 months. It has dramatically improved my painting and decorating business. The dust extraction system enhances the performance of the sanders, improves the finish and of course takes away the majority of the harmful particles. Many of my customers have commented on how brilliant the system is and a few have specifically contacted me after reading about it on my website – definitely one of the most important purchases I've made for my business."

Ideal for mobile use and assembly, the Festool range of safe and robust dust extractors are low in weight and compact, ideal to transport from job to job, again saving time for the tradesperson. Festool dust extractors are suitable for any job, from the small mobile dust extractor CLEANTEC CTL MINI (CTL MINI GB 240V) to the larger mobile dust extractor CLEANTEC CT 48 EC B22. What's more, all come with strong suction power thanks to the compact high-performance turbine and conical suction hose. To find out more, see www.festool.co.uk.

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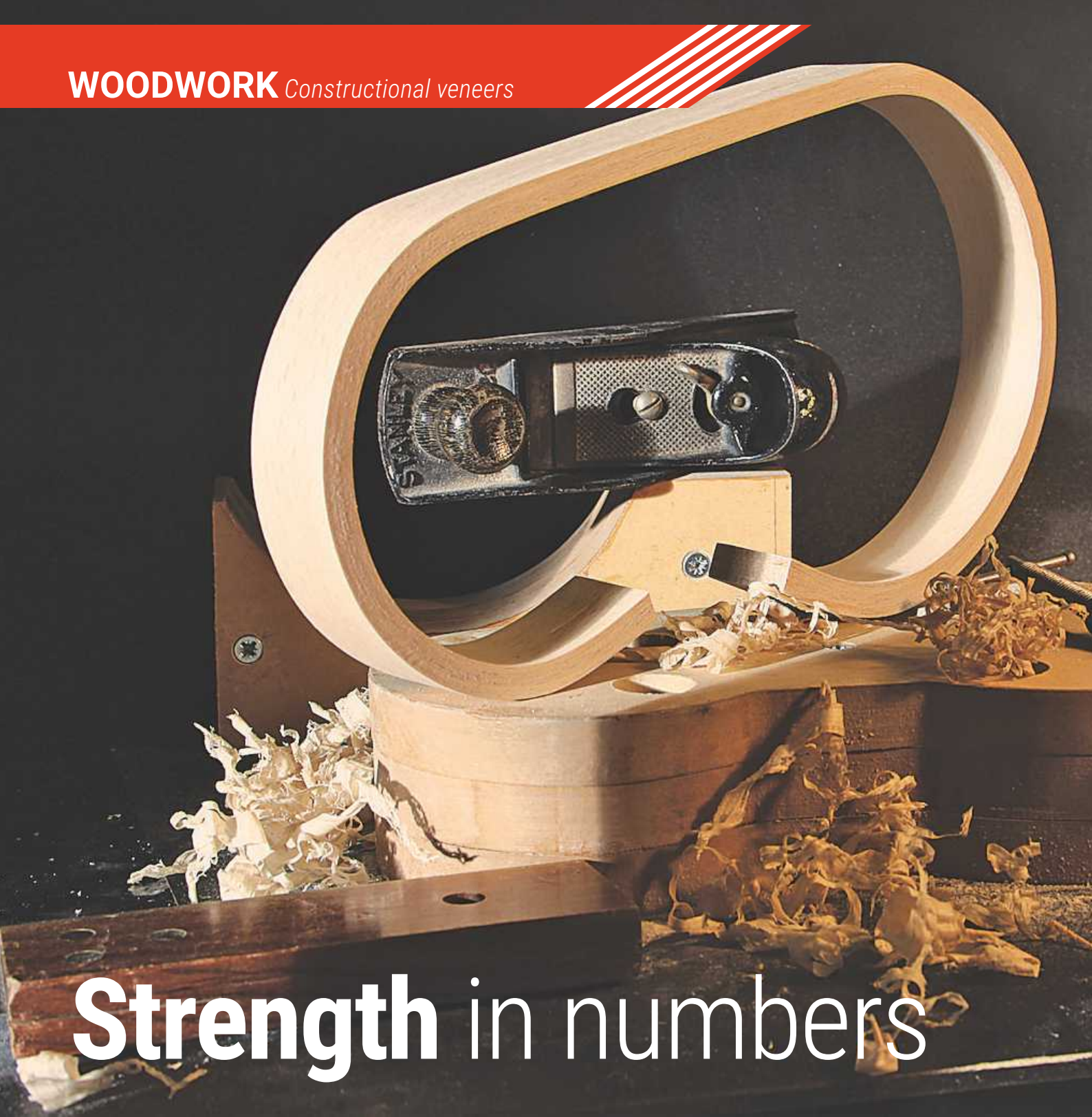
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Strength in numbers

Individual veneers are easy to bend, says Dave Roberts, but when you put them together you can make timber with both shape and strength

Building up curved components from layers of timber, allows you to create shapes that would be impractical, if not impossible, with solid or even steam-bent timber. The resulting shapes then have an intriguing duality: though the wood has clearly submitted to a deliberate design,

the continuity and flow of the grain means that they appear natural.

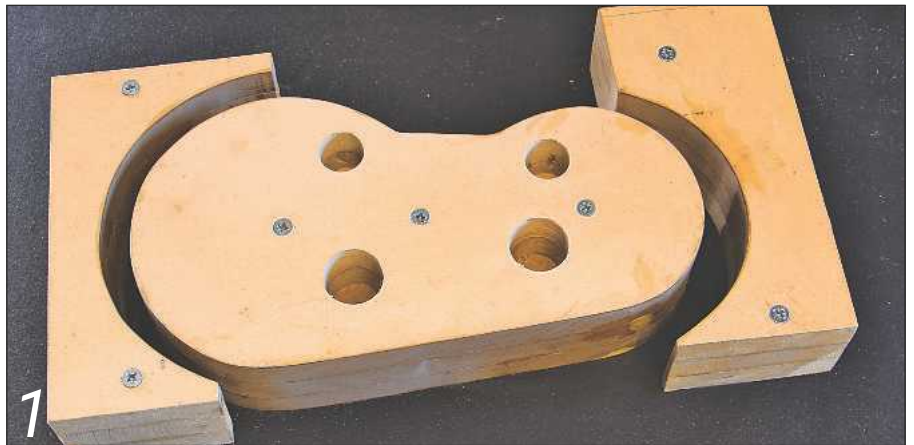
That's all wonderful, of course, but two obvious questions arise: why is it that a bundle of laminae – or constructional veneers, as they're also called – can be bent to a shape, and why do they stay there? That they can be shaped in the first place is a function of the thinness to which they have been cut: the thinner a lamina is, the less material you'll have on the inside of a curve to resist being compressed into the shorter distance round the inside of the bend, and the less material you'll have on the outside of a curve to resist being pulled

into tension as it takes the longer, outside line around the bend.

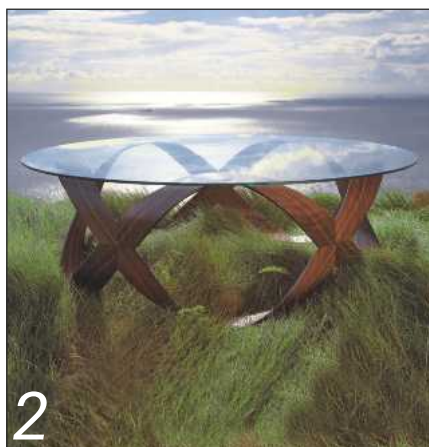
The reason that a number of laminae will then hold a shape comes down to the action of the glue between them. Though the veneers may be built up to form, say, a single curve of constant radius, the layers within that curve are concentric to each other and each therefore follows an arc of a different radius. This means that the veneers are of different lengths – the shortest on the inside and the longest on the outside – and because they're locked to their neighbours by the glue, any veneer attempting to straighten itself would have to shorten



the veneer on its outside and lengthen the veneer on its inside. The same forces that resist bending in a thick piece of straight timber, then, now work in the opposite sense so that the laminae produce a thick piece of curved timber that resists straightening. What's more, the more veneers you use to make up the same thickness of timber, the more resistance, or stiffness, your built-up piece will have. None of this gives any indication, however, of the likelihood of getting whacked in the face by a bundle of PVA-covered veneers when you actually try to bend them to shape, but it's the workaday practicalities we're here to investigate.



The inner and outer formers are shaped to accommodate a pre-determined thickness of veneers – at least, that's the idea



Once you've mastered the art of constructional veneers, you can attempt stunningly-shaped furniture like Jason Heap's 'Infinity +1' table shown here...

Start with simple shapes

Although lamination is commonly used in chairmaking, for my first adventure with constructional veneers I set my sights a little lower with a foot stool. My 'design' is nothing more than a formalised version of a curve drawn freehand, but I reckoned that the transition of its line from one radius to another would provide a useful exercise in shaping veneers, while a pair of these forms, with their flat tops and curved 'feet', would make up an ideal framework for the stool.

When I say 'formalised', I simply mean that I used a compass and a ruler to set out the shape of the former. There was nothing magical about the dimensions I used beyond the fact that they gave me the proportions that I had in mind, and didn't involve radii less than a simple bending test with a piece of scrap veneer suggested would be achievable with beech veneers. Being a timber that's relatively straight-grained and free of knots and flaws, beech is a safe bet for this sort of work, though ash, birch, or oak, lend themselves to bending equally well.



... while Sixixis' spiralling, interestingly-jointed rocking chair demonstrates just how strong a 'bundle of laminae' can be

Good old MDF

After translating my drawing into a router template made from a handy offcut of 9mm ply, I used a bearing-guided cutter to shape the three 19mm MDF blanks that make up the former. These gave plenty of width to support the veneers, which I planned to cut from a length of timber 50mm square. Screwing the template to each MDF blank prior to routing provided me with holes that I later used to align the three pieces when I glued and screwed them together. After giving the assembled former a quick sand to remove any irregularities, I fixed it to a board that could then be clamped firmly to the bench.

While this former gave me the interior shape of my lamination, I felt that I also needed two outer formers to apply clamping pressure to the outside of the bends and ensure that the laminae were tightly bonded for a strong and neat result.

These outer formers were also made using three layers of MDF, ply templates, and the router. What's important about their construction, though, is that the radii

4

The table saw did a creditable job of cutting the veneers, though some cleaning up was necessary

5

Getting the veneers to lie smoothly around the inner former and cramping the outer formers requires a methodical approach

of their curves needed to be greater than those of the main former by an amount equal to the thickness of the veneers I was going to bend – which meant that I needed to decide just how thick the veneers would be, and how many I'd use.

Mind the gap

My earlier, crude bending test suggested that veneers of between 1.5 and 2mm would be easy to bend around my former. I could've been more scientific about this, of course, and if I'd been making a critical component – one used in a chair, say – I would certainly have tried to establish the number of veneers and thickness of members required to provide the necessary strength. However, I couldn't imagine the stool's frame needing to be more than 12mm-thick, so I settled on using eight 1.5mm veneers.

To this I added the thickness of the glue lines between the veneers. This may well be a council of perfection as received wisdom suggests that a clean joint has a glue line as narrow as 0.15mm, which multiplied up for my seven glue lines gave me, well... call it a millimetre. When making the outer formers, then, I worked on the basis that my laminated form would have a total thickness of 13mm, although, inevitably, all this theory went for a ball of chalk when my veneer cutting was put to the test!



First effort sight: looks a bit grubby, doesn't it, covered with finger marks and dried glue?

WET OR DRY?

A quick test with a dry veneer of your chosen timber will establish whether it will bend sufficiently to form the shape you need without breaking. If it won't, or if you're using thicker veneers that will be more difficult to bend to shape, you can wet or even steam the timber to soften it, and then pre-bend it on the former prior to gluing

Told you to mind the gap

I used a table saw to cut the veneers (see 'ripping veneers with a bandsaw'), and it did a reasonable job: with the directional stability afforded by the fence and the rigidity of the blade, I was able to produce even cuts, though in future, if I was planning to produce any significant number of veneers or to use an expensive timber, I'd invest in a thin-kerf rip saw blade to reduce the amount of waste – a change that would also involve changing the riving knife, which should be marginally thinner than the kerf of the blade.

Although the veneers that came off the table saw had fairly clean faces, I dressed them with a cabinet scraper. As Andy pointed out to me later, however, it is really better to plane the sawn face after each cut so that you're always presenting a smooth face to the fence for accurate registration, and you only have one face with a sawn finish to tidy up afterwards.

Ideally, the cut veneers should be stacked in the order that they're taken from the timber so that the grain matches, especially if you're using a timber with very distinctive figuring. Also – and it hadn't occurred to me to do otherwise, I admit – the laminae are generally laid with the grain in alignment, as any crossing of the grain introduces the potential for twisting forces should the timber be subject to movement, which could in turn lead to all sorts of unintended shapes.

Cataloguing the order of the veneers was the last thing on my mind, however, by the time I'd finished sawing: small inaccuracies in my setting-up meant that my eight veneers actually added up to a total thickness of 10mm without glue, rather than the intended 12mm. Hmm. I could have added a ninth veneer to the pack, of course, and I'm sure that this would've worked perfectly well as my former-making probably isn't accurate to tenths of a millimetre either! I decided, however, to use the extra space to line the faces of my cauls with the fairly thin foam sheet that's used with electronic goods. This, I reckoned, would not only make up for any missing thickness between the formers, but also average out any small irregularities in their shape, and protect the outer face of the component, too. There might be a better material for this, of course – and one that doesn't involve buying a new TV! – so feel free to experiment.



A bit of work with the block plane revealed some respectable glue lines...

Calculating lengths...

To work out the lengths of veneers needed to wrap around the former I relied on simple mathematics. The circumferences of the curves on the inner former are equal to $\pi \times \text{diameter}$, and a protractor told me that I'd be wrapping the veneer around 237° (66%) of the larger circle's circumference, and 212° (59%) of the smaller one. Add to that the length of the straight side, and I had a good guesstimate of the length of the shortest, innermost veneer. Repeating the exercise based on circles whose diameter is 11mm greater (thickness of veneer pack plus glue) gave me the length of the longest, outermost veneer. With hindsight, I suspect that using a piece of string and an inspired guess would have been easier and almost as effective a means of calculation.

In any event, I hoped that these lengths were sufficient to allow for any spring-back – the tendency for bends to open up slightly when laid-up pieces are released from their formers – and still ensure that the curved faces of the 'feet' would sit flat on the floor.

... and spring-back

I had actually found a formula for calculating spring-back: $y = x \div n^2$ where y = spring-back, n is the number of laminations, and x is the height of the segment of the circle of which the bend is a part (a segment is the area of a circle that is bounded by a line, or chord, drawn across it, and the arc between the points where the chord touches the circumference). In my case, this formula suggested that the shape would spring-back by just a couple of millimetres, which I found quite hard to

believe: surely, even with the veneers fixed in their relationships by glue, there would be enough give in their new form to move more than that?

Preparing to bend

The final preparation of the formers involved drilling holes in the inner section to allow four G-clamps to be fitted to secure the ends of the veneers, and to clamp the batten that would press the flat section of the shape.

After sealing all the clamping faces with a couple of coats of varnish, I applied a layer of wax polish – the sort that comes in an aerosol with lots of silicones – to prevent the veneers sticking to the formers.

Speaking of glue, I planned to use regular white PVA, though if strength and resistance to creep had been of greater concern in the build, yellow PVA would've been a better choice, and urea formaldehyde would have been better still, as it has a longer open time than the PVAs.

To prevent glue being drawn away from the joints too quickly, I painted all of the veneers' mating faces with a PVA solution, which also had the effect of moistening them and making them that much more pliable. Gluing up and assembling the veneers, meanwhile, called for the sort of quiet urgency that has David Oldfield biting through his pipe stem! One end of the bundle was then cramped in place, and I began steadily wrapping the veneers around the former. I say 'steadily'; there was, in fact, an amount of juggling involved in easing them round the bends and getting the formers into place, but even so it went off without drama.

DOING IT BETTER

Needless to say, my notes under the heading 'doing it better next time' were quite extensive. For a start, I won't use 9mm ply to make router templates again: any voids in the inner plys mean the guide bearing is unsupported; MDF offers a much better bearing surface, and a cleaner cut.

On a similar note, the foam lining that I used seemed to protect the veneers from bruising, though some laminating practitioners suggest lining formers with thin ply to create a really smooth surface. It's worth giving it some thought, anyway – as, indeed, is the method you use to cramp the veneers.

Making mating formers is good practice, but next time I'll also make them so that they press the whole of the form. This should prevent those voids occurring where the laminations are uncramped. Also, I'll use the hole-and-G-clamp approach throughout, so that each former can be fitted independently, relying on the same clamps to apply pressure to both of the outer formers, as I did, made assembling the jig and fitting the veneers to the profile unnecessarily tricky.

Having said all that, if my inner former had been bigger (and curves less dramatic, perhaps) I could have drilled it full of holes and used lots of G-clamps to hold the workpiece instead of the outer formers. Alternatively, I could have set pegs into the board around the inner former and driven wedges between the pegs and the veneers to apply pressure. I could even have wrapped a strap clamp around the whole lot with packing pieces as required. Oh, and then there are vacuum bags...



Tap & unwrap

24 hours later and the results looked a bit disappointing: beneath a crust of squeezed-out glue that I'd been unable to wipe away were smudges where newsprint from the gluing-up paper had transferred to my fingers. The first surprise, though, was that when the jig was uncramped the laminated shape moved just enough for it to be lifted off the former. It wasn't because it was stuck, either (the varnish and polish had worked a treat), it was just that there wasn't any spring-back to speak of. Perhaps the formula does work, then?

The edges of veneers had slipped out of line slightly when I'd fitted them, which was my fault for making the former deeper than it needed to be, and using two G-clamps whose small throats meant that I had to wrap the veneers around the top of the former rather than resting them on the baseboard. Obvious stuff, really, and not a problem as I had always intended to trim the edges with a block plane – a process that now revealed the laminations, which were mostly tight and even, with discreet glue lines. True, there were a few small voids, the most significant of which occurred in

the short, uncramped lengths between the outer formers and the straight block. With the edges dressed, my grubby dabs sanded away, and the raw ends trimmed flush, things looked much cheerier: the grain of the beech flowed round the curves in the natural way that I'd been promised, and the form itself was, I thought, quite elegant and also surprisingly strong; in fact, I'm prepared to bet that the finished stool will take my weight. That said, I'll put any success down to beginner's luck; the real test is going to be making the second one match the first! **WW**



8 ... and some flaws, too. A snugger fit between the formers and veneers would help prevent voids like this



9 The glued veneers didn't move much when released; the apparent movement at the end of the small radius is actually due to the veneers not being cramped all the way round the bend



10 Even with its imperfections, the finished result was strong and shapely

RIPPING VENEERS WITH A BANDSAW

A bandsaw is arguably the better tool for sawing veneers, says Andy King, because it will cut wider sections of timber than a table saw: a 300mm blade on a table saw only has about 100mm depth of cut; after that you're into the dangerous practice of double deep ripping (cutting the timber on one side, turning it over and ripping it again). Just as importantly, the thinner kerf of a bandsaw blade means less waste – an important consideration if you're using an exotic timber that you'd rather not turn into expensive sawdust.

On the flip side, however, Andy points out that a bandsaw will usually leave a poorer cut than a table saw: "A bandsaw's blade tension and guides need to be set up carefully, and even then the blade can drift when making deeper cuts, which will leave you with veneers of variable thickness. For bigger saws, you can buy blades with stellite tips, which leave a really clean cut, but they're expensive and aren't available for smaller machines." As with the table saw, then, the answer is to rip a veneer, then plane the timber's face before making the next cut

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Compact, comfortable and full of power, cordless impact drivers don't come much better than this new offering from Makita

Makita DTD170 cordless impact driver

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The new Makita impact driver combines maximum power and minimum space; the body is only 117mm long

The driver bit and hence the fixing. This is a big advantage and, unlike a regular driver, will spare your wrist from a considerable amount of strain. As well as protecting the user, the DTD170 goes a long way to protecting the current driver bit by a slow start with increased power later on. This extra power comes from a combination of advanced electronics and a brushless motor. Originally invented in the 1960s, brushless motors are currently making a big difference in the world of power tools, with Makita at the forefront of their development.

Brushless motor

Instead of spinning copper windings in a magnetic field, a brushless motor has the magnets turning on the shaft and a stationary circular wrap of copper wire surrounding them. And instead of brushes and a commutator, a small circuit board now coordinates the energy delivery to the copper windings. Not only does this make for a more efficient motor, but by increasing the size of the – now stationary – windings, greater power is available. And because the immediate demands of the drill (i.e. torque required) can be sensed by the

As technological advances continue apace, one wonders where the next steps will take us. In the meantime, while we ponder these matters, let's just enjoy the latest gift that science has offered us in the shape of this state-of-the-art impact driver from Japanese specialists Makita. A far cry from early models (from a seemingly distant 10 years ago), this cordless driver is as close to winning the accolade of 'ultimate' as it's possible to get.

Extra power

One of the big benefits of an impact driver is that all the torque available goes into

onboard electronics, the tool is able to adjust to the load put on it and avoid both waste and strain. As well as self-regulating, the motor can now be controlled, and on the DTD170 we have no less than six different modes of impact available. These can be chosen from the dust-proof control pad on the base of the tool and offer combinations of slow start, high or low impact and variable speeds, making this a truly versatile driver indeed.

In summary

As well as a host of unseen technology, the DTD170 driver offers familiar controls, an either handed belt hook, and a powerful LED worklamp. This one is not only switchable but comes on with a touch of the trigger and lingers for a useful 10 seconds or so. **MC**



The battery charge indicator and either hand belt hook



Fitting a screwdriver bit into the sprung sleeve

SPECIFICATION

DRIVE SHANK	1/4in Hex
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MAXIMUM TORQUE	175Nm
NET WEIGHT	1.5kg
NO LOAD SPEED	0-3,600rpm

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Compact, comfortable and full of power; they don't come much better than this

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This little control panel offers up a big world of variations



The excellent LED, in what is known as 'preglow' mode

This 10.8V cordless drill may be light in weight, but that in no way diminishes its power or usefulness – it's a terrific little drill that is a pleasure to use

Bosch GSR 10.8 V-EC cordless drill

Last week I was sorting out problems on a new-build house (essentially snagging a whole bunch of things that got missed the first time round) and slowly restoring order and efficiency to the place. On my list was a built-in chest of drawers, which had clearly been constructed by an outdoorsman, so rough and crude the job was, Landrover tyre prints on a drawer bottom being a bit of a clue. No matter, a job is a job, and I knuckled down to it. Inside the chest, space was at a bit of a premium, and so it was with grateful thanks to technology and science that I reached for my compact Bosch drill.

Increased efficiency

This is another of the new batch of cordless tools coming to market, which features a brushless motor, and another reason to acquire one. The new motor not only has a much increased efficiency (resulting in a 30% longer run time for the Li-ion battery) but is smaller and lighter, too. Pioneers of electronic cell protection (ECP), Bosch have also built-in advanced circuitry to ensure batteries last longer and are protected from overload. Similarly the smart charger will ensure there is no risk from over-heating during charging.

In use

In use it's as simple as you'd like; there's the customary layout of controls (note to all manufacturers: never tamper with this), a 10mm Auto-Lock chuck with 1-20 torque settings, and a sure and steady progressive trigger action. It has the now customary LED worklight



At 900g it's barely a handful



You'll need a wireless charging battery to stand the drill up on its base



The intelligent charger soon boosts another battery into readiness



Let there be lights: LED worklamp and battery indicator combined



£152.95

and that's pretty much it; in such a small and comfortable drill, what more could you want?

Well since you ask, I did manage to form an opinion on what could be improved, but it's a pretty small list:

1. A softer but more ridged grip on the chuck sleeve to make changing drill bits that much easier
2. A battery with a profile that made standing the drill up less of a balancing act
3. Er, that's it...

It was only later that I realised an answer to 2 above already exists; the 10.8V wireless charging battery, which slots straight in. D'oh!

In summary

So, all in all, a terrific little drill, and definitely one which you should always have in your kit. **MC**

SPECIFICATION

BATTERY	2 x 2.0Ah
CHUCK CAPACITY/TYPE	10mm keyless
MAX CAPACITY STEEL	10mm
MAX CAPACITY WOOD	30mm
NET WEIGHT	900g
SPEED	0-400/0-1,300rpm
MAX TORQUE	18Nm

VERDICT

A terrific little drill: small, comfortable and a pleasure to use – definitely one to always have at the ready

PROS ■ Small ■ Light ■ Powerful

CONS ■ The lack of a soft, ridged grip on the chuck sleeve does impede bit changing
■ Standing the drill up on its base is a little precarious due to the battery profile

VALUE FOR MONEY
PERFORMANCE



FURTHER INFORMATION

- Bosch
- www.bosch-professional.com

Although designed for the hollowing of smaller hollow forms, goblets and boxes, this tool from Crown is also ideal for regular turning

Crown Mini Revolution hollowing tool



£47.95

My experimenting in woodturning continues and this time around I've been looking at hollow form turning where the inside of a piece is hollowed out through a small aperture. It looks to be pretty specialist and one for the more advanced turner, but in for a penny as they say...

Solidly built

The Mini Revolution tool is solidly built with a link-ended tool holder that allows it to be altered to gain access to areas unobtainable with standard tools, with each link held securely with a hex screw. The cutter is a cryogenically treated ring with a brass top collar that acts as a restrictor to limit the cutting depth.

It is offset so that by rotating it, the amount of cutter projection can be altered for heavier or finer skimming cuts. There's also a scraper blade supplied with the tool, again cryogenically treated for finer finishing if needed.

With the linkage needing to extend beyond the toolrest there's a lot of cantilever involved so the thick shaft helps keep chatter down, as well as the black lacquered ash handle doing its bit alongside.

Online instruction

I found the supplied instructions pretty woolly, however: I adjusted the ring to take the finest cut possible to ease my way in, but on addressing the work from my interpretation of the instruction leaflet, presenting the tool to the work at the angles indicated, the tool was jumping around, snatching and twisting no matter how hard I held it. I persevered but was getting nowhere, so I was beginning to think that I was out of my depth with this particular tool and it was more for the experts, but we live in enlightened times and Google is your friend!

A quick search gave listings of YouTube videos and an excellent one by Mark Sanger showed all the info I needed to go back to the lathe and try again. To say it was a Eureka moment would be an understatement! All of a sudden, by simply altering the toolrest position slightly, the angle of the tool as it addresses the work and the way in which the tool moves, I was cutting away merrily with ribbons of shavings ejecting just like in the video!

Experimentation

My problem was down to trying to work the tool in the same way as a standard cutter, pushing in on the tool to get the cut. With the Crown, I found the lightest of touches enough to attain a sweet cutting tool.

Being able to cut on a push or pull also gave me more diversity; the speed in which a bowl can be hollowed is amazing, and once the control is mastered, the finish direct from the Super Ring cutter is superb.



I found addressing the tool too close to horizontal made it drag and catch excessively



Altering the angle of attack allowed me to make controlled cuts



Experimenting on this piece of maple I was soon able to grasp the basics

It's not just for hollowing blind, however; watching the videos and putting it into practice I was able to achieve convex and concave shapes with ease; it's all about a light touch against the work but with a firm grip on the tool as it bites, along with a combination of either pushing or pulling while pivoting on the toolrest.

It still needs plenty of concentration to get things going, though, and I found that working towards the outer edge of a wider bowl, where there's more torque, meant more strain on the tool and the tendency for it to try and twist in my grasp.

Different timbers and diameters make life all the more interesting as well, and it is a combination of experimentation as well as a learning curve to get the tool to address the work correctly so you can achieve clean shavings without it grabbing and chattering, but I'm enjoying the ride at the moment!

In summary

If you want to move on a little from standard turning and the techniques associated, then this is definitely an area to explore, and this tool is ideal for small- to medium-sized projects. It does pay to get plenty of practise under your belt before moving on to a finished project, but I found that perseverance does begin to pay off in a short space of time. **AK**



The finish direct from the Super Ring was excellent on this maple blank

SPECIFICATION

OVERALL LENGTH	430mm
HANDLE LENGTH	250mm
SUPPLIED WITH	Super Ring and scraper cutters, produced from cryogenically treated steel for excellent edge retention

VERDICT

Ideal for working on small- to medium-sized projects, once mastered, this handy tool will allow you to expand your turning repertoire

PROS ■ Leaves an excellent finish
■ Not just for hollowing work

CONS ■ Takes a while to control
■ Can twist in the hand if not gripped firmly

VALUE FOR MONEY
PERFORMANCE



FURTHER INFORMATION

- Axminster Tools & Machinery
- 0800 371 822
- www.axminster.co.uk



The tool is equally at home making standard bowl cuts such as the one shown here



Wasting the inside of this bowl was equally easy once I'd mastered the cutting angles

This great combi from Ryobi is an extremely competent all-rounder, and is more than capable of most drilling and screwdriving tasks around the house and workshop

Ryobi R18PDBL18V brushless combi drill

Most power tool manufacturers seem to be extolling the virtues of brushless motors these days, with Ryobi being no exception. Unlike a conventional brushed motor, one without brushes creates less resistance, and better performance. This new combi drill has been added to the extensive 18V One Plus range and is set to give a few industrially-rated drills a run for their money. Ryobi claim up to 20% more power and 40% longer run time over its brushed-motor predecessor, which sounds impressive.

No lightweight

It's no lightweight tool, weighing 1.76kg with a 1.5Ah battery fitted. Step up to a 5.0Ah power pack and this increases to 2.06kg. Fortunately there's plenty of textured, soft-grip rubber enclosing the handle and beyond, so it's really comfortable to hold. In fact, ergonomically the R18PDBL is spot-on. When not in use, the combi will sit solidly on a work surface without fear of toppling over and snapping a bit. Brushless motors also mean that power tools are becoming more compact, making the R18PDBL's overall length (from rear to chuck tip) just 201mm. Certainly an advantage when working in a confined space.

Nifty settings

The variable-speed trigger is also soft-grip, with a standard push-through forward/reverse selector above this. Speed range is from 0-440 and 1,700rpm, while the percussion function provides up to 7,040 and 27,200bpm. Squeeze the trigger and a white LED worklight is activated at the bottom of the tool, remaining on for five seconds after release. Beneath the LED there's storage for a double-ended hex screwdriver bit, which is included.

If you like a bit of bling then you'll probably love the various blue LED indicators visible when you pull the trigger. Selecting low or high speed via the slider on top will light up either a 1 or 2 icon. You move between hammer, drill or screwdriving mode by moving



The 5.0Ah power pack bumps the total weight of the tool up to 2.06kg



The variable-speed trigger, with standard push-through forward/reverse selector above



A white LED worklight is activated at the bottom of the tool



Various blue LED indicators are visible when you pull the trigger...

a pointer button, which also illuminates. Once set for screwdriving, a ring of blue light is emitted around the chuck, which looks pretty cool. It means you only have to glance down at the tool to check if you've selected the correct drill or screwdriving function for the job, something that's easy to get wrong with some drill/drivers. Electronic torque control offers 10 settings, with a system that memorises your last setting, just like a mechanical method. Maximum torque is a very respectable 60Nm – better than some professional tools.

Limited capacity

Fitted with a tough, metal chuck, maximum bit capacity is 13mm. If you're used to drilling tiny holes with a cordless drill you may be disappointed, as the Ryobi's triple jaws will grip a 2mm bit but nothing smaller. I often pre-drill holes for pins and small nails in hardwoods, with a 1.5mm bit a favourite size. So, a second tool would be needed in this case.

In summary

I've been using this combi for several months now, swapping between Li-ion 1.5Ah, 4.0Ah and the new 5.0Ah battery. It's an extremely competent all-rounder, more than capable of most



... which means you only have to glance down at the tool to check if you've selected the correct drill or screwdriving function



Fitted with a tough, metal chuck, maximum bit capacity is 13mm



The triple jaws will grip a 2mm bit but nothing smaller

SPECIFICATION

VOLTAGE	18V
CHUCK CAPACITY	13mm
MAX DRILLING IN WOOD	50mm
MAX TORQUE	60mm
SPEED	1,700rpm
TORQUE SETTING	10

VERDICT

A very impressive 18V combi drill that delivers on many fronts. It coped extremely well with all of the tests I subjected it to

PROS ■ Brushless motor optimises efficiency
■ Nifty LED light illuminates the work area

CONS ■ Triple jaws are a bit limiting
■ Buying the One Plus battery can be expensive

VALUE FOR MONEY
PERFORMANCE



FURTHER INFORMATION

- Ryobi
- www.ryobitools.eu

drilling and screwdriving tasks around the house and workshop. In percussion mode performance was similar to a corded drill in stone and brickwork.

I tested torque by driving 5 x 70mm screws into softwood, then hardwood without any pre-drilling. Countersinking them flush into very dense English oak was a bit of a struggle, but that's hardly surprising. In fact, the Ryobi coped extremely well.

Like most Ryobi products there's no storage case included and the R18PDBL is sold bare, so you'll need to invest in a battery if you've not yet joined the One Plus community. So, all in all, an excellent, powerful mid-range tool that's set to turn a few heads as well as masses of screws. **PD**

Want to protect your tools from scrapes and keep them organised? This easy to cut tool foam allows you to create your own custom storage to ensure your tools stay right where they should

Toolovation cut & peel foam



With many power tools now supplied in stackable interlocking boxes with internal housings to keep things secure, it leaves the hand tools as poor relations. But with some of the more expensive hand tools cherished equally, it's now the case that you can line out any tool box, chest or drawer with this excellent tool foam and cut out shapes to suit all of your prized possessions to keep them secure.

Easy cutting

The foam is constructed from thin welded layers of around 5mm each, allowing you to cut to the desired depth and peel out the layers according to the depth you want to sit them in. The foam is also dense enough to cut easily without deforming and also offers excellent support to protect and secure the tools. It can be cut with any craft knife, but ideally a long-bladed one works best. You can buy the foam as a starter kit complete with a knife and a long-nosed marker pen to trace around the tools, or the pen and knife as a separate kit.

Marking and cutting is a cinch: it cuts really easily with a sharp blade and if you cut to the inside of the line, you achieve a snug fit.

The knife is also great for using as a depth stop: by sliding the blade out to the depth required, it clicks into position and ensures that you only cut as deep as needed.



Slide the knife blade out to the depth you want the tool to sit in



The resulting recess should now be deep enough to take the tool

Once you've cut the outline, it's simply a matter of peeling out the layers to the cut depth. The base of the cut-out can look a little ragged, but if you want to



You can cut a thin sliver off the face side of the waste, which can then be used to line the bottom of the recess for a clean look. The resulting recesses keep all of your tools held securely in place



Position the tools onto the foam to find the best position



Draw around each tool using the long-nosed marker pen



Cut around the mark, ensuring to keep to the inside of the line



Slide your finger in and peel out the cut layer

achieve a clean look, then it's easy to cut the top layer from the waste piece and put it into the base for a clean finish.

In summary

If you want to keep your tools secure, then this foam is a bargain, and it also allows you to easily spot if something is missing if you fit the foam into tool boxes to use out on site or around the home workshop.

You can get also get a fair amount of tools onto one piece of foam if you lay it out well; the chisel set I used for the review took up less than 300mm square. The foam is available in A1, A2, A3 and A4 sizes (the same as paper) and in two thicknesses: a five layer 30mm version and a 10 layer 55mm-thick version. **AK**

SPECIFICATION

FOAM SIZES	A1, A2, A3 & A4
FOAM THICKNESSES	30mm & 55mm

VERDICT

The perfect solution for ensuring your tools are stored safely while keeping them protected from knocks and scrapes

PROS ■ Great for keeping tools secure
■ Easy to cut

CONS ■ None that spring to mind!

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

FURTHER INFORMATION

- Toolovation
- www.toolovation.co.uk

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The machine shop at the Harris Lebus factory, where all of the piece parts were made

a 'double day shift' system in order to keep pace with the finished goods leaving the factory each day. A double day shift was 6am-2pm and 2pm-10pm. You see, the mill only produced piece parts, by number, in economic volume. Piece parts could be used in many different pieces of furniture. The piece parts were taken on their trolleys, by the tugs, to the part store where they were then stacked by number into huge racks. As a production order was issued a storeman drew the required piece parts from the racks, loaded them onto a trolley, which was collected by a tug driver, where they were transported to the designated shop for either assembly or sub assembly.

When one considers the complex organisation involved in this part of the company alone, one's mind boggles.

A walk around the factory **PART 2**

Peter Baker gives us an insight into the workings of the factory, the complex operations undertaken, the numerous pieces of equipment being used and just how efficient this system was

This factory was so vast that employees were allowed five minutes 'clocking-in time', which meant that it took five minutes from entering the factory to reaching the far end and clock-in. Conversely, one was allowed the same time for clocking-out: five minutes. This applied to everyone no matter where in the factory one worked. That was a forward thinking employer, for I was there in 1949.

Through the centre of the factory was a corridor, about 10ft wide. The polishing shop was near the middle of the corridor and was protected from draughts by double doors at each edge of the shop. I say edge because the corridor ran north and south while the polishing shop traversed east and west and had some 10 conveyor belts moving, slowly, from the east where the end of the makers shop was, to the west where it butted up to another conveyor travelling north into the warehouse. The width of the corridor was determined by two tugs, each towing two or three trolleys of component parts and sub-assemblies, being able to pass each other.

Complex operations

To the south of this polishing shop and to the west was located the mill or machine shop. Upon completion of a job the labourer would take the trolley of finished parts to a 'trolley

park' and the wood machinist would go to the foreman's office to be given a job card for his next job. Armed with this he then went to the tool store to be given the pre-set cutting blocks for his machine. The tool store was manned by 'tool setters', who only prepared cutter blocks for the machinists, to order and by job number. All the machinist had to do was to assemble the blocks to the machine, check dimensions and the square to the job card, then feed timber through the machine. The labourer took parts off the outfeed and stacked them on the trolley. Sounds simple, doesn't it? And it was, but only because everything was so highly organised.

Consider this: the mill contained four, five and six cutter moulding machines, spindle moulders, overhead routers, tenoners, double-end tenoners, mortisers, bobbin sanders, dolly sanders, edge sanders, finishing sanders, belt sanders and more. Not one but many of each, and all working full tilt.

Let me now add to the complexity by introducing some further factors. The company produced 1,000 suites of furniture per week. A suite averages three pieces, that is 3,000 pieces of furniture covering three design ranges with about 12 component parts per piece – 36,000 piece parts being machined, stored, assembled, polished, fitted and despatched each and every week. Wow!

Fast tracked

Most employees went into their shop, did their nine hours a day, collected their wages on Friday, went home and thought little more beyond that. I consider myself to have been extremely fortunate in that, as I stated in the second article of this series and on reflection, I think I was being 'fast tracked' through the company. And the reasons? I spent three months doing goods inwards inspection, three months on despatch inspection, and three months on production control, all of which took me into various parts of the factory that most people would not see. I then spoiled the whole thing by requesting to be accepted onto the company's 'Late entry Trainee Scheme' as a cabinetmaker. **WW**

GET IN TOUCH

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In part 9, Peter continues his story of the moving of the timber through the factory, because as he rightly says "without the timber, you ain't got no furniture!" And if any other readers have a story to tell, we'd be glad to listen – just write to editor.ww@mytimemedia.com



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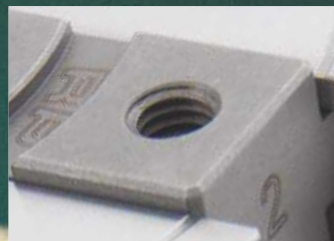
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