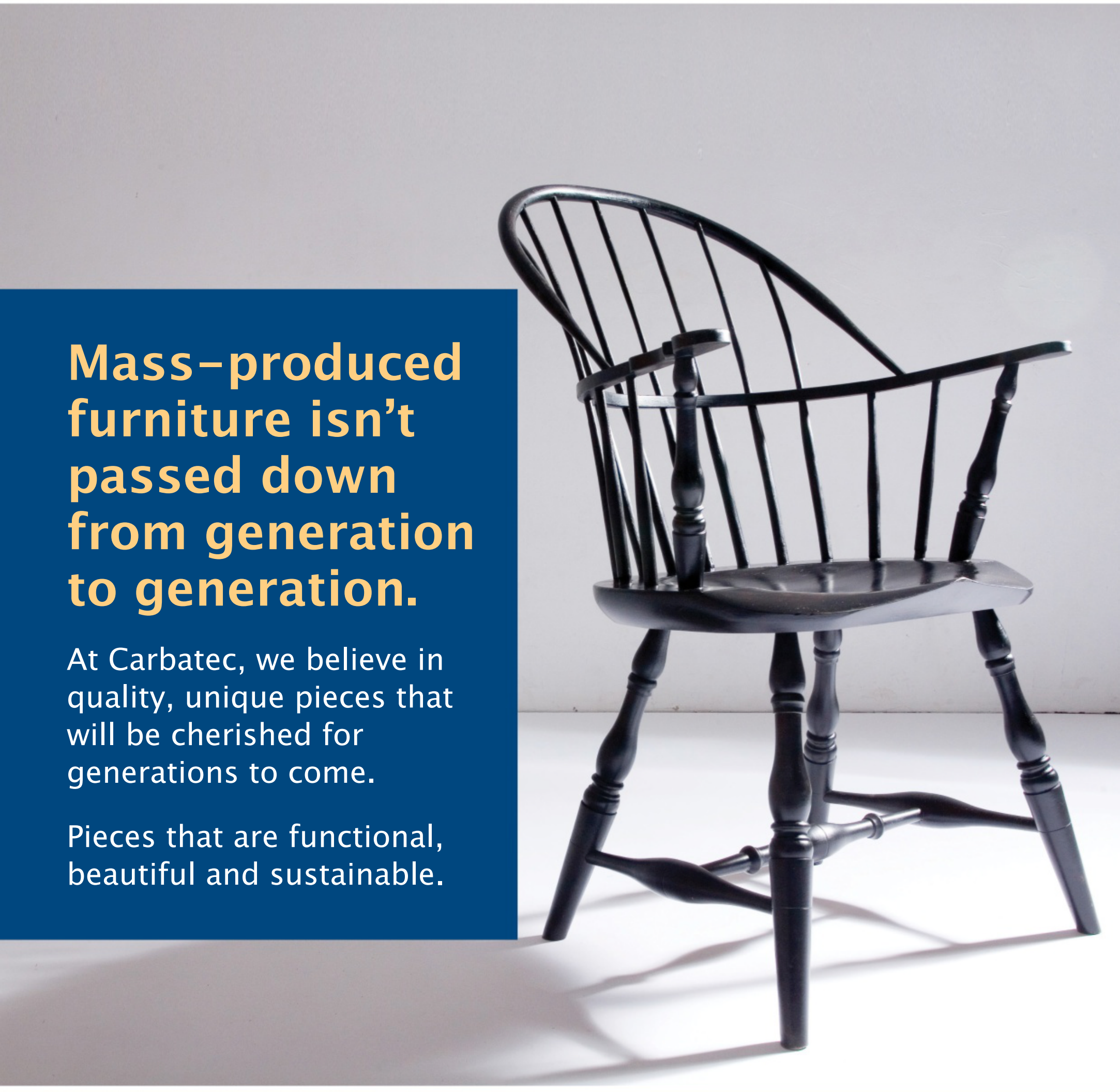

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Australian Wood Review 107

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Editor's Letter

Challenging times

What a difference a month, not to mention a week, let alone a day can make in these virus times. I know some of you will be experiencing real hardship, for many compounded after the dreadful bushfires we've had. For those of us who have a shed there's never been a better time for woodworking.

It's interesting how mindsets can change. I don't know about you, but I've managed to do all kinds of other things. For sure plenty of woodworking, but I've also baked bread, grown veggies and even seriously thought about major clean-ups of the shed and more. Well at least I thought about it…

While isolation and social distancing can be a challenge, now is the time I guess to make that masterpiece you've always dreamed of. And speaking of that, Wood Review's Maker of the Year awards are a great way to show your work on our digital and social media platforms. Simply upload five photos of a piece you made after January 1, 2019 to www.woodreview.com.au/moty – that's pretty much it!

And there's a big bonus, over $15,000 in cash and prizes are on offer from our generous sponsors 3M Australia, Carbatec, Hare & Forbes Machineryhouse, Whittle Waxes and Felder Group Australia.

Invest in yourself

In February I was invited as a guest to visit the Centre For Fine Woodworking in New Zealand to see the end result of an open studio program with Canadian designer maker Michael Fortune (Michael was on the cover two issues ago). Luckily I made it there and back before the borders closed and the quarantining that went with that commenced.

Seeing Michael in action as a teacher and mentor was inspiring, most of all for the eight people who participated. Of course this was great to see, but the biggest thing I took away from my visit was the notion that investing time and money in your own training and development is worth every cent.

Surface work

We're lucky this issue to be able to present some insights into the techniques which US studio furniture maker Tim Coleman has developed. Tim is a master of line and form and, unlike many who strive for minimalism (not that I don't also appreciate that), rejoices in embellishment. Talking to Tim was like having my own personal masterclass – now you can share in that from p.28.

Calendar of non-events

Events, remember those? A couple of weeks ago I set off on a phone and internet search to verify and fact find on upcoming events. I had some lovely chats with people, but with so much uncertainty and postponement on everyone's books I decided to pull the pin on this issue's Wood Diary. Please let me know when your event or exhibition is happening so it can be included in next issue's Wood Diary.

E-news

Did you know we do free fortnightly eNewsletters that highlight heaps of stories, how-tos, profiles and reviews that are now on our website? Sign-up at www.woodreview.com.au and feel free to send your news through as well for possible inclusion.

Stay safe everyone,

Linda Nathan, Editor
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Ernest Angelo attended Michael Fortune's Open Studio at the Centre for Fine Woodworking in New Zealand.

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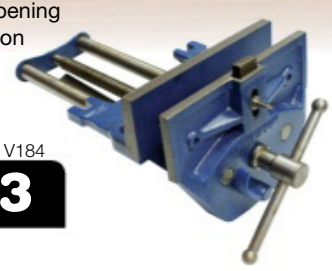

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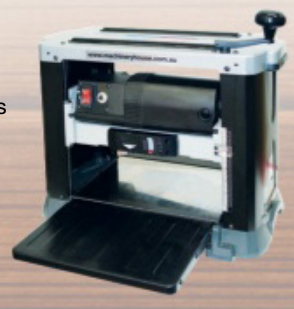

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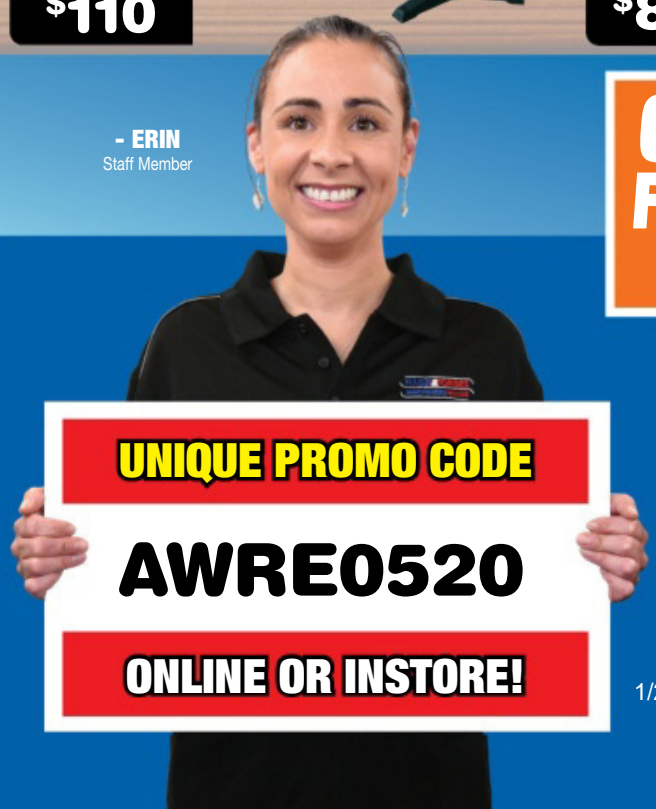

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Hafco ST254 Tablesaw

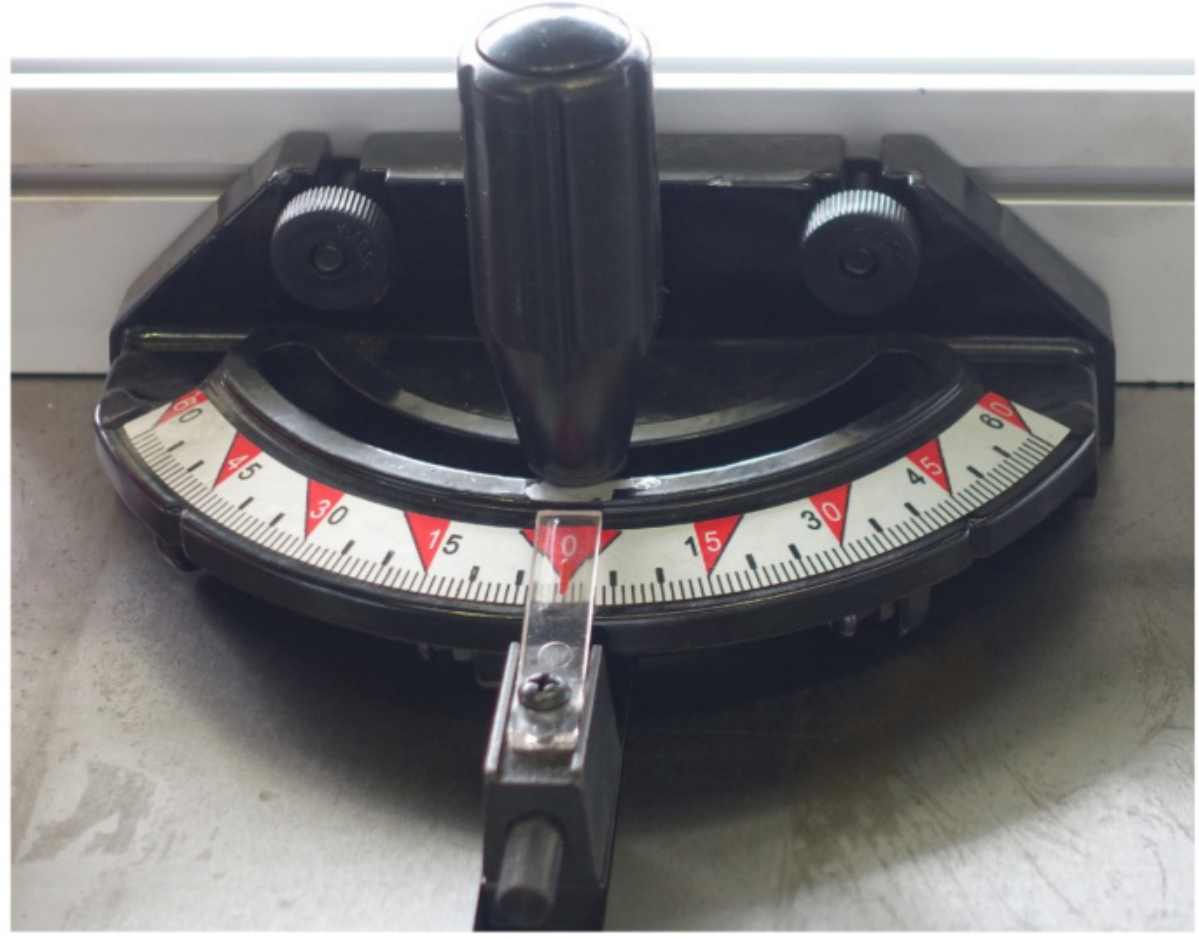
Reviewed by Damion Fauser

This is an affordable cabinet saw with some good features. With a 2.2k watt (3hp) single phase 10amp induction motor, the saw runs a 254mm (10") blade on a 25.4mm (1") arbor. This yields perfectly respectable cut capacities of 75mm at 90° and 60mm at 45°. For review purposes, the test machine was supplied with a quality Leitz 80 tooth crosscut blade and was able to make super clean and effortless cuts in some 45mm thick kwila.

The rip fence is a solid arrangement and comes with a detachable accessory high/low fence attachment which would come in handy for different types of cutting operations. The rail is solid and has a ruler attached. The capacity of the rip fence is a respectable 950mm. The machine comes with a simple but useful mitre gauge.

The overhead guard is large and clear for good visibility and has a built-in dust port which can be plumbed directly into the 100mm dust port at the rear of the cabinet, meaning the user will only need the one dust connection to run both ports from this machine. The test machine was connected to a basic unit and collection was effective. The overhead guard did not have any anti-kickback cauls.

Blade changes were simple with the supplied tool, accessing the arbor



Top: A sliding table attachment adds convenience and versatility to the Hafco ST254 tablesaw.

Above: The machine comes with a simple but useful mitre gauge.

Left: The 950mm long rip fence is a solid arrangement and comes with a detachable high/low fence accessory.

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by removing the screw-down throat plate. The dust proof magnetic controls are easily accessible and feature an emergency stop function. The machine has a nice soft start and is extremely quiet in operation, but of course this will depend on the blade that is being run at the time. Blade height adjustment was smooth and is lockable. The right-tilting arbor perfectly suits the optional sliding table attachment.

The 800 x 560mm cast iron table is sufficiently sized to match the rip capacity and has a mitre track either side of the blade, offering flexibility with the mitre gauge as well as the option for solid registration of shopmade accessories like crosscut sleds.

A sliding table attachment is available as an accessory to the basic cabinet saw. This has a 500 x 400mm aluminium table surface and a crosscut fence with ruler, mitre guide for angled cuts, cam lockdown clamp and an adjustable flip-down stop. The 1500mm run of travel on the slider is perhaps a little overkill given the comparatively small size of the sliding table surface and will require additional shop floor space, but this is a small sacrifice to have the added convenience and cut versatility of the sliding table. The working mechanism of the sliding table consists of roller bearings running on a steel rail guide and it certainly travelled nice and smoothly.

As a standalone cabinet saw this unit retails for $1595, or packaged with the sliding table for $2222. I consider this to be a fair price for what is a reasonably well thought out machine.

From Hare & Forbes Machinery House, www.machineryhouse.com.au

Damion Fauser is a furniture designer maker in Brisbane, see damionfauser.com

Clockwise from above: The overhead guard is large and clear for good visibility and the cast iron table is well sized with a mitre track either side of the blade.

The overhead guard has a built-in dust port which plumbs directly into the 100mm dust port at the rear of the cabinet.

A cam lockdown clamp and adjustable flip-down stop come with the sliding table attachment and are a very useful addition.

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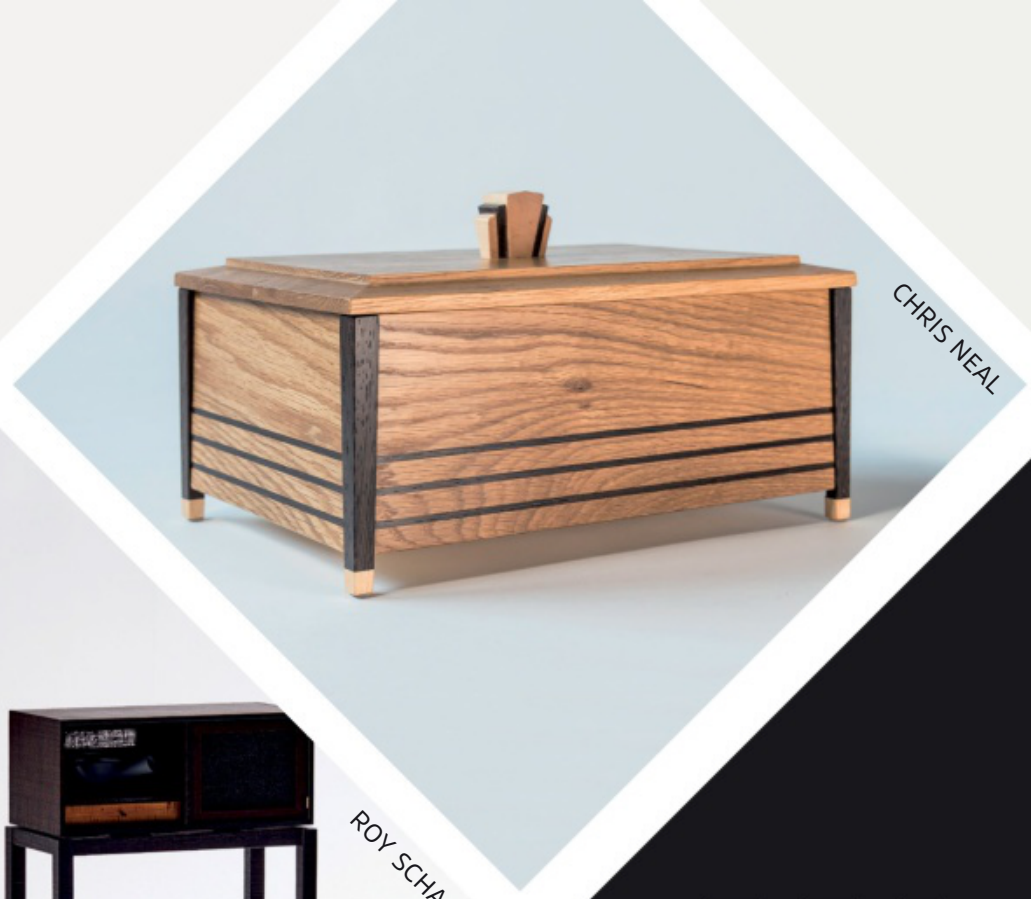
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Wikus 19mm Bandsaw Blade

Reviewed by Richard Vaughan

Like most woodworkers I make regular use of my bandsaw, a hefty 70 year old Australian made Barker. I switched to carbide tipped blades long ago because many Australian timbers are merciless on anything else, and ply, MDF and particleboard kill carbon steel in no time.

Whatever the tool you are using to cut wood it simply has to be sharp. Chisels, gouges and plane blades are often acknowledged but persevering with dull edges on powered tools is a far too common cause of frustration and poor work. A blunt bandsaw blade will wander off track and burn the wood resulting in disappointment and exasperation when you are supposed to be enjoying yourself. A durable edge is a very good thing.

As well as cutting shaped work – I do like curves – and various jigs as required, I regularly use the bandsaw for cutting facings (thicker veneers suitable for horizontal surfaces) and laminates. I also tend to use the bandsaw for ripping timber for a better yield because the kerf is at least half that of the tablesaw ripping blade, and the finish it leaves is quicker to clean up. Making best use of nice wood for boxes is another benefit.

One downside of TCT bands is that unless you are prepared to dedicate a big chunk of time with a Dremel or similar and diamond grinder, you may have issues with resharpening because the automated process of sharpening companies tends to reduce the clearance of the tiny carbide tip so the saw will wander and probably burn, and probably be rendered useless. But TCT blades last so long that's really not such a big issue.

Up until recently the various makes of 12.7mm/half inch carbide tipped bands at 3 or 4tpi did the job satisfactorily, and stayed on my bandsaw for all work. But I really had to watch the feed speed to prevent the narrow blade being deflected off-line when ripping boards at 200mm or more deep.

Wikus is a German company specialising in saws. I purchased their 3tpi 19mm carbide tipped band through Brisbane company CSK (Combined Saw and Knife). It is 4820mm long. The width keeps it tracking straight and the gullets are deep enough to clear even soft woods.

Left: Showing the Wikus blade and the surface it left on satin silkwood.

Below: The first test cut on a piece of hoop pine confirmed the choice.

The first test cut on a piece of hoop pine confirmed the choice. I ran some wider and harder timber through it and was well pleased with the result, which was important as I had some spectacular and pricey boards of satin silkwood I needed to resaw and had no room for wandering. It may well have paid for itself in that job.

The kerf is an economical 1.6mm and the finish off the blade is excellent. I'll continue to use the half inch TCT bands for general work, or 3/8 inch for tighter curves, but will be changing over to the Wikus for resawing wider boards, as well as for cutting laminates and veneers.

Presumably not many of you now have tablesaw blades without tungsten carbide tipped teeth. Hopefully those who don't have one will now consider TCT bandsaw bands.

The extra cost of TCT blades seems to daunt some people but the life of the blade and the results more than justify that outlay in my books. I recommend having this Wikus band available for probably a year or more of remarkably accurate use. Bi-metal blades are a cheaper option but in my experience not nearly as durable.

Available from www.combinedsaw.com.au

Richard Vaughan is a furniture designer maker in Brisbane who also teaches woodworking, see richardvaughan.com.au

Nova Orion 18" DVR Lathe

Reviewed by Andrew Potocnik

Above: Well engineered and well finished, the Nova Orion offers digital control and variable speed.

Right: Easy to access operating buttons are housed on the headstock. Forward and reverse options, four favourite pre-set buttons and the variable speed switch are all conveniently located.

If you're looking to upgrade to a full size lathe that provides plenty of power and drive, this could be the one for you – but what sets it apart from others on the market?

To begin with, there is its name which raises the question of what a DVR is, especially as it is used on other Nova machines including a pedestal drill. Digital Variable Reluctance (DVR) is a computer controlled system that detects extra pressure on the workpiece and increases power to ensure the lathe retains constant RPMs.

The lathe has a direct drive motor so speed variation is all electronic, from 100 to 5000 rpm, however many variable speed lathes lose torque especially in the lower rpm range. The DVR system detects resistance to the workpiece and increases power to maintain constant speed, optimising efficiency so the motor only draws as much power as needed. This also enables electronic auto-braking to bring the spindle to a rapid halt when activated.

The computer feature enables the screen to not only show spindle speeds but also advises of safety issues such as dig-ins and if the spindle lock is in place, where power to the motor is instantly shut down. There are also four 'Fav' buttons that allow you to set up to eight of your most commonly used speeds so you can bypass the speed dial and instantly change to the speed you need.

Being new to a Nova DVR lathe I began my trial with the handbook to gain an understanding of how it works, especially when the digital display offers options beyond the usual start/stop I'm familiar with. It didn't take long to gain confidence and understanding as the handbook provides clear illustrations and text.

First inspection revealed several structural features that differ from other lathes. The direct drive motor is housed within the headstock which allows for 360° rotation with indents at 0, 22, 45 and 90°.

The bed is made in two parts, being bolted together halfway along its length. This enables an extension to be fitted either between these two parts or added to the end which is the more common method. These are described as CAD designed castings with webbing to absorb vibration and maximise structural strength. Each segment is quoted in

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the handbook as being 20"/510mm. Interestingly this isn't the only time imperial measurements are used in specifications provided. The spindle size is an unusual 1-1/4" x 8 tpi more typical in the USA which it seems this lathe is targeted at, even though Nova is a New Zealand company.

Aiming for consistency with other recent lathe trials I mounted a 100mm diameter piece of pin oak between centres using the generic drive and live centres that accompany the lathe. The quill has both metric and imperial markings along its barrel providing accurate guidance if you're using it to drill into wood gripped in the headstock.

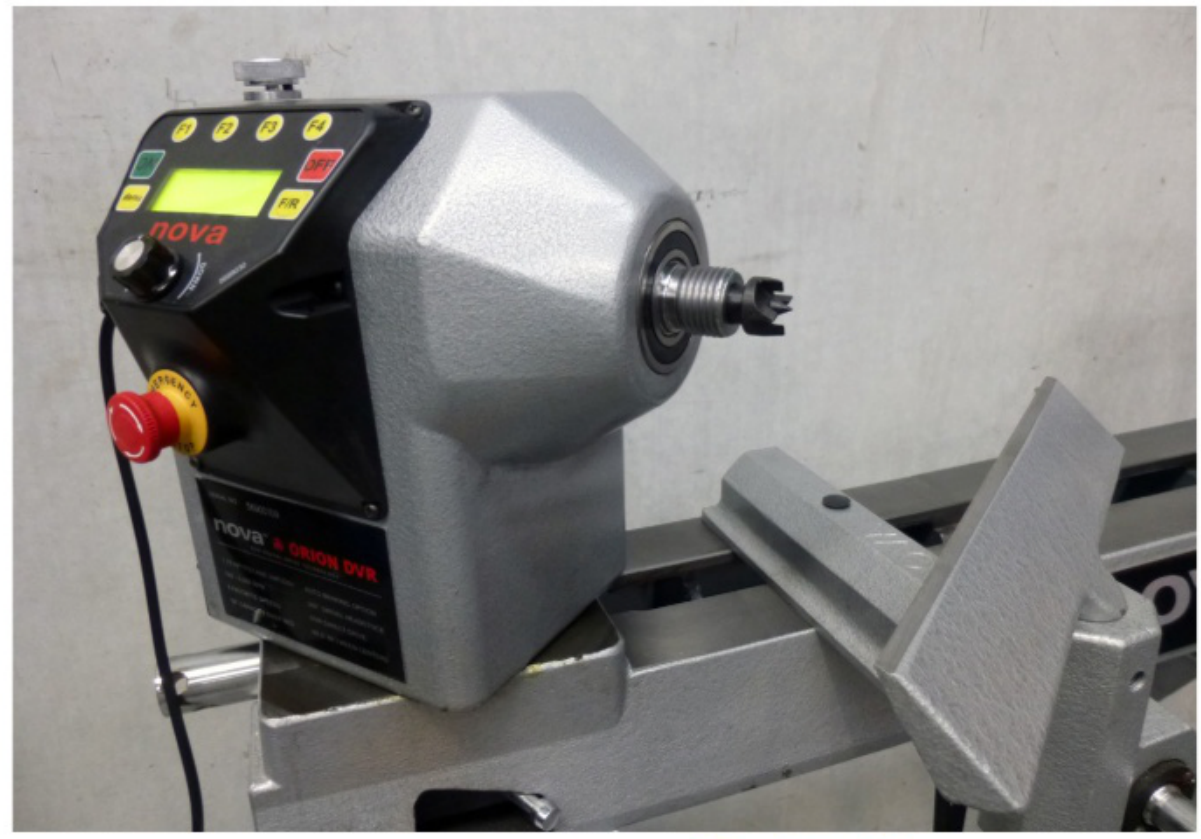
Applying heavy cuts to the wood didn't slow the lathe at all, even when I pushed to the point of catching the tool due to excessive pressure.

Switching to my standard 200 x 50mm blackwood blank for faceplate performance, the lathe performed without flaw. Changing speeds manually via the variable speed dial rather than pre-setting favourite speeds is easy; however the fine setting of the dial means that major increases in speed require multiple rotations of the dial.

No matter which speed you opt to work at, the lathe winds up quickly and smoothly and winds down within a matter of seconds when switched off, or if the emergency stop button is activated. A remote switch that can be clamped into place where needed adds to the safety features of this lathe, best used when the headstock is rotated to enable the turning of discs beyond the 18" capacity over the bed. According to the handbook the lathe's capacity is 29"/736mm outboard (using optional outrigger accessory); however, this wasn't available for this trial.

Overall, I found the finish of all machined surfaces to be excellent with all components sliding and locking with ease. Locking levers are large and easy to operate; however, the tailstock lever would be better relocated by 90° where tightening would not be hampered by the handwheel used to advance the quill.

Weighing in at 185kg, this lathe is going to stay put for your average turner's requirements. And just in case you're doing some oversized turning that may challenge the stability of the cast stand it has provision for an extra shelf or a sand box that can add even more ballast.



Above: Swivelling the headstock enables greater access for faceplate work and turning of larger pieces. The solid bed, saddle and toolrest provide plenty of support for outboard turning.

Left: Pre-set indents allow the headstock to be realigned easily to line up with the tailstock. The remote stop switch can be attached to any convenient location on the lathe.

Sometimes little things capture your attention relating to more than just how a machine performs. The solid 150mm diameter faceplate threaded onto the spindle with ease, gliding along the thread with a sound that brought a smile to my face – it's well engineered.

And as for the USB port? It enables the uploading of 'firmware', so stay tuned as we find out more…

Review machine from Carbatec, www.carbatec.com.au

Andrew Potocnik is a wood artist and woodwork teacher who lives in Melbourne, www.andrewpotocnik.com

NOVA ORION 18" DVR	
Between centres	590mm
Over bed	18" / 460mm
Speed range	100 – 5000 rpm
Motor size	2hp
Spindle thread	1 /1 /4" x 8 tpi
Pulley steps	None, direct drive
Quill travel	95mm
Weight	185kg
Toolrest diameter	25mm
Toolrest length	300mm
Finish	Excellent with no sharp edges
Adjustment	Locking levers lock firmly and quite large
Footprint	600 x 1120mm

Whittle Evolution Colour Wood Stains

Reviewed by Raf Nathan

As an extension of their hardwax oil finish range, Whittle Waxes now have various colour and neutral stains available. These stains use natural pigments in a base of hardwax oil so if needed they can be thinned with clear hardwax oil. After applying the colour you will still need two or more further coats to complete the finish.

When staining wood I try and begin sanding at 150 grit and work up to 180 grit and higher. If I need to sand with 120 grit I only use a belt sander then switch to my random orbit for the 150 and 180 grits as I find the 120 grit in a random orbit sander always leaves swirl marks which, if not carefully removed, will be highlighted with a stain.

For testing, I applied this product to silky oak and found it very user friendly. I used a rag to apply the colour, wiped along the grain immediately and left it overnight to cure. There was no need to sand after staining and I simply applied another coat of clear finish only needing to give the wood a very light buff before the second coat of clear.

There are currently 14 different stains available, including three neutral stains. These neutral stains don't add any tint to the wood and seem ideal to maintain the raw sanded colour and avoid the normal slight darkening and golden hue that a coat of hardwax oil usually adds.

Available from Whittle Waxes Australia

www.whittlewaxes.com.au

Raf Nathan is a woodworker and tool designer based near Brisbane.

Hillbilly Forge Tools

Reviewed by Linda Nathan

Sharp out of the box is every tool lover's preference and these handcrafted spoon and whittling tools from Hillbilly Forge don't disappoint. Opening the kit, the urge to immediately grab a piece of wood and test them was irresistible, so I did!

Wicked would be a fitting description for the two knives with blades that are relatively short for their genre, one very short. The tip of a blade is best for tight curves and tricky grain and offers less resistance for fine and accurate work. If you're looking for more of a brute whittling tool with length these knives won't suit.

Spoon tools with only one sharp edge suit me better because I can control the pressure and direction with my thumb. Small, medium and large, these fit the bill, and yes they were sharp too.

All the metal in this kit is bright and shiny, 12C27 with 416 stainless steel bolsters. I like that. The handles are eye-catching in red mallee burl, a nice touch for the native wood connoisseur. The addition of bright orange G10 liners gives the effect of racing stripes. The look is not subtle but these are not shy tools.

With nice curves, the handles are very smooth and comfortable even for a fairly small hand like mine. I did wonder about the stubby ends but they do mean you can stand the tools on end if you so desire.

All that remained was the test of time. How long would those edges stay sharp for? Time to carve a spoon, or three in this case. Silky oak, blackwood and a ridiculously hard scrap of lace sheoak were the test species. Fairly frequent honing on a paddle strop with jewellers rouge was all it took to keep those edges going for all three. For a longer edge test you'll have to try the bespoke tools made by Jason Gwillam for yourself.

Available from www.creativeman.com.au

First Hammer CNC

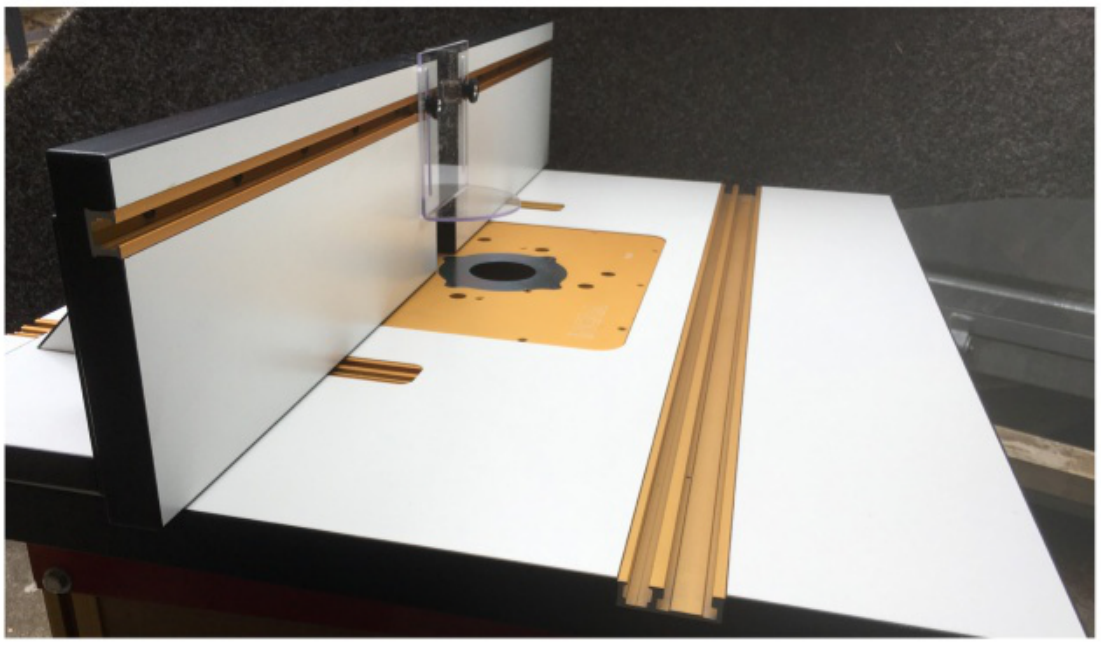
With the new HNC 47.82 portal milling machine, Austrian-made Hammer machinery is now offering its first CNC router. Three and four axes options are available. At 1111 x 762 x 682mm high the machine is compact and arrives fully assembled. Purchased as accessories, Hammer router motors come in four variations.
www.felder-group.com/en-au/

Product news

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

Made for Australia

Specially made for the Australian market, Woodfast's new 18" deluxe bandsaw is single phase and the 3hp, 15 amp motor drives heavy cast iron wheels in a rigid frame with square column welding and enhanced body structure. Safety door micro switches, NVR switch with emergency and kick-off stops, and foot brake – all with the tool-less spring-loaded blade guides unique to Woodfast.
ww.woodfast-group.com



Super Setup

The ProRouter Fence is a solidly constructed, fully featured router fence that's easy to set-up and adjust, and safe to use. Lever ratchet knobs give smooth and secure adjustment, T-track permits featherboard mounting, clear polycarb guard is adjustable. The fence is 800mm long, 160mm high with max 90mm opening. Outfeed fence offset 0–1mm with offset 1mm shims. Currently $325 from Professional Woodwork Supplies.
www.woodworksupplies.com.au

Stay Connected

It doesn't get better. 3M WorkTunes are a wireless earmuff with Bluetooth technology and hi-fi sound. Protect your ears from loud tools such as sanders and drills, but stay entertained by streaming your favourite music or podcast from your smart phone and never miss a call with the call-connect function. The built-in rechargeable battery (cord included) gives up to 8–10 hours streaming time. Well priced at $99.90 from Bunnings (in-store or online) and Mitre 10.

Hard and Fast

Designed by Hap Stanley (ex Shapton USA), Nano Hone produce advanced and innovative hand sharpening products that bring precision USA milling to traditional Japanese whetstone sharpening. Their stones are hard and fast cutting with a solid aluminium backing plate. Stone Stage bases are a hefty 1.9kg of solid milled aluminium and take Nano stones and lapping plates. Visit ProTooling's Sydney store or go online at **www.ProTooling.com.au**

Drill Press Power

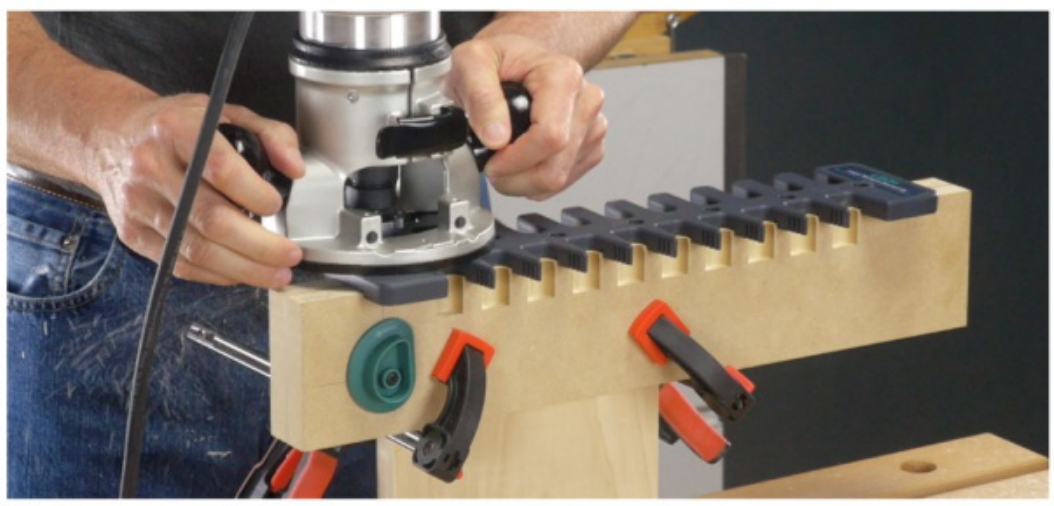
No matter how good your aim, for drilling jobs that require precision, a bench or pedestal drill press is the solution. A clamping surface also offers greater safety and flexibility. This Hafco BD-325 bench model is around $352 while the PD-325 pedestal type sells for $396.
www.machineryhouse.com.au

Australian Oak

American oak is popular but let's not forget our homegrown timbers that offer similar colour and strength. Island Specialty Timbers in Tasmania have good stocks of what is commonly called Tasmanian oak. This superb mix of eucalypts is available as feature or clear grade. The feature grade contains resin pockets that are easily filled to give exciting grain patterns. The clear grade often shows light fiddleback and beautiful chatoyance.
www.islandspecialtytimbers.com.au

Fill Then Finish

Aquacoat is a waterborne, easy-to-sand water-clear gel grain filler used for filling open and coarse grain woods. Apply with a soft cloth or a small squeegee before top coating. It can be tinted with water-soluble colourants or dyes. Available from Armstrong Lutherie.
www.armstronglutherie.com.au

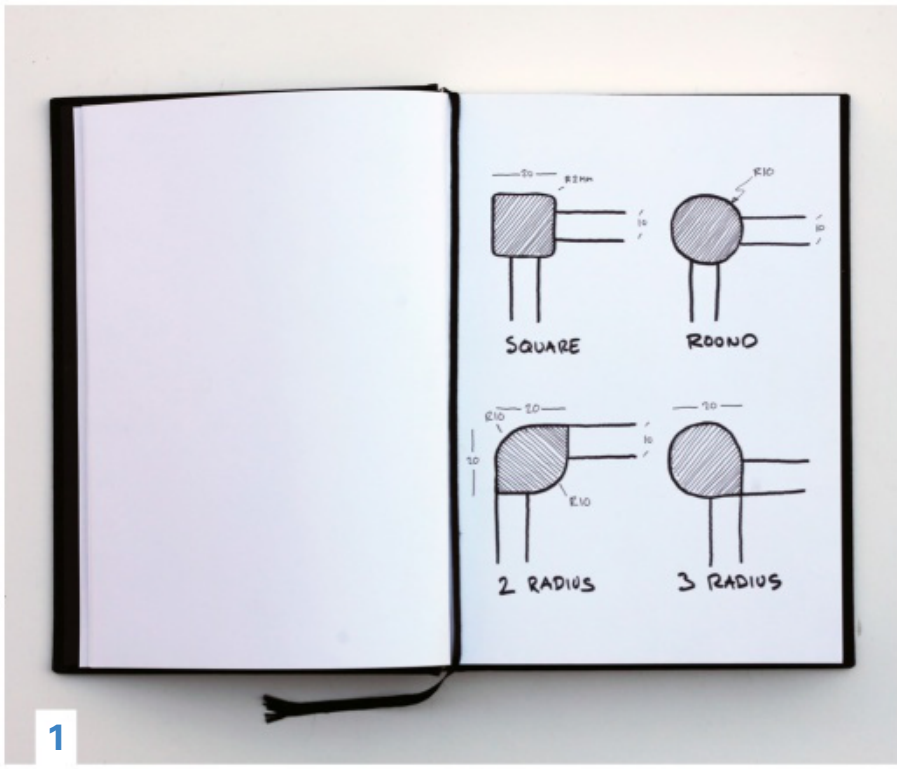


Dovetails with Ease

For dovetailing power the new TD330 from Leigh comes with bits and router guide and entry level pricing. The jig is easy to use – an e10 guide bushing guides the router bit in and around a template to create dovetails in multiple sizes, and on boards of different thicknesses. For workbench or router table use.
www.carbatec.com.au

Woven Wood Bench

Henrik Tjaerby investigates the potential of furniture that makes the most of lightweight woven slats.



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Four years ago I made a shelf from a woven lattice of wood as I wanted a light and transparent look. It only had to carry a couple of jumpers so after a few trials I realised 3mm maple slats were more than strong enough. Very quickly my one year old realised this shelf was his favourite place to jump as it had a nice bouncy action – and to my surprise he didn't break it like most other things in the house!

Extending this idea to other furniture items seemed obvious, so I came up with a concept using a very simple frame for the weaving supported by vertical legs. The Danish cord benches from the 50s used stretchers for stability, but for a cleaner look I decided to use just the one deep 90mm rail. This could withstand a lot of downwards force, and as it didn't need much sideways stability, I slimmed its thickness down to the bare minimum. The height also gave enormous strength to the leg joint – win-win. The result? A bench measuring 110mm long x 40mm deep x 450mm high, and weighing just over 3kg! The photos show how I made it.

Photo 1. Ideas for the leg profile. I made this particular bench with the three-radius profile which I thought was new, as well as offering a solid joint to the legs due to its two flat/perpendicular surfaces.

Photo 2. Leg profiles. Simply plane your square stock to exactly double the thickness of your radius cutter (in this case 25.4mm as I had a half


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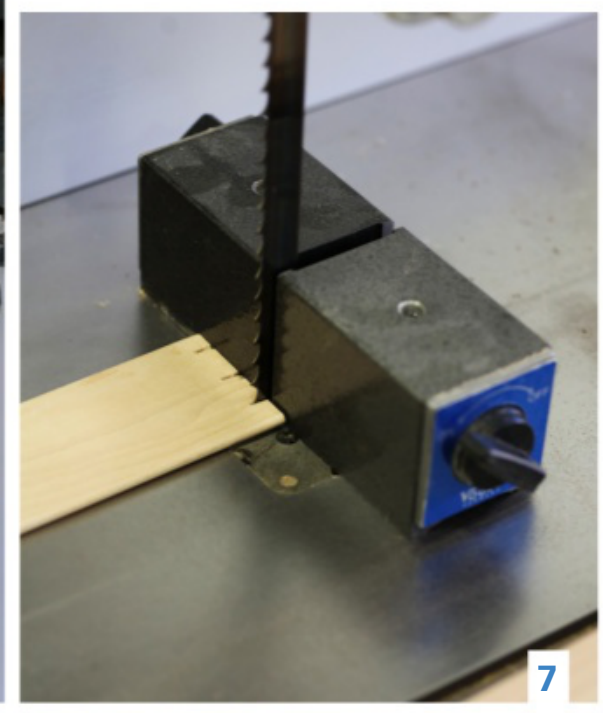
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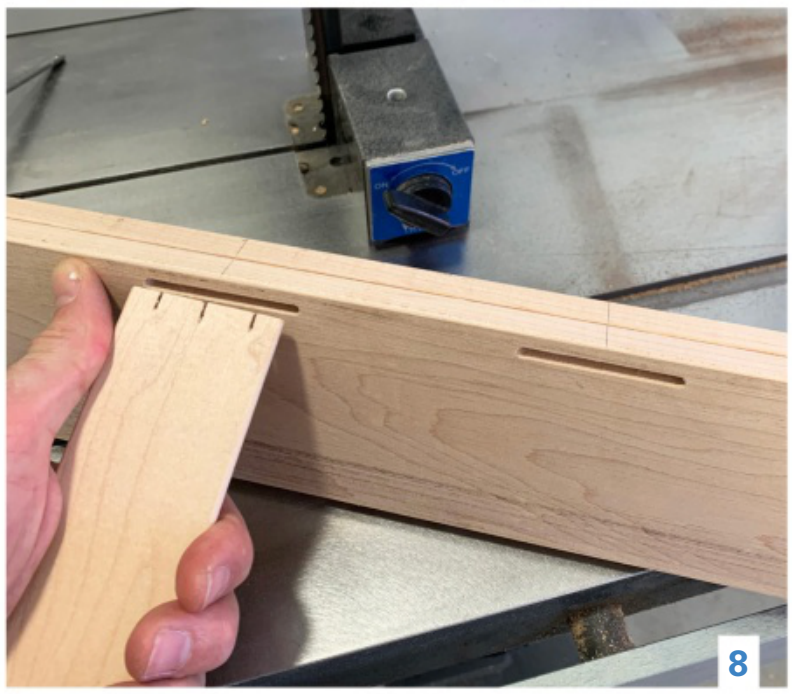
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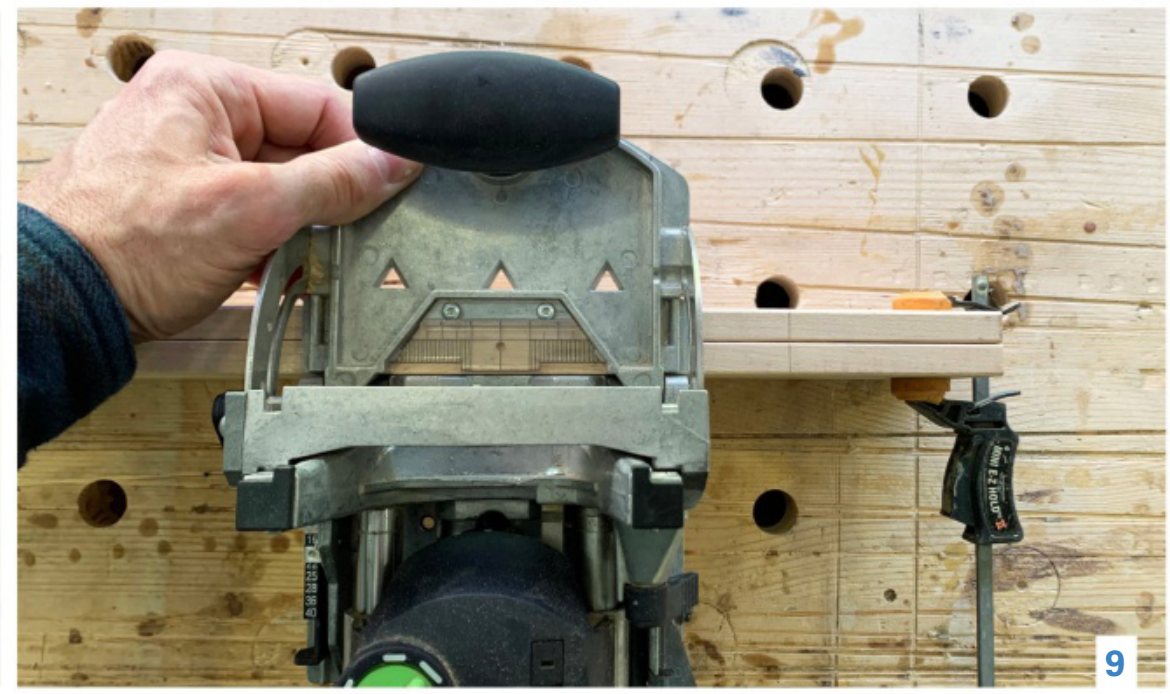
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inch cutter at hand). Rather than routing all four edges to leave you with a full round, instead leave one edge and this is the result.

Remember to pass this through the router at least twice. The first pass will remove 90% of the radius, while the second will shape the rest for a nice smooth cut. Removing the whole lot in one go will create tear-out – especially in the rock hard Canadian maple I used.

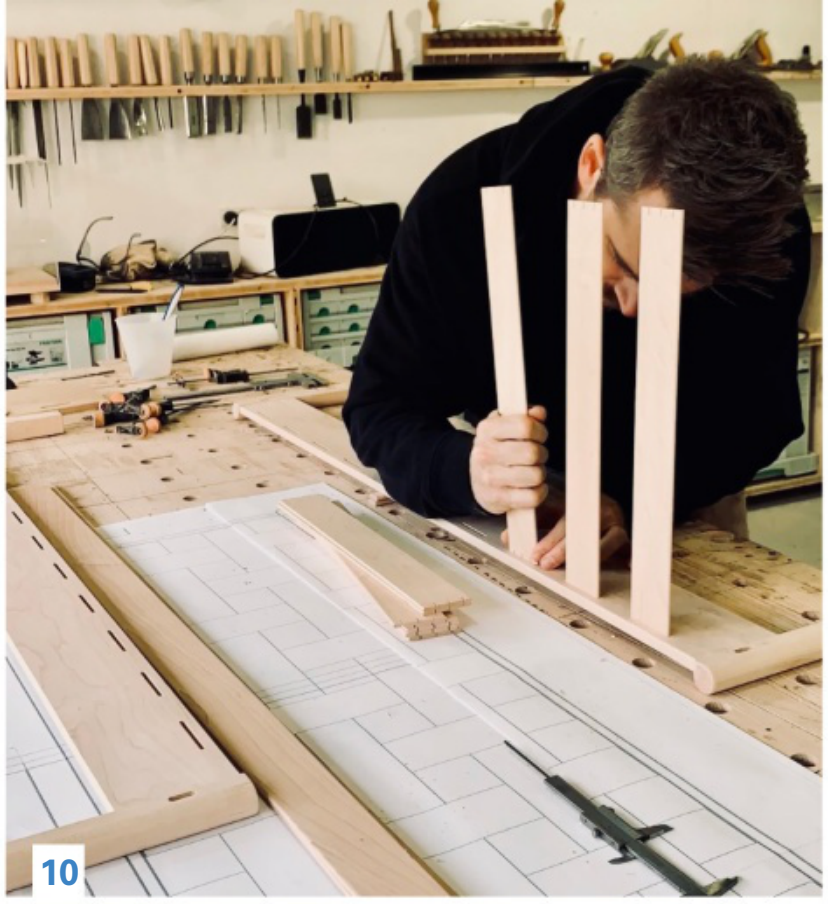
Photo 3. I used Festool dominos to join the legs and crossbraces, but you could use any kind of strong joinery here. Dowels, traditional mortise and tenon joins or even a mechanical joint for a flatpack construction.

Photo 4. 'Its all about the detail.' It's easy to imagine a whole family of furniture using this principle. Chair, lounge chair, shelving unit and more. I'm even thinking of making a bed as I'd like to see the weaving in monster size. If you, like me, suffer from a dust allergy, this kind of furniture is great, as it doesn't gather dust as easily as paper cord or fabric.

Photo 5. The woven wood can be of any proportion or pattern. I wanted a plain over/under chequered look and liked the proportions of a 50mm wide slat with a 50mm gap to go with the look of the bench. I thought 4mm thickness was on the weak side, but wanted a challenge and went with 4mm. If you have a planer thicknesser I'd suggest bandsawing the slats, as the thinner blade will produce less waste. If not, you can use a tablesaw and sand off the saw marks. You will be surprised how many slats you can make from offcuts which otherwise would have been thrown out, or used for heating in my case.

Photo 6. Most planer thicknessers don't go down to 3–4mm and neither does mine, so I built a custom machining bed to thickness to 3.8mm (4mm is my rough dimension but you need 3.8mm for joining). A leftover melamine kitchen benchtop did the job with little friction and with its constant thickness and resistance to pressure. Look carefully at the wood grain and run the slats through in the right direction as with this thickness you can get some nasty blowouts. Think of it as stroking a dog from the tail towards the head…not pleasant for either the dog or you. I don't have a drum sander, but if I had this would have been the perfect machine for the job (for the slats, not the dog).

Photo 7. I made a few cuts at each end of the slats so the glue really could 'get in there like swimwear'. Rather than clamping down a piece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of wood as a stop, I used the Vogel magnetic blocks shown. I bought them a while back and use them for all kinds of stuff. They even come with a threaded hole on top – great for holding cameras as well if you are documenting your work.

Photo 8. The rails are pretty straightforward. As mentioned before I wanted to avoid using stretchers as well, so to give stability made them 90mm high but only 12mm thick; just enough to capture the woven slats. I cut the slots with a domino machine, but I could also have made a simple router jig, or if in a hurry cut a dado in the full length of the rail, although the fit wouldn't have been as neat...

The slat and rail edges have a small 2mm radius applied. You want the radius to be half the thickness of the slat so it fits perfectly in the slot with fully rounded ends no matter whether made with a domino or a router.

Photo 9. Another photo of cutting the slots with the domino. I simply mark the centre of each slot as the domino has a centre mark on the fence. To ensure each slot is in line with the opposite side I clamped the two rails together, and this created a larger bearing surface on top, ensuring the cut was perpendicular.

Photos 10, 11, 12. Dry fitting the weaving. There is a lot of tension in those slats, and you will be surprised how strong it gets as soon as you put the second slat in and they start to interlock.

Again, it's all down to the weaving pattern, and it takes a lot of trial and error to get it right. Say, for example, if I wanted the gap to be only 30mm


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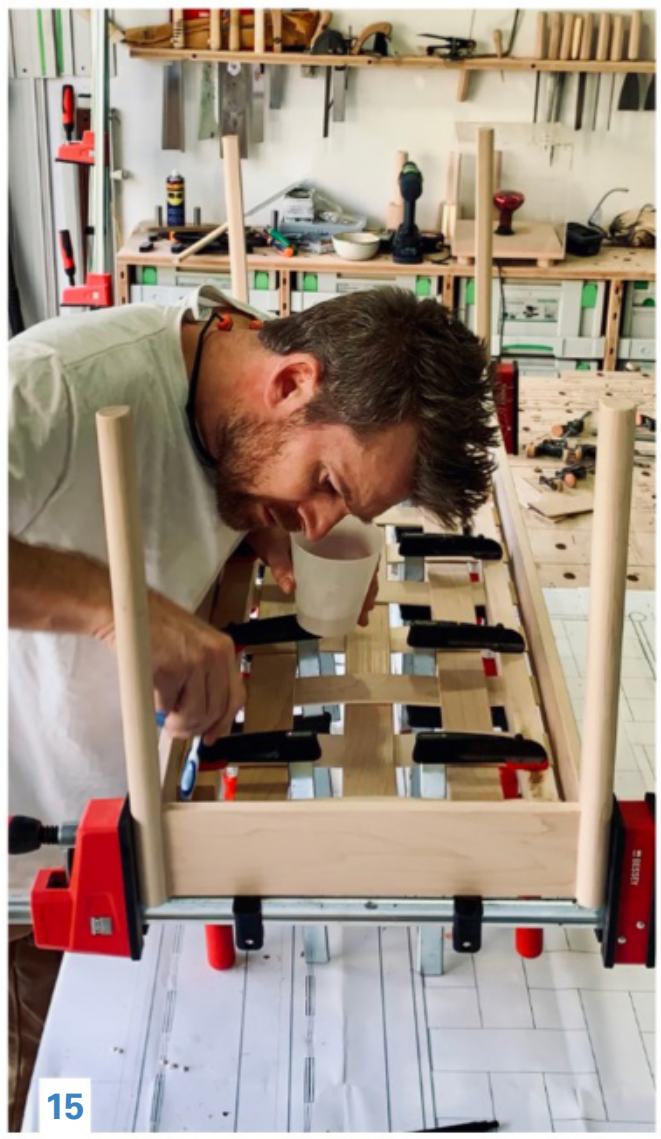
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wide, I would probably have to shave off at least 0.5mm of the thickness to be able to bend it (unless you steam bend or wet the slats which would also be interesting to try).

Photo 13. Right, glue-up! Nobody likes gluing up as it can get pretty stressful with the glue setting fast and so on. This glue-up is stressful at a whole different level. Trying to fit the ends into each rail at the same time as the dominos connecting the legs is very difficult. Trying to fit the woven ends which stick out in two different angles is impossible. My solution was to clamp down the woven top between a few bars forcing the ends to stick out in a straight angle.

Photo 14. Even so it is not easy as the tension forces the legs out of line and you need to get those glued up at the same go. In other words: make sure to go to the bathroom, turn off your phone, put the kids to bed and have a coffee beforehand so nothing can distract you!

Photo 15. I use a toothbrush and water to clean up each joint for any excess glue. For a complicated glue up like this I always use too much glue to be sure of getting a good contact.

Photo 16. So here is the fun part. It's probably the first time you're ever going to remove the clamps before the glue sets. Well, most of them – the ones clamping the weaving flat have to be removed, as you need the slats to return to their natural position. They will always enter the slots slightly on an angle, and it's better the glue sets at this angle otherwise you'll put too much stress on the joint. You leave on the clamps holding the legs together as well as one in the middle to prevent the slats pushing the rails apart.

Photos 17, 18. I haven't put this through any official testing and it probably wouldn't pass today's standards. It did however pass my daughter launching off it several

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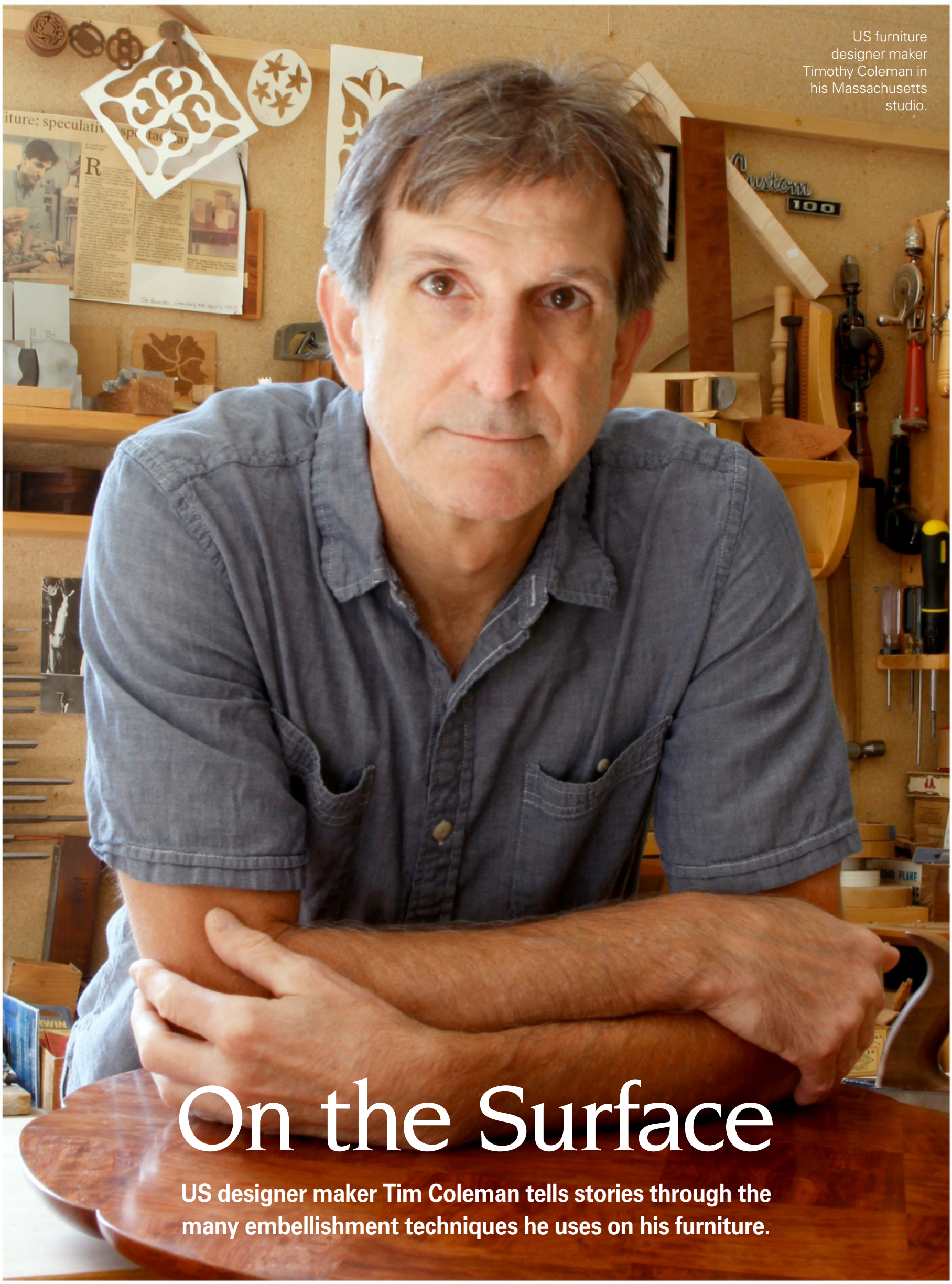
times, as well as my two kids and me sitting on it at the same time. Anyhow this project wasn't meant as a commercial product or in any way meant for mass production. Instead it was a challenge to see how thin I could go, as well as how far I could simplify the structure. After all, there are only three components: slat, leg and rail cut to length. Job done.

Photos: Henrik Tjaerby

At his request, Henrik's authors fee was donated towards Australian bushfire relief. Design copyright Henrik Tjærby Contact via Instagram: @henriktjaerby and www.tjaerby.com

Danish born, Henrik Tjærby completed his MA in furniture and industrial design in 2002. During his education Henrik focused heavily on making processes and developed a particular passion for wood and both traditional and modern woodworking techniques. He has worked as a designer for a number of internationally renowned studios in Denmark, the UK, China, and Japan with projects for George Jensen, Tom Dixon, Fritz Hansen, Artek, Zara Home and Virgin Atlantic amongst others. Currently living in Northern Spain, Henrik has his own workshop in his back garden on the edge of a eucalyptus forest where he carries on working in local woods.



US furniture designer maker Timothy Coleman in his Massachusetts studio.

On the Surface

US designer maker Tim Coleman tells stories through the many embellishment techniques he uses on his furniture.

1. Just some of the sample boards created by Tim Coleman to test and develop his decorative techniques.
2. Tim Coleman's side table with marquetry inspired by Arabic script is on fire with the wildest wood grain and flowing symbols. The veneer is rotary sawn bubinga.

Curves and subtle tapers define the furniture that Tim Coleman designs and makes, but it's often on its surfaces where stories are told. Patterns and motifs are stamped, inscribed, pierced and pieced together, often in layers.

There are tales of techniques learnt and imagery discovered in a personal journey that moves both forwards and back in time. New techniques may be developed over a series of pieces, and also combined with others (**photo 1**).

'I've always been drawn to patterns in nature and to different cultural design motifs', Tim explains. 'Early on I experimented with marquetry but not in a very traditional way, but instead using silhouettes and graphic elements. I love the way marquetry has been used in Art Deco and Art Nouveau furniture where stylised motifs are taken from nature.'

'And nature is often the underlying inspiration for many of the symbols, motifs and even scripts we see in various cultures', says Tim. 'Even the stylised lines of Arabic script are very fluid, leaf and blade like (**photo 2**). Once I had that as my basis of thinking I realised that you can express the things that you see in nature either in a very loose and organic way, or in a little more ordered and in some cases highly mathematical (as in some Arabic cultures) way.'

3

First impressions

The stamping technique that Tim is known for came about by happenstance. His early studio was located in an old 1700s manufacturing building: 'When I moved in there were discarded stamps all over the place – you'd find them between the floorboards, on window sills and in little boxes and I just started collecting them. My young daughter was with me every afternoon (my wife and I were trading childcare responsibilities) and we would play with the steel stamps, and it wasn't long before we were hitting them into wood and making patterns just using the letters and numbers.' Some of the tools Tim uses for his surface embellishments are shown in **photo 3** while an early stamping experiment is shown in **photo 4**.

The decorative possibilities were clear but the impressions weren't deep enough so Tim experimented with heating the hardened steel with a torch and then reshaping the edges with files, sandpaper and grinding wheels. He now also makes his own shapes and combines these with V-tools and veining chisels to add lines and grooves.

'Zeros and crescents are useful shapes to start with', Tim says. 'You can use a nail set to achieve a zero shape or buy a set of steel stamps and take the

4

temper out of the steel (heat it till glowing) and then modify the shape and angle of cut for best effect.'

Go deeper

An effective use of simple impressions 'randomly' stamped around the perimeter of a small table is shown in **photo 5**. The pattern is also echoed in the base (**photo 6**). For the pattern to stay defined you need to go a little deeper than you might think, Tim says, to allow for subsequent sanding of surfaces before and in between finishing coats. On edges and endgrain, care must be taken to adjust the strength with which the stamps are struck to avoid splits.

For more emphasis

Marks from stamps and carving chisels can be combined to form various patterns. Adding black lacquer creates a striking contrast (**photo 7**), but it took a good deal of experimentation to make this technique work. There were early pieces that had to be scrapped because the black bled through.

Eventually Tim settled on using a vinyl lacquer sanding sealer to prevent any chance of the dark lacquer wicking into the wood surface. In the work shown, the black lacquer was sprayed on very lightly and left to dry for an hour before going over the surface with a very sharp card scraper. 'It's one of those really wonderful moments when you reveal the pattern highlighted,' says Tim.

The border pattern shown in **photos 8**and **9** was created with a V-tool and a zero stamp. The central field was masked off before diluted acrylic paint was brushed on and then scraped back, once again with a very sharp card scraper. Unlike lacquer, Tim says, acrylic has enough body to not bleed into wood pores.

Freely geometric

Just as Tim has adapted traditional marquetry to his own style he uses chipcarving technique in a more organic way. 'To determine the layout I often start with a grid, then break it up and fill the spaces.

3. Some of the tools Tim uses for his surface embellishments

4. A close-up view of one of Tim Coleman's first stamping experiments shows the rune-like effect achieved with various letter and numeral stamps.

5. Stamps were used to create a decorative border on the tabletop shown. Make sure you stamp deep enough to retain clarity after sanding. *Photo: Bill Truslow*

6. The motif on the base echoes the pattern on the top. *Photo: Bill Truslow*

7. Stamped and carved patterns were outlined with contrasting lacquer that was sprayed on and then scraped off. *Photo: Dean Powell*

8, 9. Diluted acrylic paint was brushed on and scraped back to highlight the pattern created on the lid of Tim Coleman's *Treasure Box*.

10. After establishing a basic grid patterns were freely chipcarved to achieve a softer flow on this 250mm square tray.

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I generally have a sample board with the grid mapped out to try out different carving strokes.' The panel in **photo 10** was initially a sample board that was later framed.

Apart from marking the centre of each square with a dot he steers away from laying patterns out, because he wants a flow that is not too geometric. 'You can use a compass and a pencil', he says, 'but I like the more spontaneous aspect. Even within a grid I try to leave as much room for spontaneity as I can.'

Working in layers

Carving through veneer. Early experiments involved carving through commercial veneers (**photo 11**), later moving to 2mm thick shopsawn veneers glued to a layer of plywood or solid wood (**photo 12**). Shapes are outlined with a V-tool and then carved with gouges, leaving some of the carved texture in the undersurface. This is another labour intensive process and carving through a glue layer will also require tools to be sharpened more often.

Creating veneer overlays. In this technique patterns are scrollsawn into veneer panels which are overlaid onto cabinet surfaces, as shown in the central carcase panel in (**photo 13**) which has blade shapes cut out.

Photo 14 shows the same technique where fretwork is applied to a contrasting wood surface. The veneer is 2mm thick, yet surprisingly strong says Tim. The cut edges are softened with files and sanding sticks. A variant with the cut-outs reversed is shown in **photo 15**. The same kind of overlay was applied to the lid of the box shown in **photo 16**.

9

Dragonflies are a motif that Tim uses often in marquetry and as cut-outs, and there is a direct inspiration. 'In my yard big swarms of dragonflies can settle in my yard for a while. When the sun is hot they'll be darting around. I just observe their wings and how they stir up the air around them.' **Photo 17** shows a sample for a cabinet, where dragonflies are cut into a thick veneer parquetry background of white oak where varying grain

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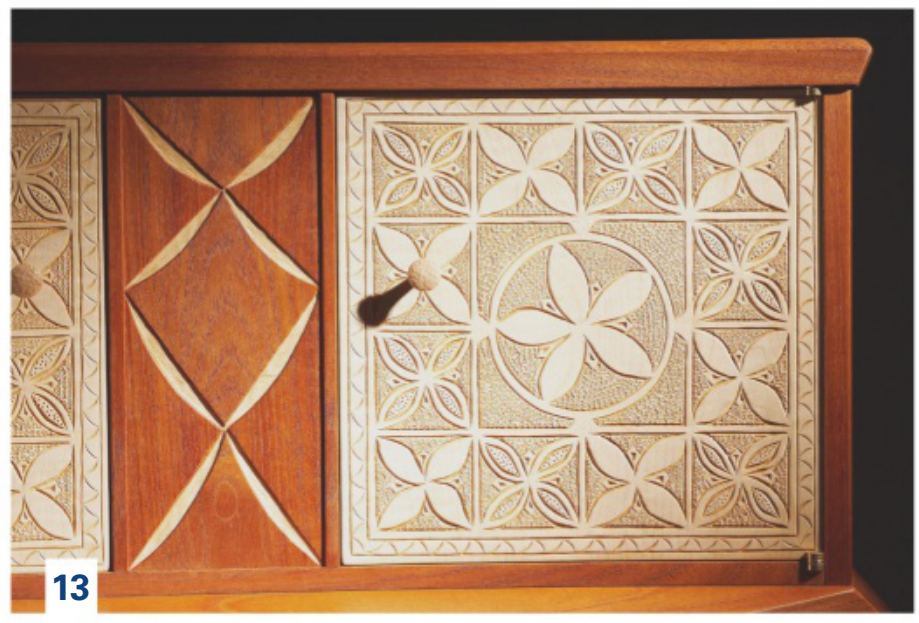

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11. Carving through veneer into solid or plywood is another technique Tim Coleman exploits to create organic and original surface embellishments.

12. Texture left from gouges and V-tools can add another dimension when carving through veneer.

13. Patterns are stamped and carved onto door panels while a dividing panel has a scrollsawn overlay of veneer in a contrasting wood of this cabinet. *Photo: Bill Truslow*

14. *Fall Front Cabinet* in English sycamore, walnut and rosewood showing scroll saw work with the cut-outs reversed. *Photo: Bill Truslow*

15. A scrollsawn motif creates a decorative border on Tim's *Arabesque* cabinet. *Photo: Dean Powell*

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directions mimic that air movement. Bevelled cuts give a shadow line.

Pierced carving

This technique involves sawing intricate patterns into plywood made up from thick veneers. The framed door panels in the cabinet shown in **photo 18** were created from five layers of 2mm thick veneers. The overall thickness of the plywood is thin but strong enough to cut intricate shapes into.

In this case the pattern was drawn, starting with a floral motif that 'got scattered' and linked with a matrix. The main challenge here, Tim says, is being able to saw smoothly and accurately without having to stop halfway through. Predictably the small centres were tricky.

It took around a week to pierce carve each panel and even though the very fine 30tpi blades Tim uses on his DeWalt 21" scroll saw leave few saw marks there was still a good deal of time involved in the clean-up.

The ideas that Tim is driven to express through his work reflect his observations of the world as an artist. 'When I latch onto an idea I really can't let go and I'm compelled to just carry it through. Having the confidence and courage to carry an idea through can take many many weeks, and keeping your enthusiasm to see it through to the end is as much a challenge as anything else.'

There are many technical and artistic challenges associated with this kind of work, but perhaps the greatest of all is having the patience and perseverance required.

Unless otherwise noted photos are by Timothy Coleman.

Learn more about Timothy Coleman at www.timothycoleman.com and Instagram @timcolemanfurniture

16. A decorative overlay veneer highlights this small box.

17. Sample for a cabinet, where dragonflies are cut into a parquetry background of white oak that uses varying grain directions to mimic air movement. 'I love working with grain and the reflective characteristics of wood,' says Tim.

18. The pattern on the door panels of this cabinet are scrollsawn however the material is thicker being made up of five layers of 2mm thick veneer. The effect is flowing but did require plotting out to achieve consistency. *Photo: John Polak*

18

Processes encountered by each of the eight participants were cause for impromptu discussion and demonstrations.

Open Learning

A six week open studio residency at the Centre for Fine Woodworking in New Zealand was an opportunity for eight makers to push their design and technical skills to the next level. Story by Linda Nathan.

It's said that learning from Michael Fortune is like drinking from a fire hose. For the eight who participated in his six week open studio residency in New Zealand at the start of 2020, it was definitely a case of immersion.

Michael Fortune is the 'anything but square'* furniture designer maker and educator from Canada whose work is known and collected all over the world. During the six weeks, participants were encouraged to step out of their comfort zone, and to use their time as an opportunity to experiment freely.

Michael is a wellspring of energy and radiates positivity. He smiles readily and an eyebrow may arch when he comments on a student's work: 'How about if we did this?' 'Have you thought of putting this on its side?' There is no wrong, but there can always be other ways of going about things.

Woodworking is about problem solving, but part of the problem is which solution to run with, because there are many ways to cut the proverbial joint. Design is about form, line, material choice and all-things visual and then it migrates to decisions and solutions to processes. These will be selected and adapted for a range of details which flow down to micro level.

Learn from Michael Fortune and US-based Kelly Parker, who co-taught during the residency, and you will be sketching, creating mock-ups and prototypes. You may learn to construct exo- or endoskeletons, in other words, support frames for complex

Above: Left to right: Carolyn Ellis, Michael Fortune, Cat Cook, Stuart Faulkner, Ben Raglan, Sam Harrap, Kelly Parker, Will Bayliss, Lou Fuller (tutor and workshop technician), Ernest Angelo, Peter Ellis, Helen Gerry (Manager, Centre for Fine Woodworking).

Left: Michael Fortune, Canada teaches workshops all over the while while maintaining a busy practice as a designer and maker of furniture.

Below: Kelly Parker, USA co-taught during the six week residency and also tutored in surface embellishment techniques.

Opposite page: Will Bayliss (left) and Carolyn Ellis

constructions that will allow you to determine reference points and angles for joinery. And there's not much chance that you won't learn about making and using jigs. Joinery and the methods and jigs required to construct a form are part of the design process, as are the modifications which may happen along the way.

For the six who travelled from Australia and the USA, the journey was the destination, because this open studio experience was not about completing a piece, but about the learnings to be gained along the way.

While five of the eight were professional (or intending soon to be) woodworkers, the reasons for coming amounted to a commitment to invest their own creative and personal development. On the day before the program came to an end I spoke to each of those who took part about what they had hoped to gain. This is not to say that there were no times of feeling overwhelmed by the challenge of the technical and aesthetic exploration being thrown at and drawn out of them, but on those final days there

was a universal glow of achievement. None of the pieces were finished, but there had been a turning point that would lead to new directions.

Will Bayliss, ACT

Former apprentice of the year, Wootha Prize winner 2019 and most recently recipient of a scholarship to participate in an open studio program with Michael Fortune – there seems no way to dim the light on the youngest member of this cohort.

As a qualified career furniture maker Will Bayliss, 21 arrived with skills that were honed to production and efficiency. Given the opportunity to create to his own brief the leash was definitely off as Will rose to the Michael Fortune challenge. His cabinet was 'anything but square' and in fact a confection of curves, tapers, round-overs, coves and components shaped every which-way.

Every drawer in the chest he made had a different set of angles – in fact only one had a drawer front that was parallel with the floor. Even drawer bases were kerf-cut to gentle curves. The integrated drawer pulls were initially cut on the tablesaw, then bandsawn to shape with the aid of a jig.

Conceived, mocked up and made to almost completion, Will's cabinet was a tour de force that drew admiration from all, more so because the design happened only at the outset. 'The night before I was sketching a couple of rough ideas, but I didn't want to get too far into the ideation process because I'm here to learn from Michael and gather ideas from everyone,' Will said. 'And Michael is the boss of curves so I just sketched something with a whole lot of curves and didn't get too worried about how it was going to happen.'

'Having completed my apprenticeship with Evan (Dunstone) a year and a half ago I'd never been outside the one workshop since I was 16. I thought (this) would be a good opportunity to get a new mentor and workshop environment. It was also about being in a different headspace and putting all deadlines aside and having the freedom to just make something for six weeks. I wanted to make something with a bit of whimsy and asymmetry – it's an oxymoron when you're think about it, but asymmetrical work still needs to be visually balanced.'

Carolyn Ellis, WA

When Carolyn Ellis's father tragically died in an accident some eight years ago only months after retiring, she and her husband took time out to evaluate life priorities. 'We sat back and thought, should we continue working for that retirement and possibly never get there, or do something that makes us happy now?'

And that was how Carolyn took up woodworking, first taking lessons at Perth Wood School where she later did a course with Michael Fortune. Travelling overseas to do a another workshop with him was a big decision but she knew some of what to expect. 'As a teacher, Michael is really easy-going and I find his style easy to understand', she said. 'He explains everything well and doesn't over-complicate things.'

In her day job Carolyn is part-owner of a business that

Cat Cook (left) and Ben Raglan

manufactures equipment for the mining industry but as a woodworker 'I'm the least qualified to be here,' she said.

Building a memory box, a 'simple piece', intended as a present for her daughter's 18th birthday turned out to be a feat of repetition and an ongoing lesson in accuracy. She started with drawings and then mock-ups for lots of drawers that 'floated' with a 5mm gap between each layer 'to add negative space'. Each of the many compartments were mitred and splined. 'It ended up being extraordinarily complicated – and the time processing so much timber!'

Did she achieve her aim in attending the open studio? 'It feels good to make and create things,' she said. 'It was an opportunity as a hobbyist to work full time on a project with no distractions because at home you're always getting pulled away.'

Cat Cook, WA

After completing a degree in fine arts and photography, Cat Cook, 29 went on to study industrial design at TAFE in Perth. At the same time she worked part-time at Perth Wood School as a woodworking technician and teacher. 'I really enjoy tactile, hands-on work and I enjoy teaching too because I get to meet different people', she said.

Taking six weeks out of a working life required support from an employer, and with encouragement from friends and family as well, Cat applied for the program. 'I like to bite off more than I can chew and I wanted to give myself a project in a situation where I could be challenged and learn. And I'd heard so much about Kelly Parker and Michael Fortune. I also wanted to come to a new place and be amongst people of different backgrounds.'

Cat had kept her idea of what to make 'fairly loose' so she could be 'open to exploring and kind of sponge it all up. I wanted to get out of my comfort zone and try things that I'd heard of, but not had the opportunity to do. With Michael being the king of curves I really wanted to explore as much of that as possible.'

Cat's cabinet is a cylindrical form in New Zealand red beech with complex curves and doors that overlap in a wave motion. 'A lot went into building jigs and formers in the lead-up', she said. 'I'm happy with where I got up to, and I'm going to keep working on it when I get home.'

'Coming here has inspired me to keep on growing, and branch out and work more on my own stuff. It's been great to be in a situation where you can keep adding to the utility belt, so to speak…and the school is stunning, everyone's been super nice and hospitable. I mean to open up the roll-a-door and have that for your view for six weeks – hell yeah!"

Ben Grant, Raglan, NZ

For someone whose day job is making furniture to order, taking part in the residency was a chance to freewheel. For Ben Grant that meant taking time out to concentrate on his own design processes, and specifically to develop a chair design.

Initial hesitations over taking time out from paid work, as well as outlaying for the residency were

dispelled. 'It was quite a hard thing to get over at the beginning, but in the first week I realised there was just so much here to learn and it was totally worth it,' said Ben.

While his main reason for attending the residency was to develop his design skills, Ben also wanted 'an experience' and 'to see everyone else's approach'. Diving in the first week was hard, as was the final week with the drive to complete, however even then Ben said that being able to focus on the task away from normal life pressures made the time enjoyable.

Over the six weeks Ben worked through small and full scale mockups through to prototypes for a chair design that he knows will continue to evolve. 'I did come with a reasonably firm idea but tried to approach it with fresh ideas.'

Processes such as steambending and bent lamination were tackled for the first time, as were pyrography and gilding techniques learnt from Kelly Parker. While developing the one chair design no less than seven jigs were made, while 10 to 15 profiles were used for shaping.

What was his main learning? 'I always thought that you designed at the beginning, committed and then went for it, but here I've learnt that the design process happens throughout the whole piece, and onwards to the next.'

Ernest Angelo, Indiana, USA

Retired petroleum engineer and a self-described 'Mr Mom', Ernest Angelo's hobby has been working wood for some 15 years. Timed to coincide with a wedding anniversary celebration trip, this was an opportunity to sign up for what has been his third learning experience with Michael Fortune.

Ernest's specific aim was to learn more about the process of design using exoskeletons for which Michael has become famous.' With a method like this in your toolkit you can develop not just the outline and volume of a piece, but also design the means to make it. And there was more: 'Michael has an eight step method that eliminates or minimises the chance of having brain freeze – you know, when you sit down to design and your brain just goes blank.'

'A lot of it is problem solving and I've also heard the art of woodworking is hiding your mistakes', said Ernest, affirming well known principles of woodworking. Watching how others solve problems and learning how designs and processes can evolve over time also gives a deeper level of understanding which leads to more confidence.

For a part-time woodworker a six week immersion is akin to spending possibly decades toiling in trial and error. If you are serious about learning about your passion, the value of an experience like this becomes clear.

Did the piece he would take home in parts resemble the one he had in mind to make? 'The only thing I have from my original drawing are the two angles coming together like that', said Ernest with crossed hands.'

Sam Harrap, Hawkes Bay, New Zealand

More than anyone, Sam Harrap knows the truth of the Michael

Ernest Angelo (left) and Sam Harrap

Right: Michael Fortune discusses the design of Sam Harrap's oak cabinet.

Opposte page: On the last day of the open studio each participant's project was discussed with feedback offered from Michael Fortune, Kelly Parker and David Haig, CFW's lead tutor. Left to right: Ben Raglan, Cat Cook, Michael Fortune, Peter Ellis and Will Bayliss.

Below: Stuart Faulkner and Peter Ellis.

Fortune fire hose analogy. Back in Canada, Sam worked as a firefighter while studying at the university of British Columbia for a degree in wood products processing. Even then there was a plan to be a full time maker of fine furniture, but getting a formal education had to come first.

Although well equipped with technical information about wood and manufacturing principles as well as a year's experience working as a cabinetmaker, this was Sam's first 'artistic experience' in building a skillset for his new career.

His main aim had been 'to push my technical and design skills and to connect with people that are into it, to network with the community,' but there had been other benefits as well. 'It's more of an attitude adjustment rather than technical skills, more consideration of the design process.' It's been playful as well, a lot of fun and exploration and letting your personality come out. It's really easy to get trapped into making stuff that everyone else is doing.'

Coming to the residency with a fixed idea of what he would make had limited him to some degree, said Sam. 'One big part I took away is that if you're starting to think more about (the making process) at the start of your design process you're kind of sunk. There's always a way to figure out how to do it. If you're already thinking of how you're going to do it, it's going to restrict your design.'

Peter Bell, Perth, WA

For Peter Bell, a software and electronics engineer, woodworking has been a 20 year long hobby that took off when he first attended a design course with Michael Fortune in Perth some years ago. 'Before then it was always straight lines and 90° angles', he explained. Since doing this I'm getting into curves and compound angles – stuff that makes things look nice and flowing.'

While open to all, intermediate knowledge was a prerequisite for attending the residency. Applicants were required to describe their experience and supply photos of their work. 'You have to be able to take an idea and run with it yourself,

using machines and setting out and cutting,' Peter said.

Making a chair was a first, even though he had a basic idea for what he wanted to achieve. 'I've never done this level of compound joinery and angled drilling. I knew I needed extra help. Quite a bit of my time was spent building seemingly simple jigs to hold the back legs at right angles.'

One of the main benefits of the residency, Peter said, was observing and even videoing what others were doing, the processes and techniques used. 'When someone reaches a point where they need a new technique we'd get called over to watch.'

Asked why he invested to travel to New Zealand to spend six weeks in a workshop situation, his answer was simple, 'because I enjoy it. I get such a buzz from finally finishing something, working out how to do it. It's such a nice feeling.'

Stuart Faulkner, NSW

What can a lauded designer maker and the principle of Heartwood Creative Woodworking, a Sydney woodworking school, expect to gain from undertaking an experience such as this? 'From a maker's point of view, you only make the way that you know until somebody shows you a different way to come at it', said Stuart. 'And that gets amplified the more you stay in your own workshop. Creativity is a big part of what we do, and isolation can be a good thing because you can create a very unique style, but getting influence from others and seeing the way they look at it is so enriching for your practice.'

Not all experienced makers are willing to learn more from others however. 'When it comes to ego, you have to throw that away', said Stuart, 'because that is the biggest inhibitor to learning. All that has to go to the side. Everybody should do this and I'm going to look for another opportunity to do it again with another teacher that I admire.'

'The investment of money spent and time away from a business is considerable, but the rewards are there. I know that I'll go back with a whole new swag of tips, tricks, ideas and jigs that will enrich our workshop, and not only me, but the teachers around me and the students will get the flow-on effect.'

Stuart came with an already developed design for a low-set occasional chair and over the course of the six weeks took it in a new direction through an intense process of sketching, mockups and prototypes.

'You often don't see other ways of doing things until you give yourself that space,' he reiterated. 'This has been my time to come away from the workshop, to close the door on that and really invest in my own progress and enrichment. This has been my time to experiment, my time to learn and grow. It's been brilliant.'

Photos: Daniel Allen

** Michael Fortune's article Anything But Square in issue 105 of Australian Wood Review looked the construction of exo- and endoskeletons as a means to construction curved and angled forms*

Learn more about the Centre for Fine Woodworking in New Zealand at www.cfw.co.nz

An Heirloom Chest

Making a piece to match a family heirloom was only part of the story told by Raf Nathan.

Urban grown and milled silky oak (*Grevillea robusta*) was used for a blanket chest built to resemble another.

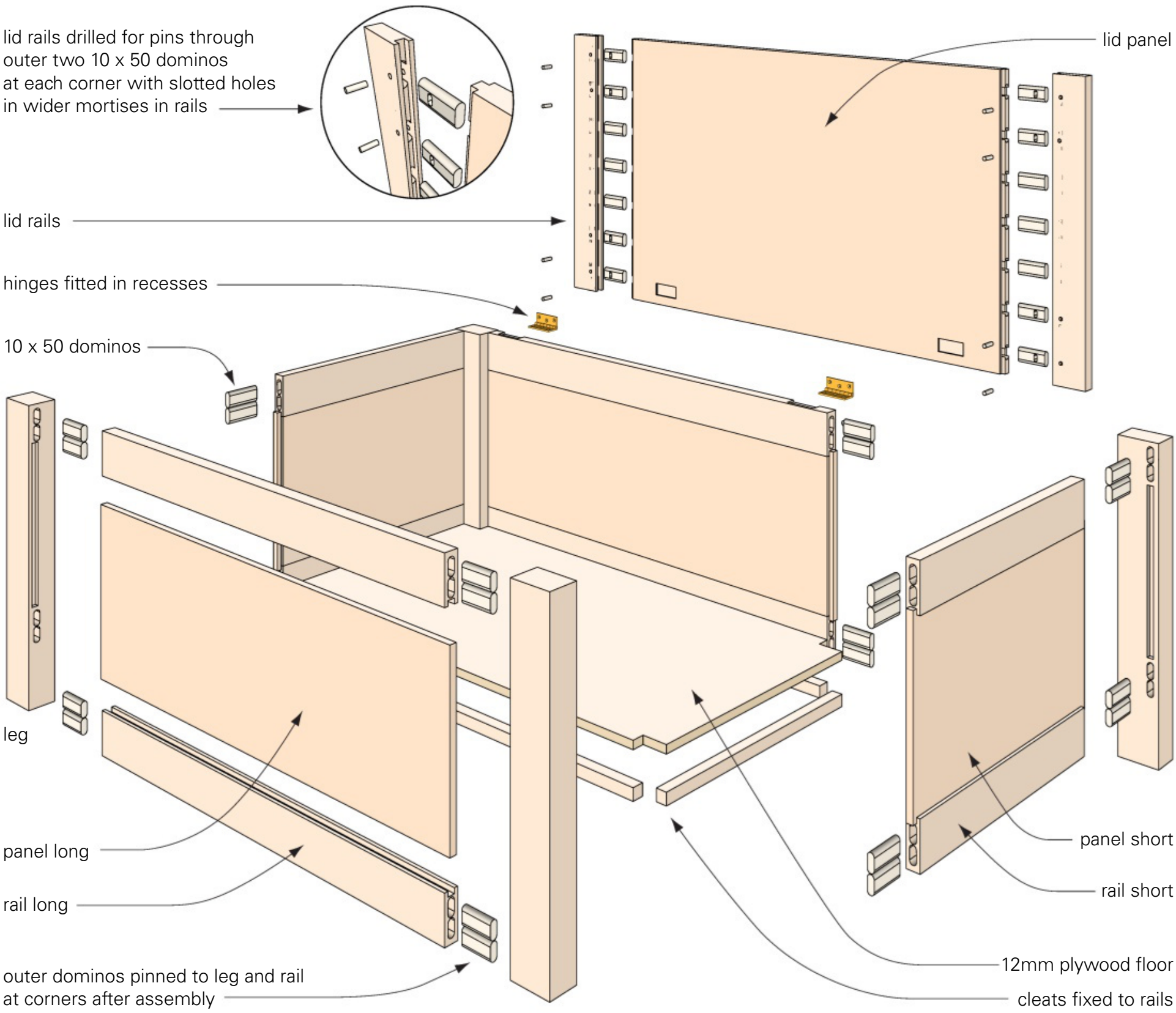
The call came. 'Free wood, a tree from our block that was sawn. Come and collect it – urgently.'

Well I guess I can use it, one day. Loaded the wood and left, but feeling a bit unsure. Then lost a few boards on the freeway just after the on ramp. By the time the wood was stacked I was exhausted.

Then the next call comes. Can I make a piece from this wood, something like an existing family heirloom – a blanket box, in only fair condition, made with solid and plywood. With no orders in the book I agree to a price and somehow the free wood is now only almost free. I am in too deep now though.

A solid structure

For me, a piece like this to be made in solid wood is a complex cabinet build.



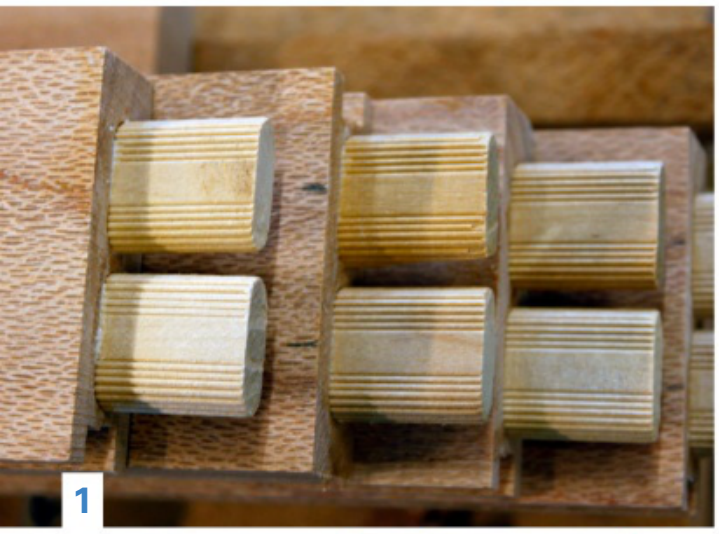
It has frame and panel construction for the carcase and a breadboarded top. In fact there are 46 individual mortise and tenons. The panels are housed in a groove, so they can move in width in the frames a little. In this way they can accommodate moisture changes and hence wood expansion or shrinkage across the grain.

For me the frame and panel construction part is quite familiar but the breadboarded top is always a challenge. Let's start with the carcase.

CUTTING LIST (MM)

PART	QTY	LENGTH	WIDTH	THICKNESS
Rails	4	750	65	20
	4	376	65	20
Legs	4	460	65	42
Panels in frames	2	380	260	5
	2	770	260	15
Top overall finished size	1	1000	500	20
Top end piece	2	502	60	20
Lid panel	1	888	500	20*

* includes 4mm for the tongue at each end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1. In all there were 46 floating tenon (domino) joints.
2. Grooves for the panels 10mm wide and 7mm deep were routed into the legs.
3. Grooves for the rails were made on the tablesaw, followed by the router and cleaned up with a router plane.
4. Spend time arranging the grain. After the glue is dry the panels can be planed and sized.
5. A straight cutter in the router table was used to rebate a tongue on the panels to fit the grooves in the legs and rails.
6. The front and back frames were glued together first.
7. Before gluing up the carcase do a dry fit and check for square and twist.
8. The rail to leg joints were pinned with small dowels.
9. The rails and panel were placed in position and the dominos layed out and marked.

First steps

The four legs and eight rails were firstly machine dressed, then sawn to final length. The joints were next made. In this case I used floating mortise and tenons, all made with the domino power tool (**photo 1**). I used two 10mm thick tenons at each joint. Alternatively you can hand cut these joints or use dowels.

In the groove

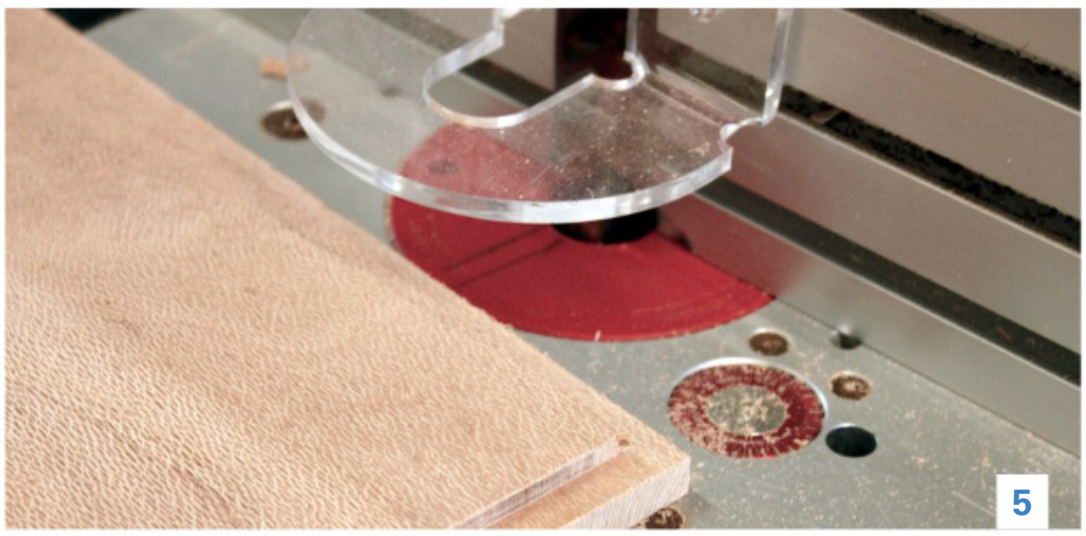
Next the grooves where the panels sit can be made. I decided these would be 10mm wide and 7mm deep. A spiral router cutter in my favourite power tool, a 1/4" DeWalt router, did the job (**photo 2**).

For the grooves in the rails I first ran them over the tablesaw to make two shallow rip cuts which remove part of the waste, meaning the router cut would be more of a refining process rather than hogging out waste. Even though the router is accurate I still cleaned up and levelled the depth of the grooves with a plough plane, another favourite tool (**photo 3**).

Panels planned and planed

With the joints and grooves made, the panel sizes can be finalised and prepared. The wood was varied in grain with some quite knotty boards, hence I spent time arranging the grain patterns before gluing. First thing is to select, machine and joint the wood that will form the panels. At this stage they are made longer and wider than the final dimensions.

When the glue is dry the panels can be planed down to final thickness and sawn to final length and width. When you glue the boards spend time to get the boards as level as possible. You can use dominos or biscuits to help with alignment, however the theory is that the glue line is strong enough without the need for these to add strength (**photo 4**).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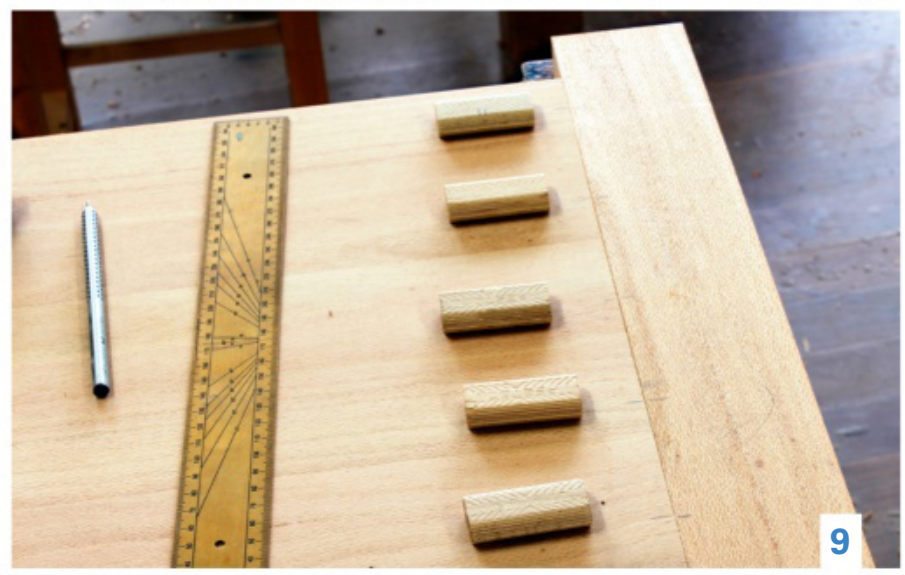
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Remove the panels from the clamps and sand and flatten them. Move fast now because we want the panels to stay flat for the next machining processes. Leaving them overnight risks any cupping.

The 15mm thick panels will have a tongue a tad under 10mm thick rebated on all sides to fit into the grooves in the legs and rails. To allow for future wood movement, that is, variance across the width of the panel, there needs to be space in the groove for the panel to expand and contract. I made this chest in a very dry weather spell so allowance was made for the panel to expand in more humid weather. I used a straight cutter in the router table to make the rebate (**photo 5**).

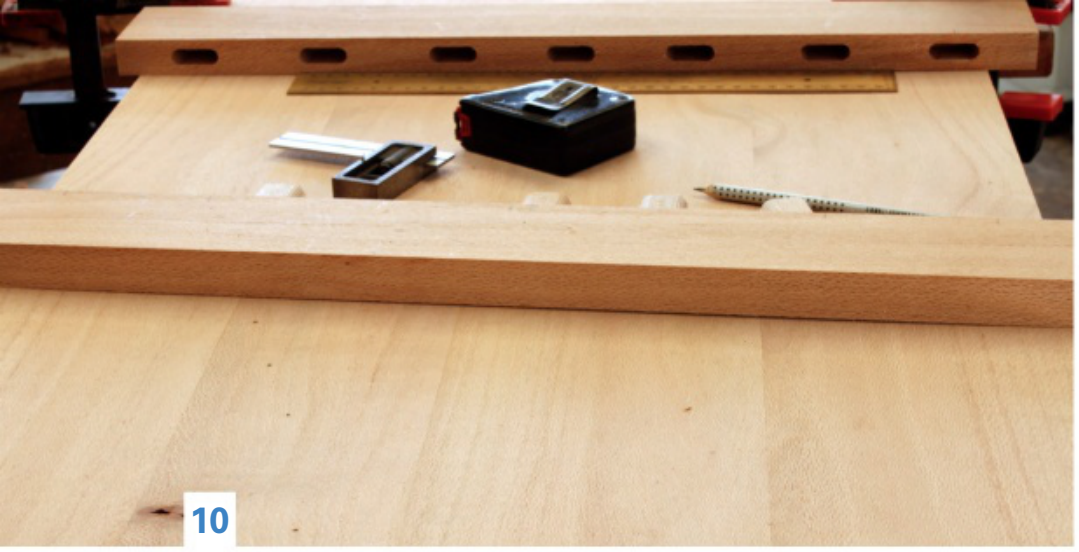
Frame and panel glue-up

With the panels prepared it is almost time to begin gluing things together. First thing is to sand everything, keeping it square and true. Next a gentle test fit. Hammering the tenons a bit squashes the grain and lets them slip into the mortises. Later when glue is applied the tenons will swell up to original size for a tight fit. The panels need to be able to slip into the grooves.

I glued the front and back frames together first. These are checked for square and twist before the glue sets. As mentioned, the panels are free to move in the grooves with moisture changes in the air. However I glue the lower 90mm or so of the panel into the grooves. This means the panel can expand or contract upwards. In my opinion the glued area strengthens the structure greatly. Actually best practice, which I forgot to do, is to polish the panel first with at least a sealing coat, and then glue it into the frame. In this case, before assembly, don't apply finish to areas you want to glue (**photo 6**).

Carcase assembly and clean-up

Once the glue has dried properly the carcase can be assembled. This is a big glue-up so I now do a dry fit to make sure all is correct. With glue applied



10. The mortises in the rails were a little wider to allow for wood movement and easier assembly.

11. A groove was routed in the breadboard ends and then cleaned up with the router plane.

12. The tongue routed on the ends of the panel needs to be perfectly centred.

13. The tongue in the lid panel is a neat fit in the breadboard end.

14. The dominos can now be glued into the ends of the panel.

15. Holes are drilled for two pins at each end.

16. The joint is sprung with a very light handplane cut before gluing the ends and pins.

17. When the lid opens the hinges need to clear the rear legs – to check this a dummy joint was made.

18. Showing the fitted hinges.

check the assembly is square and without twist which is a fiddly process. Measuring the diagonals is critical. If this is equal distance across both corners then it is square. Also sight along the top edges and legs and check for any twist (**photo 7**).

Whilst the joints are quite strong I want to future-proof the cabinet as best I can against any loose joints. Small dowels pin the outer tenons and help to hold the joint closed – these are glued in place. This is my take and others may not agree with pinning a joint like this **(photo 8**).

Remove any pencil marks and glue run-out. Sharp edges can now be relieved and a neat chamfer applied. The box needs an internal base and for this you can use a plywood panel around 12–15mm thick. I stained and polished this and sat it on four 18 x 18mm cleats running the length of the rails.

Breadboard the top

The top has breadboard ends – a great look, but the panel needs to be able to move across its width. As mentioned I find this joint challenging but at this stage I am in too deep on this project.

There are various ways you can attach the panel to the end. In this case there is a small tongue and groove at the joint to keep the two surfaces level and multiple floating mortise and tenons (dominos) 10mm thick. The mortises for the dominos are all made at standard width in the top but in the breadboard rail all except the middle one are made a little wider. The length of the domino tenon is 49mm and it will be 20mm deep in the panel and then 29mm protruding into the rails. Longer tenons would be better but to be honest these will be sufficient.

The panel is glued to the rail in the middle only, around 100mm across only. The outer tenons are


16


17


18

pinned to hold them in place, and this pin sits in a slotted hole in the panel tenon so the panel can move sideways with moisture changes.

The wood for the top has already been machined and prepped for glue-up. The two rails were prepared at the same time as the boards for the panel. The panel boards were glued up and left to dry overnight. Next day the panel was removed from the clamps, planed and sanded flush, and then sawn to final dimension.

You also need to move fast at this stage because the panel is now flat and we want to avoid any cupping because there is joint making to do. The rails and panel were placed in position and the dominos layed out and marked (**photo 9**).

The mortises were all cut with the domino tool but note in **photo 10** all the mortises in the rails are made a little wider. This is to allow for wood movement and make assembly easier.

A small router was used to make a groove in the breadboard ends. The groove recess still needed to be cleaned up with a handplane (**photo 11**).

A tongue was made in the ends of the panel on the router table using a straight cutter. This was a bit tricky as it needs to be centred perfectly and this is why we move fast now while the panel is still flat. Of course this tongue needs to be a neat fit in the groove previously made (**photos 12, 13**).

The tenons (dominos) can now be glued in place in the ends of the panel. One thing to do prior to gluing the dominos is to chamfer the inside edges of the rails and panel. These parts will always be moving around and the chamfer hides this (**photo 14**).

The panels and rails are now dry fitted together. A hole is drilled for the four pins (dowels) to be added at each end. After the hole is drilled for the pins (**photo 15**), the panel and rail are separated and the hole in the outer dominos at each end is slotted sideways.

Before the glue-up the rail needs a very light cut with a plane on the meeting edge. This is to give the rail and panel meeting point some spring. That is, the ends of the rails should touch the panel but there needs to be a tiny gap in the middle. This gap will close under clamp pressure and means the ends will always be tightly closed. **Photo 16** shows panel and rails glued up and the pins inserted. I applied glue to the pin holes but made sure none went on the panel.

The hinges need to throw the top back enough to clear the rear legs. To check this I made up a dummy joint and tested the hinge placement (**photo 17**).

The hinges were then fitted (**photo 18**), and a decorative chain was added as a lid stop. This is to prevent the top going back too far and pulling the hinges out. There are gas struts available that can also be used as lid stays.

Polishing time

Final sand the piece and fix any marks or dings. Small dents can usually be steamed out with an iron and wet cloth. I sanded up to 320 grit and then applied four coats of Whittle hardwax oil before a final buff with wax. It's always worth spending extra time to get a good finish.

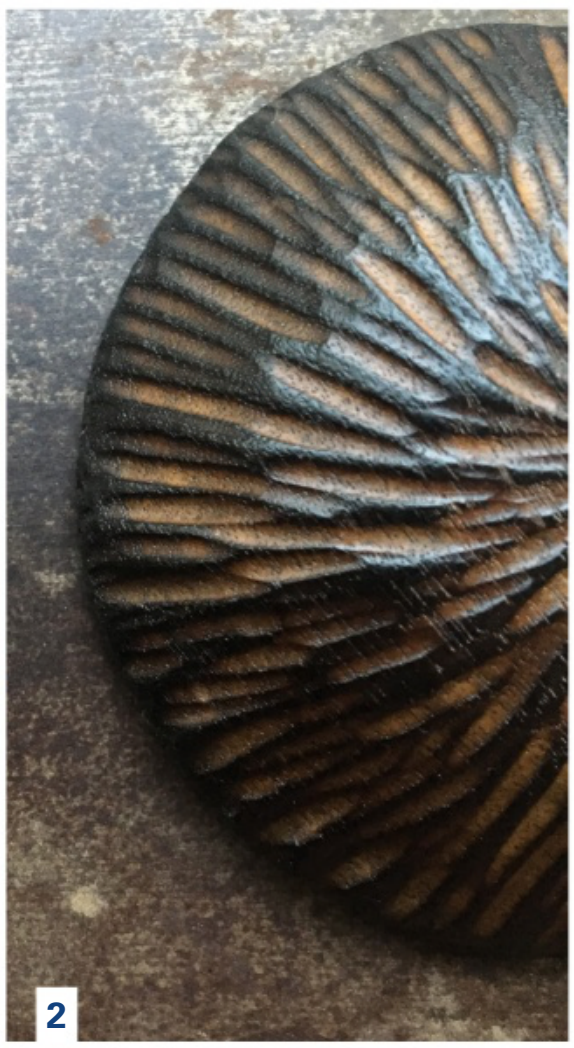
Photos: Raf Nathan
Diagram: Graham Sands

Raf Nathan is a furniture designer and maker who lives in Brisbane. Email him at: raf@interwoodshop.com.au

Finishing Small Objects Part 2

The use of colour and other surface treatments can take your work to the next level. Story by Carol Russell.

Carol Russell carves through chalk painted surface to add texture and interest.



1. A small refillable butane torch lets you control the flame more easily.
2. The base of a carved through shou sugi ban charred surface.
3. Small shou sugi ban charred bowl.
4. After the charring process the grain can still be seen.

Last issue we looked at techniques of burnishing surfaces and using a mix of shellac, wax and pigments to create finishes with depth. In this article we'll look at creating charred and painted surfaces and how these can be further treated for different effects.

Shou sugi ban

This is a Japanese technique of charring the surface of wooden buildings and then oiling it to make it stronger and more resistant to weather and fire. It hardens the surface and creates a very pleasing effect.

I have found this process works beautifully on small wooden objects. The feature of the grain comes through strongly after oiling or waxing. It's a very striking technique, perfect if you want form and texture to dominate.

I use a small refillable butane torch that lets me control the flame more easily. Too much fire can distort your edges, although this can be an interesting effect in itself.

Experiment a bit before you attack a piece you've been working on for ages. All species burn differently – I've had great success with Huon pine, rose mahogany, jarrah, celery top pine and most outback hardwoods such as mulga, gidgee and brigalow. I sand the piece to about 280 grit paper; because you're really taking off a layer, there's no need to go too much finer.

I always have a bucket of water and a spray bottle nearby – be vigilant, you don't need an out of control flame. I set the burner to a fine flame and char the surface evenly, being careful to blow out any areas that stay alight, particularly edges. Try to avoid dunking in water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as the charring can become quite patchy. Don't let the piece overheat, fine bowls and spoons can crack, take it slowly and let it cool a bit.

Once there is an even layer of carbon over the whole piece, take a fine scotchbrite pad and buff off the loose particles. Don't buff too hard as it can become patchy. If there are lighter sections, burn them again.

Once you're happy with the surface and it's cooled down, you can begin to rub wax or oil into it. It will be very thirsty, and the process of waxing is really important. I use my flaxseed oil and beeswax mix, but you can use any of your favourite finishing oils or waxes.

Flaxseed oil is food grade linseed oil, it's beautiful for bowls and spoons and is a 'drying' oil so it will harden. The beeswax allows you to buff it and bring a lustre to the surface. Don't be too hasty with this process; this is your reward, the more you buff and rub in the wax, the more the texture builds and the surface begins to take on a very special quality.

I take a few days to build up coats, buffing and rubbing in the wax. The harder growth rings will be prominent and the piece becomes a tactile and visual feast – don't be addicted to smooth, texture adds a whole other dimension.

Milk paint and chalk paint

These paints are often identified as folk or country style finishes, however their potential is much broader. Experimentation is key. You can layer different colours and rub through to create ceramic glaze-like effects and startling contrasts.

Milk paint at its simplest form is milk solids mixed with pigments. If you curdle milk and drain off the liquid, and then add earth pigments or paint pigments, you'll get the most basic form of milk paint – I've even used yoghurt and powered milk to good effect.

Milk paints usually contain lime to give them their chalky effect. The milk protein or casein is the key ingredient and was used in commercial paint in the early 20th century. This kind of paint has been identified as being used for centuries by many cultures including that of Ancient Egypt.

The effect of milk paint is a soft, chalky, slightly patchy finish that can be buffed through to reveal a variation in tone. It's a fairly porous finish and benefits from a topcoat of wax to assist with longevity, and you can also topcoat with shellac if you want a glossier effect. It's non-toxic, making it perfect for utensils and toys.

There are several high quality milk paints on the market that you can buy pre-coloured or as a basic white that you can add your own pigments to.

Chalk paint

Chalk paint is an acrylic based paint with calcium carbonate mixed in. The colour is more even than milk paint and the colours are usually more solid.

You can buy it commercially or mix your own, using acrylic paint and adding the calcium carbonate. It's commonly used on furniture but works well on smaller objects that don't come into contact with food. It will burnish well too, bringing shine to the high points.

Ebonising

Ebonising uses the natural tannins in the timber to darken the colour of the wood by chemical reaction, so the 'stain' goes beyond the surface, giving depth and warmth.

If you put three cups of white vinegar in a jar with a tennis ball-sized piece of steel wool and leave it for a week, the steel wool will dissolve giving you a fairly smelly brown solution that can be wiped onto the surface of a finished piece. Open the lid occasionally as pressure in the jar can build up. You can strain it if you want to remove any small particles.

Depending on the tannin content of the timber, it will immediately begin to darken once the mix is brushed on, so work quickly for even coverage. Try a sample piece of the timber first before you work on your finished piece. If it doesn't darken enough you can paint on strong black tea (let it cool first) to add more tannin to the wood; let that dry, then apply the vinegar mix.

Because the solution is wet the grain will raise, however wetting down before you stain and sanding with 600 grit sandpaper after it's dry, and then adding the mixture will help reduce this. Once dry, you can burnish the surface and coat with any clear finish. I often seal with blonde shellac and rub back with 600 grit sandpaper; the shellac gives warmth. You can then use whatever wax or oil finish suits you. I love using this method on my spoons and bowls, it makes them look ancient and precious.

There's so much more to say about finishing but my biggest piece of advice is to always question the conventional methods and look beyond clear, smooth and shiny. Never stop experimenting and playing.

Photos: Carol Russell

Carol Russell is a Brisbane based woodworker who teaches woodcarving classes from her Albion studio. Learn more at www.carolrussellwoodwork.com.au

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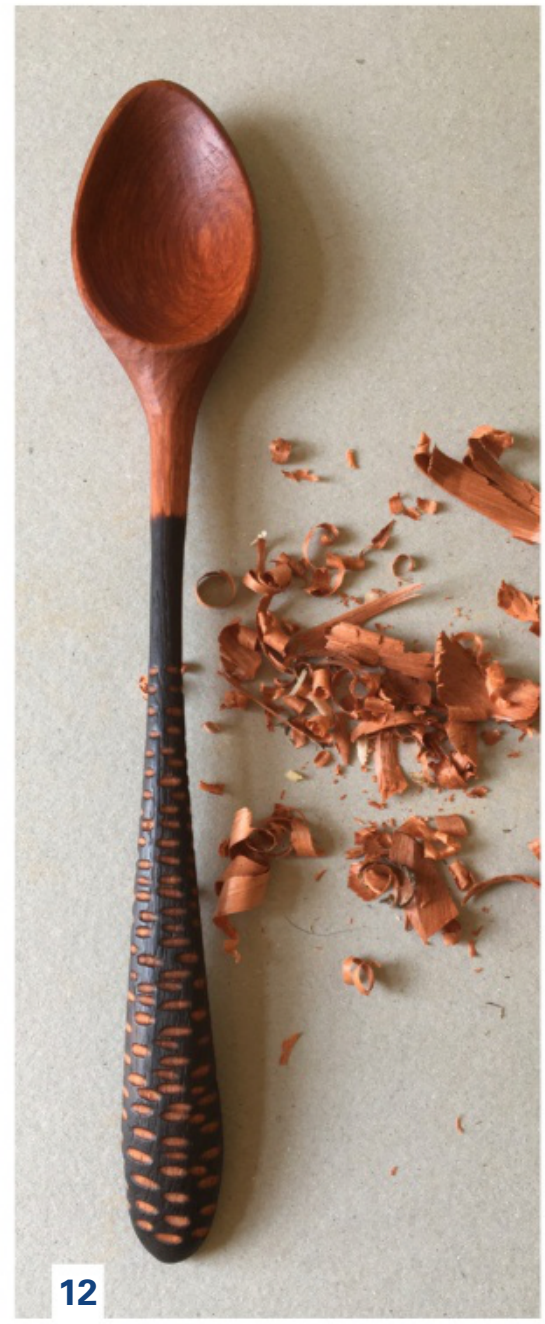

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5. Layers of chalk paint were painted on and then carved back through.

6. White beech espresso cup with milk paint finish.

7. Applying chalk paint to a textured surface.

8. Chalk paint burnishes well.

9. Using white shellac as a sealer inside a white beech coffee cup.

10. Multiple layers of chalk paint are rubbed back through to create an almost glaze-like effect.

11. Steel wool dissolved in white vinegar will ebonise by reacting to tannins in the timber.

12. The handle on this New Guinea rosewood spoon was first charred and then carved back through the surface. It was sealed with shellac and then flaxseed oil and wax were applied as a top coat.

A Tray for Tea

Steven Der-Garabedian uses veneering and bent lamination techniques to make an attractive tea tray.

It's nice to be able to carry tea, coffee or cakes for your guests in a sweet little tray. This one even looks good sitting on a table waiting for those guests and is a great project to learn some new woodworking techniques.

We're going to veneer the base highlighting the beauty of wood. It's not that difficult and doesn't have to be complicated or expensive. The joinery is on the smaller scale and easily accomplished using dovetails, half laps and even a pair of bridle joints. We'll also curve the handle using bent lamination with an easily built form and then add a contrasting band. Lastly we'll use some leather cord to create a wrap around the handle.

Start pressing

Select the combination of woods you want and machine the four pieces for the tray frame as shown in the cutting list on p.55. Before we cut the joinery we'll start to press our veneers so that it cures as we continue.

My favourite way of pressing veneers is to use an inexpensive vacuum press kit available from Roarockit. You'll need to make a platen out of melamine, sized slightly smaller than the bag and 19mm thick. Make sure to round all sharp edges so as not to puncture the bag.

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Main: The author used English brown oak to frame the tray's base of veneered stripey padauk.

1. When pressing the veneer to the base cut the cauls oversize, sand edges and cover their inside faces with packing tape
2. Blue tape holds the bundle together while the bag is sealed.
3. While the veneer is pressing you can start on the joinery.

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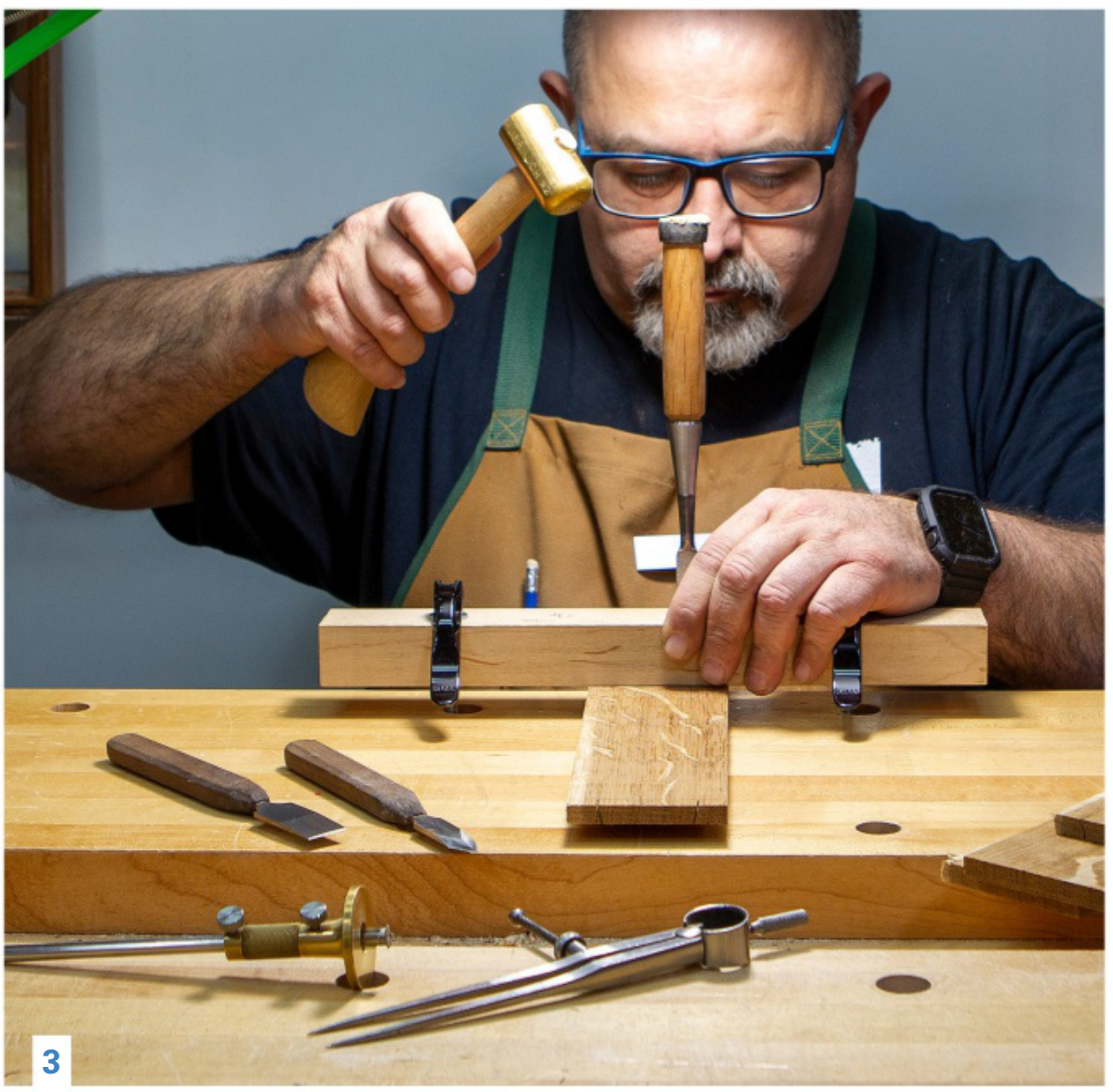
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There are other ways to veneer such as hide glue and hammer veneering. This panel is small enough that you could also run with F-style clamps and cambered cauls.

I sized the panel roughly 25mm longer and wider than final size. This will account for any shifts in veneer and trimming to exact size after the frame is built. While


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4. The author chose a single dovetail but variations can be made.
5. Using a box-slotting bit on the router table to run a groove for the tray base.
6. The corners of the groove can be squared off, or instead the corners of the base rounded.
7. These reliefs on the frame can be cut on the router table or choose another method.
8. Using a piece of moulding to draw the curve for the handle former.
9. Mark the handle stock with a cabinetmaker's triangle before bandsawing laminations for the handle.
10. Showing the completed former and veneer chosen for contrast in the handle.
11. If using veneer for the handle contrast, it helps to tape the ends down during glue-up.
12. Glued and assembled, the laminations and veneer are clamped and left to dry overnight.

almost any adhesive will do the trick, glues made for veneers, such as Titebond's Cold Press for Veneer, will work just that much better.

For the core I went with 6mm MDF and used it as my template to cut the two pieces of veneer. While I consider myself a rebel, there are two rules for veneering that should never be broken. The first is that you need to veneer both sides. The second is that you need to press the veneer perpendicular to the core's grain direction. As MDF has no grain to speak of, this second rule doesn't come into play.

Cover your bench with some newsprint and gather your veneers, glue, and substrate as well as a couple of cauls. Size the cauls about 6mm longer and wider than the panel and veneers. Knock off any sharp edges and corners with 120 grit sandpaper. Also cover the inside faces of the cauls with packing tape so they don't stick (**photo 1**).

Apply glue to the core, cover it with veneer, then a caul, and repeat for the other side. Add a piece of blue masking tape along each of the four edges to keep the bundle together while slipping it in the bag.

Seal the bag's open end and pump out the air (**photo 2**). I leave my pressings in the bag for at least four or five hours but longer does not hurt. When the pressing comes out let it sit for another 24 hours so it fully cures. Stand the panel up and let air get to all surfaces rather than laying it flat.

Pins or tails first?

For the joinery on the frame (**photo 3**), I chose to go with a single dovetail with the tails on the longer pair of pieces (**photo 4**). Get ten woodworkers in a room and ask them about cutting dovetails with either pins first or tails first. You'll get a healthy debate with half saying one way and half saying the other. Ask the same group about sharpening and it turns into a fist fight. At this time we can also cut the pieces for the posts and the handle. Leave these oversize for now in case they warp or twist.

When the panel has fully cured use a random orbit sander connected to a vacuum with 150 grit sandpaper and clean up any scratches or residual glue. As we have only so much veneer to work with don't stay in one spot but


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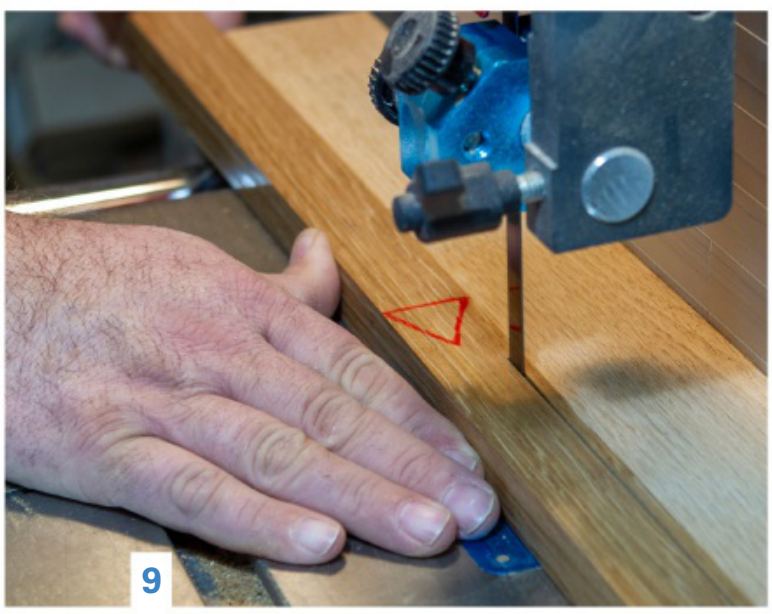
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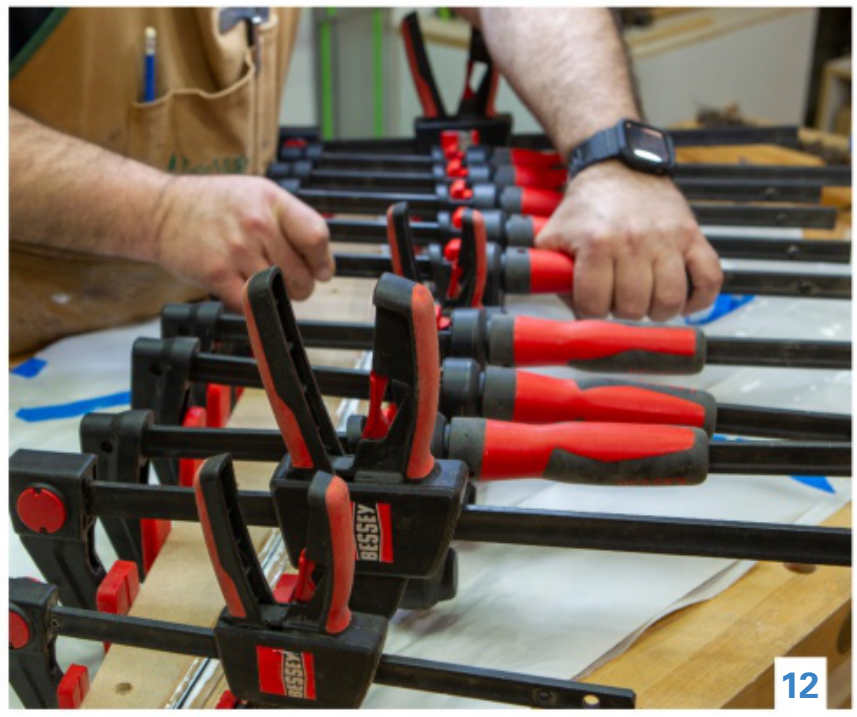
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rather keep the sander moving. We can tackle any remaining spots and nicks with hand sanding after sizing the panel and before gluing it into the frame. This initial sanding brings us very close to our final thickness. We can now cut the groove in the bottom of the frame.

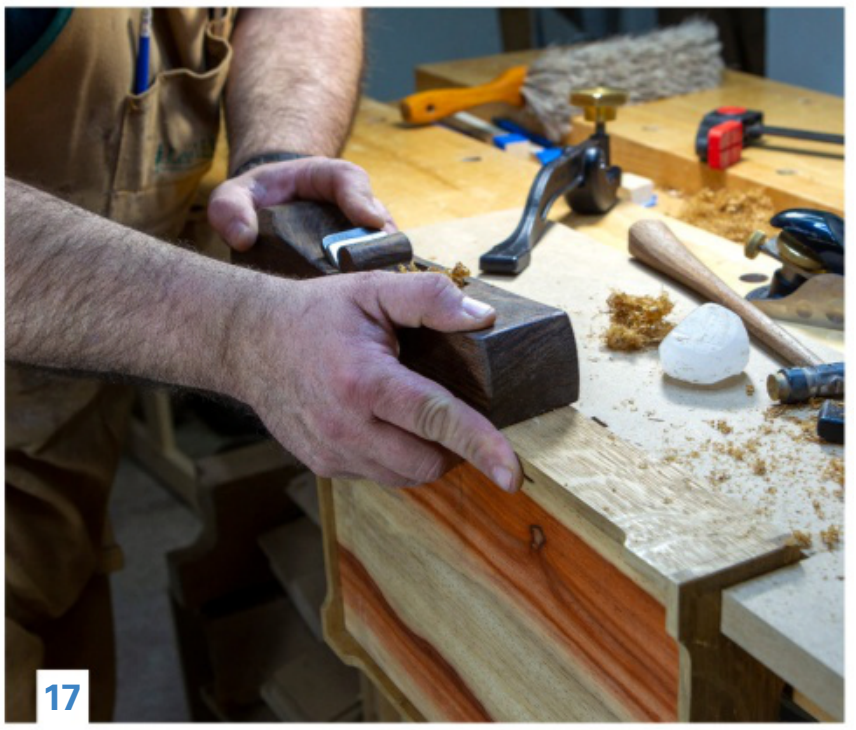
Some planning required

Start with the groove 14mm from the bottom to allow a bit of space when we create relief cuts. There are many ways to cut this groove but here I'm using

CUTTING LIST (MM)

PART	QTY	LENGTH	WIDTH	THICKNESS
Frame	2	400	60	8.5
Frame	2	250	60	8.5
Posts	2	250	18	10
Pins/dowel (diameter)	2	100	3	
Handle (final size)*	1	480	18	9
Bending former	2	860	100	19
Leather	cord	2500	2.5	

* Cut oversize to allow for snipe and laminates shifting during glue-up



a box-slotting bit (**photo 5**). You dry assemble and clamp your frame and run the bit around the inside. Depth is controlled by the bearings that come with the bit. With a narrower bit, I ran my frame around several times increasing the height gradually until the panel just fitted. Remember, we still have some hand sanding to do.

The box-slotting bit leaves rounded corners and these can be squared off, or the panel corners can be rounded. I prefer the latter and use an offset marking wheel to draw the curve then use a chisel and a file to make it smooth. Using a flat washer of appropriate size will work just as well (**photo 6**).

A bit of relief

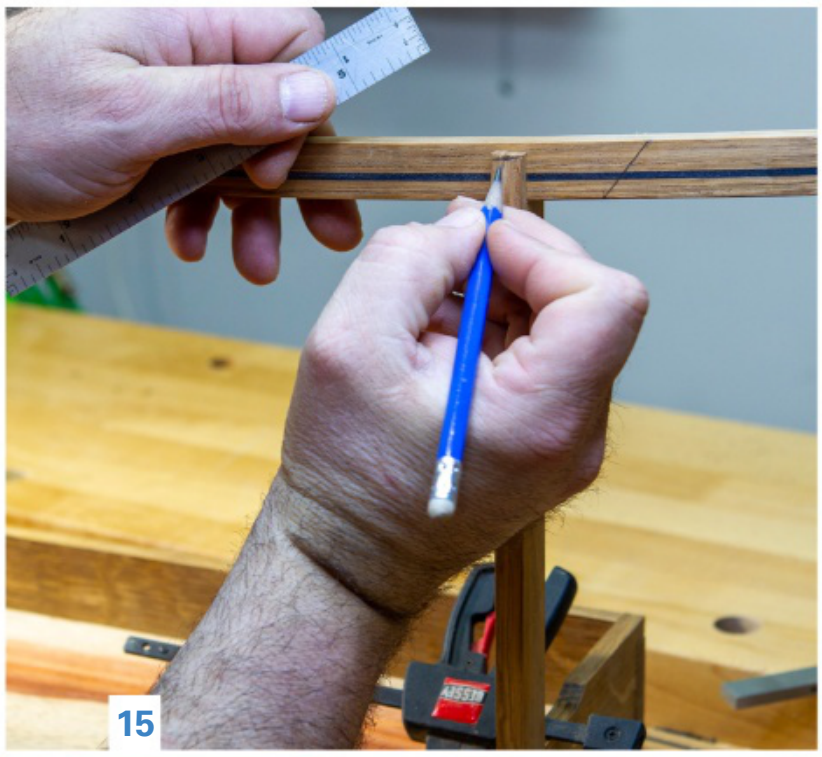
Reliefs are cut into the top and bottom edges. The ones on the top edges give a lighter look, while the bottom ones create feet in the corners which give less chance of a wobbly piece than with long flat edges.

The reliefs are easily cut on the router table with a rebating bit. I set up stops leaving 35mm from each end of the long bottom edges and 25mm on the short ones (**photo 7**). To make sure these are centred, flip the piece end for end and cut once more with the same stops. The top reliefs are slightly shorter at 80mm from each end of the long pieces and 60mm for the short ones. Remember to adjust the stops for the long and short pieces accordingly. Set the fence for a 7mm deep cut.

A smooth curve

Curves can be achieved in several ways, from steambending to cutting the actual curve out of solid wood. Bent laminations also work really well and the layers of glue add strength. For the bending former required, start with a piece of 19mm thick MDF that is 860mm long and 76mm wide. Tack a couple of nails in each end 6mm in and 30mm up from the edges. Using a flexible piece of moulding or another thin and defect free piece of wood, push up on the centre line by 70mm and draw this curve (**photo 8**). Bandsaw this shape leaving the pencil line, then sand to remove the line leaving a smooth curve. To see if you have a smooth curve roll it on your bench and any humps or dips will quickly become obvious.

Cover the finished curve with packing tape then use a few screws and fasten it to another piece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13. When dry, run a flat edge on the jointer then trim it on the bandsaw.

14. Filing the inside face of the handle slot lower to accommodate the curve.

15. Mark the tops of the posts to the same angle as the handle before trimming.

16. After a dry fit you're ready to glue up the frame.

17. Use a drawer board to plane the outside of the frame.

18. Mark the position of the posts and drill stopped holes for the dowel.

of MDF that is the same length but 100mm wide. Take the piece of wood that you've set aside for the handle and mark it with a cabinetmaker's triangle. Bandsaw off a 4.5mm lamination and set it aside (**photo 9**). Run the remaining piece through the thickness planer and repeat the process until you get five laminations. Now run these through the thickness planer for a final thickness of about 3mm.

To create a contrasting band use either some dark veneer or cut an extra lamination and stain it black. I ended up using five thin pieces of dyed veneer (**photo 10**). To help with clamping cut some 3mm MDF to same the width as your handle pieces. Wrap one in packing tape and make sure it rests against your laminations.

Gather your clamps, glue and laminates. I prefer to use white glue for bent laminations as it won't leave a visible glue line. Cover your bench, and if you went with veneer for the contrasting band like I did, tape the ends down so they are manageable, especially when covered with glue (**photo 11**). Glue up the assembly with three laminations, the dark band, and finally two more pieces. Let this sandwich cure overnight (**photo 12**).

Almost there

Cut the two posts to final size and once more use the cabinetmaker's triangle to keep track of top, bottom, inside and outside surfaces. Cut a half lap on the bottom inside of both pieces with your preferred method. I used a crosscut sled on the tablesaw with a stop. This half lap is the full width of the posts, 40mm long and 5mm deep.

Once the glue has fully cured on the bent handle, remove it from the former and clean it up. Run one flat edge on the jointer, then trim it on the bandsaw (**photo 13**). Run this through the thickness planer until you get roughly 9mm thick. Use a scraper and/or sandpaper to clean up the handle.

The posts have a slot for the handle to drop into, a version of the bridle joint. A dedicated tenon cutting jig works well for this but once again use a method that you are comfortable with and have the tools for. Slowly creep up on the final width using the handle as the actual gauge. Cut the depth to just over three quarters of the handle's roughly 18mm thickness. One last detail is to make the inside face of this slot lower to accommodate the curve of the handle. This is quickly accomplished with a small file (**photo**

19. Drilling holes for the dowel in the top of the posts.

20. The tray was finished in oil and wax.

21. Wax the leather cord and wrap tightly. Make a loop underneath the last three wraps, insert the end into the loop and pull firmly underneath.

14). To test this fit, place the posts in position and drop the handle into the slot centring it along the tray.

Tiny little details

To match the dark band in the handle create some ebony dowels or stain some micro dowels black. As a further refinement we can cut the tops of the posts to the same slope as the handle (**photo 15**) and instead of just chopping the handle ends off square, cut them back on an angle with a bit of an overhang.

Some assembly required

Complete a dry fit of all the pieces and also get rid of any scratches with some sanding and handplaning especially on the inside surfaces of the frame. Glue up the frame and panel assembly (**photo 16**). Once the glue has set, use a drawer board to plane the outside of the frame (**photo 17**). Sandpaper wrapped around a dowel will clean off any burn marks left by the router.

Using masking tape, mark the positions of the posts on the sides of the frame and drill a pair of 3mm stopped holes through them and into the sides (**photo 18**). Apply glue and drive the dowels home using a clamp to seat them fully.

Centre the handle in the posts and mark the position with a wrap of blue masking tape. Apply glue and seat the handle in its place. Next, clamp a sacrificial piece of wood on the far side of the posts and drill for the 3mm dowel keeping the drill level and straight (**photo 19**). Apply glue to the pin and drive it through removing the sacrificial piece before the glue sets.

Final touches

Let the glue cure completely then flush up the pins using a saw and a chisel or block plane. Any scratches that happened during the assembly can be cleaned off with some fine sandpaper. I opted for two coats of an oil finish and later buffed with a fine furniture wax (**photo 20**).

One final detail is to add a leather cord wrap around the centre of the handle. If you're into fishing this is an easy job. Start by waxing the leather then run the cord underneath the handle longer than is required. Start tight wraps around the handle until you are about three wraps away from the desired end. Make a loop of the cord underneath the handle and complete the remaining three wraps. Insert the end into the loop and pull it firmly underneath before finally trimming the excess (**photo 21**).

I hope this project got you trying new techniques or bringing old ones out of the cupboard. There are many different ways of accomplishing the tasks covered in the making of this tray. While I chose dovetails, mitred corners with splines would work too. Instead of bending the handle, a straight one will suffice. Instead of veneering the panel, a thin solid piece of wood will do. However, small details are what make our projects personal and take them beyond ordinary. By the way, the correct method is to cut pins first…on through dovetails anyway!

Photos: Steven Der-Garabedian

Steven Der-Garabedian is a fine furniture maker and teacher in Ontario, Canada.He has just finished a book on veneering basics which will be released in July this year. Contact him via www.blackwalnutstudio.ca

Edge: Exploring Boundaries

For the members of Studio Woodworkers Australia, this exhibition was an opportunity to develop new and past design approaches. Review by Melissa Ward.

Darren Oates, *Inverse Parenthesis Hall Table*, silver ash, northern silky oak, marine ply. *Photo: Darren Oates*

The edge defines a boundary, a change, a meeting of elements, the beginning and the end. The edge is what delights and engages the eye, providing the mind with an object to analyse, decipher and understand. For the makers represented in this exhibition all boundaries and limitations have been pushed and explored.

The vocation of designer makers necessitates a journey of continuum – whilst a design language evolves, an occasional disruptor to this thinking occurs. Such was the brief of this exhibition to the contributors. Each maker had their own definition of the 'edge' and explored its relevance to them in deeply personal ways, through applying a design approach, construction method, or working on a subject that has touched them deeply.

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The 27 makers represent a wide spectrum of the profession, from the renowned through to several talented newcomers. The diversity of the works reflects the unbarred theme; for most it was an opportunity to work without the parameters of a client's brief, budget and timeframe and to test themselves to work with a new methodology or design language.

Ian Higgs' *Collectors Cabinet* is a high precision detailed piece that speaks a new design language. From the bowed drawer faces with their finely worked bone handles to the sheepskin lining, this cabinet is a masterful work that imbues both softness and strength, and would lend dignity and value to a prized collection.

My architect's eye was naturally drawn to the strong sharp lines of Stuart Faulkner's *Ele Coffee Table*, constructed from rock maple with a leather detail. This piece is one of the highlights of the exhibition. The design is refined and elegant whilst highly contemporary; its simplicity belies the sophistication

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1. Chris Neal, *The Hamilton Console*, Tasmanian oak, Tasmanian blackwood. *Photo: Chris Neal*

2. David Mac Laren, *Sculptural Shelves*. 'Attached by magnets the shapes are moveable, and sometimes just that, no longer shelves.' *Photo: Julianna Griffith*

3,4. Ian Higgs, *Collectors Cabinet* with concealed locking mechanism, American oak, ivory (reclaimed) inlay, bone handles, sheep leather drawer lining. 'Every now and then, I am able to design and make a piece just for the joy of it.' *Photo: Mark Fergus*

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4,5. Thirston Morris, *The Rand Cabinet*. The main carcase is figured sycamore on hoop pine torsion box, while internal 'boxes' are made from American black walnut, rock maple, wenge. Rand means edge in Afrikaans. *Photo: Christopher Neal*

6,7. Stuart Faullkner, *Ele Coffee Table*, rock maple, leather. 'On the edge of my nerves, or on the edge of potential.' *Photo: Carol Faulkner*

of the construction. Whilst a fresh direction in design for Stuart, it still adheres to his ethos of 'less is more' and truly has met the exhibition brief of exploring the edge.

David Muston has chosen a similar direction with his side tables. Made of Queensland silver ash and Tasmanian blackwood they are an exploration of the line playing with a curve resulting in a highly original design with a very practical layout, a space for coffee cups and a space for a reservoir of reading material. This is a design that could be a successful production piece reimagined in various permutations of size, height and materials.

Whilst Phoebe Everill has produced many chairs this is her first rocking chair – the *Drummond Rocker*, so named after her property and workshop in rural Victoria. I was struck by its elegant flowing lines, the finesse of the connections and the underlying philosophy Phoebe applies to her work; that being

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respect for the timber source and the desire to continue the life of that timber infinitum in a contemporary heirloom piece.

Once a high school technology teacher, Ruth Thompson is a relatively new maker having graduated from the Sturt School for Wood a few years back. As a former dancer Ruth was inspired to explore how rhythm and line created by dance might be expressed in a static form. Her *Martha & Alvin Lights* respond to each other like lovers,

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8. Ruth Thompson, *Martha & Alvin Lights*. Inspired by the dancers, Martha Graham and Alvin Ailey. *Photo: Peter Thompson*

9. Warwick Wright, *Apollo II*, Huon pine, wenge. 'These floor lamps explore the "desired curve" of an edge.' *Photo: Julianna Griffiths*

10. David Muston, *Walnut Coffee Table*. 'Simplicity and understatement are very important to me.' *Photo: Richard Walker*

11. Phoebe Everill, *Drummond Rocker*, Victorian blackwood from the maker's own property. *Photo: Terry Muller-Maher*


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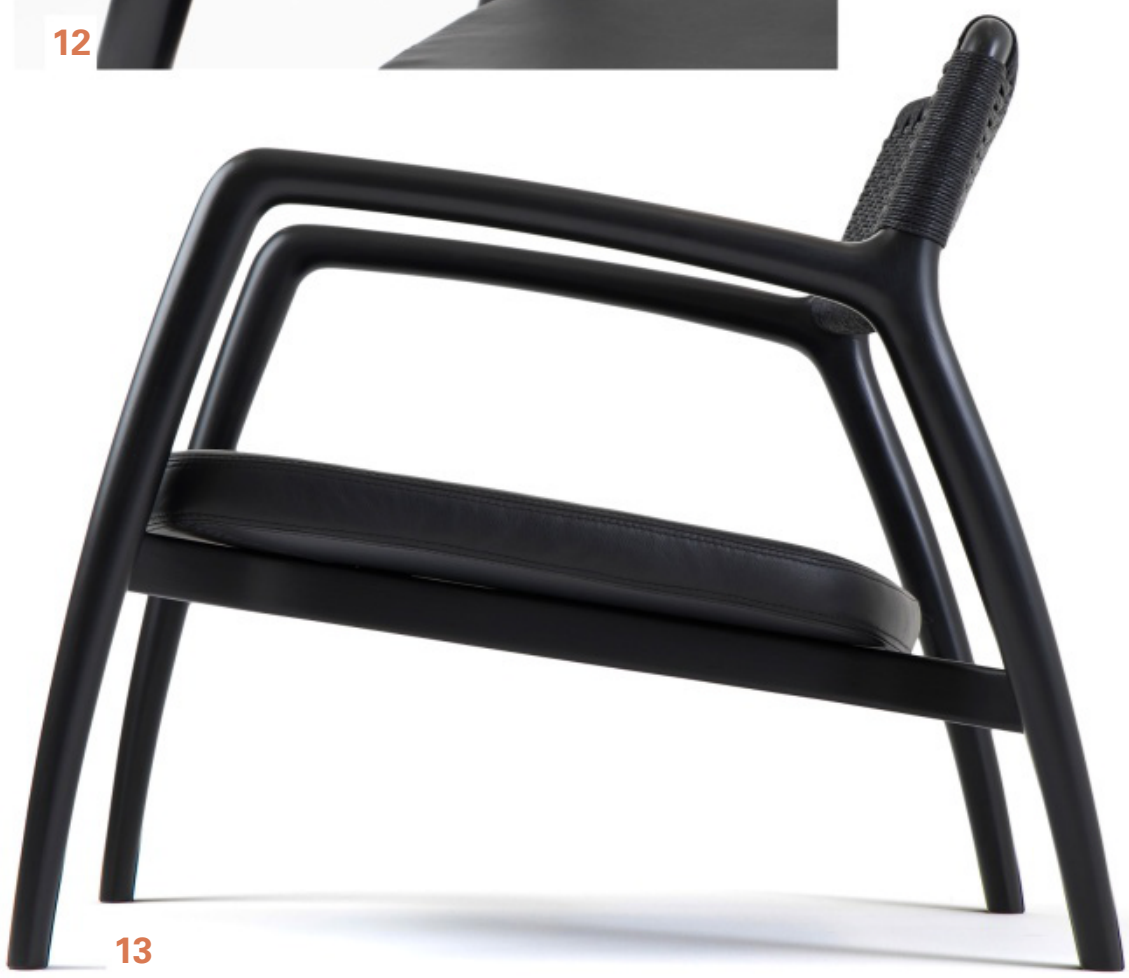
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simultaneously leaning in and pulling away generating a kinesis and play. They are both rhythmic and static, fragile and strong, yin and yang, the feminine and the masculine.

Two of the young rising stars of the exhibition are Christopher Neal and Lou Harris and both are recent graduates of the Sturt School for Wood, Mittagong NSW.

Christopher Neal's *Hamilton Console* challenges the traditional post and rail table construction and tested his skills in steambending to produce a signature piece with arched legs supporting a top that appears to float. A strong design that is art whilst being functional.

Lou Harris said designing and making her piece was about pushing herself to the edge. With her *Tempo Chair* she challenged herself to take on a sophisticated design incorporating techniques she had not previously used. For a young maker Lou's decision to make a complex chair was extremely


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12,13. Ben Percy, *Luna Nisshoku Armchair*, Tasmanian blackwood, Danish cord, fabric. The name translates as lunar eclipse. *Photo: St John Imagery*

14,15. Lou Harriss, *Tempo Chair*, ebonised American ash, Danish cord. *Photo: Gina Diggle*

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16,17. Sebastian Wood, *Ke Hall Table*. A wall mounted piece which explores the lines, curves and shapes present in the Japanese Hirigana characters.' *Photo: Carol Faulkner*

18. Matt Dwight, *Spherical Cap Table*, American white ash and brass. The top is turned, the base hand shaped. *Photo: Carol Faulkner*

19. Will Matthysen, *Clock 198*, Sycamore case, burr walnut base, ebony hands, gold-plated brass, steel. *Photo: Northside Studio*

courageous, the resolution of which is highly successful. It is both elegantly designed and masterfully constructed, and extremely comfortable.

Thirston Morris's finely detailed *The Rand Cabinet* was a stand out. It is a work that plays with the idea of 'the edge' on many levels. Thirston said the inspiration for this cabinet was from an antique. The reimagining of the antique cabinet into a contemporary design language inspired the notion to flip the design inside out, expressing its fixings and displaying rather than concealing its treasures.

For 27 makers, *Edge: exploring boundaries* was an opportunity to create a work that tested ideas, design methodology and techniques, and to be challenged by public and peer review. Studio Woodworkers Australia's biennial exhibition in 2020 showcased some of our best and brightest, from our most revered to new rising stars of the woodworking world. The experience of preparing for this exhibition has given many of the makers a heightened confidence, new skills and a passion to forge new design directions, and has resulted in a body of work that can be considered Australian contemporary classics.

Edge: exploring boundaries was shown at Sturt Gallery, Mittagong NSW from February to April, 2020. Learn more about Studio Woodworkers Australia at www.studiowoodworkers.org.au

Melissa Ward is a registered architect and interior designer with a practice on the NSW Central Coast, and she is also a Sturt School for Wood graduate, year 2000. Contact Melissa via www.melissawardarchitect.com

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The Shavehorse Project, Part 2

Add to the comfort and workholding capacity of your shavehorse with a spoon mule, worktable and upholstered seat. Phoebe Everill shows how.

The fully optioned shavehorse with spoon mule, upholstered seat, holdfast, V jig and worktable.

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When I am teaching interstate and don't have access to the workshop, I like to have the ability to do some green wood preparation, shaping and carving. The shavehorse shown is the one I showed how to make in the last issue.

However, add a holdfast at the back and a comfortable seat, and make yourself a little worktable to hold tools or the other end of a longer piece of wood, and the hours you spend shaping will be even more fun (**photo 1**).

Holdfast and V-jig

Most holdfasts need 50–60mm of bench thickness to grip well, so I glued a 15mm thick offcut of Vic ash under the seat (**fig.1**). Check the grain direction is the same and then drill through with a 19mm forstner bit (for a Gramercy holdfast).

To assist with holding round or variable sized stock for hand cutting I add a jig to the rear end of the seat plank with a V-notch cut out. This is simply an 18mm ply offcut with slotted holes for adjustment (**photo 2**).

Insert T-nuts into the endgrain and the jig can be easily adjusted. This can also be the connection point for other jigs like a bench hook or endgrain shooting board.

Worktable

This is made in the same way as the back legs were joined into the shavehorse last issue (**fig.2**). Because it is much smaller, I used a 15° ramp on the drill press (**photo 3**). This time you'll be drilling through the base, so check for the resulting location offset.

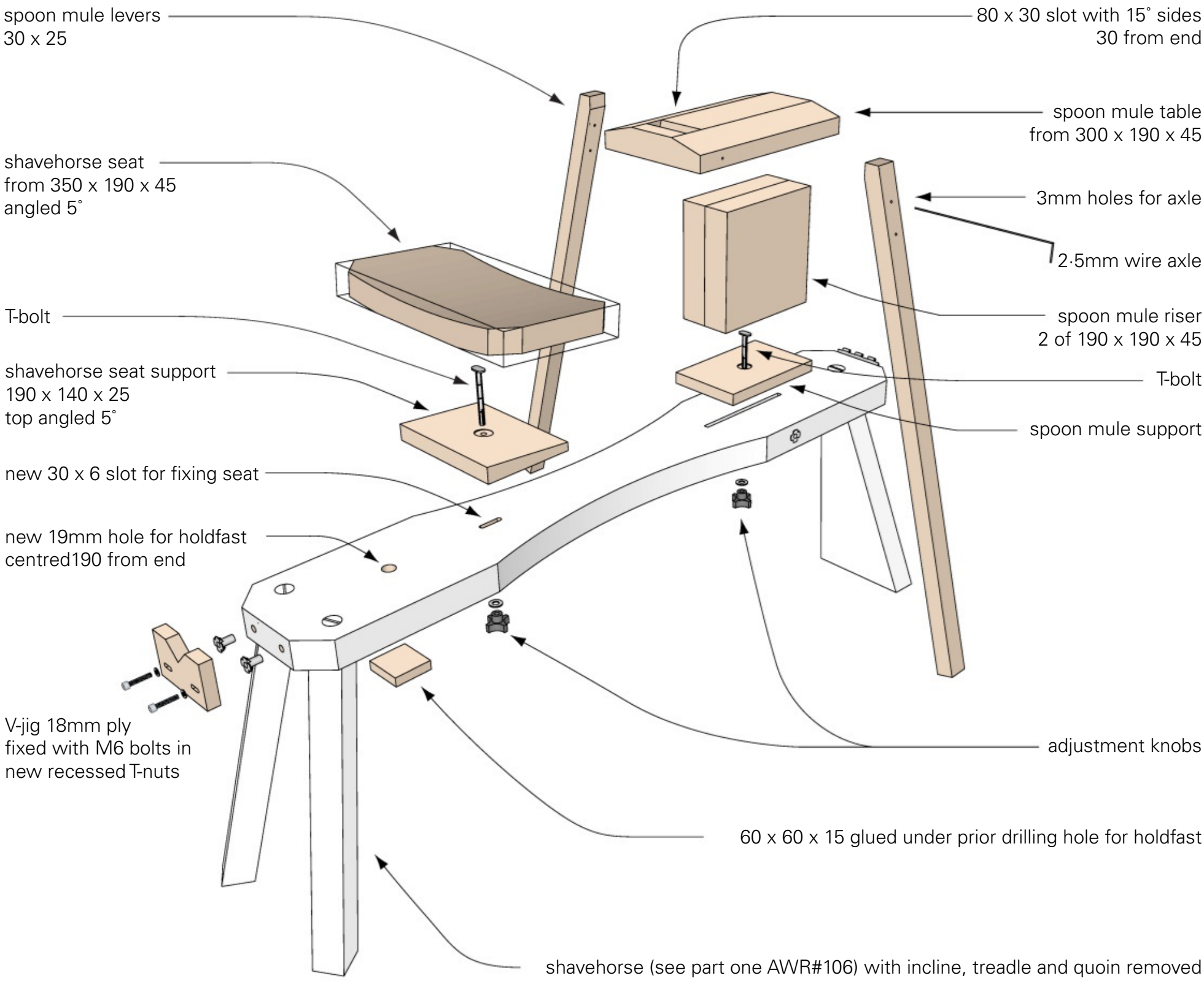


Fig.1 Components mm, not to scale

Use a lathe to bring your leg stock down to the 25mm spigot required for a snug fit (**photo 4**).

Test fit the legs into the top, mark out for the orientation of wedges, then turn the table upside down to scribe the shoulders of the spigots to sweeten the fit (**photo 5**).

Dry fit the legs into the top, scribe and cut the shoulders off to improve the fit and then pencil in the alignment before cutting the wedge slots. Make sure the wedges are going across the grain or at an angle (**photo 6**).

Before gluing up, add another holdfast position to make this worktable even more versatile. Trim the corners off and sand any sharp edges.

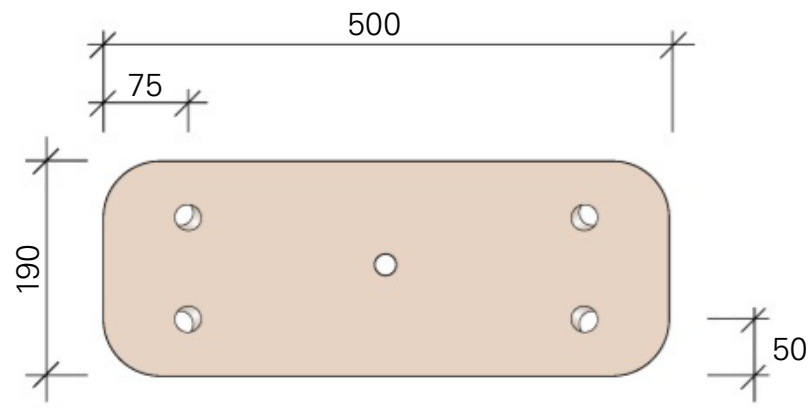
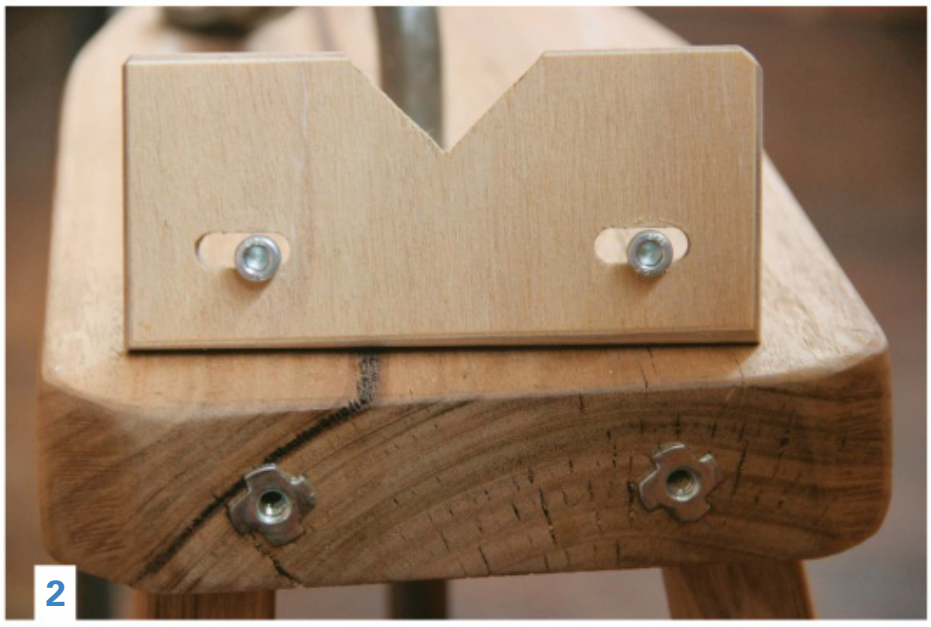


Fig.2 Worktable top mm, 1:10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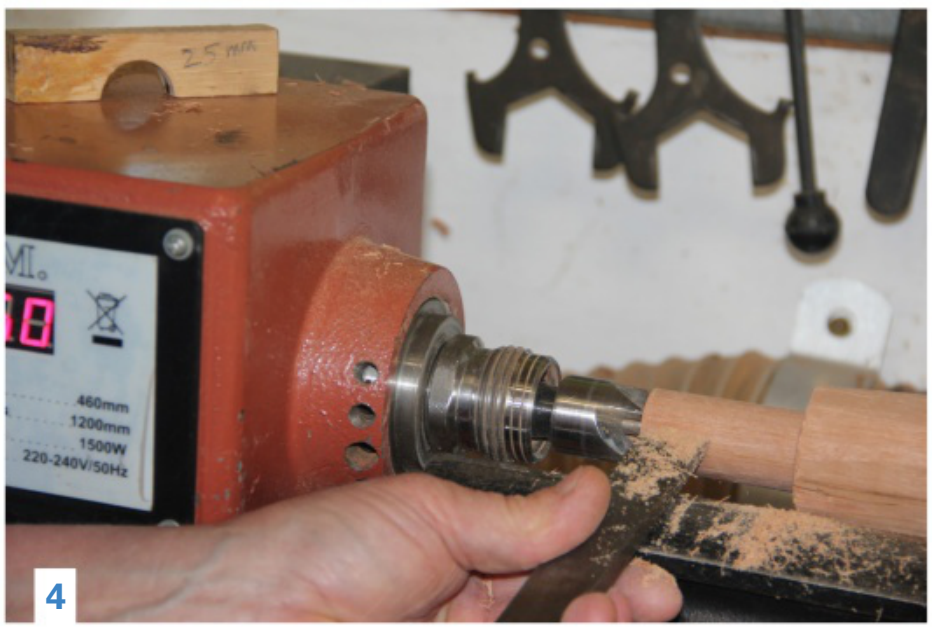

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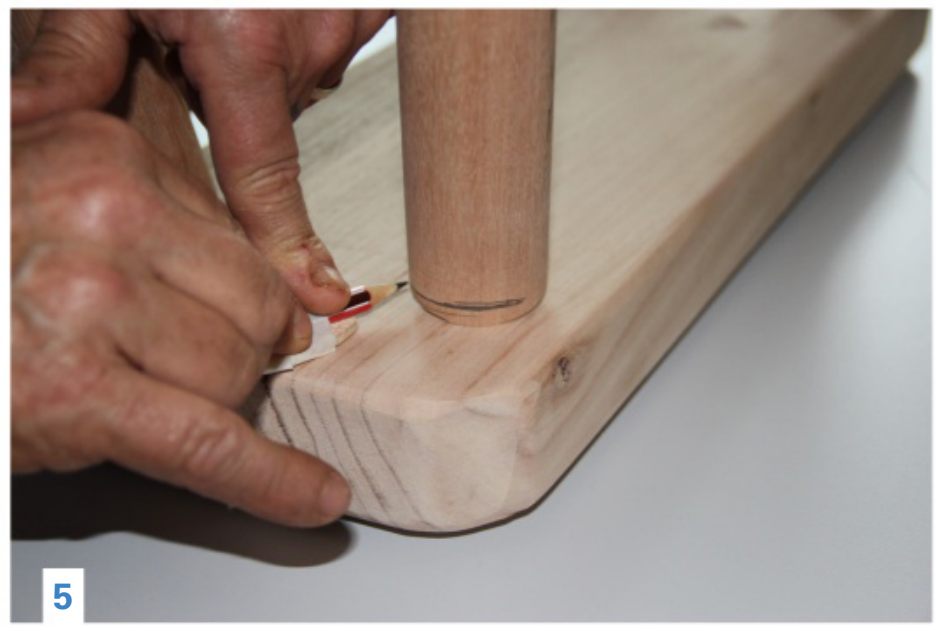
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Once the glue has set you can finalise the height and level the table. Use a spacer and wedges to achieve this and then scribe the 'new' leg length (**photo 7**).

Upholstered seat

If you've never tried upholstery this is a really nice one to have a go at. If the seat is to be adjustable you will need to create another slot to house a sliding plate similar to the one used for the quoin (riser block) in the last issue.

Using a piece of 190 x 45mm KD, bandsaw a gentle curve to form your seat shape, then proceed to the undercuts. It is important to leave a flat on the base of the seat so that it will attach neatly onto the angled block.

You can of course use a radius plane or travisher to achieve the same result. Cut the corners off to a round to give your seat a sweet shape. Curving the corners will also make the upholstery of the corners easier!

Next, using a spokeshave (or router if you prefer), give all the underneath edges a soft round over, but it's important to leave the top edges untouched.

Place the seat on the horse and work out where you need to place the slot for the attachment bolt. My seat is located 270mm from the back of the seat to the end of the horse – this works for my 165cm height (**photo 8**).

Take the angled wedge with its bolt glued in and place this where the seat works for you, drill and chisel a 30mm long slot right through (**photo 9**). This can easily be adjusted if you need to change the position later.

Seat upholstery

On all my upholstered chairs I use medium density foam; it's soft but still holds its shape when sat on. It comes in a variety of thicknesses and 50mm is fine for this job. Cut your foam oversize for the timber seat using scissors.

Using a contact adhesive, glue both surfaces and allow them to tack up as per instructions. Place the timber seat onto the glued foam and press firmly.

I use a round mallet to make sure the edges are really firmly attached. Take care to do this in a well-ventilated space and do read the safety instructions.

Next, bandsaw the foam excess off cutting as close to the timber outline as you can (**photo 10**). If the edge of the seat is accidentally cut you will need to sand it smooth again.

Apply a thin coat of the contact adhesive to the cut edge of the foam, and allow to tack up. Try not to get any glue on the timber as it can make the edge lumpy. Using a thin strip of timber make a fold in the foam and pinch the foam down onto itself (**photo 11**). This gives a smooth curved transition of the foam onto the timber.

Now for the fabric part of the upholstery; this forms the permanent


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seat cushion that remains if the final cover needs changing. Cut a rectangle of wadding and calico, 50mm bigger on all sides of your seat (**photo 12**). Centre the seat foam side down on to the wadding and calico. Make sure your material can easily slide over the edge and around onto the base with enough for you to grip.

The first staples are placed in the centre back of the seat at the lowest part of the curve. Place them 20mm from the edge so they are nearly touching. Do about 50mm then spin your work around to start on the front (**photo 13**). If you don't have a stapler, small upholstery tacks will do the job.

Pull the material tight in the middle and put in a staple. Then tension about 25mm to the left and right, adding another staple each way to hold the tension. Pull up the slack between the staples, smoothing the front edge for any wrinkles then fix with a pair of staples.

Continue with this process moving from front to back until you are 25mm from the start of the curved corner. If you find there are some creases in the front edge, simply remove the staple using a small flat screwdriver to loosen it and pliers to remove it.

It's important to complete the front and back of the seat so the tension of the material conforms to the curve of the seat. Proceed with the sides of the seat in the same way, working out from the centre towards the corners, keeping your staples in about 20mm from the edge.

2. Adjustable T-nuts for the V-jig are inserted the endgrain.
3. A 15° ramp makes drilling the worktable mortises easy.
4. Turning 25mm spigots on the worktable legs.
5. Adjusting the shoulders of the spigots before fitting.
6. Align the wedges across the grain or at an angle.
7. Use a spacer and wedges to mark final leg lengths.
8. Position the seat to suit your height and leg length.
9. Cut a mortise for attaching the seat.
10. Trimming the excess foam off on the bandsaw.

11


12


13


14

11. Use a strip of wood to fold in the foam and pinch it down to shape the edge.

12. Layers of foam, fabric and wadding are used for upholstering the seat.

13. Working front to back, staple on the calico.

14. Tension the corners to minimise wrinkles.

15. Stapling the leather in stages.

Now for the tricky bit, the corners. Pull the very corner of your material (wadding and calico), well into the base of the seat and place a staple to hold it in place. This is a temporary staple and will be removed when the corner is completed. This helps you to make sure that the material you want to fit around the corner is an even amount on both sides of the corner.

We are ready to start pleating the material so the corner edge stays smooth and wrinkle free (**photo 14**). It is important to keep the pleats to a maximum of a double layer of your material, much thicker and the edge can become lumpy. Take your time and don't be afraid to take out a couple of staples until you're happy. Repeat for all the corners. Once you're happy with the calico layer, trim all the excess material off back to within a few millimetres of the staple line.

For the cover I like to use thin upholstery grade leather, usually from a part of the hide that is not from the premium piece (this is a workshop seat not a dining chair!). Cut a piece the same size as the calico and then apply a leather conditioner – this protects the finished seat and makes the leather more flexible.

If you are using a fabric for the final layer, give some thought to how well it will conform around the corners. For example stretch denim is a great choice.

The final cover is put on with the staples set 25mm in from the edge, thus covering over the calico/ wadding layer. The process is exactly the same as the previous layer, just being very careful to smooth and stretch the material around the corners (**photo 15**).

Trim the excess leather back to the staple line when you are happy with the result. Now for the final step in the upholstery process. Using calico, again cut a piece the size of the base, fold the edges in and staple on, this time your staples will be 10mm in from the edge. For a really neat finish I like to use black calico and 'colour' the tops of the staples with a permanent felt tip pen (**photo 16**).

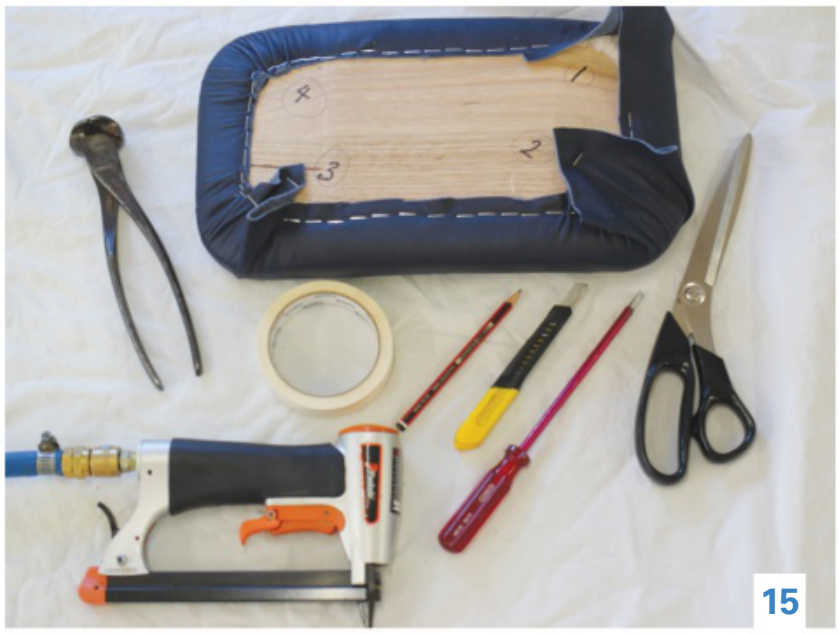
Install your finished seat onto its plate and test its position (**photo 17**). Adjust the length of the slot if it isn't comfortable relative to the workpiece.

Spoon mule

We are going to utilise the slot made for the quoin to fix another really useful attachment onto the shavehorse. The spoon mule is a lovely jig to securely hold small objects like spoons, spatulas, tool handles or knives while shaping them. It works in a similar way to the treadle with your feet holding the workpiece in place, keeping your hands free for the tools.

This time by pushing out perpendicular from the seat plank, the uprights hold the workpiece much like tongs, working with a fulcrum to pinch the workpiece.

First step is to make another attachment plate, similar to the one used for the seat and shown in the last issue. This time make it without the wedges as it will form the platform to build the solid block on (epoxy the bolt in and set aside).



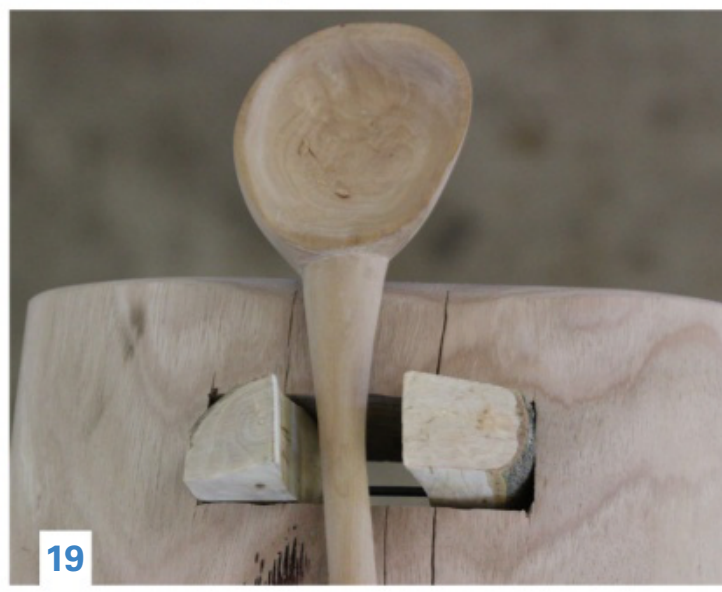
16. Nearing completion of the seat.

17. Attaching the finished seat to its angled block.

18. Shaping the top of the spoon mule on the tablesaw.

19. Showing the spoon mule arms installed.

20. The fully optioned shavehorse showing the spoon mule, upholstered seat, holdfast, V-jig and worktable.



First remove the treadle frame by loosening the bolts out of the T-nuts and sliding the whole assembly over the front leg. Take the 'pin' out of the hinge that fixes the incline board to the front of the shavehorse and remove this as well. Finally remove the quoin and you're ready for the new spoon mule addition.

Timber choice

Two 190 x 45 x 190mm long offcuts may be glued together to form the upright structure with a third 300mm long piece becoming the worktable.

Use the drill press, again with the 15° wedge jig, to create an angled mortise in the worktable. The top surface will be the narrow opening, then square up and clean with a chisel.

If you have access to a mortiser then this will speed up the process. The same 15° wedge helps cut the sides off the tabletop to give better access when you are working with your hand tools (**photo 18**).

Check your grain direction is all going in the same direction before gluing and screwing the table, upright and support piece together.

Now for the arms or levers. Timber for the arms needs to be well seasoned hardwood with straight grain running all the way from the top to the base of the lever arms. As shown on p.66, I found a forked branch of ash that works really well, strong and a bit springy. You will be placing a lot of force on these levers and don't want them to snap. The stock size is around 30 x 25mm.

The arms of the mule are designed to hang loosely in the mortise so they can adjust to different workpieces. I made mine overlong (so they protruded well through the top), and then cut them down once I had installed them. If you put a second set of holes in about 15mm lower you can raise the arms to accept a thicker workpiece.

Centre your hole from the outside of the mortised area (**fig.1**). Make the hole large enough so the wire slips through easily (I am using 2.5mm wire so the hole drilled was 3mm) (**photo 19**). You may need to change over the arms or replace the protective lining from time to time.

It's a good idea to keep a few offcut wedges to use on the outside of the arms to help grip small or delicate workpieces. Line your arms above the table with leather (where they pinch the work) to further improve the grip. Now get to work making shavings!

Photos: Heather Waugh

Illustrations: Graham Sands

Phoebe Everill is a furniture designer maker who runs her own woodworking school in Drummond, Victoria and also teaches at Sturt School for Wood, NSW. Contact her via www.phoebeeverill.com

Main: In the ExLaB studio, Duncan Crowe tests the Steambent Stools that he and Riley Woosnam made.

The ExLaB Experiment

Innovating with timber and ways of transforming it was the brief for students at the Melbourne School of Design, explains David Fedyk.

The Experimental Design Lab, or ExLaB, is a design laboratory at the Melbourne School of Design, University of Melbourne, that explores, researches and creates design through an experimental process focused on the materials and machines things are made from.

Playful experimentation and prototyping lie at the core of the ExLaB pedagogy, encouraging designers to re-examine everyday materials and invent new ones. Designers are required to get out of their sketchbooks and get their hands dirty.

Process driven design suggests an alternative 'bottom-up' approach that places materials and the way things are made at the core of the conceptual process. Designers are hereby compelled to uncover latent opportunities that only become evident through open-ended experimentation, while also readdressing our relationship with the planet by requiring a deep understanding of what things are made from. This exhaustive process results in innovative furniture that pushes the boundaries of beauty, function and sustainability.

Each ExLab subject introduces this design process through a series of two week stool exercises. Working in pairs, designers use an assigned machine for the first exercise, and then a material for the second. In the first week designers are asked to play, experiment and hack their assigned machine or material looking for 'moments for innovation'.

After presenting these ideas and experiments to tutors and colleagues, the designers then create a stool that explores and pushes a selected innovation.

This playful approach fosters a deeper understanding of materials and processes that facilitates the creation of unusual and unexpected outcomes. After completing the stool exercises the designers individually produce a finished piece of furniture. For many, the ideas discovered in the stool exercises are developed into the final outcomes, while others find inspiration through further investigations.

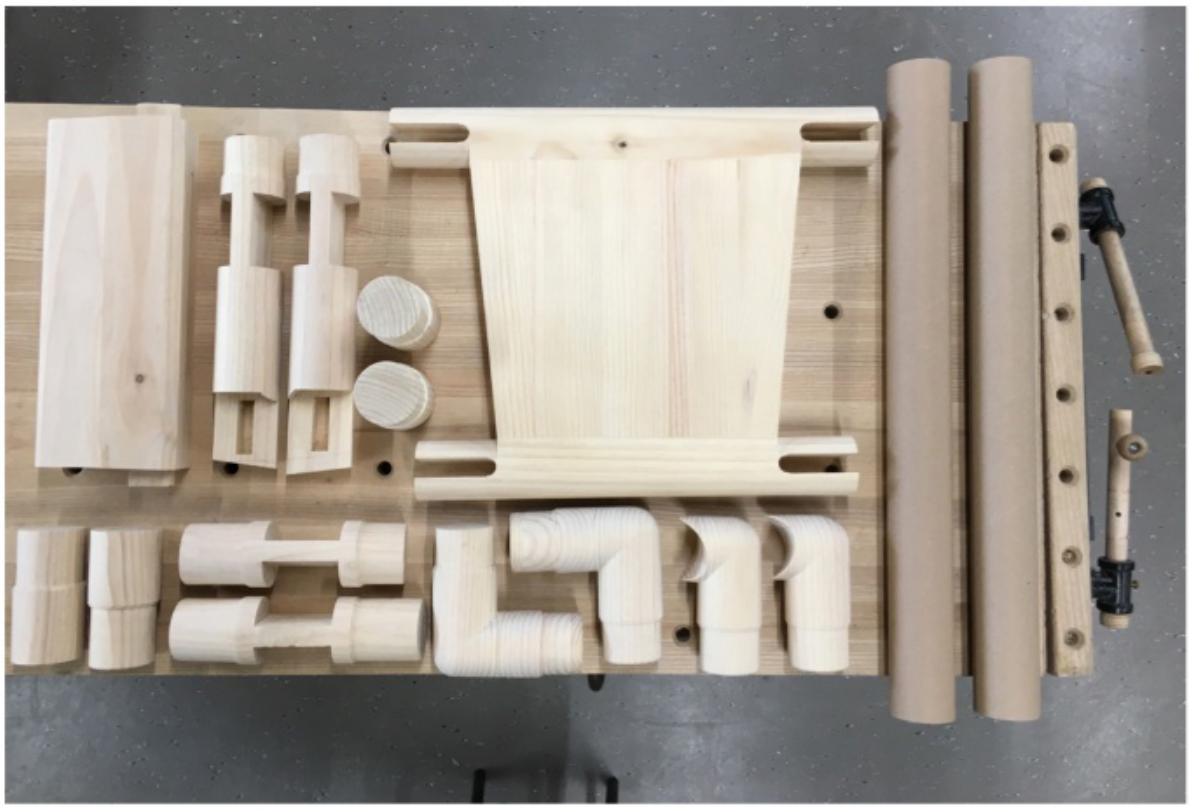
Several projects by some of the graduate students of the ExLab Experimental Timber Furniture subject in 2019 are also shown. The design approach here focuses solely on exploring timber (i.e bamboo, hardwood, cork) and the various ways to manipulate it (i.e. steambending, tablesaw, veneer, vacuum forming).

Designers were tasked with proposing an answer to the question, 'Is the world's most common building material still ripe for innovation?' For many students this is their first time using a workshop and making anything beyond architectural models.

Alexander Traylen, Paper Tube Chair

The *Paper Tube Chair* is an exploration of the varied functionality of the prosaic paper tube, and the chunky aesthetic it creates. The chair started from a stool experiment testing the viability of using paper tubes as a structural material. Further design iterations focused on developing a tubular aesthetic and translating this language into a proper chair.

Alex's final piece celebrates these oversized junctions by using unconventional lathe techniques, combined with classic woodworking techniques to achieve a unique aesthetic. He chose an oft-overlooked material in radiata pine to pair with the humble paper tube, floating a whitewash stain on the timber before clear coating



This page: Alexander Traylen, Paper Tube Chair

Right: Duncan Crowe, Two Curve Chair

Below: Toby Moritz, Meditation Chamber

to achieve a more cohesive tone. The *Paper Tube Chair* combines a craftsman's skill and attention to detail with an unusual material to achieve a unique piece.

Alex was our most experienced designer/maker, bringing years of experience in carpentry, boat repair, furniture making/restoration work as well as undergraduate degrees in Architecture and Furniture Design.

Duncan Crowe, Two Curve Chair (2CC)

The *Two Curve Chair* is a formal exercise in curve-making through a process of lamination. Drawing on experience from earlier steambending exercises, Duncan wanted to continue developing a language of bending for his final chair. Given a short timeframe and considering the material cost of multiple moulds, he chose to attempt a design that was made from a single repeated curved element.

Confirming the shape and thickness were adequate for curve strength, he then set about formalising the repeating elements into a cohesive design. Research and 3D modelling informed the ergonomics and that the proportioning was correct for the human body.

The *Two Curve Chair* illustrates how one simple design element, when staggered, rotated and shifted, can transform into a dynamic and sculptural form.

Toby Moritz, Meditation Chamber

The *Meditation Chamber* began with a question, 'Can thin veneer perform a structural role in furniture?'

Initial testing using a vacuum bag and various moulds revealed interesting textural qualities and the structural potential of the veneer. This led to weeks of exploring different mould shapes, various veneers types, grain direction, and formal experiments. The final piece joins this experimental approach with a desire to create a sheltered enclosure for meditation.

In a cheeky nod to one of Australia's favourite building materials, Toby used layers of corrugated iron as well as plywood and foam to create the former. The making challenge was also to create a large vacuum bag chamber and a process for executing the glue-up. After weeks

of testing and vacuum bag modifications, a team of eight successfully glued up eight layers of 1.6m x 3.6m veneer in about 30 minutes.

Grant Li, Waterfall Stool

The *Waterfall Stool* was inspired by cabriole leg construction, where a block of timber is first cut lengthwise into four. Each piece will have two flat faces and two curved faces. Rearranging and gluing the flat faces of these pieces together results in flowing sculptural forms generated from surprisingly simple cuts.

Grant developed a pattern language from these cut fragments and experimented with different arrangements, arriving at a circular shape. The transition from the sides to the endgrain top was rounded to unify the design.

Karen Tsui, Dipping Wafer

*Dipping Wafe*r is a unique stool made from strips of sawn, soaked and bent timber veneer braced together in a repeating pattern. Each strip was sanded to a uniform thickness before being soaked in

Above: Grant Li, Waterfall Stool

Right and below: Karen Tsui, Dipping Wafer

Top: Paddy McPherson and Alex Traylen, Kerf Stool

Above: Finn Forsyth and Chris Manton, Dowel Stool

hot water, then bent and clamped into position. Once dry, the ends and middle of the strips were glued together to produce 64 double-ended loops, and a new problem…finding a way to join them all together.

A closer look reveals an intricate network of timber washers and half lapped dowels lashed together with cotton twine giving structure to this lightweight yet deceptively strong stool.

Paddy McPherson and Alexander Traylen, Kerf Stool

For one of the experimental stool exercises early in the semester, Alex and Paddy were given the sliding compound mitre saw as their machine to explore. Rather than focusing on the angled cuts the machine is typically used for they decided to use this opportunity to see what sort of surface textures they could apply.

This exploration resulted in a stool covered with unusually rough machine marks and a sculptural quality that you would not normally associate with a sliding compound mitre saw.

The splayed legs were also cut on the mitre saw and attached to the top with floating dowels. Corresponding holes were drilled on the drill press in a jig to get the angles correct.

Stephanie Guest and Sofia Turtle, Lathe Stool

Stephanie and Sofia designed within the constraints of the wood lathe capacity and turned this toddlers rocking stool as part of their two week lathe exploration.

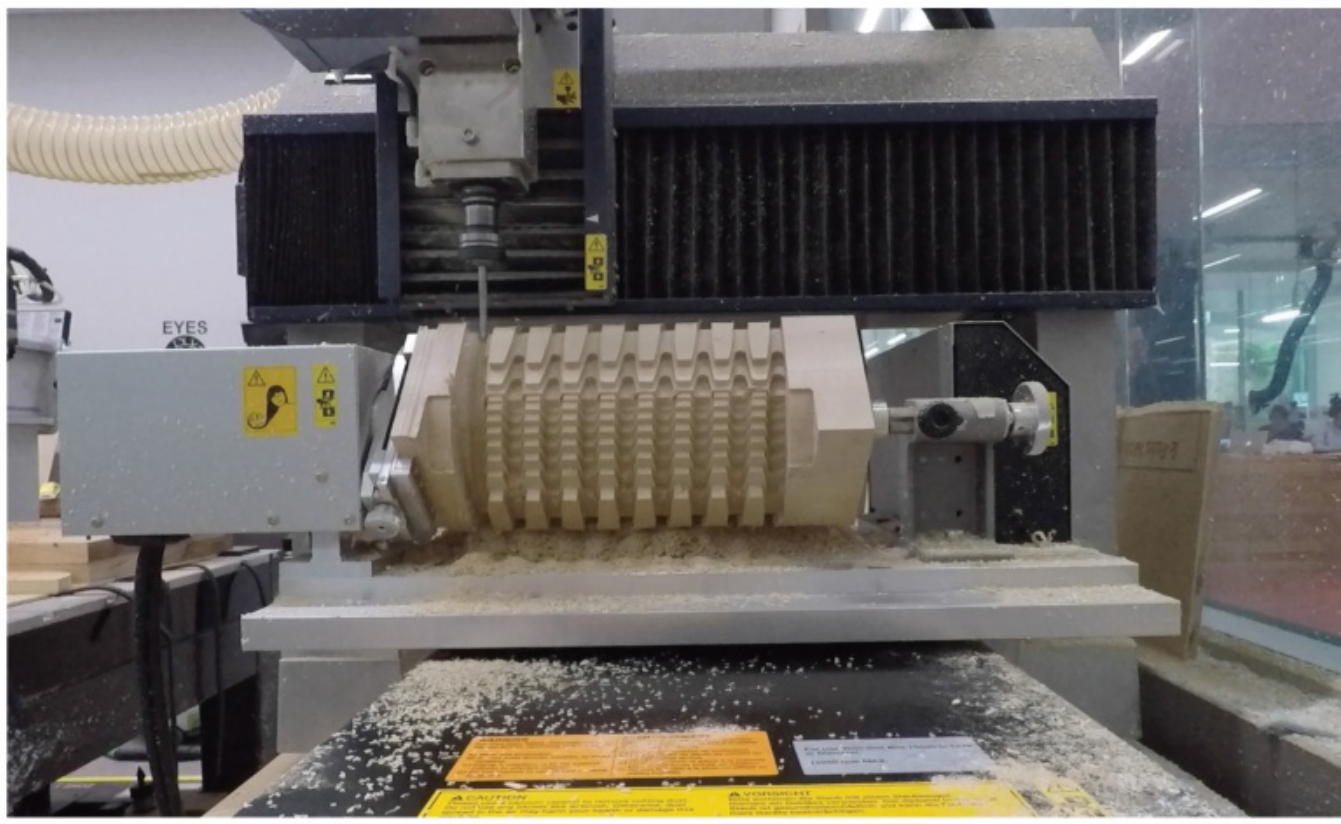
Made from an assortment of Victorian ash, American ash and Tasmanian blackwood they combined different turned elements to create the handles, base, and seat.

Finn Forsyth and Chris Manton, Dowel Stool

Challenged with designing a stool entirely out of dowels, Finn and Chris experimented with kerf-cutting to create bending and provide a notch for the seating slats. This gentle curve also splayed the legs for more stability.

Riley Woosnam and Duncan Crowe, Steambent stool

Having been allocated the process of steambending to make a stool, Riley and Duncan embarked upon a frantic two week build where they tested, designed and completed their piece in American oak.



They quickly discovered the difficulties involved with steambending and the downside of using kiln dried timber and came up with a design comprised of multiple identical pieces rearranged to form a stool. They completed two pieces around a similar curve, one made from 5mm thick sections and the other from 10mm.

Yuxin Jiang, Homemade Chocolate

Inspired by the bookbinding presses of Frank Wiesner, Yuxin sought about making an adjustable height stool designed around a timber screw thread. Lacking access to a dedicated thread cutting machine, she designed her parts in quarters and had them machined on a 3-axis CNC router. The design of her stool allows it to be used as a single adjustable height stool or it can come apart and be two fixed height low stools.

This year ExLaB, like other educational facilities, is facing an unexpected range of challenges. Dealing with change is part of the process of exploring materials and means of transforming them.

Photos: Charlie White

ExLaB: Experimental Timber Furniture was led by David Fedyk, and Josh Stevens. Learn more about ExLaB at https://www.exlab.org/

Top left: Riley Woosnam and Duncan Crowe, Steambent stool

Top right and centre: Yuxin Jiang, Homemade Chocolate, complete and in-progress

Left and below: Stephanie Guest and Sofia Turtle, Lathe Stool

The Shaper

Raf Nathan takes a look at the capabilities of the spokeshave and surveys the quality end of the market

Better than sex. That's what someone said to me on trying out a spokeshave for the first time. Now I don't know about you, I do like a good spokeshaving, but for me it's not that good. However the point here, is that spokeshaves are both practical and a pleasure to use.

A spokeshave is virtually a chisel held in a small metal guide with handles. As the name suggests they derive from 16th century wheelwrights using them for forming wheel spokes. In archaeology though, a spokeshave is an instrument for cutting stone.

Traditional wood-bodied spokeshaves have the blade at a low angle. The blades, fitted bevel up, have two tangs that fit into the body with adjustment done by tapping the blade. You can still buy versions of these or make your own from kits.

Spokeshaves vary in action depending on the sole shape. Most common is a flat sole. Curved soles suit shaping concave curves; they are harder to use but give good results. There are also concave and convex shaves suited to spoke work or internal shaping.

Set up

The key of course, as with all cutting tools, is to have a sharp blade set up properly. Most shaves are bevel down with a small cap iron and single locking screw. Adjusting the depth of cut is by tapping the blade on either side, or better tools have one or two thumbwheels to advance or retract the blade.

The general opinion is that thick blades give better results it seems, so be wary of blades less than 2 or 2.5mm thick.

The mouth opening should be reasonably fine, however depending on the tool make and your spokeshaving style, you may need to open the mouth with a small file. A mouth that is too large ex-factory is a problem. You can shim a blade forward but it's a fiddly process. Most have a 2" (50mm) wide blade but this varies, the HNT Gordon for example has a 45mm wide blade.

We are now fortunate to have a massive choice of metal-bodied spokeshaves made by various toolmakers that are more refined than the older style. The reason some are more expensive than others is accuracy of machining, blade thickness and quality. You can make a cheaper shave work well but the bed and mouth may well need tuning with a file, not an easy job.

There are many shaves offered on the web ranging in price from $15 up. My experience with buying cheap eBay things is not good and quality will repay its own cost in the long term. Here is a survey of some of the best tools in this class around.

Prices quoted were correct at time of writing. Photos courtesy of manufacturers/suppliers shown.

Cast Iron

This Pinnacle tool is a Woodcraft branded shave that comes as flat or curved sole. It's an impressive cast iron tool with twin adjusters and 2" wide blade. $331

www.woodworksupplies.com.au

Everyday Users

Veritas make seven spokeshaves. The smallest is a Preston style shave in cast stainless steel, although it only comes as a curved sole version.

They do have a low angle tool based on traditional wood ones but made from cast aluminium with an adjustable mouth effecting depth of cut. $149. They also have a wooden spokeshave kit which sells for $85.

What most woodworkers should consider are the flat, curved and concave shaves with metal bodies and wood handles. The bodies are ductile cast metal with comfortable wood handles. The 2-1/8" wide and 3.2mm thick blades are adjusted by twin brass screws. My preference is for the flat sole version at $229.

Veritas also make an extra large 2-1/2" shave as well as three smaller shaves called 'chair devils' for shaping parts.

Design Collaboration

Lie-Nielsen make five different shaves. Their smallest is a great looking Small Bronze Spokeshave, based on a Preston design that is available with a flat or curved sole for $179.

A collaboration between Boggs and Lie-Nielsen produced their concave shave ideal for spindle work. The Brian Boggs spokeshave weighs a hefty 12 ounces with either a flat or curved sole. These have a beautiful bronze body and cap with hickory handles and a 2" blade 3.2mm thick. These are all wonderful tools although there is no thumbwheel adjustment for the blade. They sell for $259.

Custom Make

This is a low angle shave you build yourself and comes with a pre-machined bubinga body with all fittings, brass wear-plate and a legendary Hock blade supplied. You assemble everything and shape the handles, just as you like. The Hock Tools spokeshave kit sells for $120.

www.woodworksupplies.com.au

Polished Tradition

Clifton offer four shaves – flat, curved, concave and convex. These are made from a malleable iron beautifully polished and come with a cryogenically treated 2″ O1 steel blade. Clifton are a respected name in the British toolmaking tradition. The Clifton flat sole sells for $275.

www.beyondtools

Wood and Brass

Australian toolmakers HNT Gordon produce three shaves that are all beautifully made. There are large and small curved sole models and one large flat sole model.

These use a brass body and cap with figured hardwood handles. The smaller model is a delicate shave design that apparently is superb for fine work. Priced from $180 to $295.

www.hntgordon.com.au

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