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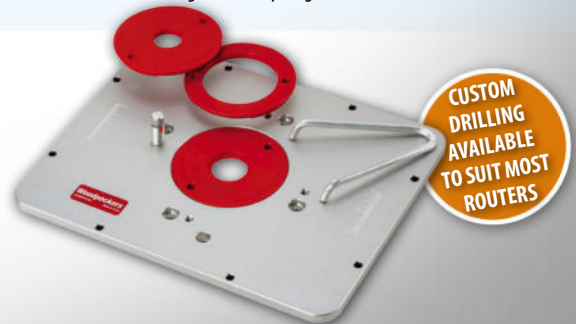


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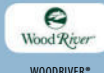
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Editor's Letter

Plugged and unplugged

This issue has turned out to be a homage to machinery, how it's made, how it's enjoyed, and how it's used to make not just furniture, but also fine hand tools.

Late last year I enjoyed visits to some very different factory setups. It was a case of unplugged meets plugged as I went from the tradition-steeped and hand tool reverence of Bern Chandley's workshop to the unabashed enjoyment of great machines at Paul Ryan's place. Ryan Woodworks is the antithesis of an unplugged workshop, and Paul's collection is that of a virtual machine connoisseur. Equal enjoyment, equal attitudes to quality custom making, but operating on different spectrums.

Actually before that I had also visited the toolmaking workshop of Chris Vesper, another case of one man and many highly specialised machines. Chris also takes delight in the means and processes he employs to create the very best hand tools he can. And like Paul he's also a man with many favourite machines in his workshop. Check out the Wood Review TV video that's now on YouTube and you'll see what I mean.

Still on the machine theme, Philip Ashley made his own pilgrimage to several European temples of top line machine manufacturing. Back from his factory tour he shares some insights into modern woodworking machinery design and manufacture. And by the way, check out how you can also win some great machines on p.23.

Global gum trees

Eucalyptus deglupta is the only gum that occurs naturally in the northern hemisphere. The unbelievably colourful trunks of rainbow gums look as though someone took to them with flouro marker pens. The photos and story of searching for them is by our regular contributor Vince Manna, who is not only an expert craftsman, but also a professional photographer who frequently travels the world to capture rare images of trees, timber, landscapes and people.

Vince often emails me when he's 'on location' so I know the lengths he goes to get images and wood samples such as the ones shown. Time, expense and sometimes danger can be involved. Fortunately you don't need to worry about any of that, see p.36 to find what he's been up to.

Teachers and students

The New Year is often when some of us do something differently so a feature on woodwork teachers (see p.84) is well timed. But for an answer to the question 'why get a teacher?' look no further than the winning results of our Student Awards announced from p.52. You can see all the entries on our website and you can see a lot of talk between entrants and their admirers on our Facebook page (500,000+ people have had those photos cross their monitors, tablets and smartphones), so the feature here doesn't repeat that. Seeing what our teachers of woodwork are responsible for, I think it's fair to say the education of younger woodworkers is in excellent hands.

No news is good news

With so much news now shared electronically, presenting a quarterly Wood News round-up has lost some relevance because I'm posting events info as it comes to hand on our website news pages. Instead I invite you to rely on our website news and fortnightly eNewsetters for updates. Register for these on our home page.

Please note, winners of last issue's e-signup and Arbortech Turbo pack subscriber prizewinners will be announced via eNewsletter.

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Bern Chandley, Windsor chairmaker

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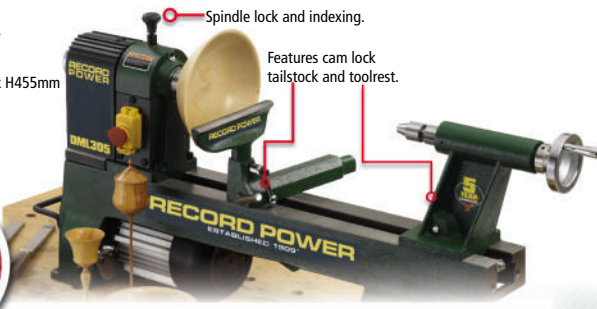
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Sherwood BAS-350-B 14" Bandsaw

Reviewed by Andrew Potocnik



1. The BAS-350-B stands out with its 9-1/4" depth of cut.
2. A sliding aluminium mitre guide adjusts to other angles.
3. Quick access knobs for top and bottom blade covers with auto cut-off micro-switches.



Bigger is better is what they say, but for the average home workshop a 14" bandsaw is enough to keep most woodworkers happy, so I was interested to see what this saw offers, and was very pleasantly surprised.

When referring to a saw as 14" you are describing the distance between the throat (left side pillar) and blade, hence you can cut a board of 345mm between the pillar and blade, which is typical of a saw this size.

Depth of cut is a very different story and where this saw stands well ahead. Most 14" bandsaws have a 150mm (6") depth of cut, here you get 235mm (9-1/4"). This offers much greater potential, especially if you're looking to re-saw boards or cut thick blanks for turning.

Powered by a single phase motor with a 4-pole input of 1500W that equates into an output of 1000W it has enough power to cut through 120mm thick cedar boards with ease.

The noise level is quite low compared to others I've worked with. Operating on the factory-set 800m/min

speed, the noise generated when cutting timber of 30mm thickness was of a comfortable level. I am very particular about noise and protecting my ears, and working in a residential area I also need to consider my neighbours, so this is a real bonus.

At 110kg this saw has a bit of weight behind it, just as you'd expect of any piece of robust machinery, so transporting and setting it up requires at least two people, a trailer or ute and a trolley. Assembly is minimal, lift it onto the cabinet stand, fit the 19kg table and a couple of other bits, and the saw was up and running in about 40 minutes, all without stress or frustration.

An added bonus is the sealed, dust free cabinet which has two shelves for tool and blade storage including the allen keys and spanners provided for assembly and adjustments.

The table is a very generous 545 x 400mm with roughly even working space all around. It tilts a couple of degrees to the left and a full 45° to the right which still allows 235mm cutting height.

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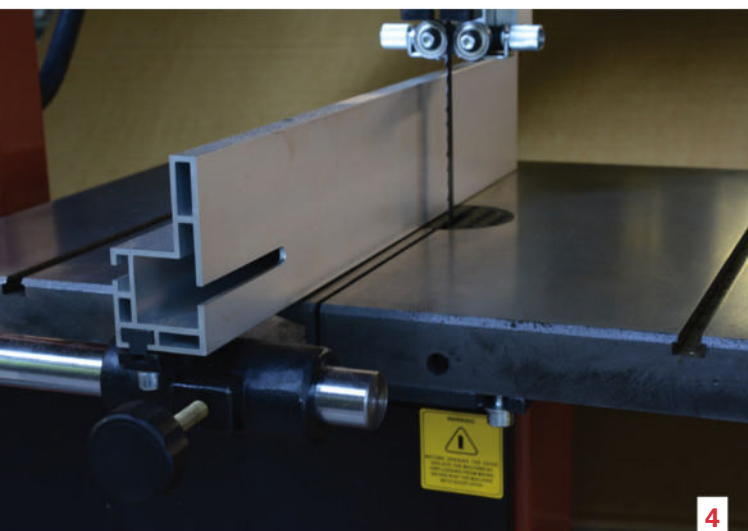
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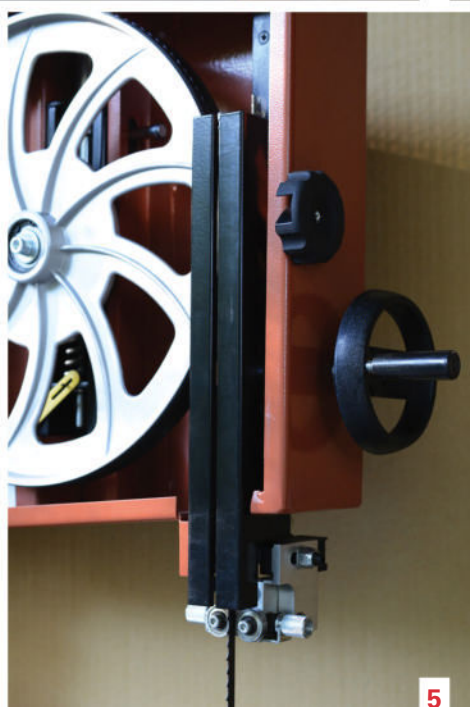
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4

4. The table is a generous 545 x 400mm and tilts 0–45°.
5. Quick-release blade tension system.



5

The rack and pinion system was a little stiff but simple to lock and unlock. I suspect a bit of graphite and more use would ease the movement. Setting up straight out of the box I found the table to sit close enough to 90° without extra adjustment. The same applied to the ripping fence and its support bar (both of which can be adjusted, even though I found them to fit well and quite accurately).

A nice aspect of this machine is that key adjustments are made via rack and pinion assemblies so you can ensure accuracy and that settings won't slip once locked in. Adjusting the upper blade guide height is quick and easy. So is blade tracking and ensuring correct blade tension (there's a reference scale on the machine). Although this machine was supplied with a 4tpi blade, it can handle anything from 6–19mm width, quite a broad range of sizes!

Other features include a sliding aluminium mitre guide that adjusts easily to other angles. A couple of extra knobs allow the fence to slide in or out from the blade so no matter what angle you're cutting, there will always be ample support without compromising the safety of your fingers. Tracks on either side of the blade accommodate the mitre guide.

There's a dust extraction port of 100mm diameter, a built-in light on a flexible arm to illuminate the worktable, however a longer reach would help when the fence is set close to the blade. And there are micro switches fitted to both blade cover doors to ensure the saw stops if the doors are opened while the machine is running.

This saw suits the home workshop; however there are a number of larger saws available in the Sherwood range which share similar features to this one, but with greater capacity and grunt. Overall, I found this saw to perform very well in situations I subjected it to; it just hummed along unfazed and didn't miss a beat. It would well and truly fulfil the needs of any home workshop and beyond.

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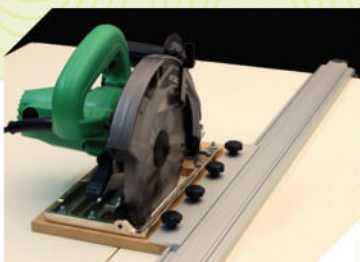
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The Baladonia power tool guide is a low-profile tool guide with a built-in cam clamp that sits under the board and out of the way. There is a matching 300mm guide traveller to hold your power tool in place then run the traveller in the captive groove for maximum accuracy.

There are three lengths – 24, 36 & 50". Plus a kit that enables you to join two guides together to get 100" (over 2.4m) in length and a mitre attachment.

To see the guide rail in action with a traveller go to our YouTube video on the Timbecon website!

PTG-24	Power Tool Guide 24"	\$29.90
PTG-36	Power Tool Guide 36"	\$39.90
PTG-50	Power Tool Guide 50"	\$49.90
PTGTR	Traveller	\$14.90
PTGPS	Position Stop	\$7.90
PTGEXTN	Extension kit	\$89.90
PTGPF	Protractor Fence	\$39.90

SWCS-1254
\$1199.00

10" Contactors Table Saw

SHERWOOD



- This saw is feature-packed and includes virtually everything you need in a basic home workshop saw.
- 1500W (2hp) induction motor with single belt drive.
- 254mm (10in) blade capacity with standard-size 5/8in arbor (blade incl)
- 76mm depth of cut at 90° with 50mm at 45° tilt.
- Smooth and comfortable cast-iron rack & pinion height & tilt adjustment.
- Multi-directional mobile wheel kit built into ultra-rigid pressed and folded steel stand.
- 4in dust port built into the centre of the base for superior extraction.

From
\$47.90

Birdsmouth Jointing Router Bits

TORQUATA



The birdsmouth joint is straightforward to make, stronger than a traditional mitre and with nested joints, easier to glue up without shifting.

With these three cutters, it is a simple matter to make 6, 8, 12 or 16 sided hollow columns, as well as straight or tapered multi-sided planters, bowls, etc., all of which can be left multi-faceted or planed, turned or sanded round.

BM-2222-H	Makes 16 Sided Vessels	\$49.00
BM-2230-H	Makes 6 or 12 Sided Vessels	\$49.00
BM-2245-H	Makes 8 Sided Vessels	\$47.90

MC-1221
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RT-3224-K5
\$779.00

32x24 in MDF/Phenolic Router Table Kit

TORQUATA



A lightweight alternative to the Cast-Iron Router Tables is available now with a precision manufactured MDF table top.

The massive 810x610mm table is dead flat, 32mm-thick HMR with 2mm black PVC edge banding. It comes with a combined 3/4in mitre and 5/16in t-track pre-installed so you can use the mitre guide included and mount any shop-made jigs compatible with our t-track range. Heavy tubular steel stand comes with the remote switch, mitre guide, 32in fence and retractable wheel kit.

All components are available separately.

RT-3224-K5	Router Table Kit	\$779.00
RT-3224-PT	Router Table Top Only	\$229.00

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1. Sterling dovetail saddle squares come in gradients 1:4 to 1:8.
2. Double squares are made of cast iron and hardened steel.
3. Thin dovetail square blade is ideal for checking for square faces and depth.
4. Plane setting hammers in brass alloy with walnut heads.

Sterling Hand Tools

Reviewed by Raf Nathan

An exciting part of the current woodworking scene is the number of new toolmakers entering the industry. One American maker who is riding the swell is Chris Kuehn. Though still only able to afford to run his Sterling Tool Works on a part-time basis, he makes and designs a small range of high quality specialist wood tools.

With an encouraging father Chris was a keen metal and woodworker as a small boy. A degree in mechanical engineering was a somewhat logical step in a career that saw Chris working with NASA, highpointing with work on the Mars Rover mission.

His small home workshop includes a manual mill, lathe, surface grinder and belt sanders. Much of the machinery Chris has is vintage machinery that he restored.

The dovetail saddle square and beautiful plane setting hammer are flagship products and made in-house. The hammer in brass alloy has a replaceable walnut head. The small saddle-tail dovetail marker is made from steel and brass and

comes in a selection of gradients from 1:4 to 1:8. The saddle design allows you to mark the dovetail angle as well as 90°.

Equipment and time demands make designing then outsourcing certain components of some tools necessary. Chris Kuehn's Roubo design curves are cut elsewhere but finely detailed back at the shop. The new dovetail and double squares are also outsourced but final detailing is once again done in-house.

A dovetail square is one of those tools that cannot be substituted for when you make dovetails. The thin blade enables access to the tight space in dovetails and pins. These squares have a great satin chrome surface finish with accurate etched markings.

Sterling Tool Works is part of the new generation of specialised hand tool manufacturers that operate on a small scale with a focus on delivering the highest possible quality.

*Review tools supplied by
www.sterlingtoolworks.com*

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SC2 Classic Sliding Table Saws

No matter whether you're sizing solid timber or panel material, the MiniMax sliding table saws are designed for you. Oversized sliding tables and support tables make material handling easy – particularly for those larger work pieces. Large blade capacities and motor sizes will make these machines the workhorse of your shop.



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Capable of a variety of shaping and moulding operations, the MiniMax spindle range will give you that extra level of capacity in your shop. Sliding tables, aluminium fences & interchangeable spindles will make you more versatile in your designs and projects.

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Henry Eckert Marking Gauge

Reviewed by Raf Nathan

This beautiful Australian-made wheel-type marking gauge uses a three part brass body running on a stainless steel shaft. The round or wheel cutter screws into the end of the shaft with a small allen screw. The face is almost 45mm in diameter, comfortable and has enough heft to make the tool feel balanced when positioned anywhere along the shaft.

The fine adjustment activated by the large central thumbwheel with a range of around 15mm is a boon. The shaft is stainless steel as are the thumbscrews. There is even a tiny nylon grub screw to adjust the tightness of the sliding action. A recent development, the gauge now has a flat on its round edge fence to stop it rolling off your bench.

The cutter came sharp and was easy to use on various woods. Comparing it to other marking gauges, the line it left was equal or better in all cases.



On end- and crossgrain it is best, but long grain posed no problems.

With all the brass and steel it weighs a hefty but handy 225gm. Spend another \$70 and get the kit version that includes a scoring and mortise cutter. These large cutters can mount together on the shaft to make the tool a mortise marker. The large scoring blade can also be used to cut veneer.



Clockwise from main:
Fine attention to detail on the Henry Eckert marking gauge.

The gauge works superbly on endgrain.

Showing the gauge fitted with the extra cutters and set up for mortise marking.

Nothing is perfect, however to my eye it appeared so in every detail bar one tiny area of milling on the face.

The design is not new, there are many wheel types gauges around. However the execution is excellent.

Review tool from
www.henryeckert.com,
phone (08) 8241 7777.

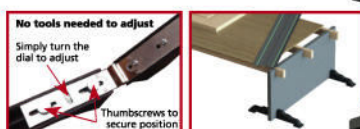


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Sliding Rosewood Bevel (top)

by Joseph Marples

Combination Rebate, Bull Nose and Chisel Plane (top left)

No. 4 Bench Plane (top right)

by Clifton, Manufactured in Sheffield

CNC Routing Machine (bottom left)

CNC Laser Carving Machine (bottom right) by Redsail



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Triton 18V Drill/Driver and Impact Driver Drills

Reviewed by Raf Nathan



Like other power tool companies Triton now have a range of cordless tools that run with common sized 18 volt batteries. Four batteries are available ranging from 1.5 to 4 amp and all feature LED charge level displays.

You can buy a kit or individual tools as 'skins' and batteries as per your needs. The power tool skins are very competitively priced, the drill /driver I trialled for example is \$79. A 3 amp battery with charger costs \$155.

I had a deck to repair which gave both tools a good workout. Whilst many people may prefer impact drivers for building work I found the drill/driver became my preferred choice for deck fixing. The impact driver tended to belt the deck screws in and it was harder to seat them flush. Certainly though for tougher jobs the impact driver is tool of choice.

The drill/driver allowed me more finesse in seating deck screws and the 3 amp battery was a good choice in terms of weight and usage time. Either way though, you will need two batteries to keep things moving. In the workshop the drill/driver did not suit smaller sized screws as the clutch settings are geared more for 8 gauge screws and similar. The chuck held well and the tool was comfortable to use.

Impact drivers combine a rotating and impact action to seat large screws and bolts, all with minimal rotational torque transferred to the operator. After the deck was repaired I tested both tools for heavy duty work. Fixing 1/2" coach screws in thick pine framing is a bit of an ask for any power tool. The drill/driver, while not designed for this sort of work, was able to perform the task but it was not a pleasant process. The twisting force means that you have to fight against the drilling action to avoid flicking and injuring your wrist. Also it feels like you are straining the tool.

Enter now the impact driver that directs almost all its twisting action down to the coach screw. The job although slower and noisier was much easier with this tool. The Triton impact driver seated the coach screws without a fuss, which is a job it is designed to do.

The battery charger is just a slide-on connector and wall plug and seemed a little simplistic – it was however fine in use with an LED display showing when charging was complete. The Triton 18 volt tools both seem well made and a good choice for site or workshop use.

*Review tools supplied by
www.tritontools.com.au*

Top to bottom:

Fitted with a 1/2" chuck the drill/driver (right) has 19 torque settings and two speed settings from 0–1150 rpm.

Although a rather simple looking charger, it will charge a 1.5 amp battery in one hour. A little overpriced at \$70.

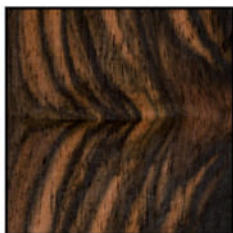
A cutaway view shows how with all-metal gears and a heavy duty spring the Triton impact driver is a tough tool. It delivers up to 160nm of torque and has variable speed via the trigger up to a fast 2400rpm. Higher amped batteries are preferred for this type of tool.

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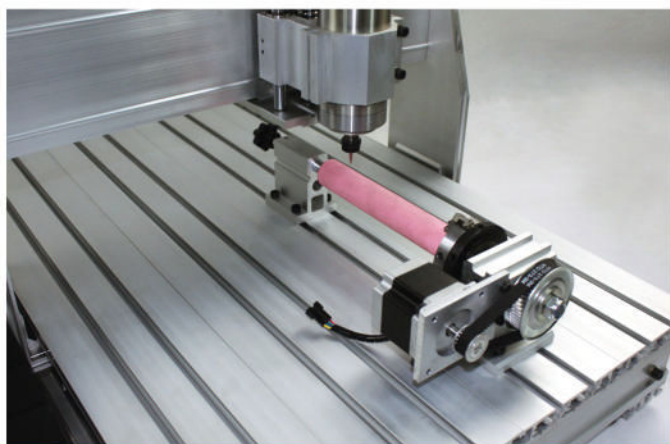
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Standard cutter head



Shelix cutter head

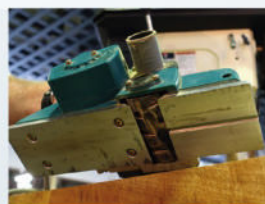
See the difference:

The pictures show Red Gum planed with both standard knives and Shelix cutters. Note the absolute minimal tear-out with the Shelix cutters in this very difficult to plane timber.

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Includes sizes 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, inch.

P&H (Australia wide) \$12



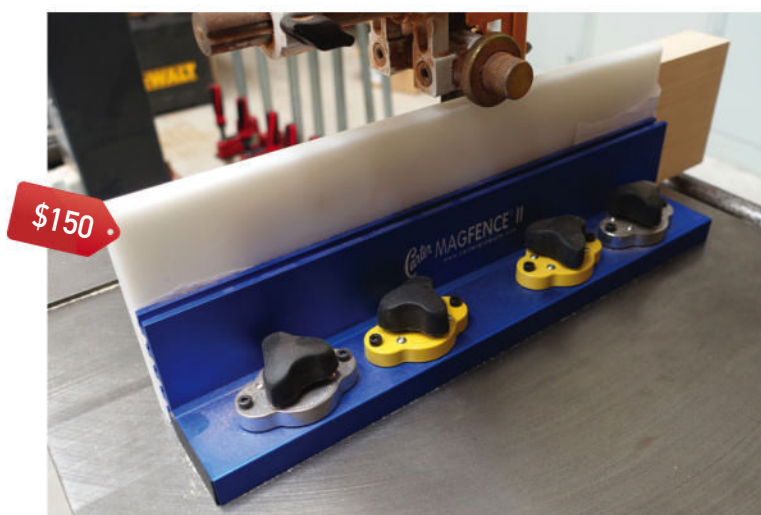
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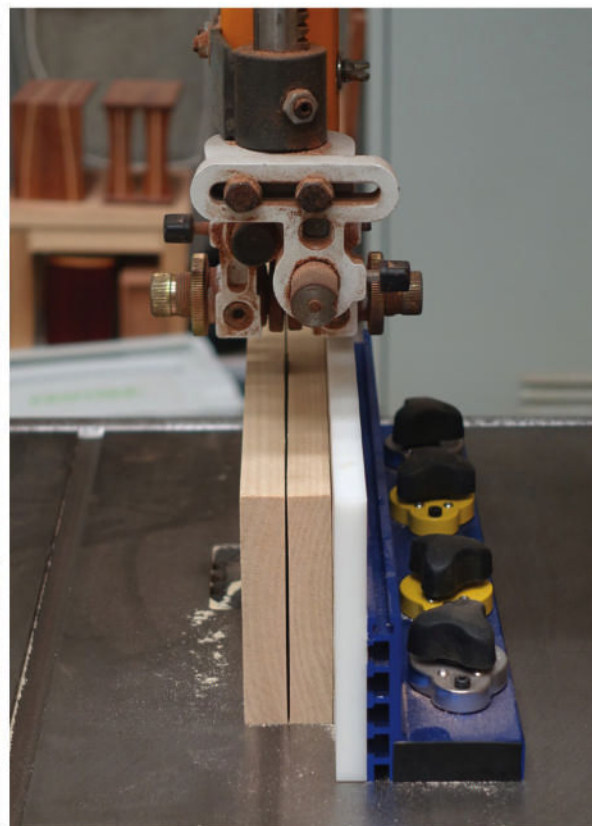


Clockwise from below:

Looking down the line at the Carter fence.

Set the drift angle and adjust the fence accordingly.

Showing the fence and Magswitch magnets which allow easy positioning.



Carter Resaw Fence

Reviewed By Damion Fauser

Some OEM and many aftermarket bandsaw fences allow for minor adjustments to be made for drift, but not all do. Correctly setting for the drift angle allows you to make ripping and resawing cuts with far cleaner results and in a more safe manner.

My bandsaw fence does not adjust for drift. Up until now, I've used my own shopmade resaw fences made from some sheets of MDF fixed together at 90° and reinforced with triangular ribs at the rear. By freeing up this type of fence from the guide bar, you can place it at whatever angle relative to the front of the saw table to allow for the drift angle.

This system has worked well for me for many years but it can be fiddly to dial in the setup as it needs to be clamped down to the table and it can be difficult to clamp it in exactly the right place.

Carter, known for their guides and other bandsaw accessories, have made a resaw fence that is held in place with

Magswitch magnet technology and I've been using one for several months in my workshop to great effect.

The fence itself is a piece of extruded aluminium that is perpendicular in cross-section. The side that rests down on the table has two magnets. Place the fence in position, turn the knobs to activate the magnets and the fence is locked in position. A nice detail is two fine rubber seals on the base of the tool to prevent scratching the table surface and provide additional grip.

There are two additional slots to allow for extra magnets and given that I do a lot of resawing of heavy stock I chose this option. The fence is 380mm long and the 75mm high vertical face has tracks that will accept common jigmaking fixings and accessories.

To allow for additional support when resawing higher stock, there is also an add-on accessory fence made of low-friction plastic. This is simply screwed to the original fence with the supplied fixings and gives you 125mm of vertical face to work with. The additional benefit of this fence is that it will not damage the blade in the case of incidental contact.

I have a larger bandsaw and would ideally like a little additional height and length but there is nothing preventing me from making my own custom fence face and I will likely do this in the near future.

The two magnets provided hold the fence firmly in place. Sure, a good push will force it out of place but you should not be imparting that kind of lateral force on the fence when resawing anyway, so I don't see this as a show-stopping issue.

This product is available from Gregory Machinery for \$150. The additional sacrificial fence is \$46 and additional Magswitch magnets are \$70 each. If your bandsaw fence has enough adjustment in it to allow for drift then you should not need this fence. If like mine your bandsaw fence does not adjust at all then this is a good investment.

Review tool and accessories provided by author.

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SUPERMAX 19-38

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Cast iron frame	NO	YES	YES
Single alignment point to adjust conveyor parallel to drum	NO	NO	YES
Indexed conveyor alignment (wide stock)	NO	NO	YES
Extra wide conveyor for proper stock support	NO	NO	YES
Shroud bolted directly to base to prevent misalignment	NO	NO	YES
Designed to eliminate backlash in the height adjustment	NO	NO	YES
Extra space for easy access to abrasives	NO	NO	YES

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www.carbtool.com.au



Saws With More ►

Oltre's MJ12/1600 panel saw with 1600mm sliding table and its larger MJ12/2600 brother can handle full 2.4 x 1.2m sheets. Both come standard with 3hp single phase motors and have scribe function, 1200mm rip capacity, 45° blade tilt, two dust pick-up locations and can perform compound mitres. Currently part of the package from Beyond Tools is a bonus quality blade set including 96 tooth triple chip tungsten carbide main blade, and carbide split scribe blade. Phone (08) 9209 7400.

www.beyondtools.com



Product news

A round-up of tools and products to take notice of.



Brand New ▲

New on the scene is the Artisan range of machinery from I Wood Like which is purpose-built for those with high-end needs who also require value for money. The Artisan 310XC combination planer/thicknesser features cast iron tables and a 300mm wide spiral cutterblock for a better finish with a lot less noise. Changeover is fast in one movement with large springs supporting the tables. In thicknesser mode, anti-kickback fingers, grooved infeed rollers and rubber outfeed rollers give uniform feed. The optional wheelkit is quick to fit with large wheels making movement easy. The 310XC sells for around \$3250.

www.iwoodlike.com.au

Liquid Hide ►

Hide glue is still the choice of traditionalists because it has advantages that modern adhesives can envy: long open time and reversibility being just two. Unlike modern products it requires heating up to use as you can't just grab a bottle off the shelf and pour. Unless you get hold of some Old Brown Glue which seems to offer the best of both worlds. With liquid hide glue easily squeezed from a bottle there's now nothing to complain about.

www.oldbrown glue.com



▲ From the Forge

One of the most useful hand tools around for freehand shaping is the good old fashioned drawknife. You can take off a little or a lot. The Muller drawknife shown has a 235mm blade and 390mm gap between handle centres. Handles are 90° for comfort and efficiency. Leonard Muller and Sons, based in Gertraud, Austria is a traditional family owned forge, established in 1675. They make a huge range of tools including over a hundred axe variations, including splitters, hatchets and broadaxes in addition to specialised tools such as froes, adzes, mortise chisels and more.

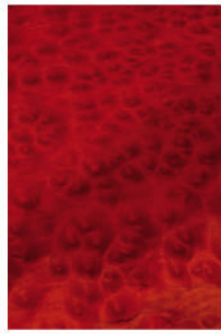
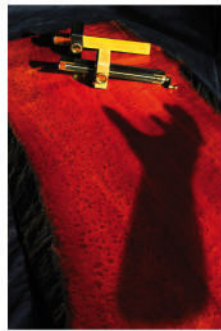
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A Beautiful Vice ▲

Pearson Bulmer entered his great looking workbench in Wood Review's 2015 Student Awards. A very attractive feature are the US-made Lake Erie Toolworks wooden vice screws he chose to use.

'Admittedly they are expensive', he said, 'but I think that is justifiable in terms of the quality and function of the screws. They are a joy to use in regards to the fast action of the wide diameter of the screw which is a lot faster and smoother than regular metal screw vice (particularly school vices, with years of juniors abusing them). A cost that must be taken into consideration for us in Australia is the shipping from the US which is expensive due to the weight.'

www.lakeerietoolworks.com



▼ Quick on the Draw

Spotted at Bern Chandley's workshop was this nifty device that sharpens the flat back and bevel edge of a drawknife in the one action. You can record settings for individual knives to return to for future sharpenings. Designed by green woodworking expert Peter Galbert, after whom it's named, the Galbert Drawsharp is made by Benchcraft in the USA and retails for US\$84.

www.benchcrafted.com



◀ Finishes That Last

'I've lost count of how many times I have returned to cans of finishing product to find them useless after being skinned over or turned into gel', said Wood Review author Andy Groeneveld. 'I recently came across Stop Loss Bags which claim to extend the life of wood finishes. Once you transfer them into the bag, you simply squeeze excess air out and fasten the cap. With minimal oxygen left in the bag your oils and varnishes will last longer.'

'The bags are made from high quality plastic and come with a rubber filling funnel. Potentially these can save quite a bit of money by preventing your finishes going off.'

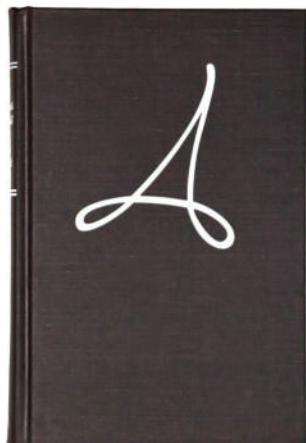
www.carbatec.com.au



◀ Anarchist's Design Book

Christopher Schwarz has what now amounts to a cult following among lovers of true woodworking. 'Anarchism in this context is a tendency to build rather than buy, to create rather than consume', Chris writes in the foreword of his just published Anarchist's Design Book. Building furniture that will last is a way to counter meaningless and wasteful consumerism, and furthermore, he contends, building strong, simple furniture is something within everyone's reach. This is a 456 page book that refers to and celebrates past styles and technologies, explains them and shows how you can use them in a contemporary context. And on top of that it's a very enjoyable read.

www.carbatec.com.au, www.henryeckert.com.au



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Scorched

Andrew Potocnik took up the challenge to create a piece that makes an environmental statement.

In a world where profits rule, often it's cheaper to throw things away than re-use them. This is the case with pallets used to transport products around the world, however of late, perhaps due in part to initiatives such as *Create from a Crate*¹, they've become the starting point for a genre of furniture and fitouts.

I've taken up the CFAC challenge a few times now, and for the last one I collected my two pallets, shaved back the weathered outer surfaces and then did my best to identify timber within. Ash, maple and possibly pin oak were the closest I could narrow the species down to, but before marking out sections for boxes like the one shown below I needed to 'read' the wood as best I could. Much of this wood contained cracks and distorted grain and one idea I had was to incorporate heavily burnt and cracked endgrain slices to create a landscape effect on the lids of some small jointed boxes.

You may think you know about how wood moves, but it can still come back to bite you on the backside, especially when you least expect it. As this timber comes from what I gather are the leftovers of saw logs, it mainly consists of wood close to the core, or pith, of the tree and hence there's a danger of



Andrew Potocnik's finished fingerjointed box made from recycled oak pallet timber.

1. Ripping box sides using a pushstick to guide wood through.
2. Docking sides to length on the mitre saw.
3. Using the Rockler fingerjointing jig is straightforward. The ends of the joints were
4. Sides jointed. Inside and outside faces were selected and labelled beforehand.
5. Grooving the sides on the router table for the lid and base panels.

future movement and distortion. This also makes it somewhat difficult to find matching grain patterns and tends to determine the overall dimensions of whatever you make.

Once satisfied, and with fingers crossed that I'd selected enough suitable timber, I ripped it down to a thickness of about 9mm (**photo 2**) on a tablesaw, and put it aside for a number of weeks to settle and see whether there would be any substantial movement and unwanted distortion before thicknessing to about 6mm.

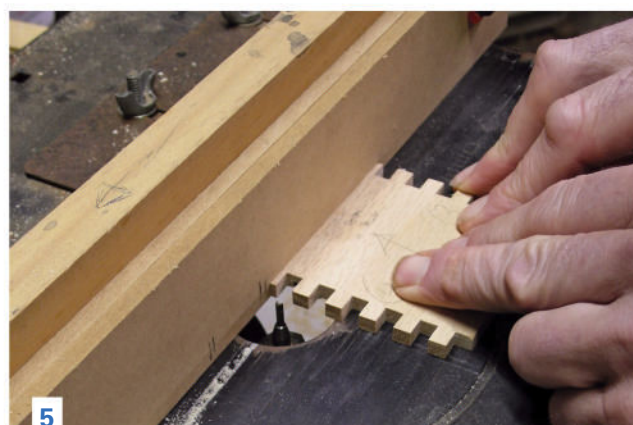
I didn't get around to the next stage for some time but that allowed the wood to tell me whether it was going to co-operate or not. Fortunately most of it stayed flat, so I could cut and plane it to desired widths of about 70mm, then dock to lengths I felt would work. Careful drawings gave me an idea of size, but when looking at 3D objects, what looks proportional on paper doesn't always seem the same viewed in reality, so adjustments may need to be made.

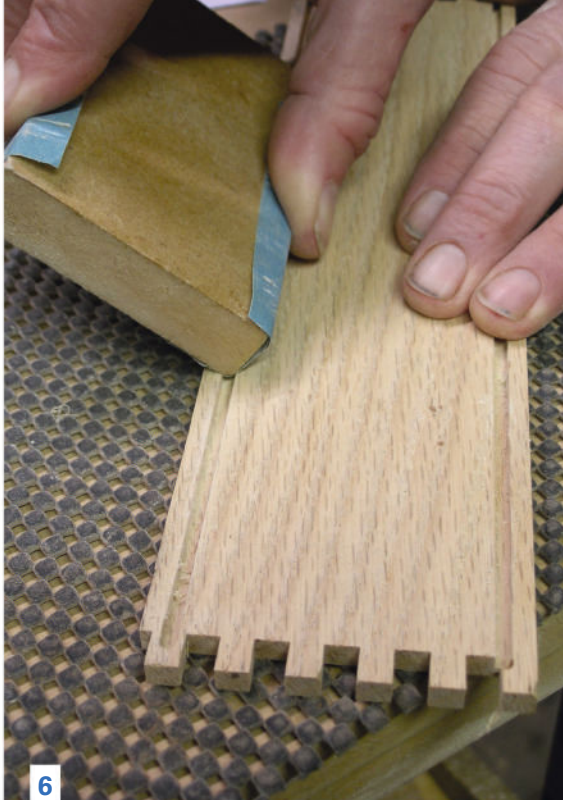
With overall dimensions determined, timber was cut to length on a drop saw (**photo 3**), then it was time to cut joints (**photo 1**) on the router table using a Rockler fingerjoint jig².

Laying all parts out in a logical sequence (**photo 4**) makes the process fool-proof, but best of all, the joints fitted neatly and tightly, with a small amount of protruding material on each of the fingers – something you can do away with depending on how you set the jig up. I just wanted a bit of excess for security's sake.

Next was routing of grooves for the lid and base panels at the top and bottom edges of each side and end piece of the box. Wanting to keep this process simple (especially as I hoped to use this as a potential production line of boxes), I set up a router table fitted with a 3mm cutter and set the fence to the same distance from the top and bottom edge of the box. A groove was made in all pieces, keeping in mind not to cut beyond the reach of long edge fingers.

I needed to mark an entry and exit point of the cutter's reach to ensure I didn't start the cut too early, or end it too late (**photo 5**). It's difficult to explain, but I needed to 'drop' wood onto the cutter to begin the groove and switch the router off at the end of the cut before lifting each piece off the router table. Safety is the key point here, even if it takes a few seconds more to complete each stage.



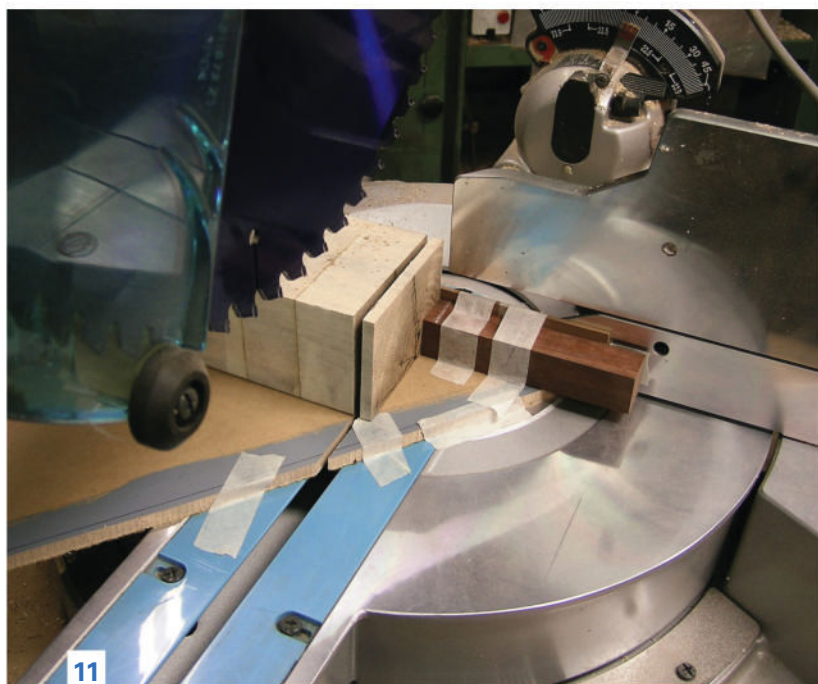


Once routed, all grooves were eased with sandpaper to ensure easy fitting of panels, and to remove any rough edges (**photo 6**). Top and bottom panels, machined to 3mm, were cut to size (**photo 7**), allowing for a little cross-grain expansion in the slots – keep in mind, these are ‘floating panels’ intended not to be glued all around and fight timber movement. Even though these panels were machined to match widths of the grooves, they were still to be sanded which would reduce thickness another couple of woofteenths, so the fit wouldn’t be too tight in the final assembly.

I like to pre-finish all components before assembly and that may mean finishing is completed in stages as the assembly requires, hence a wipe on- wipe off application of polyurethane was used (**photo 8**) before moving onto the 3mm lid insert which I bleached to contrast with the burnt

plant-ons. This was a two stage process and I carefully followed the manufacturer’s instructions to ensure a safe and suitable outcome (**photo 9**). The top surface was left raw and the underside was also finished with a wipe-on, wipe-off application of polyurethane.

Our timber is precious and should be celebrated, not wasted so with the motif that would go on the lid I aimed to make a statement about our landscape and the timber we see as being ‘useless’. Hence I searched for the most degraded and cracked piece of wood in my stock (**photo 10**), bound outer edges tightly with masking tape and cut a series of 5mm slices on a drop saw (**photo 11**). Beware! In this case I set up an MDF support with an attached stop-block, but after every pass of the blade I allowed the saw to stop spinning before raising it so the spinning blade didn’t flick the slice into the outer regions of my workspace.

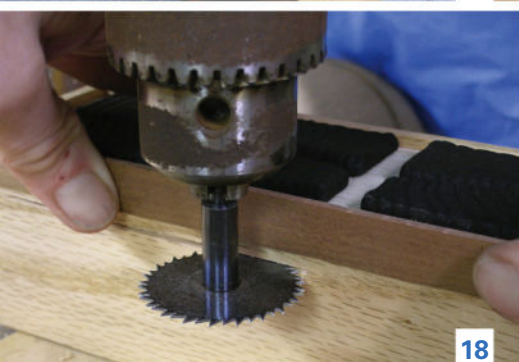


I cut far too many slices (**photo 12**), but this gave me the opportunity to play around with the most appropriate combination for this particular project.

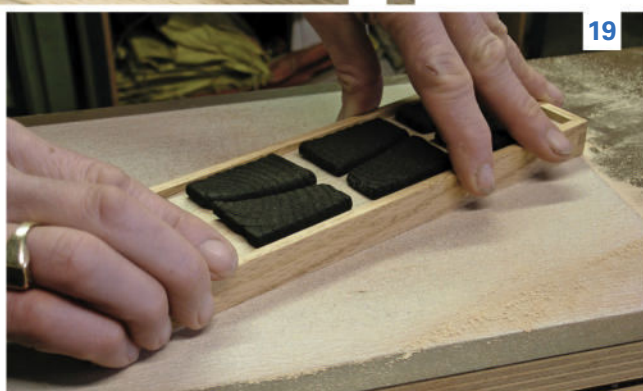
At this point I moved to assembling the box, gluing all parts together with PVA glue (**photo 13**) and a few clamps just to ensure all parts fitted correctly. The jig will ensure joints fit tightly and accurately, so you can almost do away with clamps on a small scale project such as this...but be sure all joints meet neatly and at right angles before letting glue set.

The fingers I had intentionally left a little too long were next trimmed with a flush-trim bit on the router table – note the use of a pushblock to keep fingers well clear of the cutter. A little hand sanding finished things off (**photo 14**).

6. The grooves were lightly sanded for a smooth fit.
7. Floating panels for the base and lid were trimmed to size on the drop saw.
8. Pre-finishing before assembly gives better results.
9. The lid was bleached so the scorched decoration would contrast even more.
10. I purposely picked the worst bit of pallet wood for the pieces to be torched.
11. Edges were taped before dropsawing against my made-up stock block jig.
12. I cut more endgrain pieces than needed, then played around to select the best arrangement.
13. With everything ready and fit checked, gluing-up went smoothly.
14. A flush-trim bit on the router table trimmed the fingerjoints neat.



15. A gas torch was used to char the pieces evenly.
16. Wire brushing removed the softer growth rings and loose charcoal.
17. Spacers helped position the charred sections as they were glued on.
18. Sawing the lid off on a pedestal drill.
19. Flushing off the lid on a sanding board for a square fit.
20. Gluing in filets to act as lid stays.



Now it was time to prepare the pieces of the cracked 'landscape'. These were heavily burnt with a gas torch (**photo 15**) to remove softer parts of grain and allow harder growth rings to remain. Once these charred areas had been wire-brushed away they would tell their story of how the tree had grown (**photo 16**). These were trimmed with the help of a spacer to leave even spaces between top and bottom edges. The raw edges were burnt before all the pieces were ready to be glued into final position with thick gap filling glue (**photo 17**).

You can separate box tops and lids on the bandsaw, tablesaw, by hand or as I did by using a 500mm dia sawblade fitted to an arbor on my pedestal drill. This was lowered to the desired height, using a piece of scrap to protect the box sides from the arbor (**photo 18**). I left a small amount of wood intact on each corner to prevent the sawblade removing more timber than I wanted. This was cut away with a handsaw and all cut surfaces cleaned up on a sanding board (**photo 19**), so both top and base met as neatly as possible.

There are many ways to fit lids, and to be truly honest I detest fitting hinges so I opted for a couple of 2mm thick pieces of wood glued to the inner edges of the lid. These would protrude 4–5mm and slide into the top section of the box for a neat fit. The filets were pre-finished and their corners eased slightly before gluing them into place with a couple of spring clamps (**photo 20**).

Using recycled wood is a commendable but not necessarily a cost effective process. Breaking down pallets, removing nails, sorting through and matching the pieces all takes time. However it can fire your creativity as it is a process driven by the heart, not the pocket, and the rewards can be wonderful.

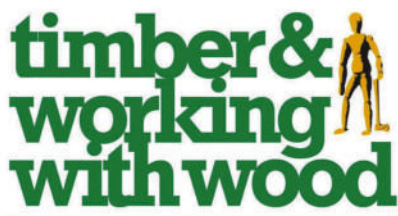
Photos: Andrew Potocnik

1. *Create from a Crate* is a biennial competition instigated by Ward Petherbridge, owner of Waste Converters. See *Wood Diary* for 2016 CFAC exhibition details and also www.vwa.org.au and wasteconverters.com.au for more information.

2. The Rockler fingerjointing jig is available from www.carbatec.com.au



Andrew Potocnik is a wood artist and woodwork teacher who lives in Melbourne. Email andrewpotocnik@telstra.com



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With The Grain

A love of handcut joinery that maximises the strength properties of wood drives Bern Chandley to make furniture that draws on the Windsor style. Story by Linda Nathan.

The technology of Windsor chairmaking represents the perfect marriage of geometry and physics as applied to the movement properties of wood. When weight is loaded onto triangulated components, it has the effect of locking them into each other.

With grain running end-to-end, thin spindles in the backs of some styles will flex in use, ironically becoming stronger, just as a tree will bend in the wind and not break. In fact only end-to-end grain is used in Windsor chair components. Spindles and crest rails are riven or bandsawn along the

grain before being shaped with drawknives and spokeshaves, or turned and steambent.

Mortise and tenon constructions go right back to ancient Egypt and were used extensively in Roman times, but the Windsor style mainly evolved in England from the 1600s on. When immigrants took it to North America it evolved again, especially as techniques were adapted to different woods.

At age 45, Bern Chandley has already clocked up almost 30 years as a maker of furniture, fittings and objects of



Left: Bern Chandley in his Alphington, Victoria workshop. The main area is kept free of machinery and has a roubo style workbench with other benches and tables for assembly and finishing.

Below: Some of the tools and miscellaneous needs of the Windsor chairmaker.

Photos: Heather Gaskell



the most diverse kind. Now however, he works almost exclusively in the Windsor style, and is developing his own designs within that vernacular.

Trades ran in the family, his father and nine uncles all went that way, so when as a 16 year old he was offered an apprenticeship in carpentry and joinery it was natural he followed that tradition.

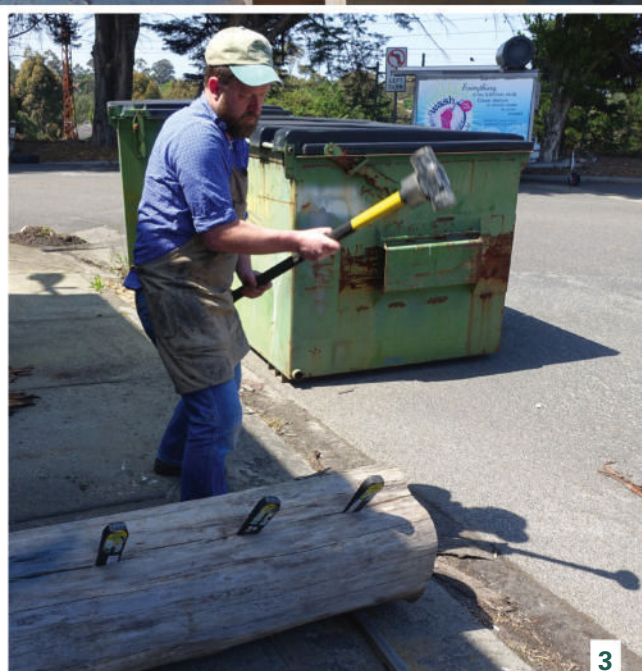
There was a strange kind of apposition while learning and working as an apprentice. 'It seemed weird to us at the time', Bern remembers, 'because while the curriculum taught traditional hand cut joinery we were going back (to work) and butt joining everything and banging it together with a Senko nail gun'.

In his twenties there was travel and after that more than a decade followed working on creative builds for theatre, opera,

movies and TV shows. A year spent working on sets for Star Wars was pretty cool, as was watching George Lucas directing.

Making what Bern calls 'pretend' furniture for theatre productions wasn't about function, it just had to look right and be light. Even though it wasn't built with longevity in mind, researching and simulating Art Deco, post-war and other styles of furniture was instructive. Set building contracts weren't ongoing, so in between and afterwards, Bern was also taking on other commissions and making 'real' furniture.

Bern's love for Windsor chairmaking was triggered around five years ago while assisting at classes given by visiting US maker and Windsor chair expert Peter Galbert at the Melbourne Guild of Fine Woodworking. 'Peter Galbert is a really inspiring teacher', said Bern, 'he puts a lot into it and he's continually trying to improve processes with better jigs and ways of doing things. I made a chair during



his course and I just loved it. It was going right back to my love of joinery, where you're creating a piece of furniture and relying on and understanding the strength of the wood to join it all together, rather than using any sort of fastener'.

'There are 300 years old (Windsor) chairs that people are still sitting in', Bern explained, 'you won't find that with other styles of chairs. Other chairs always come apart where the side rail joins the back leg post because that takes so much punishment, but with Windsor chairs where everything terminates in the seat the components are isolated from each other, whilst at the same time due to their geometry and joinery work together to distribute the weight of the sitter evenly'.

Bern's favourite woods to use are mostly traditional choices such as elm for seats and ash for spindles. Oddly enough salvaged sections of elm can be easier to come by in Melbourne than back in England due to Dutch elm disease having afflicted and decimated local trees. With its often interlocked grain, elm is less likely to split in seat applications, said Bern. Ash is another traditional choice, strong and yet light for legs.

Local species that are favourites are blackwood (*Acacia melanoxylon*) and its paler cousin silver ash (*Acacia dealbata*). Both are light, bend well and are generally straight grained. Logs are split out front of the factory workshop that Bern shares with three others. Riving out components with the grain again reinforces the strength properties of components as advantage is taken of the natural inclination of the grain. An average straight-grained green log of blackwood may yield enough spindles and crest rails for a set of six chairs.

Another boon for the woodworker, Windsor chairmaking techniques tend to produce more shavings than dust. Bern uses traditional tools such as drawknives, spokeshaves, scorps, travishers, froes, adzes, reamers and more. They may sound archaic but it's an evolved technology of edges that can remove material efficiently at every step of the way.

Hide or animal-based glue is another traditional technology he relies on. Organic, reversible, cleans up with water – these are claims that modern adhesives can envy, and a long open time is what you need when you're lining up and seating a whole lot of spindles and components in a glue-up.

1. Levelling off chair legs is simplified by running them over a handplane held captive in a leg vice.
2. The rich internal colour of blackwood revealed.
3. No need to pay for gym memberships when your daily work involves cleaving whole logs apart.
4. Simple but effective tool storage, clockwise on the wall from top right: spokeshaves, two reamers, an adze, three travishers, scorpis, a level and drawknives.
5. Bern is seated in his workshop chair, in fact the original rocker he made with Peter Galbert that inspired his journey with the Windsor style.
6. Templates showing setouts and angles.
7. The shavehorse is an ingenious clamping device that operates by releasing and applying foot pressure.





While the designs appear 'simple' there's quite a lot of geometry going on with these chairs, rockers and settles. To the uninitiated, Bern's templates look like maps of the stars with lines running off at tangents that describe angles, and small circles that mark the placement of spindles, legs and rails.

Figuring out all the angles is a science. The legs run all the way through at 6° as a through tenon. Leg mortises into the seat are first drilled and then reamed out at the same angle to create a tapered hole. Rake angles go forward and backwards while splay angles go side to side; combining the two gives the resultant angle of a leg or a spindle. It's complex making these chairs because nothing is at 90°.

To perform each task and know where to locate components you have to come up with strategies. Bern explained: 'Like, how do you measure that stretcher? How do you know how to orient anything? You know you've got to drill that, but how do you drill it? Because nothing is at a right angle, you've got to come up with all these reference points. One of the most valuable things I learnt from Pete was that complexity can be overcome with well considered jigs. Once you understand the reasons behind the geometry of the chairs a whole world of design is open to you. This joinery can lend itself to incredible variations in form.'

Most joinery involves through and wedged tenons but the duck's bill or concealed mitre used to join the three-piece frame for a rodback chair or settee back is another example of elegant strength. After turning, components are steamed and bent. Joinery is cut before trimming tenons to length and an oak pin is run through from the top into the crest rail.

For Bern the complexity of Windsor chairmaking is stimulating and no longer concerning. With the technical side of making sorted, he is free to vary forms and create his own designs. 'I tend to like less decorative furniture and am moving more and more away from traditional florid



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pieces towards simpler lines.' In particular historical and contemporary Japanese furniture as well as mid-century Scandinavian furniture has inspired him in the way the turnings and seats of mass-produced Windsor forms were stripped back, much as the Shakers did centuries ago.

Chairmaking has always represented the pinnacle of the craft of furniture design and making. No other piece of furniture requires such a close and demanding relationship with its user and its maker. While Bern also makes tables and other kinds of furniture, it's chair forms and complex joinery that captivate his interest.

Workshop photos: Linda Nathan

Chair photos: Christopher Sanders, Jeremy Dillon

You can see a short video of Bern shaping some spindles and splitting a log on Wood Review TV (YouTube).

Contact Bern via his website bernchandleyfurniture.com, or Instagram [bernchandleyfurniture](https://www.instagram.com/bernchandleyfurniture).

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8. Sharpening setup and hide glue and glue pot.
9. A set of six chairs in progress. These had legs made from white ash, spindles and crests of blackwood, and seats made from walnut.
10. Lowback Welsh stick chair, figured English ash with elm.
11. Birdcage rocker in Melbourne elm and Belgian oak.
12. Rodback dining chair, English ash, American black walnut seat with milk paint finish.
13. A cabinet modelled on 17th century English and North American oak furniture with carving inspired by the work of Peter Follansbee.
14. Continuous arm rocker, Melbourne street elm seat with Kyneton pin oak.
15. Overhead view of lowback Welsh stick chair.
- 16,17. Rodback settee, Tasmanian blackwood with figured English ash spindles.



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Over the Rainbows

Vince Manna travelled to Hawaii to investigate one of the fastest growing and most beautiful trees in the world.

Around 30 years ago, travelling the famously curvy Hana Highway in Maui, I first got a glimpse of what appeared to be tree trunks 'painted' in a wide spectrum of colours.

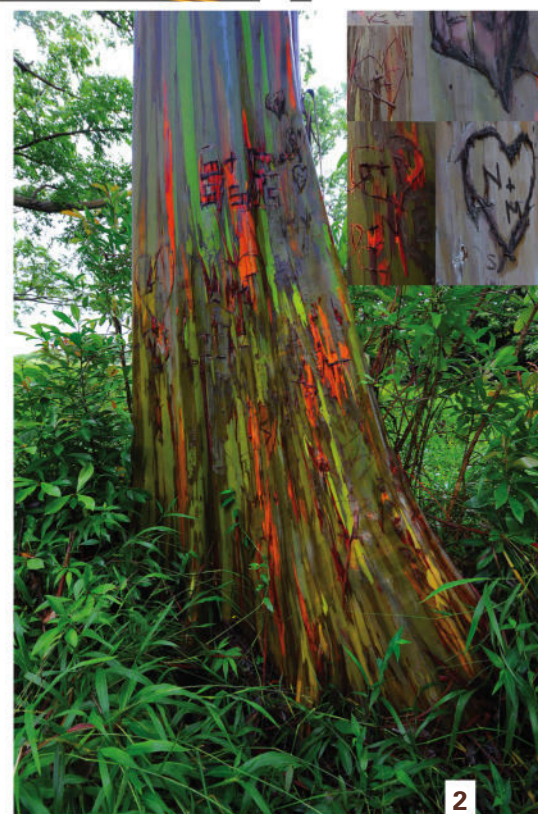
From 1929, *Eucalyptus deglupta* was introduced as part of Hawaii's reforestation efforts. Rainbow gums were first planted in Oahu's Wahiawa Botanical Gardens but soon after found their way throughout the Hawaiian islands.

Seeing often photoshopped images of these trees on social media brought on my urge to revisit them. I arrived at nightfall in the middle of a heavy downpour and had to rapidly adjust to a right-hand drive vehicle. Narrowly missing head-on collisions on the busy roads, my worse fear was that wild weather

would prevent me seeing the painted eucalypts.

When I set out early the next morning, there was a beautiful rainbow in the distance hovering directly over the rainbow eucalypts. I was struck by the immense sizes they had grown to. Stretching well over 150 feet tall, *Eucalyptus deglupta* is one of the fastest growing trees on earth. At times the trees can appear to be bland but after rain their colours emerge to striking effect – they must have the most beautiful bark of any tree on earth.

Many large branches lay scattered around the base of some trees as the wood is very brittle and often comes crashing down. One massive tree lay shattered, the victim of a recent lightning strike, but mostly the damage they suffer is from tourist graffiti.



Opposite page: Surreal colours of a healthy roadside specimen, untouched by human graffiti 'artists', along the Hana Highway in Maui, Hawaii.

1. Rainbow over the rainbows. Massive specimens along the Hana Highway in Maui.
2. Tourists regularly deface these trees with their unsightly love heart graffiti.

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Eucalyptus deglupta

Common names: Rainbow gum, kamarere, Mindanao gum, rainbow eucalyptus, painted gum

Native to Indonesia, Papua New Guinea, Philippines and parts of SE Asia, rainbow gums are now plantation grown throughout the tropics.

It is one of the fastest growing species in the world and has been used to reforest areas recently devastated by volcanic activity, landslides, or human deforestation.

The trees shed bark annually to reveal patches of bright-green which change

colour and darken over time. The long strands of bark turn to a deep brown maroon colour before decaying.

The rainbow gum produces one of the softest of commercially available eucalypts and is harvested to produce pulpwood (paper), particleboard, veneer and solid section wood for furniture, cabinetry, turnings, construction, and boat building.

It is generally easy to machine or work with hand tools, however quartersawn surfaces are prone to tear-out due to interlocked grain. Rainbow gum glues and finishes well.



Visitors drop by on a daily basis to engrave messages on their beautiful tender surfaces that are in more ways a reminder of the constant damage we all inflict on our precious planet. The trunks are covered with murky stains caused by tourists constantly touching and posing with the trees or while scarring them with love hearts.

I spent hours photographing and filming from new viewpoints made possible with my 'selfie stick on steroids', an attachment I made that extends over 12 metres and is lightweight, flexible and strong enough to support a tiny camera at one end. This enabled me to photograph 'over the rainbows' as I weaved my way through tall trees, making some nesting birds high up in the canopy quite nervous.

Beautiful trees were found in remote areas on private land while some of the most impressive specimens with surreal

markings and colours stood amongst bamboo and lush green rainforests.

Although the tops of these trees and trunks sat obscured only metres away from the winding road, the sheer incline of the mountain side that makes way for spectacular views meant reaching them was extremely difficult, if not dangerous. With nowhere to park along the highway, it meant a long strenuous walk with heavy equipment along the edges of hairpin bends, followed by a crawl through barbed wire fencing only to jump over rocks and steep slopes.

Untouched by graffiti artists, these giants were in an immaculate healthy condition. The thousands of long brown strands that accumulate at the base of the trees over time make way for a new cycle of colours.

There was one last thing to do 'in the name of science'. In order to obtain an



3

image of a timber specimen without permanently removing any timber from its source, I used the highway as a 'planer', literally! I selected a small dry shattered section of log from a nearby fallen tree and ground away at its jagged surface for hours on the abrasive road surface until it was flattened. Passing motorists must have wondered what I was doing as I knelt as if in worship directly below the trees.

Smoothed with a range of sandpaper grits purchased from a nearby hardware store, the final result was truly roadworthy. The bark of fallen trees and branches had lost its bright hues, but the finished timber

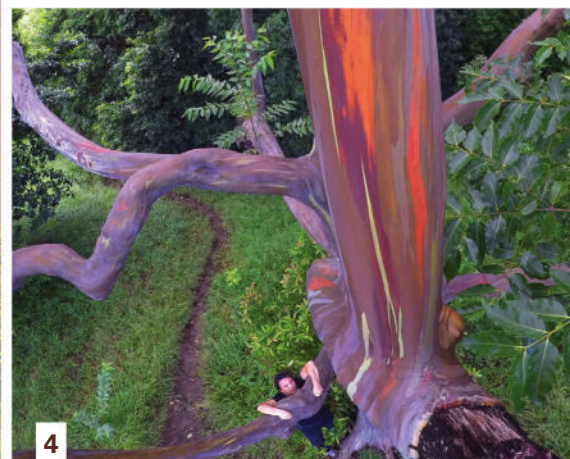
sample still showed various shades of brown and green on the inside with patterns and characteristics similar to that of the bark.

The finished sample was photographed dry and also dampened to enhance its grain and contrasts before measuring and weighing the specimen on site to record its technical data...before once again hitting the road.

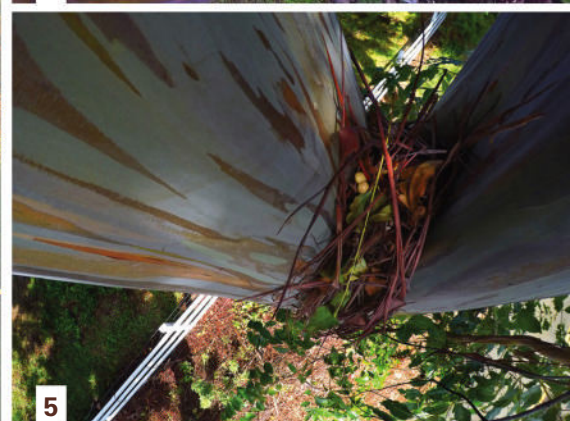
Photos: Vince Manna

Vince Manna is a woodworker, a photographer and an adventurer. See www.vincemanna.com and email him at vincemannapictography@gmail.com

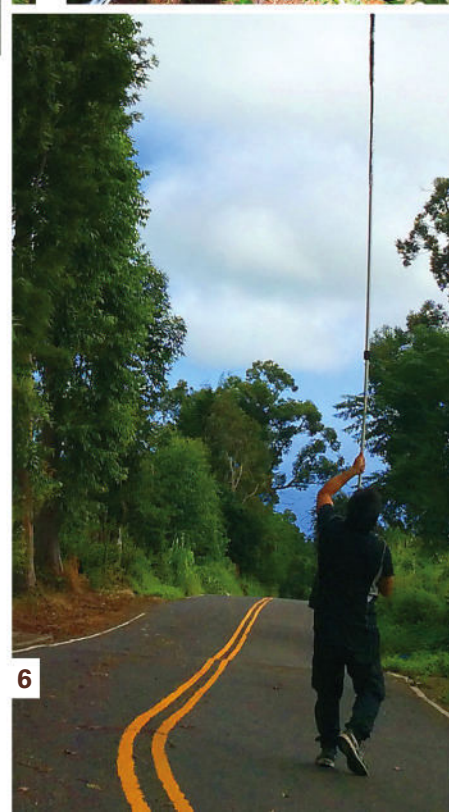
3. A view of night stars on a clear moonless night over rainbow gums near the Hana Highway, Maui.
4. Just hanging around...Vince Manna takes a selfie while taking a load off his feet on a rainbow gum branch.
5. Selfie stick view on high reveals a bird's nest in the crook of rainbow gum branches.
6. Showing the author in photographic action with his steroidal selfie stick.



4



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6



Honing Guides Compared

Peter Young reviews Eclipse, Henry Eckert, Lie Nielsen and Veritas honing guides.

Any sharpening method needs to be quick and repeatable. Ideally we should be sharpening a blade before it needs it, so the edge is always performing optimally. Sharpening with a honing guide is relatively easy to master and it certainly provides a very quick and repeatable method. There are a large number of honing guides available and in this review we are looking at four that cover a wide price range.

Basic Eclipse

The original Eclipse honing guide appears to be no longer available but there are a number of inexpensive Taiwanese copies and I have used one of these for a number of years. Plane blades are held with the two upper jaws while chisels are held with lower dovetailed jaws.

The honing angle is determined by the amount of blade which protrudes from the guide and this information is provided on the side of the guide. Most people make a stop block jig using the provided information and while the angle may not be absolutely accurate, it is very repeatable. That is, the same angle can easily be found every time the blade needs to be honed.

With a little bit of fettling these honing guides can be made to work quite well. The main issues are that the castings are not well made and the paint is too thick. Both issues can be fixed with a bit of judicious filing of the upper and lower movable jaws. The upper jaws typically need to be flattened to remove a hump in the middle while the lower jaws just need to have globs of paint removed so there is good contact with the chisel.

The narrow wheel of the Eclipse guide makes it very easy to produce a cambered plane blade, you simply apply pressure for 4–5 strokes on one side of the blade and then repeat on the other side. However when honing a narrow chisel some care needs to be taken to keep the blade square to prevent rocking.

Henry Eckert

The Henry Eckert honing guide is based on the Eclipse guide but is vastly superior in manufacture using marine grade stainless steel and CNC machined and matched jaws. The wheel bearing is also marine grade stainless steel. The upper and lower jaws respectively hold plane and chisel blades true and square.



Clockwise from main: Henry Eckert guide at the rear on the waterstone, in front left to right: basic Eclipse style, Lie Nielsen, Veritas Mk II.

The Veritas Mark II guide (left) can accommodate narrow width blades. The Henry Eckert guide can also take narrow chisels.

The new Henry Eckert gauge (right) is based on the basic Eclipse gauge on the left, but of superior manufacture.



I like to use a screwdriver to apply light pressure to hold the blade in place but I did try to just use finger pressure and had no problems with the blade moving during honing.

Henry Eckert also makes an angle setting jig with five settings for plane blades and three settings for chisels. You could make one yourself but I would recommend paying the extra money to get the guide.

One of the things I liked about the Henry Eckert guide is that it would take my smallest 3mm chisel whereas the Eclipse and the Lie Nielsen guide would not (but Lie Nielsen offer interchangeable jaws for small chisels). At \$59 for the guide and \$25 for the jig I think this represents exceptional value.

Lie Nielsen

The Lie Nielsen honing guide has been long awaited by honing tragnics like myself and it does not disappoint. This guide is an evolution of the original Eclipse with two interesting features. Firstly there is only one location for chisel and plane blades, an upper dovetailed set of jaws, rather than an upper and lower set. The other feature is the removable jaws. Replacement jaws are available for narrow

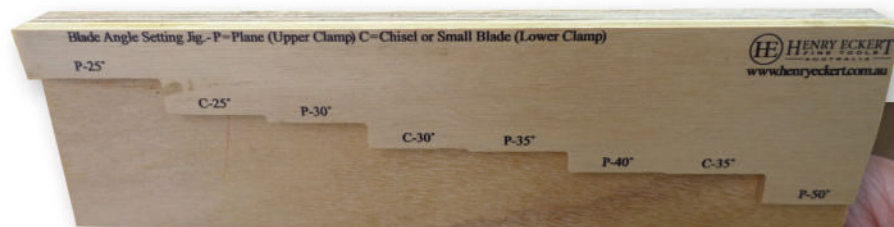
chisels 3/16" and under, mortise chisels, skew plane blades and chisels, and long jaws for short blades.

I bought a pair of the long jaws to hone the blades from my Lie Nielsen spokeshaves and my small HNT Gordon shave and got excellent results. Similar blades are found in Stanley, Record and Kunz spokeshaves, but note the tanged type of spokeshave blade cannot be sharpened in this honing guide.

The Lie Nielsen guide is beautifully made from stainless steel with a bronze bearing and I am sure it will survive a lifetime or two of honing. All this comes at a cost, currently about AUD\$240 for the guide and an extra \$30–35 for any of the replacement jaws.

Veritas Mk II narrow blade

The Veritas Mk II honing guide has been around for a while. It costs \$84 to upgrade a standard guide that costs \$109. The Mark II differs from Eclipse style guides by clamping the blade above and below. While this system works well for wide blades, there is a problem with clamping narrow blades in the guide because they tend to move from side to side. This has now been fixed with the release of the Veritas narrow blade honing guide attachment which can easily be fitted to an existing Mk II guide.



Clockwise from above:

You can make your own angle setting jig, or buy one from Henry Eckert for \$25.

Setting the Lie Nielsen guide against the author's shop made angle setting jig.

The long-awaited Lie Nielsen guide is a beautifully made modified Eclipse style guide. Replacement jaws for narrow chisels and other blades are available.

Plane blades are located in an upper set of dovetailed jaws on the Lie Nielsen guide.

The narrow blade head clamps from side to side with parallel jaws in a similar way to the Eclipse style guides. A major point of difference from the Eclipse style guides is the width of the roller. The Veritas roller is 50mm wide and it provides a very stable base for honing narrow chisels.

My 3mm wide chisel is easily held by the Veritas narrow blade honing guide. The other major advantage of the new attachment is that the parallel jaws hold the blade at exactly 90° and also allow the use of an angle setting jig as used by the Eclipse style guides.

One issue I have with the Veritas guide is the lack of a slotted knob to tighten the blade in place. The other guides all have a slotted knob and it just needs a little bit of pressure to tighten the blade to keep it in place.

In summary

Has the ultimate honing guide been developed? Not yet, but each of the guides does an excellent job. The cheapo Eclipse guide represents excellent value for money and with a bit of fettling will do an excellent job for many years. The Henry Eckert and Lie Nielsen guides are much better made and are ready to go straight out of the box.

Attachments for the Lie Nielsen guide allow a bigger array of blades to be sharpened. The Veritas with standard and narrow blade heads are also very adaptable and changing heads is very easy. The major benefit to me of the standard head is the ability to sharpen skew blades.

After using these guides for a couple of months I find myself reaching for any of the Eclipse style guides for plane blades and the Veritas with the narrow-blade head for chisels.

Suppliers:

Carbatec (Veritas): www.carbatec.com.au

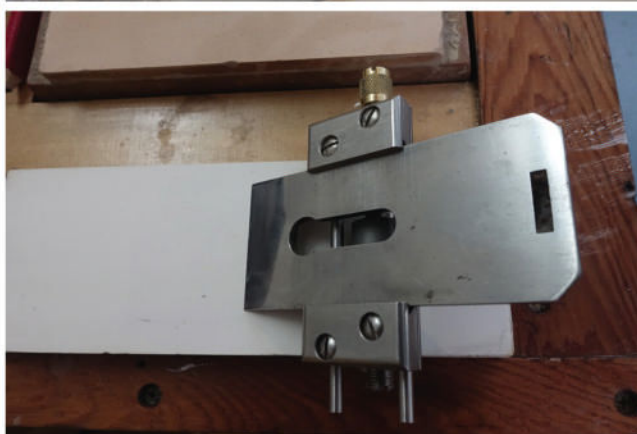
Eclipse from many hardware stores

Henry Eckert (Lie Nielsen, Henry Eckert): www.henryeckert.com.au

Lie Nielsen: www.lie-nielsen.com

Peter Young is Brisbane based furniture designer/maker.

Email: pydesign@tpg.com.au



Speed Check

One of the supposed benefits of freehand honing is speed. No need to spend a lot of time placing the chisel or plane blade in the guide and getting the right angle before you start honing. But one of the things I love about the Eclipse and the Henry Eckert and the Lie Nielsen guides is how quick and easy it is to load a chisel or plane blade and get going.

I thought it might be fun to see how long it takes to load a blade and then how long it takes to go through the five stones I typically use in honing. For chisels it takes 10–15 seconds to load the chisel and then another minute or a bit more to complete the honing. So a total of 1.5–2 minutes. Cambered plane blades take a bit longer, a total of 2.5–3 minutes. No excuses not having time to sharpen tools!

Modern Low Table

Raf Nathan combines featured wood, colour, and a simple base frame.



This project uses minimal machines and tools to create a trendy but strong coffee table. You will only need a drill, a mitre saw or similar and some hand tools. Use handsaws instead of the mitre saw and you could go totally unplugged.

Joinery could be mortise and tenon however as a beginner project I am using dowels. I have seen some people use only screws to join table bases together. Screwing into endgrain is not good practice though, as the endgrain can break and over the years you can end up with a wobbly table.

The wood

There is in my opinion quite a design trend to make dining tables and coffee tables using what is called feature grade

Australian eucalypts. Feature grade is wood that can have gum veins, small holes and minor cracks. In the past this was considered lower grade wood and was mainly used for house framing or firewood. With reduced resource and a new appreciation for feature, these woods are now used quite extensively in furniture and interior joinery.

Some years ago I visited a sawmiller in regional Victoria. As we were about to leave he mentioned some interesting messmate that he had just sawn. It had a lot of gum veins and knots but was quite amazing. I bought all of it as boards of various lengths. Over the years I made a couple of dining tables from the wood and the two boards that remained formed the basis for this table. The base however was made from Victorian ash, a name that describes a group of eucalypt timbers.





Starting point

My starting point was the two boards for the top. These were machined to 240mm wide and 40mm thick and were 1400mm long. This is somewhat narrow for a coffee table (480mm wide overall) however I decided to not glue them together but instead to leave a 5mm gap between them. This adds a minor amount of extra width but also a shadow line on the top between the boards.

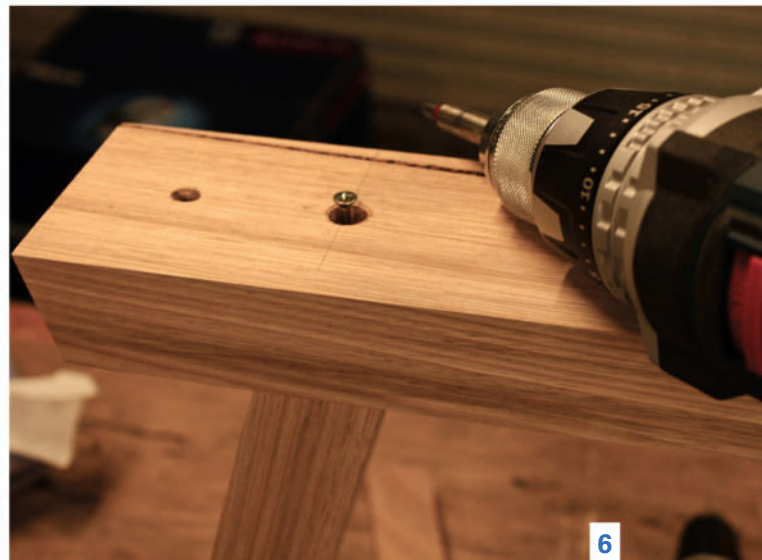
Base design

The base design reflects the popular U-shaped splayed frame that is very popular at the moment. This has two base sections and a connecting low rail. The top is fixed to the base with coach screws. Over the years I have found that, providing you do allow for wood movement, coach screws really do lock the top down.

To establish the degree of splay for the legs I held a piece of wood at various angles against the top boards and decided that 15° was best. Using a digital angle-cube helped greatly to establish this angle.

Step by step

1. The base components were all sawn to the 15° angle on a mitre saw. All cuts are at 15° including the undercut on the upper rail.
2. I used some test pieces first to get an idea of required lengths and then arranged base components on the two top boards to establish final measurements. The reference point is the overall width of the top. The legs splay out no further than this.



3. All wood was then sawn to final length and of course 15° was the angle used for all saw cuts.
4. My plan was to butt glue everything together and afterwards insert dowels to make a strong triangulated structure. Before any gluing occurs though, holes were drilled for the coach screws that secure the top boards to the base. The outside holes were elongated to allow for wood movement. Also a hole was drilled on the upper rail to accept an 8 gauge screw.
5. Internal faces were filled and sanded prior to gluing. The base frames were then glued together. Clamps hold the lower rail in place while the glue sets.
6. One screw was used to pull the top rail down onto the legs. Screwing into endgrain is not a long term solution but in this case rather a means to clamp the wood together. Leave the glue to dry overnight.
7. The position of the ½" hardwood dowels was marked out. I used lengths of hardware store bought dowel and cut this to length. The dowel ends were chamfered for easy insertion. Importantly, there must be a way for glue and air to escape so I sawed in a groove along the length of each dowel. Without this groove the pressure of trapped air in the dowel hole can force apart the components when you hammer in the dowel.
8. The base frame was gently clamped in a vice and the correct size hole for the dowel drilled. Glue was added and the dowel tapped into place. Of course I did some test runs in offcuts to ensure the dowel and holes were a snug fit. Because the joints are only glued at this stage be careful not to hammer the dowels too hard and risk breaking the glue-joint.





9. When the glue was dry the protruding dowel ends were sawn and planed flush.
10. The end result is a rock solid frame. A centre rail is added to strengthen the assembly. In the photo I have positioned the rail on the floor to get an idea of how it all looked.
11. The centre rail is also dowelled in place. I used a shop made guide to drill the holes in the endgrain of the centre rail.
12. A drill press was used to drill the dowel holes in the end frames.
13. The centre rail and end frames were final sanded. I then chiselled and planed a small bevel on all the edges. The centre rail was glued and clamped in place.
14. In preparation for fixing down the top to the base the underneath was sanded. Both underside edges of each

of the top boards were now beveled because I wouldn't be able to access these after the top was fixed down.

The base was painted in an acrylic red paint. The grain however was still partially visible. Choosing the correct red was not easy, but I found a red tint that was ideal. Test pieces were painted first to check the red before painting the actual base.

15. The wood for the top had many, many gum veins and small knots and need filling.
16. The gum veins were filled with Timbermate water-based putty. Shown here is a blackwood colour putty being applied to the base section which was Victorian ash. The messmate for the top is darker than the base and for this reason I custom mixed two colours to achieve a darker blend of putty. I used three parts walnut and one part ebony to get a colour that blended in with the dark holes and gum veins. The wood was puttied and sanded prior to fixing down to the base.



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CUTTING LIST in millimetres

PART	QTY	LENGTH	WIDTH	THICKNESS
A. Top (two boards)				
	2	1400	240	40
B. Base frames				
Splayed 'legs'	4	370	85	40
Lower rails 2	2	390	85	40
Upper rails 2	2	440	85	40
Centre rail 1	1	900	85	35



14

Once fixed I still had to apply more putty to a number small holes and cracks that the first application had missed. The edges were also sanded and the top edges were now bevelled with chisel and plane on all edges. The top was sanded up to 180 grit and a hardwax oil applied. Three coats were used and each lightly sanded with 400 grit abrasive.

Obviously the base can also be left unpainted or a different colour used. I was happy with the effect of how the coloured base seemed to highlight the featured wood.

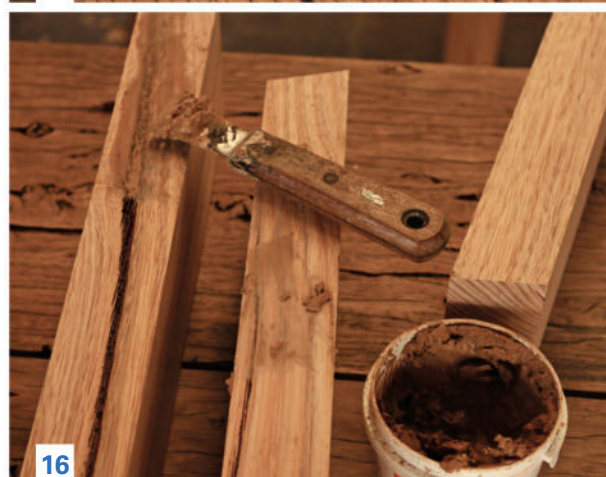
Photos: Raf Nathan



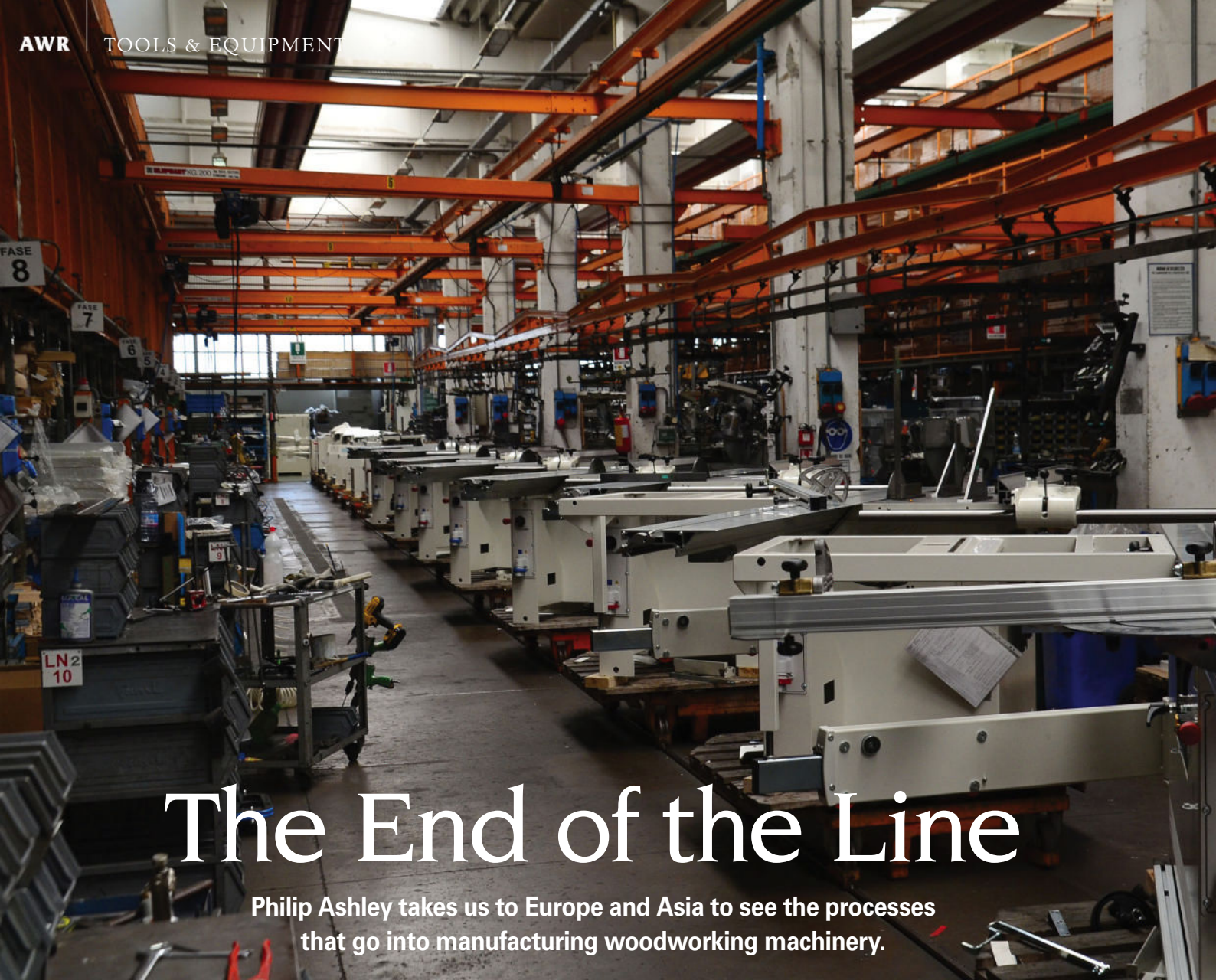
Raf Nathan is a Brisbane based furniture designer/maker.
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15



16



The End of the Line

Philip Ashley takes us to Europe and Asia to see the processes that go into manufacturing woodworking machinery.

Our main interest in any machine starts when we think about getting one – through the selection process, having it installed and learning how to use it. It may just be another piece of workshop equipment, but your new machine has a life that started in a factory somewhere and will end when it's finally recycled. So what goes into the manufacture of a woodworking machine? Last year I visited Altendorf in Germany; Felder in Austria and SCM in Italy to find out.

Our machinery imports come mainly from China, Taiwan, Italy, Germany and Austria. The quality can vary considerably but Australian distributors source good quality equipment at reasonable prices. It's a competitive market where quality and price jostle to catch the eye of

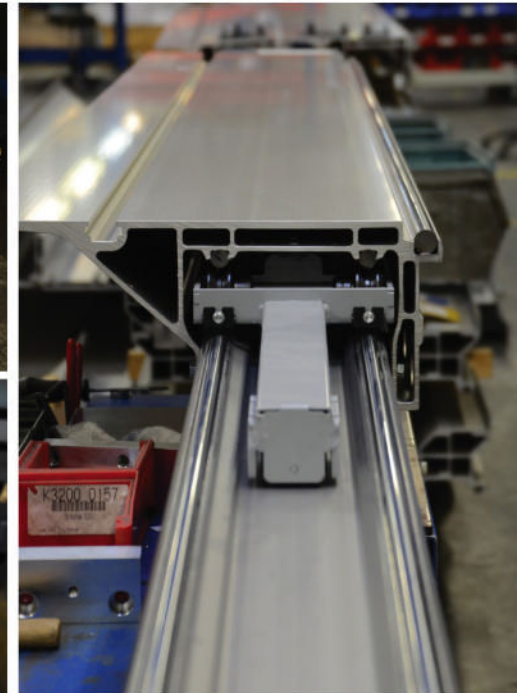
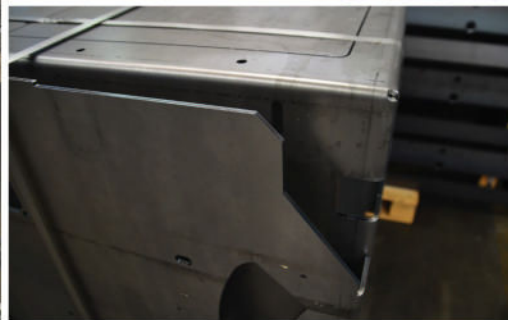
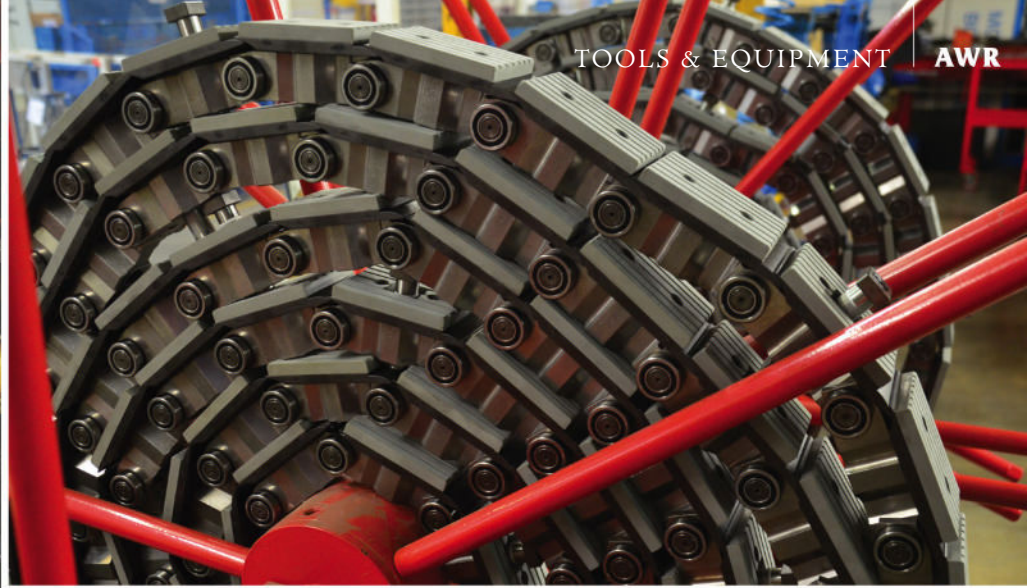
the customer. It's fair to say that you buy Asian for price and European for quality although the differences are not as great as they used to be.

Many European companies now manufacture some product in China and this has a roll-on quality effect for Chinese manufacturing. For example, KDT machines (LEDA) are made in China and the factory is so advanced that if the machines were a different colour you would swear you were in Germany. Taiwan was regarded as being a step ahead of China but again, the difference is marginal. Several companies produce the full range of woodworking machines from small tablesaws to the largest CNC machining centres. Companies with this capability are mainly located in Germany, Italy and Austria.

Good framework

The base or frame of your machine may be either cast or fabricated. A cast frame is poured into a mould and a fabricated frame is made up of welded parts. Most manufacturers buy their cast frames from a specialist fabricator. The one exception is SCM (Minimax) who own their own foundry. Only 20% of the SCM foundry output is woodworking machines; the rest is for other clients including Toyota (forklift trucks) and it's fair to say their foundry is world-class.

After delivery the cast frames are placed on a CNC milling machine in a jig made to hold only that particular casting. The casting is then milled on the surfaces where other parts of the machine will be bolted, to clean off any paint overspray and ensure that all parts yet to be attached will align perfectly.



It's this stage that ensures your cutterblock runs parallel to the feed table and your sliding table runs level with the main saw table. Castings provide closer tolerances and better mechanical performance and contrary to what people may think, are not brittle. The machine designer can shape the frame for the particular machine and complex assemblies can be combined into fewer parts making it lighter and more cost-effective.

The difference between cast and welded frames is mainly in the design and what the frame needs to do during its life. The properties of both steels are similar except for directionality (anisotropy) and rolled steel has its main strength in the rolled direction.

Cast frames can be stressed in any direction without concerns over its

strength. Machine designers consider the cost of the frame and where its strength needs to be when deciding what sort of frame is needed. Machine frames made from individual pieces of rolled plate steel need to be welded (fabricated) and the welds are usually placed in the highest stressed part of the frame. The more welding in a frame, the more attractive it is to cast instead of fabricating. Some manufacturers fold large, laser-cut steel plates to make a frame and this adds to the strength and requires fewer welds.

Many parts

Some parts of a machine may be made by other companies, for example switches, hoses, wiring, bearings and motors. Smaller machine manufacturers may use parts found on other brands. A larger manufacturer will more likely have

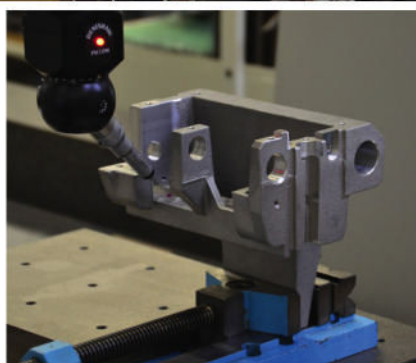
Clockwise from main:

Different machines are built in different factories at SCM. In San Marino many of the Minimax machines are built on similar production lines to the most sophisticated equipment.

The material feed system on an edgebander directly affects the quality of the finished panel edges. At SCM the feed chain is delivered in long lengths and 'cut to length' for different models.

All sliding tables, including the Altendorf assembly shown, are complex. This is really the heart of the machine and also a major design feature.

A folded machine frame and in the centre photo a laser cut machine frame, both seen at SCM.



Top to bottom: Apprentice school at Felder. Most of the major machinery suppliers have an extensive training program which often includes their own apprentice training centre. Apprentices generally don't work on the assembly line until they are fully trained.

The author in the noise testing lab at SCM.

Manufacturers randomly test parts for accuracy to maintain quality. At Villa Verruchia SCM maintain a laboratory with sophisticated computerised measuring equipment just for this purpose.

Opposite: On the Felder production line both Hammer and Felder machines are built one after the other making the build quality of the two brands identical.

parts made in-house or contracted for their use only. The main parts of the machine however will be made and assembled by your machine supplier. Some parts such as the aluminium sliding table on your panel saw may also be made 'outside' but will be straightened and flattened by either scraping or grinding the surface.

Machine parts are designed for performance and reliability. There is a point where adding more engineering to the part will not improve its performance for the machine it's going to be used on so the part will meet its expected performance criteria. If you push your machine beyond its limitations and it breaks down; you have very likely exceeded the design criteria. You should always invest in a machine that is designed to handle your expected production within its design capabilities.

The assembly process

Machines are assembled on a production line, either on a movable platform or on a chain-driven conveyor. This might seem to compromise quality but like the automotive industry, each assembly station is broken down into the same amount of work time and the person doing the assembly is highly skilled and efficient. The part to be added to the machine will take the

same amount of time as any other. To achieve this many parts are pre-assembled. On a planer for example, the cutterblock and feed-roller assembly may be assembled and added as a unit.

Most manufacturers are able to closely control their production much like the automotive industry. SCM use what is known as Takt time which comes from the German word Taktzeit. It's the average time between the start of producing one machine and the start of the next.

If the demand is 100 machines in a 40 hour week, the average time between the start of one machine and the next will be 24 minutes ($40/100=0.4\text{hr}$). Using Takt time is most common in production lines that move a product along a line of stations that each perform a predefined task. Workers perform sets of similar tasks, so they don't have to adapt to new processes every day and this increases their productivity, maintains quality and reduces machine cost.

In some companies machines are made in separate factories located within a region. This is the case with SCM (Gabbett machinery) which maintain ten factories to build 23 separate brands of machinery. However even in



this scenario the same machines can be made in several different factories. Minimax machines are made in the principality of San Marino but larger machines such as edgebanders are also made in the same factory.

Similarly Felder and Hammer machines are made on the same production line by the same people, meaning the same quality goes into both brands. Machines purchased from companies that produce a whole range of equipment benefit from the quality and performance of the top machines produced there and both Felder and SCM (Minimax) are examples of European machinery that provides this unseen benefit.

Buying quality

Many European manufacturers once made other things such as farm machinery. After WWII allied forces started rebuilding, and woodworking machinery was in high demand. Several wood machine companies were established in north-eastern Italy just after the war, in many cases as a direct result of the occupying forces' intervention. SCM is one of those companies and has many factories scattered around the Rimini area. SCM produced woodworking machines from 1952 and Felder from

1956. It's interesting that Germany, Italy and Japan are all known for their high quality woodworking machines.

Building quality into a woodworking machine is mostly a matter of experience. A Taiwanese or Chinese manufacturer (not all of them) who started copying machines may not have learned how to build quality from the ground-up. Simply copying what others have done contributes little to a product.

European manufacturers maintain complex testing and design departments to make and develop better machinery. Parts are randomly selected for analysis on computer controlled test-rigs. When you build 10,000 machines every year for 60 years, you get to know what works and what doesn't. Generally speaking, Western European machinery is built to high standards of safety, performance, ease-of-use and a long working cycle.

SCM also maintains an acoustics laboratory that is accredited as an independent centre despite it being owned by the SCM group. Results from tests done at the centre are binding and SCM are obliged to rectify any issues. The facility conducts sound and vibration testing and also performs

recognised tests for dust emissions. Technicians identify vibration sources so designs can be improved.

The walls of the laboratory are 1.5 metres thick and the door weighs in at 3.5 tonnes! I'm told that it's so quiet that if they turned off the lights I wouldn't be able to stand up because the inner ear acts like a gyroscope and with no sound or sight, people will fall over.

Some years ago I visited machinery manufacturers in Taiwan and observed machines being made on sophisticated production lines and others made in a shed with a dirt floor. The same situation likely exists in China but your distributor will source the best machines available for a reasonable price. This article is not about cheap or value for money, it's about how things are done well. It's based on the top end and everything else either meets the standards I've written about, or falls short. It's these companies that set the values that others will follow.

I have not visited every manufacturer but have seen more than most. I'm not averse to Chinese machinery but I accept from experience and knowledge that most of the development and machine research occurs in Europe. There are other companies making good machines that I have not mentioned but I can only speak about what I have seen and make no assumptions about what others are doing. Suffice it to say that at this level, machine manufacturing is done at a very competent standard. You can be confident that every care has been taken to ensure as far as possible that your next machine will be well-designed and built, safe, high-performing and hopefully, a joy to own.



Philip Ashley is AWR Machinery Technology Editor. Email philipneilashley6@bigpond.com

AUSTRALIAN
Wood
REVIEW

Student Awards 2015

Singling out winners from a field of general excellence was not an easy task for the judges.



Left to right: ?????.

The motivation behind launching this competition for secondary students a few years ago was a then-belief that many others also voiced that hand skills were not being passed on to the younger generation or appreciated by others.

Well, judging by the response to this year's entries, the latter at least is not true. At the time of writing, almost unbelievably, close on 500,000 people have viewed last year's entries on our website and social media pages. A glance at the album of photos on our Facebook page will show the enthusiasm of families, friends and admirers who not only voted with 'likes' but also left comments and compliments.

School Award

The Kings School, NSW

ARBORTECH Arbortech
Turboplane,
Mini-Turbo, Contour Random
sander, value \$774

carbatec Carbatec
\$150 voucher

Overall Best

ARBORTECH Arbortech
Turboplane,
Mini-Turbo,
Contour Random sander, value \$774

carbatec Carbatec
\$150 voucher

Stuart Kelly, Year 12,
The King's School, NSW.

Teacher: Paul Buxton

*Maloolf Style Rocking Chair,
American walnut.*

'I used a variety of machine and hand tools to 'blend' timber together from a series of pieces that start out thick and 'blocky', yet are shaped into an elegant, flowing piece of furniture.'

Photos: Stuart Kelly



Many also left comments on our website where complete entries were and still are displayed. Some entries were also posted on our Instagram page and also drew attention.

The winners

Tables and sideboards were the most popular items entered, however it was a chair that took out the top award as determined by our panel of expert judges, Phoebe Everill, Chris Vesper and Andrew Potocnik, see p.55.

Overall Best: Stuart Kelly's Maloof Style Rocking Chair

impressed the judges with its assured and graceful rendition of a classic piece. With shapes and curves that constantly ebb and flow the technical and emotional restraint required of a maker to stay on the case is considerable. Similarly the joinery of curved components that need to be 'blended' was successfully handled. Congratulations to Stuart and to his teacher Paul Buxton for taking on such a complex challenge and achieving a great outcome.

Best Handskills: Patrick Skeen's Huntboard was another piece that impressed me, the judges and many other people with the confidence that its joinery and finishing details exuded. It appears to be beautifully made with handcut joinery and handworked details such as the fluid inlay stringing and beading, and subtle curves. Like Stuart Kelly's chair, this cabinet is destined to be a family heirloom.

Best Design: Dylan Abreu, Huon Pine Hall Table This was an award that was not as easily settled on by the judges however Dylan Abreu's hall table won out with its fully resolved curves, proportions and contrasting woods. The overhang of the top, the sizing of the central cabinet and drawers all looked just right.

Best Use of Native Timbers: Anthony Day, All Australian Hallway Table Like Dylan Abreu's piece, Anthony Day's was another of several that played with the idea of reversing live-edged slabs and linking

them with glass, rods and other 'infills'. Anthony teamed Huon pine with two tough eucalypts, jarrah and Sydney bluegum, to achieve a good looking mix of species within his hall table that also featured a suspended drawer carcass.

Best Turned Piece: Sol Dasika, Woodturned Timpani Sol's turned timpani drums were a triumph of technical persistence as he followed precisely the measurements he arrived at in a CAD drawing. What a glue-up that must have been, but what a beautiful and surprising result! Let's not forget that Sol also won this award last year as well and is definitely a talented maker to keep your eye on.

Best Carved Piece: Christopher Callan, Queen Anne Lowboy Table and Footrest For someone who was simply 'keen to try out woodcarving', Christopher Callan achieved a remarkable result in the lively, flowing and uniform curves of his Queen Anne inspired table and footrest as well as the other detailing his piece incorporated.

Best Design



Tormek T4 sharpening system with Plane iron/Chisel Jig, value \$735



Carbatec \$50 voucher

Dylan Abreu, Year 12,
St Patricks College,
Strathfield, NSW.

Teacher: Matthew Herro.

*Huon Hall Table,
Huon pine, wenge,
bendy ply, copper, and glass,
1425 x 485 x 1060mm*

'The idea of my major work stemmed from theme of "Soft Curve" in which I used an array of curves and a range of joints and techniques to successfully construct the final product.'

Photos: Ida Abreu



School Award

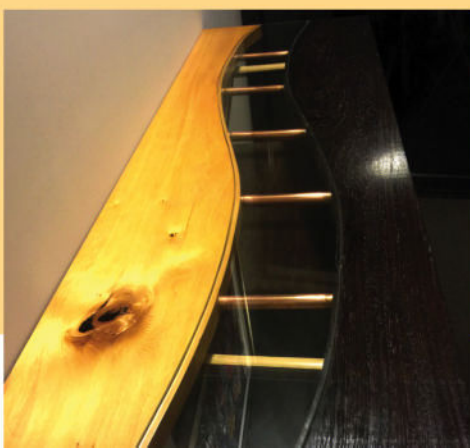
St Patricks College, Strathfield, NSW



Woodcraft Supplies:
Sand-Flee flat bed
sanding jointer and
accessories. Value \$1000



Carbatec
\$150 voucher



Popular Choice Award: Thomas Smith, Contrasting Hall Table With Twisted Legs

Not only did Thomas master the hand and CNC skills required to create his design, he also showed himself to be a master of social media as he mobilized a network of friends, followers and even the local Mudgee Times to garner an incredible 1635 likes from people who showed an appreciation of his twist on tradition.

The judges

Singling out entries for awards is not an easy thing to do when the instinct of each judge was and still is to congratulate every entrant for gaining the skills to bring their projects to completion. Because of this, the judges also compiled a list of entries that were highly commended, see p.56. We thank them for the dedication they applied to the task!

Next time

There is no other online national forum for the display of woodwork by secondary students and it would be great to see even more work from the new generation. The **2016 Student Awards** will follow a similar format with some changes to award categories and the submissions required. Details will be posted on our website in early April.

One point to note is that wherever possible, acknowledgement should be given to designs and styles that may have been copied or provided inspiration. We live in a world where many social media pages and websites enlist support by reposting images of other people's work that very often contain no mention of the original maker or designers. It's important to try and discover and note the originators of a particular piece or design as anything less can amount to plagiarism.

This is a competition judged by photographic submission so it's important to supply photos with backgrounds that don't swamp the subject or distract from it. A full view of the piece should be just that, with no bits cut off! Attention to focus, lighting and framing all help to best portray a piece.

Thanks to sponsors

Each entrant and teacher concerned deserves to be congratulated, and as mentioned it is hard singling individuals out, however competitions can stimulate and encourage and that's what these awards are intended to do. It's also why the awards are so well supported by industry sponsors who want to get behind the efforts of younger woodworkers and our wholehearted thanks go to them for this.

Linda Nathan, Editor



Best Hand Skills



Colen Clenton 6" adjustable square and cutting gauge, value: \$528



Carbatec \$50 voucher

Patrick Skeen, Year 12, Cherrybrook Technology High School, NSW

Teacher: Kimberley Wilson

Huntboard, American cherry, rock maple, African blackwood, queen ebony, white birch and glass.

'Traditional joints were used throughout. Curves and chamfers in the top, and bottom rail curve were shaped using a hand plane. Top inlay strings were hand cut and matching rebates created using a string inlay tool. A scratchstock formed beadings on the lower rail, side panels and back. Knobs were hand turned.'

Photos: Jeff Skeen

School Award

Cherrybrook Technology High School, NSW



Triton Tools Series 2000 Workcentre, TSA001 saw and TRA001 Router. Value \$1400 entries.

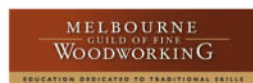


Carbatec \$150 voucher





Best Turned Piece



Melbourne Guild Fine Woodworking: Shaker Bentwood Box tuition, value \$265



Carbatec \$50 voucher

Sol Dasika, Year 12,
Haileybury College, Vic

Teacher: Stephen Hughes

Woodturned Timpani Drums. Bowls: hoop pine plywood, jarrah, bamboo, fijiian cedar. Counter-hoops: maple plywood. Hardware: jarrah, aluminium. Stands: Laminated bamboo, stainless steel thread, vinyl tubing.

'I combined the highly traditional timpani form with modern woodturning techniques. The tone produced is smaller than standard copper timpani.' Thirty-nine rings were cut from 12 laminated boards working from CAD drawings.

Photos: Sol Dasika, Stephen Hughes



The Judges



Phoebe Everill is a furniture maker who is chair of Studio Woodworkers Australia and runs her own woodwork school as well as teaching short courses at Sturt School For Wood.

See www.phoebeeverill.com

'What an amazing array of work, it has been such a privilege to be part of the judging team. I am always most impressed when I see the efforts of handwork, the little touches like handles, shaping and handcut joinery. This always sets a piece apart from the rest and leaves the makers "mark" upon it. It was also lovely to see some really fresh ideas and the hardest section for me to judge was the design category, such a variety! I also want to congratulate the amazing teachers as their input shines through the students' work and their ability to take on really complex concepts.'



Chris Vesper is maker of fine tools and also a fine woodworker. As well as having a passion for fine work in general he has an overarching respect for traditional techniques and

processes that he is keen to see passed on. See vespertools.com.au and p.70 this issue.

'A quick glance through the entries this year told me immediately that judging was not going to be an easy task. And it wasn't. The great variety and high standard across the board is impressive for high school students, and it is obvious to me that some serious design, drawing, and research and thought has gone into the entries. In my mind there were several standout pieces, any of which deserve accolades. Well done to all of you.'



Andrew Potocnik is a well known wood artist, woodturner and a regular contributor to this magazine. In addition to that he has over 20 years experience as a secondary school industrial arts and woodwork teacher.

'What a task!! So many wonderful pieces to choose from, then how to allocate each to a suitable category to do them justice? And keeping in mind subject-based requirements and how little time there is to consult with potential clients, as prescribed by curriculum, developing a folio and finally making the pieces we're now judging... It's a long process with so many boxes to tick, let alone create a stunning item. And let us not forget, each of these students is aiming to achieve the same high standard in up to six subjects as they complete their final years of schooling! And I ask myself, when did I learn how to cut dovetails at school...Never!'

Best Use of Native Timbers



Interwood Tools: Super-Square, Multi-Square, T-Rule and Dovetail Master Kits, value: \$367



Carbatec \$50 voucher

Anthony Day, Year 12,
Oakhill College, Castle Hill, NSW

Teacher: Darren Johnston

All Australian Hallway Table, Huon pine, jarrah, Sydney figured bluegum, stainless steel rod.

'Using only Australian timbers was my aim when I designed this project.' The drawer system is 'hung' with stainless steel rods.



Highly Commended

Overall Excellence

Roubo Workbench Pearson Bulmer,
St George Christian School, NSW.

Teacher: Joel Garlato

Buffet Hugh Cameron,
The Kings School, NSW.
Teacher: Paul Buxton

Walnut roll-top desk Alexander
Bostock, The Riverina Anglican
College, Wagga Wagga, NSW.

Teacher: Justin Buckley

Curved Study Desk Chris Young,
Pennant Hills High, NSW.

Teacher: Mark Tyler

Design

Yin/Yang Jewellery Box Ashlee Reid,
Belmont High School, NSW.

Teacher: Phillip Martin

Copper Oxide Max Cottier, Max
Cottier, The Friends' School, North
Hobart, Tas.

Teacher: Zach Sonstegaard

Balancing Chair, Drawers/Cupboards
Bree O'Halloran, Don College,
Devonport, Tas.

Teacher: David Tabart

Hand Skills

Roll Top Desk Ellie Gooch,
Bulahdelah Central School, NSW.

Teacher: Chris Gladys

Walnut Sideboard Erdem Memik,
Edmond Rice College, NSW.

Teacher: Andrew Edmondson

Orchestra Model Guitar Daniel
Hutchinson, St Phillips Christian
College Port Stephens, NSW

Teacher: David Mowbray

Use of Native Timbers

Butchers Block Island Table Sherwin
Darabi, Edmond Rice College, NSW.

Teacher: Andrew Edmondson

Woodturning

Wine Table Cedric Le Brun Costes,
Nuriootpa High School, SA.

Teacher: David Vaughan

Carving/shaping

Chessboard with Matching Pieces
Max Darwin, Asquith Boys High
School, NSW.

Teacher: Natasha Jackson



Best Shaped/Carved Piece

RICHARD CROSLAND
SCHOOL OF
FINE WOODWORK

Richard Crosland
School of Fine
Woodwork:

six weeks (3hrs pw) tuition, value \$450



Carbatec
\$50 voucher

Christopher Callan, Year 12, Gilroy Catholic
College, Castle Hills, NSW.

Teacher: Stephen Bushell

Queen Anne Lowboy Table and Footrest,
Tasmanian blackwood, American Rock maple.

'The concept of this project was brought about by my desire to hand carve timber for the first time. The curvaceous and challenging nature of this table was very appealing to me.'

Photos: Christopher Callan



Popular Choice Award



HNT Gordon
flat sole ebony
spokeshave,
value \$240



Carbatec
\$50 voucher

Thomas Smith, Year 12,
Mudgee High School, NSW.
Teacher: Peter Smith

*Contrasting Hall Table With Twisted
Legs*, walnut, claret ash, glass

'I built a modern style hall table using CNC routing for the inlay and twisted legs. Other joints were handcut. The walnut used was from storm damage and the claret ash reclaimed from a property development.'

Photos: Peter Smith, Thomas Smith

You can see all the entries at www.woodreview.com.au/student-awards

Please note: many entries were received after deadline but unfortunately could not be included along with those displayed and judged.

Paul Ryan with his favourite machine, a German HKS fully automatic copy lathe.



Man and Machine

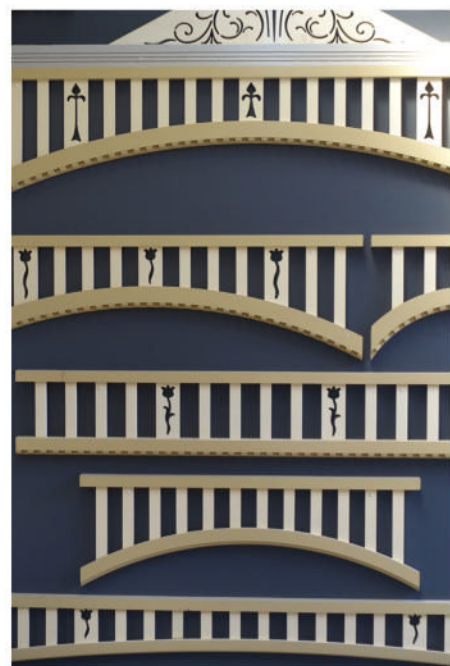
After retirement, Paul Ryan reincarnated his former business. Story by Linda Nathan.

About four years ago, Paul and Jenny Ryan decided to close their successful business that still had plenty of potential to expand. There comes a time for all things to run their course. Paul, along with six or seven employees, produced a range of architectural fittings, gables, mouldings, balustrades and posts as well as specialised custom and often large scale work. Even with his own paid workforce he never went 'off the tools', always liking to be hands-on.

The Ryan Woodworks factory was in Airport West, not far from Tullamarine. There were machines of all descriptions of the industrial and often automated type. 'Why do a boring repetitive job, when you can get a machine to do it?', Paul

said then (as now). Over the years they developed a large network of clients, sponsored V8 Supercars and ran in-house trade nights which grew in popularity from year to year. However when he and Jenny decided they'd had enough, they sold almost everything – the business was wound up and retirement could commence.

Paul finally found time to restore his 'old truck' and potter around, but after two years he couldn't take it any longer, so he simply went out and hired another factory space around the corner, literally just a couple of streets away. The Ryan Woodworks sign went up again and near the entrance samples of turnings, corbels, gables and other period and



Above: Samples of architectural fittings are displayed out front of the new factory.



1. The Tekcel CNC router is a new acquisition that is now in frequent use.
2. Sturdy Brobo Waldron drill press and the Onsrud pin spindle is great for template work.
3. Australian made Ripley bandsaws were acclaimed but are no longer produced.
4. Templates not selling at auction have proven to be a winfall.
5. Neat racks of stored timber are marked with species and section length.

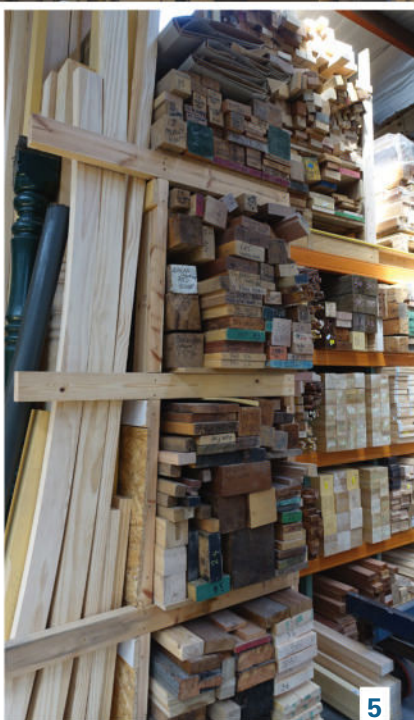
traditional fixtures were affixed to charcoal painted walls. 'I had kept a lathe and a dust extractor but I just started from scratch again', he said.

Machinery was acquired, and while much of it was second hand, there was no stinting on quality or specificity of purpose. Enter the work area today, and on the left you'll pass by a lunch room done up for fun in a 60s style, past an office which also houses a laser engraving machine. To your right you'll see floor to roof shelves neatly stacked with mostly square section timber, much of it marked with endgrain descriptions of species and dimensions.

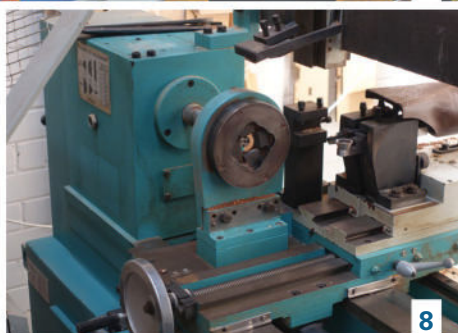
Further inside is where things get serious. A small bench with machine tools and a few power drills is about as hand powered as this place gets. This is big machine territory. There are brands from all over the world. Paul has a Tekcel CNC router (loves

it), four spindle moulders including an Onsrud pin router (fantastic for cutting templates), a wide belt sander (why muck around?) and floor standing sanders of all descriptions. There are thicknessers of course, a Brobo Waldron drill press (the best!), a deep throated Ripley bandsaw (they don't make 'em any more) and a big Altendorf sliding table panel saw that sits centre stage.

But the pride of his fleet is the German HKS copy lathe that, once set up, can turn posts, columns, spindles anything asked of it to absolute perfection. Paul had one in the old factory and had to have another so he tracked it down on the internet and had it shipped out. A mean looking set of cutters do the work, along with a sawblade that it costs \$4000 to replace. 'This is my absolute favourite (machine)...built like a tank in Nuremberg in 1998, it's a really rare find', he said.



6. Jenny Ryan manages the administrative side of the business.
7. Jenny's office also houses the frequently used laser engraver.
8. Intorex copy lathe. Two hydraulic tracers follow templates to reproduce desired shapes.
9. View into Ryan Woodworks machinery area.



'I've had a 1.2 extension welded up so I can chuck up to 4.5 metres between centres and I can turn and sand semi-automatically up to three metres.'

Surely a small army of people operates all this gear? No...just Paul. One of the joys of coming out of retirement is the right to make choices about how you do things henceforth. And having no employees lightens the responsibility load which can also raise the happiness factor.

Occasionally the family (Paul and Jenny have seven kids) help out. Son Patrick Ryan was a former apprentice of the year and can sometimes be flown down from Sydney to speed up a big job. Daughter Bridget, now 15 can sketch up in Autocad, and program any job on the Tekcel. The only thing she can't do in fact, says Paul, is change the tool heads in the collets because she's not quite strong enough yet.

Favourite machines are littered all around the factory, and you can sense the pleasure Paul has in maintaining and operating them. Favourite jobs arrive through word of mouth, website and now Instagram contacts. Especially enjoyable is restoration work; custom orders for replicating verandah posts, balusters, damaged mouldings, rails, and the like. He can produce limited runs of components, knobs and whatever for the network of bespoke makers that he is part of.

One stroke of good luck was the fact that a sizeable number of templates for architectural fittings didn't sell when he closed up a few years ago. Having hung on to them proved a real boon and a timesaver in not having to reproduce them.

How did Paul, now 60, learn to do all this? Learn how to turn and make

things? Learn all about machine technology and operation? About period fittings and styles? Probably not at the bank where years ago he worked in an administrative capacity and where he also met Jenny. The bank wasn't doing it for him, so a part-time hobby of turning (self taught) grew, and grew. 'I did it as a part-time income and I hated being employed and controlled by someone else', he explained. 'You just learn as you go', said Paul who clearly doesn't overstate his abilities. Mechanical genius is probably closer to the truth.

Ryan Woodworks is the antithesis of an unplugged workshop but its owners maintain a dedication to their craft of producing high quality custom turnings and servicing the special needs of their clientele.

Photos: Raf Nathan, Linda Nathan

Learn more about Ryan Woodworks at www.ryanwoodworks.com.au



The author routing mortises for quadrant hinges.

Fine Hinge Fitting

Take the stress out of choosing and fitting your hardware with these simple tips. Story by Damion Fauser.

The correct installation of hinges is critical to the successful outcome of any project. Many woodworkers find this stage of their project stressful, but it doesn't need to be this way. In this article we'll first look at some ways to lay out and cut mortises for three common hinge types, and then take a closer look at choosing different types and brands.



Above: Butt or cabinet hinges are the easiest to fit. Gerner hinges are shown here.

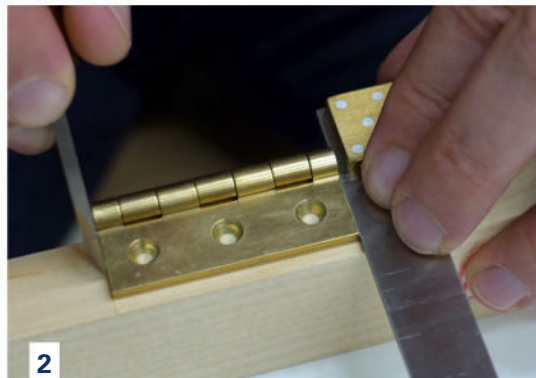
Cabinet or Butt Hinges

These come in a range of sizes and offer a full range of motion to allow doors to swing fully open. Smaller butt hinges are good for boxes, particularly those with inbuilt stops to hold the lid open, but be aware that as they are mounted along the back edge of the box there can be a lot of rotational stress on the small fixing screws.

The installation method you choose will depend on your available tools, skill level and number of hinges you need to fit. You will need to

know how to cut the mortises on both the faces (inside a case piece for example) and edges (boxes/doors etc) of a board.

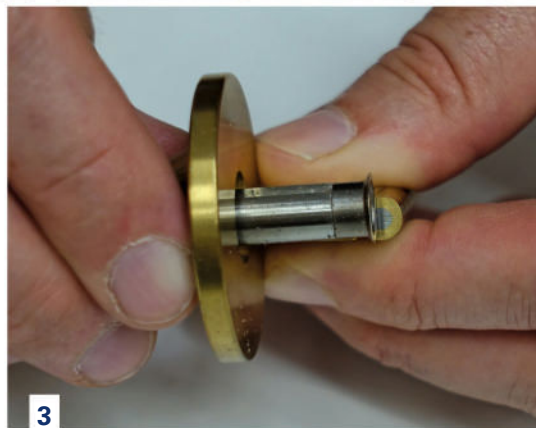
Like any joinery, layout is crucial. I start by laying out the ends of the mortise by first scribing one end (**photo 1**). I then transfer the reality of the hinge length by placing my knife in the initial scribe line, butting the hinge against the knife and then my square against the opposite end of the hinge (**photo 2**). Carefully remove the hinge whilst holding the square in place and scribe along



1. Scribe the location of the first end of the hinge mortise.
2. Scribe the other end using the hinge as a reference.
3. Set the gauge to the centre of the barrel to further conceal the barrel. This will not work with hinges with inbuilt stops. In this case set your gauge to the width of the leaf only.
4. For mortise depth set the gauge to the leaf thickness, or for a finer reveal, the centre of the barrel.
5. Rout out the waste as close to the lines as you can.
6. Clean out the excess with a chisel.
7. Make a series of shallow angled chops...
8. prior to paring out the waste.

the square. Now transfer those mortise ends around the corner a little way to define the ends of the mortise on the adjacent edge.

Now set a cutting gauge to the width of the hinge leaf (**photo 3**), and scribe this onto the workpiece. For hinges with no inbuilt stop, I like to set my gauge to around half the barrel diameter. This lets you set the hinge a little further in, therefore making the barrel a little more conspicuous. After scribing this setting for all mortises, reset your gauge to the thickness of the hinge leaf to determine the depth of the mortise and scribe this also.



To minimise the reveal on finer items such as boxes and smaller cabinets, I set the gauge to a fraction under the diameter of the barrel (**photo 4**), noting this will mean the faces of the hinge leaves are set a little under the surrounding wood. For me though I find the reduced reveal is more of a priority.



I also find it useful to cut the mortises for one half of the hinge, place the opposing project component (door/lid etc) in place and then directly scribe the matching leaf location using the already cut mortise.

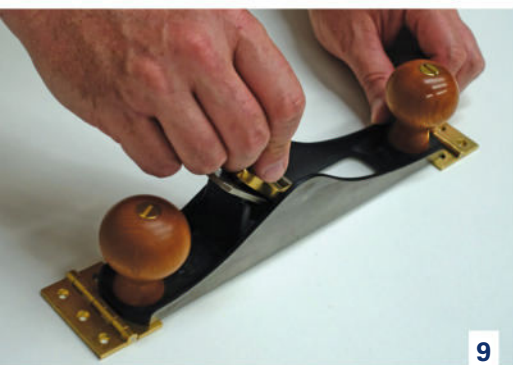


Now that you've layed out the mortises you can choose how to remove the waste. You can use a router – either a handheld trim router (**photo 5**), or in the router table with stop blocks. Scribe the depth of the mortise with your gauge onto a test piece and set the router depth to this line, making some test cuts to make sure. Rout as close to the line as you're comfortable with and then clean into the corners with a chisel (**photo 6**).



One hand tool method is to chop out the mortise with a chisel. Define the edges of the mortise first by enhancing your scribe lines. Hold the chisel upright in your scribe lines, bevel inwards and tap down lightly with your mallet. Then make a series of close, angled chopping cuts with a chisel held bevel down (**photo 7**) and then remove the waste by paring in from the side (**photo 8**).





9



10



11

A number of shallow passes of this method will see you at the correct depth quite quickly. The trickiest part of this method is maintaining a constant depth in the whole mortise but it's really not that difficult.

Another hand tool method is to use a dedicated handplane called a butt mortise plane. This tool allows you to confidently chop to the correct depth consistently. Set the blade depth by placing the plane above the surface with a hinge leaf under each end,

lower the blade until it rests on the surface and tighten the locking screw (**photo 9**). Make a series of chopping cuts by resting the toe of the tool on the workpiece and striking down on the tote with the heel of your palm. Pare out as before and continue chopping until the sole of the tool rests on the workpiece to indicate you're at the correct depth.

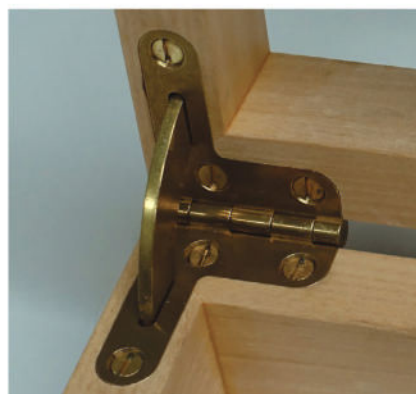
In the case of a box side or door the hinge leaf may span the full thickness of the stock. You can then use a saw

to make a series of relief cuts (**photo 10**) and then a chisel or router plane (**photo 11**) to remove the waste. Be careful to always pare inwards to avoid breaking out any additional fibres.

9. Setting a Lie Nielsen butt mortise plane.

10. Make a series of shallow relief cuts with a fine saw...

11. then use a chisel or router plane as seen here to remove the waste.

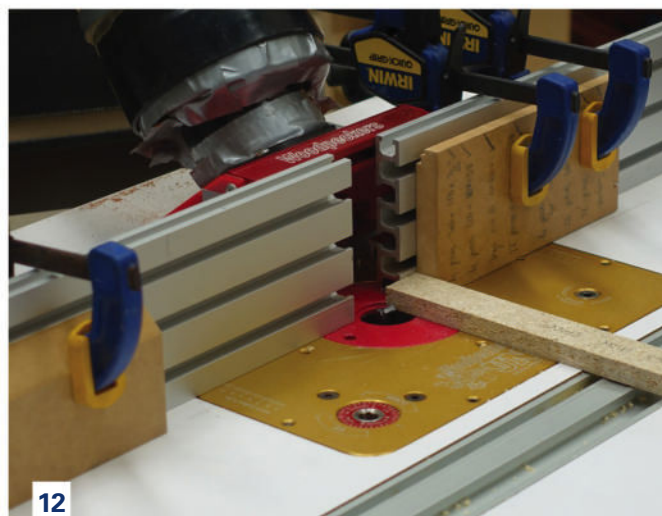


Quadrant Hinges

Fitting these is a little more complex. Some quality manufacturers offer routing templates that can be used with guide bushings. With an L-shaped profile they require a concealed front-to-back mortise on the box/chest side and an exposed lateral mortise on the barrel section of the leaf. They also require a concealed mortise into the depth of the sides/lid to house the stay.

Start by cutting the front-to-back mortise in the same manner as described for side rail hinges. Now reset the fence to have the router bit cut a mortise perfectly along the edge of a piece of scrap stock. Place the workpiece against the fence with the front-to-back mortise registered directly over the router bit. Set a stop block on the fence at the opposite end of the box. This stop block will be the start point.

Now measure the length of the barrel element of the hinge leaf, subtract the diameter of the router bit and cut another spacer block. Use this to set an opposing stop block on the other side of the bit (**photo 12**). This will be the finish point. Locate the corner of your box at the starting point, rotate it into the bit, run the cut to the opposite stop block and rotate back away from the fence. Run the two cuts for this setup and switch the stop blocks for the opposite two mortise cuts.



12

You will now have an L-shaped mortise (**photo 13**) and now need to cut a mortise for the lid stay to be housed while the box is closed. Set a hinge leaf into its mortise and transfer the circular outlines of the screw holes to the bottom of the mortise. This will guide the location of your stay mortise. I like to drill out my stay mortises at the drill press and clean up with a chisel, but it could be done with a mortise chisel or with a spiral upcut bit at the router table with some stop blocks.

Photo 14 shows what the final result should look like.

Above left: Top quality Brusso quadrant hinge shown fitted.

12. Use a spacer block to set the stop blocks.

13. L-shaped mortise for quadrant hinge leaves.

14. Completed quadrant hinge mortise.



13



14



Side Rail Hinges

These are very easy to install provided you have a router table. Set a router bit of the same diameter as the width of the hinge leaves in your table. Spiral downcut bits are the best but a straight bit will suffice. Set the height of the bit at the thickness of the hinge leaves. Set the fence to centre the mortise on your box sides – use scrap stock of the same thickness for test cuts. Measure

the length of the hinge leaf and subtract the diameter of the router bit. Now rip a piece of MDF or ply to this dimension and use this to set a stop block on your fence to the left of your bit.

This setting will cut the upper right and lower left mortises. Push the workpiece into the bit until you hit the stop block and rotate upwards to exit the cut. To cut the mating mortises you will need to switch the stop block

Above left: The Neat II side rail hinge shown is made by Hawthorne Crafts, Ireland.

15. Routing for a side rail hinge.

to the right side of the bit, again using the spacer block. It is very important to note that you are now cutting with the rotation of the router bit and it will want to pull away from you and move away from the fence. Careful control in this case will ensure safety and accuracy (**photo 15**).

Installing the Screws

Now you need to mark, drill and install the fixing screws. Noting that the screw holes in the leaves are countersunk, it is possible to pull the hinges well out of alignment if you get the holes in the wrong location. I like to mark my locations with a sharp awl, as it is significantly more precise than a pencil point and gives a tangible start point for the drill bit to prevent the risk of wandering.

You could also use a self-centring bit such as this one by Vix (**photo 16**). This tool has a retractable, countersunk sleeve over the drill bit, which self-aligns in the screw hole. Place the hinge into the mortise (fixing it temporarily with a piece of double-stick tape if required), locate the end of the sleeve into the screw hole, turn on the drill and push down.

Quality hinges come with solid brass screws. If you proceed directly to installing these screws into the pilot holes you run a serious risk of stripping the heads off them. I pre-tap the holes with a matching steel screw that has been lubricated with some paste wax.

You're almost there. For a traditional look I like to replace the Phillips head screws that almost invariably come with hinges these days with slotted screws and I keep a library of brass slotted screws in sizes 2–12 in various lengths at each size.

Dab the screw tip into a can of paste wax, align the slot a half-turn back from where you'd like it to end up and turn it home. I never power-drive hinge screws, but rather use a good quality screwdriver. Careful alignment of each screw in the same position when beginning to turn it will ensure they all end up 'clocked', or in the same alignment, another sign of quality work.

Careful planning, attention to detail and knowledge of a few tips such as those shared here will allow you to choose and install your hinges with far more ease and confidence. Over the page we'll now have a look at some of the hinges now available.

Photos: Linda Nathan



16. A self-centring hinge-setting bit can make things easier.

Choosing and Sourcing Hinges

Your choice of hingeware will depend on your budget, the tools you have, and the scale of the project, including the thickness of components such as door stiles and box sides. The range of motion and whether a stop/stay is required are also key considerations.

Cabinet (or butt) hinges are very good for cabinet doors as they are simple to install. They come in a wide range of sizes and offer a full range of motion for door swing. Smaller butt hinges are good for boxes, particularly those with inbuilt stops to hold the lid open but be aware that as they are mounted along the back edge of the box there can be a lot of rotational stress on the small fixing screws.

Side rail hinges are very good for boxes as they generally have an inbuilt stop. They are simple to install and as they are mounted along the sides of the box, there is less rotational stress on the fixing screws.

Quadrant hinges are a quality option for boxes and chests. With an inbuilt stay they are visually striking and offer more fixing security as their L-shape arranges the fixing screws along both the back edge and sides of the box.

They are however more complex to install as more processes are required.

Side rail and quadrant hinges are generally centred on the rails of the box sides. With butt hinges, you have more discretion with regards to location.

For cabinet doors, I like to align the top of the top hinge with the bottom of the top door rail. Likewise for the bottom hinge, align the bottom edge with the top edge of the bottom door rail. For boxes, I like to set the outside of each hinge in from the edge of the box approximately 10–15% of the total width of the piece. Experimenting with full-scale drawings, models or on the actual piece prior to cutting the mortises will help.

In many cases it's much easier to cut the first of the two mortises for each hinge prior to assembly. For example, I like to cut the hinge mortises on the inside faces of my cabinet sides or face frames prior to assembling the cabinet.

Some projects like boxes that are assembled whole and then have the lid split away after assembly will mean you have to install the hinges on an assembled piece.

When choosing your hinges there are several considerations in terms of quality. Here's a simple checklist:

- Have the hinge leaves been cast or pressed? Cast leaves are by far the better option as they have a more consistent thickness, will be flat and therefore easier to install.
- Check there is little to no play in the barrel when moving through the range of motion.
- Check to see which type of screws are provided. Are they steel or brass, Phillips or slotted, is a steel screw for pre-tapping provided?
- How polished is the brass? Some premium makers polish their hinges to a remarkable degree.
- Are the widths and lengths of the leaves consistent? Lower quality hinges will have some variance and therefore you may have to index each individual hinge to a particular mortise and layout/setup accordingly for each one. I have experienced this and I can assure you it is very frustrating.

There are several makes and types of hinges available to all levels of woodworker in Australia. The samples shown here are only part of what is available.

Photos: Rebecca Nathan



Carbatec stock a good range of hinges in various sizes and styles that work quite well and are quite reasonably priced. Shown are a selection of butt hinges.
www.carbatec.com.au



Timbecon hinges, butt with finials, butt large and smaller, quadrant in two sizes. The samples shown are from another range that is well priced for those on a budget.
www.timbecon.com.au



Gerner QH-01 quadrant and BH-00 butt hinges. Well known maker and Wood Review author Anton Gerner has designed and developed his own range of premium hinges. These are very reasonably priced and are high quality indeed. Consistent dimensions means these are very easy to install. www.gernerhinges.com



Brusso hinges left to right: HD680 quadrant, SR680 side rail, L39 offset pivot, JB102 square knuckled butt, CB407 full mortise butt. Manufactured in New Jersey, USA these are premium hinges of exceptional quality and workmanship. This, along with the costs of importing, means that Brusso hinges come with a price premium. They are well worth the money in terms of ease of installation and finish. Brusso also manufacture superb routing templates for most of their hinges.

www.thewoodworks.com.au



Ian Hawthorne (UK) – Ian is an exceptional boxmaker who has developed his own range of side rail hinges. Complete with very detailed installation instructions, these hinges came mirror polished out of the box and a precision installation was achieved with absolute ease. I had not used these hinges prior to writing this piece and I now have a new favourite! Priced accordingly.

www.jewelleryboxhardware.com

Hinges from Hardware For Creative Finishes, butt, side rail and quadrant. This supplier carries a wide range of hinges that are suited to the budget-conscious woodworker.

www.veneereinlay.com.au



Damion Fauser is a furniture designer/maker who lives in Brisbane. He teaches woodwork from his Darra workshop. Email: damion@damionfauser.com.au

The Ultimate Chair Jig

Darren Oates shows you how to take the guess work out of chair design.



This was a jig that pretty much came out of necessity. The design for my new *Apollonius* chair contained three ellipses and was to be made using four curved laminated forms to bring its elements together.

To test for looks and comfort I would need to build a scale mock-up and two different laminating jigs – quite an investment in time and materials only to find that the chair can't be sat in for long lengths of time. I needed to know if it was going to be comfortable before I even started machine work, and that's how the jig shown here came about.

This jig is virtually infinitely variable in adjustments, and has been future-proofed by oversizing it, in case I want to make a chaise lounge or a larger chair that may incorporate a head rest.

I have over-engineered the jig as there is a fair chance that it will be used by students in the future. For the past three years I have taught the curved work unit at Sturt School for Wood and I have seen that even with great intentions machines and jigs can still be damaged when being used by a dozen very eager and busy students. That is why the framework is welded steel. If you were to make this jig for use at home you could use timber if you did not have access to a welder. You would just have to use larger dimensions in the framework and some very good joinery.

There was a fair amount of time involved in making it, but most of that was spent on designing it. The entire parts bill for this jig came in at under \$200 which makes it a very feasible jig price wise for any workshop, especially considering the time and money it could save you in the long run.



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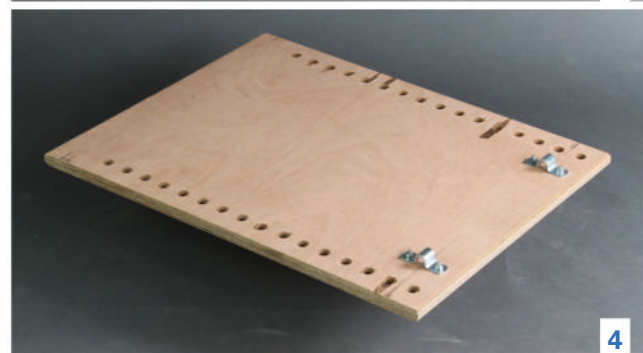


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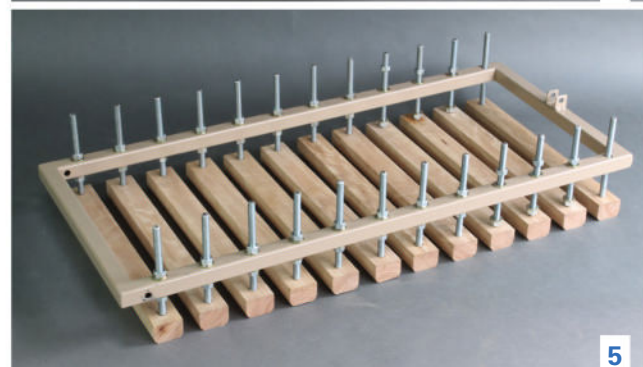
1. Here is the jig setup for the *Apollonius* chair following my 1:1 scale drawing. I sat on it for quite some time and only when I knew it was comfortable did I go ahead and make the laminating jigs required for construction.
2. This is the jig set up for my *Onekey* chair. I recently had a commission to make eight of these and a dining table. Using a mock-up upholstered seat base and the jig I was able to make these chairs to the exact dimensions that would suit the clients who could test for comfort before they were made.
3. The chair jig base was welded up from 25mm RHS with enough adjustment holes in the back and front to allow for pretty much any future chair design. I used 12mm steel rod with a plug on one end and a hole for a cotter pin at the other. This allows for quick changes to the height of the seat base at the back and front. Make sure you drill the 14mm holes on the legs before welding this all together to form the base. At the back of the jig I welded a small rod as a hook for the chain used to adjust the back angle.
4. The underside of the seat sits on rods located on the base. You'll need two clamps that the front rod can pass through to hold it to the jig. I used steel clamps as this jig will be used by a lot of people but if you could easily make these out of timber. I bored 16 x 14mm holes for each chair base rails. The rails are fitted with a 12M threaded rod that is 100mm long and epoxied into six rounded off hardwood strips that form the 'seat'. They can be re-positioned and raised to various heights to suit the design. I recommend using 18mm marine ply for base as it is a very strong and stable.
5. The back of the jig is welded from 30mm RHS and has a dozen 14mm holes on each side for the adjustable back rails. As for the seat, rounded hardwood strips form an adjustable backrest. The rails are fitted with 200mm long 12M threaded rods epoxied into the hardwood. The longer length allows a lot of adjustment to suit virtually any design. The bottom of the chair back has a pair of 14mm holes drilled for the rod to pass through that joins this member to the chair base.
6. Threaded rod is epoxied into a hole just large enough for it to slide into. Use two-part epoxy and leave overnight to set. The hardwood strips were rounded using a router with a rounding bit.



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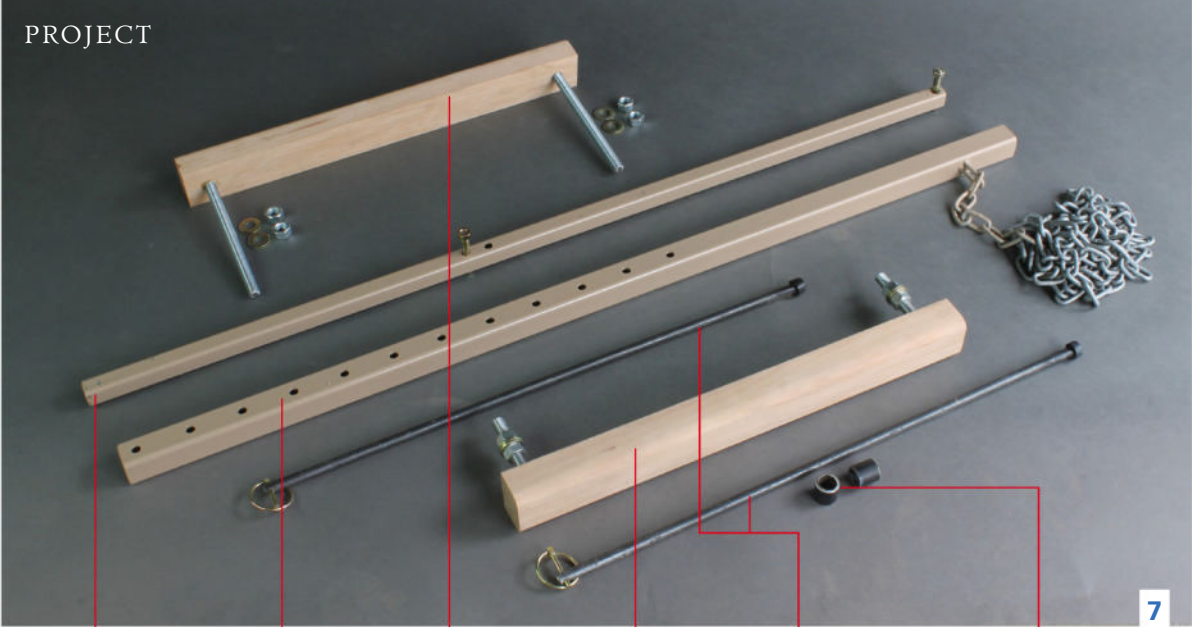
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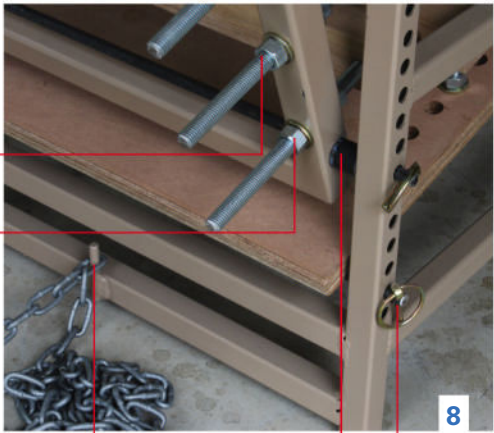
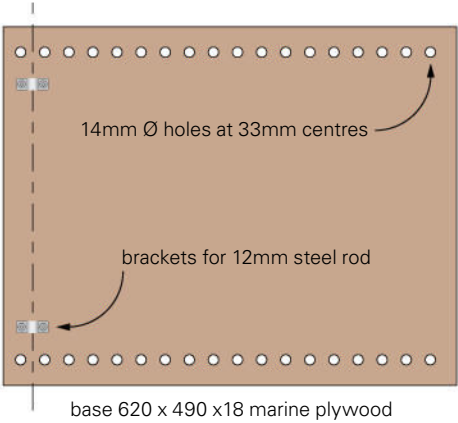
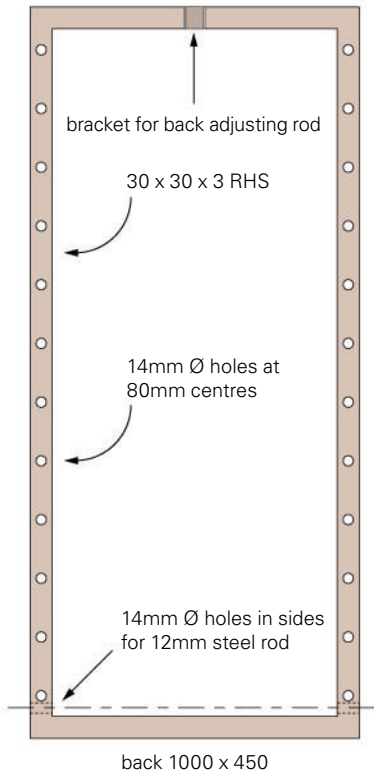


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Chair back adjusting rod inner: RHS 15 x 15 x 2mm
Chair back adjusting rod outer: RHS 30 x 30 x 3mm
Chair back rail, hardwood: 470 x 50 x 35mm
Chair base rail, hardwood: 470 x 50 x 35mm
Adjustable height rods: 12 x 570mm rod with capped end and cotter pin
Chair back to base rod spacers, 20mm steel tube

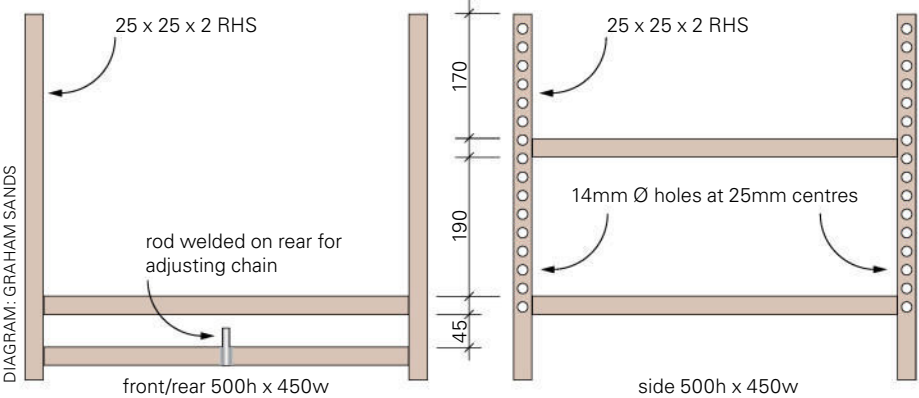
Jig construction (mm)



Adjusting chain hook
Spacers
Cotter pins

7. The sliding chair back support is made from 30mm RHS with 10mm holes bored 50mm apart. The inner piece is made from 20mm RHS with two 10mm holes bored 25mm apart, meaning you can adjust the back support in 25mm increments. The chair back support can be finely adjusted by using less or more chain links of which is welded to the bottom of the chair back support outer piece.

8. Spacers are used between the chair base rear legs and the chair back rails. Note the location of the chain hook. The base height adjusting rods are fitted with cotter pins for speed of change, but other methods can be used.



Using the Jig

1. Adjust the angle of the chair back by sliding the inner rod to the outer rod and also by changing the length of the chain.
2. Finetune the chair back profile by adjusting the individual hardwood strips and set the unused rails fully back.
3. Raise or lower the chair back by adjusting the height of the individual chair base strips.
4. Adjust the chair base angle by setting the height adjusting rods to the desired height and angle.

The base height of the chair back is determined by the back adjusting rod. The angle of the back is adjusted by either making the chair back adjusting rod longer or shorter. This can then be fine tuned by changing the length of the chain.

I have made my chain extra long in case this jig is to be used to design a chaise lounge in the future so that the back can be set at a low angle.

The chair base height and angle is set by raising or lowering both the front and back adjusting rods.

Both the chair base and back are then finely tuned by adjusting the individual rails to suit.

To really check how comfortable your chair design is you can clamp two pieces of 5mm bendy ply, one to the seat base rails and one to the chair back rails. I also have an upholstered base that can be placed on top of the chair base rails.

Photos: Darren Oates



Darren Oates is a studio furniture maker in NSW who teaches short courses at Sturt School of Wood. Email darrenoates@gmail.com



The Toolmaker's Workshop

Chris Vesper makes fine marking and measuring tools for other woodworkers to use and enjoy. Story by Linda Nathan.





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1. Antique drive pulleys and saw blades form an atmospheric backdrop inside the Vesper Tools workshop.
2. The workshop is a tall corro iron shed on a big block surrounded by grass and trees. There's no clue as to what's inside.
3. Chris with his affectionately named Bandosawrus, the first machine he bought and restored when he was 18. It's in use every day.



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Visit Chris Vesper's workshop and you'll quickly appreciate that what takes place there is a homage to all those dedicated to the engineering of wood and metal that have gone before him. Light filters down 4.5 metre high walls against which are suspended antique drive pulleys, bandsaw and saw blades, block and tackle and various ropes and straps that cast interesting shadows. Behind them run channels of electrical conduit which power the industrial machinery which sit below.

Much of what you see is above is vintage and part of what Chris calls his 'museum', however below is a comprehensive and fully operational machine shop with hand finishing areas geared specifically to the production of fine hand tools for woodworkers.

It's so atmospheric it could be a movie set and it's hard to believe it's the endeavour of one man alone. It's only recently Chris has taken on a part-time assistant, but when you



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understand the fanaticism of his standards for quality and accuracy you can understand why few would live up to his standards, or survive under his scrutiny.

Chris may be single-minded and hold firm opinions on a range of topics but his smile is legendary and can light up a room. It's the first thing I remember about him when I first met him at wood show in Melbourne 18 years ago when his enthusiasm at having his tools for sale on Bailey's Toolbank stand was palpable.

Chris is intense, but how could he be otherwise when you consider the breadth of his skills and what he has achieved. Making hand tools evolved out of a high school interest in woodworking. A fitting and turning apprenticeship preceded a few years' trade employment concurrent with years of self-guided study of tools, machinery and processes that will probably never stop.

In 2003, at the age of 23, Chris jumped in and went full-time as a maker of hand tools, starting his range off with marking gauges,

knives, simple sliding bevels and then double squares. The addition of the current range of widely acclaimed bevel gauges and try squares took the company profile up another level.

'I like machines, I like learning and I like accuracy', said Chris describing the source of his fascination with machine tools. In particular his interest lies with 'mother machines, those that can reproduce themselves', he explains, referring to machines that can manufacture the parts and components of other machines. 'With a lathe, surface grinder and some sort of saw you can make other machines', he said, 'and I like to work at the top of the tree'.

Collecting hand tools and machines of all trades is part of his investigation into industrial heritage. His interest lies deeper than rarity or function however and extends into how developments in machine tools and processes have affected human life¹.

Upstairs in 'the Vesper mancave' are collections of books, tools, vintage signs and machine badges, geological specimens and much more that skirt around office and storage areas.



I'm shown into the intriguingly named 'Panic Room', a small chamber with insulated walls that acts as a dehumidified storage room. On the shelves are sections of specialty timbers, trays of blanks for bevel gauge and try square infills, as well as roughed out marking knife handles and other pre-finished components.

Chris doesn't use great volumes of timber, but what he does buy is guaranteed to be highly figured and richly coloured. Blackwood, ancient (black) redgum, boxwood, hairy oak, ringed gidgee, ebony, cocobolo are some of the premium wood infills he offers.

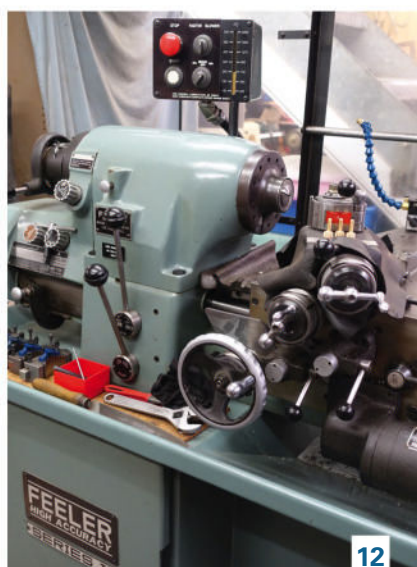
Out in the machine shop the work is exacting, and the speed and surety of movements borne of repetition is impressive. Handwheels and collets are spun, levers operated, gauges dialed and metal and wood are shaped and turned at a ferocious speed².

Chris is a connoisseur of fine machinery and what it can do. As we go from machine to machine he explains how each excels at its function. The Jakobsen precision surface grinder ('definitely my favourite machine')

4. A Danish Jakobsen 1424 automatic surface grinder, 1986 is numerically controlled but not computerised. This is the machine that gives perfect flatness to Chris's square and bevel gauge blades.
5. A mixture of antique and vintage machines dominate Chris's extensive list of favourites. All are users.
6. The Deckel FP1 milling machine is used to slot bevel gauge and try square bodies.
7. The accuracy of a mid-60s made Pauer & Co Power machine is very good for its age, says Chris.

8. Showing a finished Signature Series bevel gauge along with a just recessed body for same.
9. Fine tools by Chris Vesper: left to right: try square, dovetail square, marking knife and bevel.
10. Trays of blanks and roughed components stabilise and await their finishing stages in a dehumidifying room.
11. Signature Series bevel gauges with 10,000 year old black redgum, lace sheoak and boxwood infills.

12. Feeler FTL-618 Precision Toolroom Lathe, made in Taiwan in 1987 – yet another favourite...
13. It's clear Chris Vesper loves doing what is his life's work.
14. The only eye level window in the workshop offers a pleasant rural view and light into a hand finishing and assembly area.
15. Sliding bevel with mother-of-pearl infill was a special commission. Photo: Chris Vesper



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with electronic control and one micron minimum downfeed is used to rough and finish grind all bevel, double square and try square blades.

Brass tool bodies are precision machined to high tolerances. One of the final machining processes for try squares is to slot the body to fit its blade on the precision Deckel FP1 milling machine. 'It's one of my favourite machines', says Chris with a smile.

The Feeler precision toolroom lathe (yes, another of his favourites) is used for the final finishing of parts, prototyping and jobbing work and also in-house maintenance work such as the making of parts for other machines. Laser etching of Chris's maker's marks is done in-house on an engraver.

In and around the 'possibly world famous Bandosawrus' (the first machine Chris bought at the age of

18 and spent almost a year restoring), past turning, finishing and assembly areas into a wood machining area to visit his double-ended patternmaker's 24" disk sander that can precisely shape small blanks. 'It's a beast of a machine, this one', says Chris with a gleam in his eye.

The reputation of Vesper Tools has built steadily over the years but more so since his participation in overseas shows such as Woodworking in America in 2008, and last year in the UK at the European Woodworking Show. A growing following on Instagram is also increasing his marketing reach. Ideas for new tools are always on the drawing board but the next step for the moment will be a relocation to larger premises and taking on some employees to keep up with a growing demand.

With the rise of the handmade in recent years has also come a new generation of specialist toolmakers who largely work alone in order to achieve the super high standards which expert hand making and finishing can give. What is the secret of his success? 'Lots and lots of bloody hard work', was the predictable answer.

Photos: Linda Nathan

See more at www.vespertools.com.au

1. Part of Chris Vesper's collection and some of his observations can be seen in AWR#87, p.61.

2. See Chris in action towards the end of the video made during my visit on our YouTube channel (Wood Review TV).



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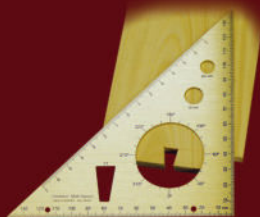
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RULE, SET, MARK & SQUARE WITH THE

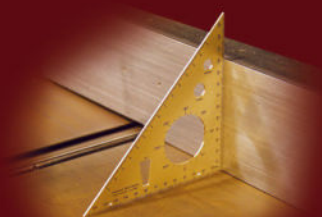
MULTI SQUARE



**MARK OUT
DOVETAILS**



**CHECK YOUR
JOINTS ARE SQUARE**



**SET PLANER
FENCES AT 90°**



**USE FOR
GENERAL RULING**



**SET DEPTH OF
ROUTER CUTTERS**



**USE THE PROTRACTOR
TO SET BEVELS**



**USE AS A
CENTRE RULER**



**SET DROP SAWS
TO 45° AND 90°**



**ALIGN
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Keeping Safety to Hand

Richard Vaughan reviews and recommends a range of affordable devices which can make your machining operations safer.



Using push pads makes machining operations safer.

1. When ripping a thin section, the Grr-Ripper has channels which pass over the sawblade.
2. Accessories for the Grr-Ripper enable its functionality on different machines.
3. The Magswitch makes sawing thin strips much safer and more secure.

A lost fingertip is my permanent reminder of what can happen when you don't use a pushstick. Whether bought or made, they are a safety measure that needs to be totally automatic every time you use any woodworking machine.

I have a range of pushsticks and aids to cover various uses of each machine and recommend that you too have suitable safety tools to hand for each purpose and machine. As well as a range of shed-made pushers* I have some factory made devices to help me work safely, and because I also run classes I am very aware of keeping my students from harm.

Ripping on the tablesaw

The tablesaw remains a frequent cause of hand injury and the Grr-Ripper is a very recent addition to the range of tools designed to help prevent your blood getting onto your woodworking machinery (**photo 1**). This is a very useful tool which can be configured to suit a range of uses. I was immediately impressed by the ability to securely hold both the wanted piece and the stock when ripping even narrow strips on the tablesaw. Small workpieces are often difficult to control safely so this is a big plus.

The material on the base really does grip in a way that increases confidence that you are in control. Another function that pleased me was being able to keep smaller work firmly on both the router table and against the fence without the risk of the workpiece tilting into the opening in the fence that serves for dust extraction and to accommodate larger router bits.

Photo 2 shows the various components that adapt the Grr-Ripper for different uses. It is a change of habit to use a pusher that needs to be set up rather than just picked up but I do see it being a very useful addition to my selection of finger savers. I'm sure I'll find several applications that have me reaching for the Grr-Ripper automatically and expect that would be the case for most woodworkers who care about workshop safety.

The accompanying DVD raised some issues for me. In the demonstration only a single pushstick is used on a tablesaw with no riving knife, and that strikes me as misleading. I believe that a riving knife is an essential and all but standard safety component on a tablesaw as it prevents ripsawn timber closing on the blade. It also keeps the wood from drifting back into the blade once cut. Also the fixed overhead guard cum dust extraction attached to the riving knife on many panel saws would preclude use of this tool in the demonstrated way.



Narrow ripping on the tablesaw

Another way of managing small work on the tablesaw is by using a combination featherboard from Magswitch.

Photo 3 shows hands confirming position before the saw is turned on and the piece is cut. Rare earth magnets lock the device remarkably securely to a steel machine tabletop and the featherboards are set by wing nuts to firmly guide and control the workpiece as hand and then pushstick move the workpiece past the saw, and all the while fingers are at a safe distance.



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4. Dual Magswitch featherboard setup guides the workpiece accurately and safely.
5. Bench Dog's Push Loc with its cranked handle is another of the author's must-haves for managing workpieces on the jointer and router table.
6. Perspex on Incra's Push Guard permits accurate template following on the router table.
7. Featherlock guards installed on the router table.
8. Magswitch featherboards give accurate tracking of the workpiece on the bandsaw.
9. Ripping veneers with stacked featherboards and also showing Rockler's pushstick which has a magnet in the handle.
10. Richard Vaughan with some of the pushsticks he has made.

Bevelled edges on the jointer

Photo 4 shows another excellent use of the Magswitch dual featherboard set up. The workpiece is guided both accurately and safely. Note the shed-made ply cover over exposed jointer knives.

Smooth control of the timber over the jointer is essential so effective pushers like the Bench Dog Push Blocs shown in the opening photo are needed.

The Push Bloc, Grr-Ripper and Incra Push Guard all have handles that allow a firm hold, and base surfaces that grip the work. The offset handles of the Push Bloc and the Push Guard are a smart design element acknowledging how the tool will be used close to a fence. The height of the Grr-Ripper allows for this. I have glued a strip of ply under the back of one Push Bloc shown for extra secure grip at the tail of the workpiece.

The Push Loc is excellent for controlling small workpieces both on the jointer (**photo 5**) and the router table. I wouldn't be without mine.

Safer template work on the router table

The Incra Push Guard works nicely on the jointer and has the option of a perspex guard which is smart safety idea for template work (**photo 6**). The build-up around the knuckles gives an added sense of security.

Router table featherboards

On my first router table I held shed-made featherboards to the fence with clamps but this revised fence is much more convenient (**photo 7**). Feather Loc featherboards are much easier to adjust and always in place and ready to use.

Ripping with the bandsaw

I often use the bandsaw for ripping, particularly when I need a more economical kerf than a tablesaw can manage. The tungsten tipped bands I use have a kerf of about 1.3 mm and leave a very clean surface. The Magswitch featherboards seen in **photo 8** are essential for accurate tracking of the workpiece.



Laminates and veneers

When cutting veneers and laminates I am glad of this stacked featherboard system from Magswitch (**photo 9**). Any wobble at all when cutting will waste good wood and time because not only will the laminate be damaged but the face will also need to be resurfaced.

Being able to position featherboards anywhere on a machine table without the need for any kind of slot was a game changing innovation that is rapidly being accepted as a norm in enabling safety and accuracy.

Rockler have a pushstick with a magnet built into the handle so it stays right at hand, as it is in **photo 9**. I prefer my longer shed-made pushsticks for the tablesaw but this one is usually ideal for the bandsaw and I like that it stays put.

A little paranoia around machines that can maim is a very healthy thing, but not if it interferes with your enjoyment of woodwork. Whether you make them or buy them, a range of pushers and other devices that keep your fingers safe and your head happy are essential in the workshop.

Photos: Linda Nathan

Grr-Ripper supplied for review by Gregory Machinery, www.gregmach.com.au. The other products featured were the author's own.

See Richard demonstrate some of these devices in use on Wood Review TV (YouTube).

** In AWR#28, Richard Vaughan wrote about making various pushsticks. This article is reprinted on our website, see under the 'how-to' menu.*



Richard Vaughan is a furniture designer/maker in Brisbane who also runs woodwork classes. See richardvaughan.com.au



Suppliers of Safety Devices

Professional Woodwork Supplies (Incra)
woodworksupplies.com.au

Carbatec (Magswitch, Rockler, Grr-Ripper) www.carbatec.com.au

Gregory Machinery (Grr-Ripper)
www.gregmach.com.au

Timbecon (Magswitch)
www.timbecon.com.au



Handworking Edges

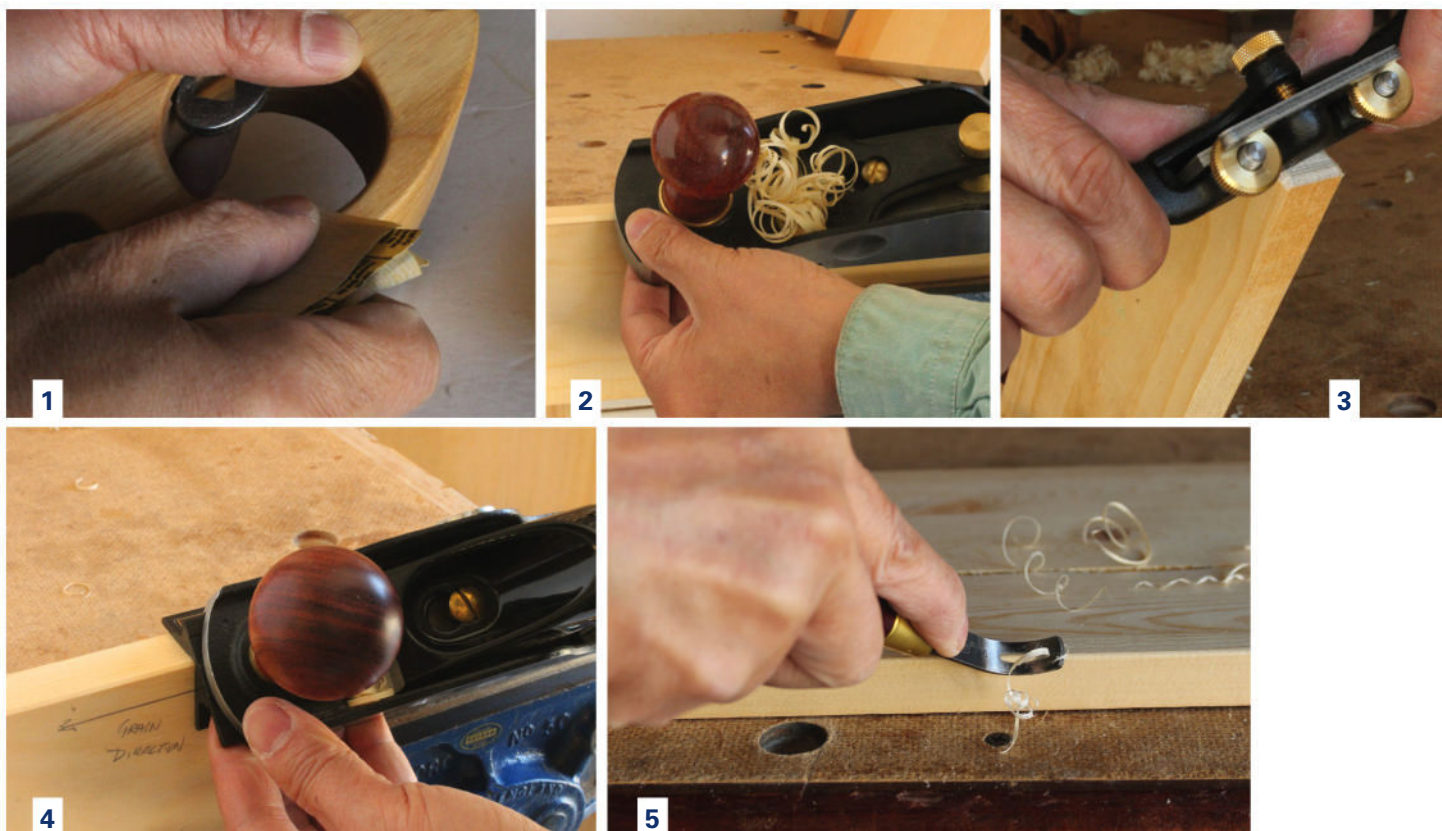
Hand tool techniques to refine and detail the lines of your work. Story by Charles Mak.



Above: Charles Mak's handy bench sweeper makes a good chamfering test piece.

Insets; top to bottom: Different edge treatments on shop made tools. A decorative lamb's tongue adds a nice touch to an otherwise plain-looking square edge. A dovetail joint given a round-over look.

1. For relieving edges in tight corners, a sharp knife or sandpaper is the tool of choice.
2. Ride a knuckle or a finger under the plane to keep the cutting at a consistent angle.
3. To avoid endgrain break-out, plane or chisel from the exit end, or put a small chamfer on the exit side/trailing edge first.
4. I set the guide to the desired chamfer size and adjusted the depth of cut for a medium to fine shaving.
5. A cornering tool can cut a fixed-radius curve on an edge with a pull or push stroke.



Sharp and crisp edges definitely have their place in furniture pieces, such as on the rails and stiles of doors. However in most projects, I relieve their edges for functional purposes – to remove their sharpness, to give some edge protection and to avoid finish from pulling away from the edges.

Breaking an edge can also add detail to your work or create a visual effect. As a new flat, narrow edge is added, the adjacent surfaces will look subtly different, sometimes altering the look or feel of the piece, such as making a leg appear more slender or a piece lighter.

You can ease an edge with a simple relief, a chamfer, or a round-over. Let me show you how I do that by hand, without making test cuts or worrying about the chatter and noise that a router may produce.

Simple relief

Quite often, a fresh edge is too sharp to the touch. The quickest way to take an edge off is with a sandpaper, especially when the edge is less visible

or precision is not important, like on the inside edges of table aprons or the bottom edges of drawers. Simply fold a sandpaper or use a sanding block and make the same number of passes with even pressure on each edge. In tight spaces, sanding is a foolproof way of easing an edge (**photo 1**).

Through chamfers

Chamfers are the most common form of edge breaking. Violinmakers usually chamfer their edges skilfully with a sharp knife, while bespoke Arts and Crafts furniture makers cut bold chamfers using chamfer planes or spokeshaves.

I recently made a bench sweeper for clearing debris from the bench top. It is an unplugged version of a blow gun that Chris Wong, my friend and a fellow woodworker from British Columbia, calls a 'br'all'. I relieved the straight edges before cutting out the board to shape and then chamfered the curves with a spokeshave.

To chamfer freehand, first layout or scribe two lines on the adjacent faces to define the desired chamfer. Hold a

handplane with one hand and use the other hand to keep the plane at a consistent angle to the stock (**photo 2**). Check the progress against the pencil lines and adjust the tilt of the plane where needed to cut evenly between the lines. As the chamfer nears its final width, make finer and finer shavings until the pencil lines disappear.

When chamfering a board on four edges, cut the chamfers on the endgrain edges first and then plane the long grain edges. To avoid break-outs on the corners, place a backer board on the trailing end or chamfer from the exit end towards the middle (**photo 3**).

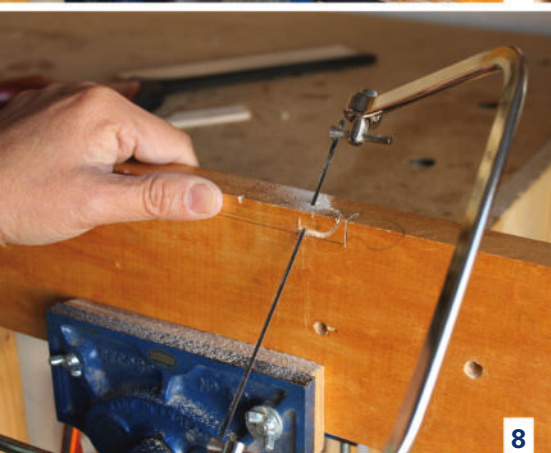
If you plan to chamfer a lot by hand, invest in a chamfer plane, giving you both precision and speed. In my case, I can convert my block plane into a chamfer plane by installing a factory-made chamfer guide. After setting the chamfer width, I keep running the guide on the arris till the plane stops shaving (**photo 4**). Also handy is the chamfering tool shown in **photo 5**.



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Stopped chamfers

As a variation, a stopped chamfer, such as a curved chamfer, adds another element of visual interest to an edge. A lamb's tongue is a more elaborate stopped chamfer, like an ovolo and filet working alternately along an edge. Here, I'll put a lamb's tongue on my shop-made Moxon vice to illustrate the chamfering technique.

Start with a template for the ogee curve and trace the profile onto the adjacent faces of the arris (**photo 6**).

Then mark out the chamfer and saw a stop cut where the chamfers end (**photo 7**). The ogee curve is more delicate and prone to damage, so form the chamfer first. After removing the bulk of the waste with a coping saw (**photo 8**), I cut the chamfer with a spokeshave (**photo 9**) and finished it with a chisel (**photo 10**).

For the curve section, saw out the waste close to the lines and then use a chisel (or knife) to carve out the ogee shape. With the chisel bevel

6. Make a template for the tongue and mark out the profile on the adjacent faces.
7. Make a stop cut to mark the end of the chamfer.
8. Remove the bulk of the waste with a saw or a chopping chisel.
9. I pulled or pushed a spokeshave with the grain to chamfer the arris.
10. Clean up the last section of the chamfer that the spokeshave cannot reach with a chisel.
11. Work on the concave curve halfway from both sides to prevent splitting.
12. Use cross-cut strokes with the chisel's bevel facing up to refine the tight curves.
13. Remove the waste between the lines, using strokes from the ends towards the middle.
14. To plane the round-over profile, I used straight and overlapping strokes, again working from both ends.
15. Chamfer the lower three-quarters of each tail's edge on the inside face to ease the fitting.



facing down, I chiselled out the concave part of the curve, working with the grain from both ends to avoid splitting the wood (**photo 11**). I then turned the chisel over with its bevel up to work on the hump – the convex part – paying attention to the grain direction. Finally, adapting the cross-cut technique musical instrument makers use, I fine-tuned the hump with crosscut strokes of the chisel and finished it with some light hand sanding for an even and smooth look (**photo 12**).

Rounded edges

Rounding an edge without a round spokeshave is not that complicated, because minor imperfection is seldom noticeable to the eye. First, lay out the round profile on both ends and draw two straight lines on the adjacent sides to define the round-over. As in chamfering, steady the handplane with two hands and remove the waste from both sides with straight strokes (**photo 13**). As you get close to a rounded edge, tune the plane for very fine cuts and roll the plane sideways as you make the final series of overlapping strokes (**photo 14**).

Finally, use a curved scraper or sandpaper to smooth out any rough spots or ridges.

Fitting and assembly

Easing edges has another use for joinery work. In a through dovetail, I cut narrow chamfers on the inside arrises of the tail board to ease the assembly and to prevent crushing during a tight fitting (**photo 15**). Similarly in a mortise and tenon joint, you can put a slight reverse chamfer on the lip of the mortise and a chamfer on the end of the tenon to make the fitting easier and to create wells for excess glue.

Bruises or bumps may well be welcome signs of character on a vintage piece, but chipped-away edges are something I try to avoid in a new build. These few edging techniques will go a long way to accomplishing that – and more.

Photos: Charles Mak

Charles Mak, a semi-retired businessperson in Alberta, Canada, enjoys writing articles, authoring tricks of the trade, teaching workshops, and woodworking in his shop. Email: thecanadianwoodworker@gmail.com



Why Get a Teacher?

From personal experience, Lee Gabbett outlines the (unexpected) benefits of taking formal woodworking classes.



John Gallagher (right) assists a student at one of his weekly woodwork classes at Piece Furniture, Sydney.

Having been a hobbyist woodworker for more than 20 odd years, I finally decided it was time to learn some more 'formal' techniques and was pleasantly surprised at the results. My last woodworking class was in high school, and I wasn't paying too much attention at the time, so my woodworking skills have predominantly been self taught over the years via books and the internet.

Why take classes in woodwork?

The obvious advantage is the improvement to your skills and technique. You'll be able to explore new methods of construction as well as gain input from both classmates and the teacher. However, the main advantages I found didn't centre around an improvement in my own skill level but

around some other very important components of my woodworking life.

Enjoying a new perspective

There's more than one way to skin a cat, and more than one way to come at a woodworking project. Whether it's construction methods, hand tools or high-tech machinery, quick and easy versus painstakingly traditional – everyone has a slightly different take on how to go about their woodworking. Classes share these options with you, allowing you to incorporate new ideas you never would have come up with on your own.

Encouragement and commitment

Having a workshop, shed, a corner of the garage or any area at home

to do woodwork in is a fantastic luxury – but what makes you use it? Sometimes life just gets busy, and we need a little push to ensure we focus on our hobbies. I know weeks regularly slip into months where I don't spend anytime in my workshop.

Having a weekly, scheduled (and prepaid) time where everyone knows you're committed to be at classes has an amazing effect. Put simply, it makes you do some woodworking.

Broaden your project goals

Having regular access to good quality tools and a first class machining shop has opened up my mind to new projects. I'm currently working on a redgum slab desk over 1800mm in length – something I never would have contemplated, or been able to do, with

the limited facilities in my own shop. You think bigger when you have options.

Satisfaction and enjoyment

The main benefits of taking a formal woodworking class are hard to quantify, and also hard to describe. But it's something akin to being part of a team or a club. You're part of a community of woodworkers which gives a great level of personal satisfaction and enjoyment.

Making things with your own hands is becoming a lost art in today's digital world. The ongoing pressure to always be connected and 'on' is intense. To work with your hands and make something tangible is an enjoyable process. Why not make it a priority? Woodworking classes will help you do this.

Picking the right class for you

When I started investigating woodworking classes, I found it a little daunting. With so many variations in woodworking available, there are also many types of class you can attend.

You'll firstly need to decide which branch of woodworking you want to focus on. Do you want to learn woodturning or furniture making? Woodcarving or boxmaking? Each branch requires different skillsets, proficiencies and workshop facilities. After taking into account the other obvious criteria such as location and cost, you'll also want to consider the class size and the format.

More people in class can be an advantage in giving you a lot more feedback and opinions – however you don't want to be battling for a workbench or access to tools and equipment.

Theory or hands-on?

Some woodworking schools run structured lessons with each student

working on the same project at the same pace. Other schools are an eclectic mix of first timers and lifetime pro's mixed together – with each person working at their level.

Woodworking classes are generally hands-on – but some teachers spend more time on theory and the history of woodworking to give a more complete picture to the students.

What makes a good woodworking teacher?

One of your main considerations should be the teacher themselves. Hopefully you'll have the opportunity to meet them prior to starting classes, preferably while one of the classes is running. This will allow you to see their teaching style first hand.

Over a period of time, a good teacher will become more of a mentor, having a large influence on what you make and how you make it. So before you commit to working with each other, it's good to know if you share a similar design philosophy.

One of the best ways to investigate this is by viewing their finished works. Do you like what they have made, the design and overall looks? If the answer is yes, then your woodworking styles and design should complement each other.

Woodworking classes will help you appreciate the amount of design, labour and commitment in every piece of woodwork you see – whether it be your own or someone else's creation. Even better is to be able to look at a piece you've made and say to yourself 'I made that'.

Photos: Mike Ford



Lee is the founder of iwoodlike.com, an artisan woodworking equipment supplier. He is also a wannabe woodworker.

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Above: Tuesday night class line-up at Piece Furniture

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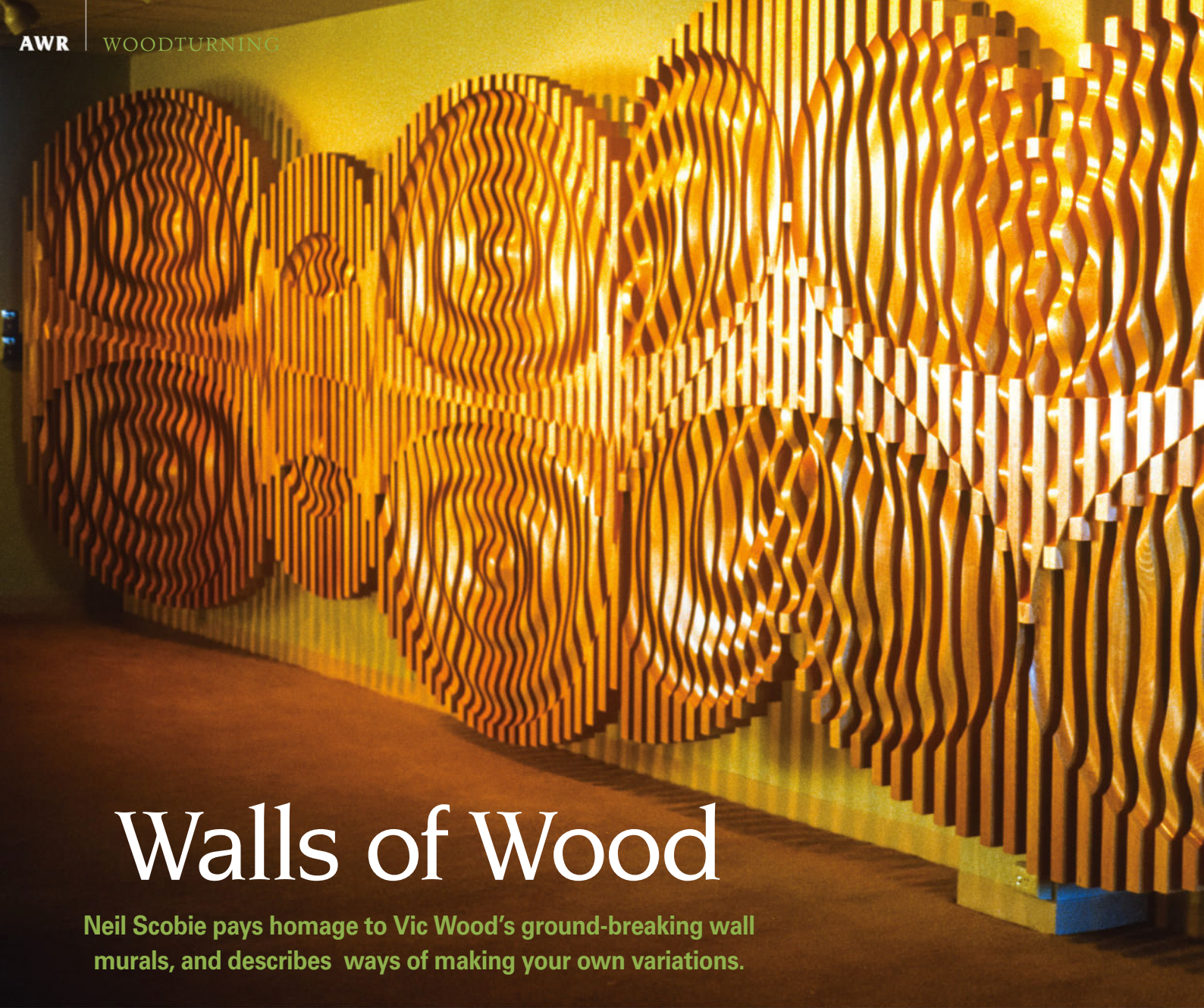
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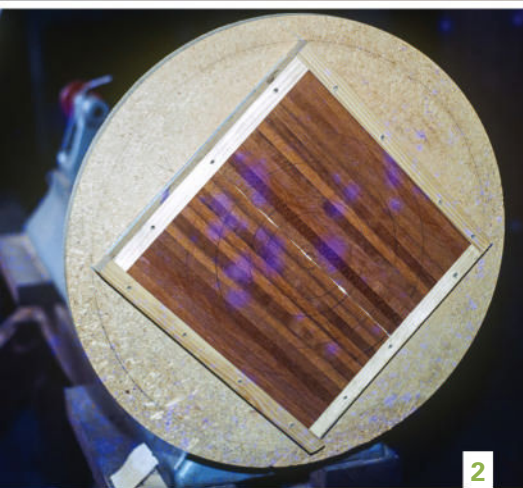


STURT STURT STURT STURT



Walls of Wood

Neil Scobie pays homage to Vic Wood's ground-breaking wall murals, and describes ways of making your own variations.



For those who don't know, Vic Wood is known as the grandfather of Australian creative woodturning. He was a high school and college woodwork and wood technology teacher before becoming a full time woodturner. He mentored well known Australian woodturners such as Stephen Hughes, Ken Wraight, Giulio Marcolongo and Brendan Stemp, to name a few.

Vic is probably best known for his signature rectangular-edged bowls and lidded boxes. During the 1970s Vic also made laminated wall pieces that were a bit like shields.

He used contrasting woods and experimented with the interplay of turned shapes, grain patterns and lines of their components.

In 1984 Vic was commissioned by an architect to make a wall mural for the Victorian Housing Association's head office. Made from Vic ash (eucalypt species), it would be 14.5 metres long and 2.5 metres high so it would be a mammoth task (**photo 1**).

How Vic Wood did it

This was groundbreaking woodturning so a quarter scale prototype was prepared. Strips were machined to size and glued (only the endgrain) and screwed into a frame that was then was mounted onto a particle-board faceplate (**photo 2**).

Three prototype panels were turned. Each had the same undulating pattern turned into its front and back. When the strips were taken out of the frame



1. Vic Wood's mural was made from eucalypt and was set 300mm out from the wall so interesting shadows were created behind. Both the front and back of the panels were turned.
2. To develop the idea and process of making a one-quarter scale prototype was made.
3. One of the 15 panels for the mural in progress.
4. Arranging and fixing the pieces was a backyard job.



and separated then began a journey of rearranged possibilities that were noted in Polaroid snaps.

The final plan was to turn 15 panels that were 1200mm square and each made up of 26 strips of 100 x 50mm eucalypt. A cardboard cutout of the intended shape was inserted between the two centre strips of each panel to help know when to stop turning.

As with the prototype, the ends of the strips were glued and screwed into a pine frame and the resulting panel attached to particleboard disc ready for turning, sanding and finishing (**photo 3**). One major problem was the weight of each panel. The final assembly of the mural took place on Vic's back lawn

(**photo 4**). Strips were slid up or down to get the effect he wanted.

While the result was magnificent you can imagine the hours soaked up in producing this piece and I remember Vic saying at a presentation that he ended up working for 50 cents an hour!

Back to the future

This history lesson arose when a student of mine wanted to make a wallpiece inspired by Vic's work. As he hadn't turned wood before we started with a smaller one panel prototype. Boards were machined to size, glued up like a cutting board, turned, then resawn on the joins with a fine-toothed circular saw and the surfaces cleaned up. A jig was made to drill holes through each end of



each board and the pieces bolted back together with brass spacers in between. So far my students have made nine different wallpieces however we have settled on the following method as the most efficient way to go.

Making your own wall mural

Machine strips to size and sand (if you have access to a thickness sander this will save a lot of time). You can use one or more species of timber. I'm using white birch, but chose a range of slightly different tones. I made two same-sized panels. Each has 16 strips that are 40 x 16 x 390mm.

Set a length stop for accuracy and drop saw the strips to size. Here an extra 45mm is included at each end within the 390mm. Arrange the strips in a pleasing order and mark a couple of V-lines on the front face so you know which way to put them back together after drilling the holes.

Make a simple jig to drill the holes accurately. Screw a backing strip on a flat board about 150mm wide and add a length stop at one end. Note the gap between the two strips so shavings don't get caught in the corner. I used 1/4" threaded rod and drilled a 7mm hole to create a bit of clearance (**photo 5**).

Assemble each panel with the threaded rod, washers and nyloc nuts (or a lock-nut), then cut a piece of plywood, MDF or particleboard to the back and screw through the backing board into the sacrificial end sections of the slats. Screws in every third or fourth slat will be enough. The outer darker sacrificial strips were added to stop chip out when turning. Mine were 25mm wide, but wider, even up to 50mm would be better (**photo 6**).

A faceplate is screwed onto the back of the panels before attaching them to the lathe. The red lines mark the high

and low points in the turning. A strip of masking tape on the toolrest has a profile drawn on as a guide. The panels will be turned all the way to the corner of the red lines, but not right out to the sharp corner (**photo 7**).

The turning process is quite simple, much like turning beads and hollows on a platter or bowl. If you cut downhill with the bottom of the gouge you will be cutting with the grain; cutting towards the inside of the panel point the flute towards two o'clock and cut down the hill to the bottom of the hollow (**photo 8**).

To cut down the hill towards the outside of the panel, point the flute to ten o'clock and cut with the bottom half of the gouge (**photo 9**). At the bottom of the hollow and top of the bead you need to blend the two cuts while still cutting downhill to avoid tearing the grain.



5



6



7



8



9



10

5. A simple jig ensures holes are drilled accurately.
6. A panel of machined and sequenced strips is ready to attach to faceplate.
7. 'Hills and valleys' marked out on panel and toolrest.
8. Cutting towards the inside with the gouge flute pointing to the middle of the panel.
9. Cut down the outside of a bead with the gouge flute pointing towards the outside.
10. The finished profile of the first panel with a hollow in the middle.

Photo 10 shows the first finished panel, off the tool and ready for sanding. It's a good idea to leave the sanding until you have turned the second panel.

The second panel is turned the same way as the first with the noted difference that it has a hill in the centre rather than a hollow (**photo 11**). It is important that the two outside profiles of the panels are the same where they sit side by side.

Sanding up to 400 grit is easily done with an electric drill and a soft sanding pad while the drill and panel are both spinning. Keep the speed down to avoid heat cracks and wearing out the abrasive too quickly. With sacrificial wood on the sides it won't matter if the edges are rounded over (**photo 12**).

Before sawing the waste section from each end, remove the threaded

rod from both ends. The strips will not fall apart as the two outside and some of the middle ones are still screwed to the backing panel. I used a plywood backing table on the dropsaw to help stop chip out and keep the panel flat. Saw the ends of the panels to the same length. Do not forget to mark numbers or letters on each strip before pulling them apart (**photo 13**).

Now you can experiment and rearrange the strips any way you like. Panels can be side by side, or you could split one and place halves on either side of a full panel as I did and staggered parts up or down. Take photos to refer back to. You just need to play around until you find the solution you like the best.

Gaps can be varied or closed up. I made 7mm thick spacers for the three centre gaps, then reduced them to 6mm, 5mm, 4mm and 3mm and

then increased them where the panels intersected. When you are happy with your design clamp the strips and spaces in place with the ends either level or stepped as shown (**photo 14**).

Turn the clamped panels over so the back faces up. Clamp a straightedge in place and rout a groove so you can insert a timber strip to secure each strip in place (**photo 15**).

I clamped the timber fence on the centre line of the back to rout the first groove then turned the strip and clamped it facing the other way to rout the second groove. I used a 12mm cutter and routed the grooves 12mm deep. The securing strips were thickened to fit firmly in the grooves with 12mm protruding higher than the back of the panels. The ends were rounded to suit the stopped grooves at each end and holes drilled to suit 4 gauge screws. I then transferred the



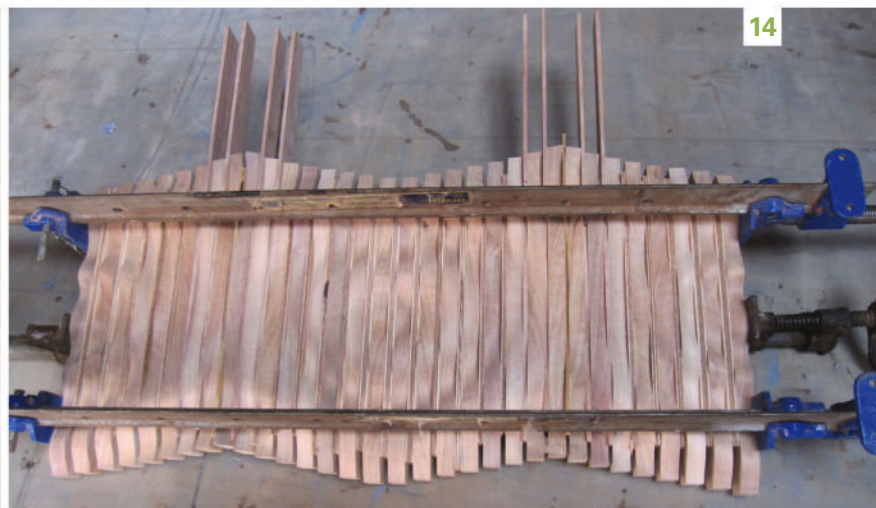
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12



13



14

- 11.** The finished second panel with a hill in the middle.
- 12.** An electric drill with a soft pad makes sanding easy.
- 13.** Support table set up on the drop saw. Bolts have been removed.
- 14.** Clamping segments together with spacers between the slats.



15

numbers of each slat into the groove, so they wouldn't be lost when sanding.

The next step is to pull it all apart and fine sand the strips. As the sides were thickness sanded to 180 grit they just needed a quick rub with 320 grit, but the ends of each strip had to be hand sanded with a flat sanding block up to 400 grit.

The numbers were removed from the front of the strips before receiving four coats of Livos Kunos oil with a rub back between coats. When dry the strips are placed back in order and screwed in place (**photo 16**).

Final words

With regard to combining different species remember there is a lot happening with curves meeting straight lines and shadows cast by the spaces between the strips. If you add too much colour the effect might just be too busy. Remember, less is more.

Safe working practices are one of the main considerations here. Remember you are turning large pieces of rectangular wood panels with square corners. This is where the sacrificial pieces on the outside of each of the four sides will make the process much safer and prevent chip-out on the outer edge of the panel. The two pieces that I made were small enough to turn on the inboard of my Vicmarc VL300 lathe, but some of the pieces my students made had to be turned on the outboard side of the lathe. In either case, care is needed.

As you can see the methods of making these murals can vary, as can the profiles you can turn and the way you arrange the segments (**photos 17, 18**). Use smaller prototypes to experiment and don't be afraid to explore other possibilities because you might come up with something special!

Photos: Neil Scobie



Neil Scobie is a furniture designer/maker and wood artist who also teaches woodwork classes from his Lower Bucca, NSW workshop. Email: neilscobie@bigpond.com

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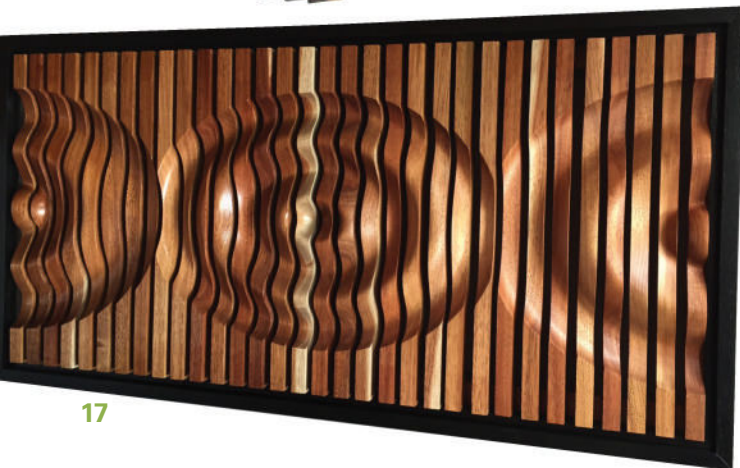
15. Grooves for fixing cleats are routed into the back.

16. Panel completed using the method described.

17. Wall piece in blackwood with ebonised frame by Brian Burns, one of Neil Scobie's students.

18. Another student, Greg Newnham, displays his Vic Wood inspired panel in blackwood and crab apple wood.

17



18

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Stanley's numbering system was devised about a century ago to denote the size and types of planes they made.



Handplanes By Numbers

Adrian Potter explains the basic differences between different cast iron bench planes.

Handplanes are on top of my list of favourites. They are such a beautifully styled tool. And that special swish sound as a shaving curls gorgeously off a sharp blade...unbeatable.

In this article we'll look at the common 'Stanley/Bailey' style plane with a cast iron body, steel cutting blade and wooden handles. Wood body planes are great too, especially because the sole or body can be easily modified or curved to do special jobs, but this article is about the cast iron versions.

Handplanes come in various lengths and widths as experienced woodworkers know, but if you are starting out you may be wondering why you'd need planes with

different lengths and widths? Or perhaps what plane you ought to invest in first? And anyway, why are there different numbers on the front of the plane?

The different plane lengths exist because long planes are great at making wood flat and straight while short planes excel at making wood smooth. For example: if you were making a tabletop and needed to join two boards to get the width you wanted a longer plane would do it better than a short one. However when it comes time to plane the top of the table, the short plane is better as you just need it smoothed out – here absolute flatness is unnecessary.

It should come as no surprise that long planes are commonly called 'jointers' and short planes are 'smoothers'.



What do the numbers mean?

Nowadays handplanes are often called a 'number five' or a 'number seven' rather than smoothers, jointers, jack planes or any of the other common names associated with the length of a plane. The numbering system was devised about one hundred years ago at the Stanley Rule and Level Company to differentiate the size and types of planes they made.

The numbers 1 to 8 simply refer to different lengths of plane with #1 being (very) short (**photo 1**) and #8 being pretty long (**photo 2**). After #8 the system of numbering gets as weird as some of the specialised planes the numbers go with. I'm not concerned with specialised planes in this article; I'll concentrate on the common, versatile and useful bench planes shown here.

The typical smoother and jointer planes are a #4 and #7 respectively. A #5 is called a jack plane, a #6 is almost a jointer but is called a fore plane. As the numbers and length increase so does the width: a #4 has a narrow blade while an #8's blade is wide.

In my opinion the four most useful planes are 4, 5, 6 and 7s, and I would expect to see three of these four standard lengths in regular use by an experienced woodworker (as well as a block plane (*see p.98*)). The #1 to #3 planes are not often used as they are so small and the #8 is a heavy beast of a plane which also makes it less popular.

Halves and quarters

Some of you may have come across a #4½ or a #5½. The #4½ is wider than a #4 and slightly longer, similarly the #5½ is wider and slightly longer than a #5. **Photo 4** shows a regular #5 next to a #5¼ and a #5½. The #5¼ is narrower and shorter than a #5 whilst the #5½ is wider and longer (same width, but shorter relative to a #6).



1. Long planes such as the #8 shown here are good for making wood straight and true.
2. Stanley #1 size hand planes are very small and rare and basically unusable by most adults.
3. A bunch of fives, left to right: #5¼, #5 and #5½.

Right: Block planes are incredibly useful. Shown left to right are Veritas, Stanley, HNT Gordon and Lie Nielsen models.



Hand me my #6 please

There are all sorts of reasons for plane size preference – perhaps it is the size of a maker's hand, or the planes their teacher used, or the size and scale of the pieces they make.

Personally I like my #6 the best, although I recently got a good blade for my #5 and it is getting more use now. My hands are a little big for the #4 so I don't use it much. A #7 is good but I still prefer the balance of a #6.

The Versatile Block Plane

There is one other plane very worthy of a mention, and that is a block plane because it is so incredibly useful and easy to use. Numbers on block planes include but are not limited to #9½, #15, #16, #60, #60½, #120... I think you can see how quickly the numbering sequence gets muddy after #8.

Block planes are short planes that you can use with one hand to flush off a bit sticking out, or take edges off, or smooth over a curve, and so on. You can use them for a myriad of jobs and it is definitely worth getting one. There are plenty of different numbers associated with block planes but they all fit into one hand and work pretty much the same way.

The bevel on the blade is upside down relative to the standard bench planes (often called 'bevel up' – that is the bevel on the blade faces the ceiling) and there is no cap iron.

There is a notion that block planes work better on endgrain than standard bevel down planes. In my opinion any well sharpened plane will shave endgrain successfully – I have never found my block planes to do a better (or worse) job on endgrain.

A 60½ style block plane (that is a 'low angle' version – the blade is 12° from horizontal) is a good one to get but if yours is a 9½ style (20°) you will get happiness from it.

Sharpen it!

Whatever plane you have or use most it needs to work well. It is really difficult for a beginner to know if

those lovely shavings aren't happening because of their technique or because of the plane. If you are having problems getting nice shavings it is probably the plane's fault. All planes need really sharp blades to perform well. And the blade needs to be fixed in the plane firmly too.

Most planes benefit from tuning up and some could need a lot of attention. There are many planes out there (especially cheap ones) that make good door stops or cockroach killers but may never be good planes. Luckily there are a few manufacturers of handplanes and other woodworking tools making superb products. Veritas and Lie-Nielsen are examples. Sharpening plane blades and tuning up handplanes are topics in their own right.

Old or new

So if you want to buy a plane, the choice of buying new or old needs consideration. Choosing an old plane or new premium plane will essentially come down to how much money you have to spend versus how much time you have. Tuning up your grandfather's 5½ will take time while you can expect a new expensive plane to work straight out of the box.

Which one first?

I'd recommend a #5 and a block plane for most beginner woodworkers as their first planes. They are both versatile and very useful planes. If you plan to make large things like tables and cabinets get a #6 or 7 next followed by a #4 – reverse that order if you want to make chairs or smaller objects. Get some sharpening tuition as soon as you can and practice keeping your blades super sharp. Above and beyond all that: have fun planing.

Photos: Adrian Potter



Adrian Potter is a studio woodworker who lives, works and teaches woodwork in Adelaide. In AWR#88 he wrote about making a shooting board. He was featured on the cover of issue 70. Email adrian@adrianpotter.net.au

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