

AUSTRALIAN

Wood

REVIEW

108

LAST
CHANCE
TO ENTER
MAKER OF THE
YEAR AWARDS
SEE PAGE 24

ROLF BARFOED The Business of Wood

MAKING THE LOCKDOWN CABINET

HOW TO

- MODERN
SIDEBOARD
- WHEN TO
SHARPEN
- SIMPLE
BIRD CARVING
- TURNING
BRANCH BOXES
- SQUARE BY HAND

TESTED

- WOODRIVER DADO SET • WALRUS OIL
- HAFCO BP310 BANDSAW • PANTOROUTER





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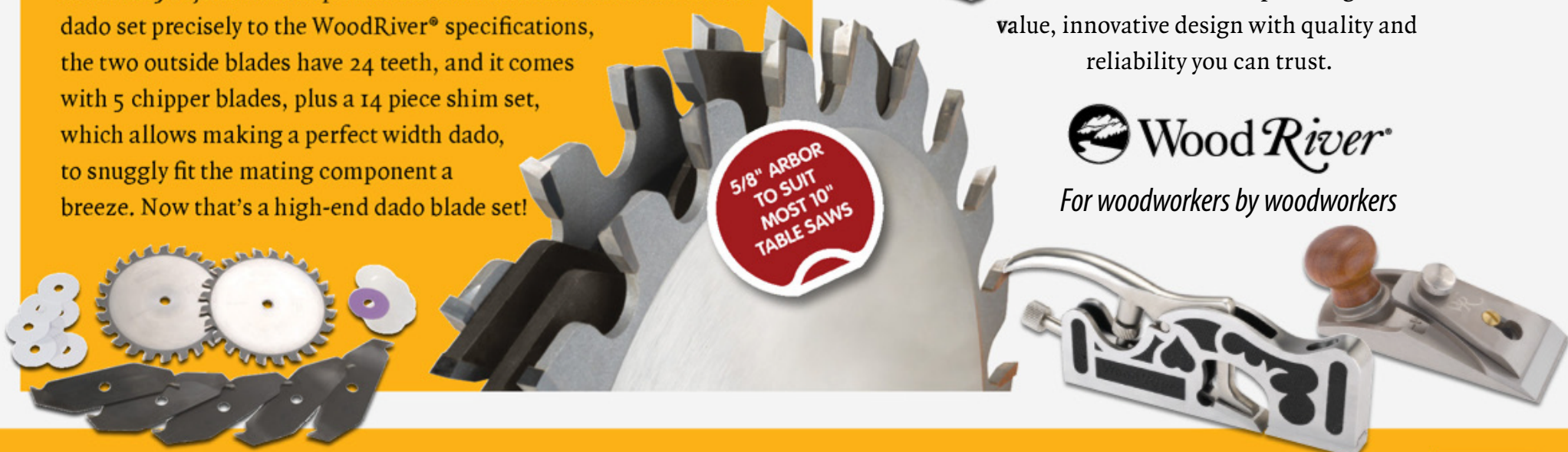
The WoodRiver® 200mm (8") Stacked Dado Set

The stacked dado set from WoodRiver® is optimised to cut flat bottoms and square shoulders when making grooves from 6.35mm to 24.2mm (1/4" to 1 1/2") for constructing projects where strong, accurate 90° joints are required. The Israeli manufacturer made the dado set precisely to the WoodRiver® specifications, the two outside blades have 24 teeth, and it comes with 5 chipper blades, plus a 14 piece shim set, which allows making a perfect width dado, to snugly fit the mating component a breeze. Now that's a high-end dado blade set!



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Contents

ISSUE 108 – SEPTEMBER 2020

PROFILE

34 The Business of Solid Wood

An interview with Canberra maker Rolf Barfoed touches on design styles and the economics of making solid timber furniture on a commercial scale.

FEATURES

66 The Reading Tree

A commission to build a sculptural tree involved an intense process of digital and CNC technology. Story by Ben Dutton.

78 The Journey

Dedication and discipline have driven a passion to learn traditional furniture making techniques. Story by Jackson Fairlie.



WOODTURNING

53 Small Branch Forms

Small branch timbers can successfully be used to make natural edged containers. Story by Andrew Potocnik.

PROJECT

58 Waterfall Sideboard

Graham Sands works with grain patterns and colour to create a cabinet inspired by Danish design.



66

TECHNIQUE

26 The Lockdown Cabinet

Making a piece with hidden secrets, subtle details and angled joinery became an expression of Vasko Sotirov's coronavirus-struck life.

48 When to Sharpen

The why and the when can be just as important as the how, writes Harry T. Morris.

71 Square by Hand

There are many ways to square an edge – Charles Mak looks at hand tool methods.

REGULARS

6 Editor's Letter

18 Product News

24 Maker of the Year awards

21 Subscription Offer

75 Wood Diary



53



42



26



48



34

WOODCARVING

42 A Bird in the Hand

Carol Russell shows how to whittle birds and small hand held sculptures.

TOOLS & EQUIPMENT

8 Machinery & Tool Reviews

- WoodRiver Dado Set
- PantoRouter
- Hafco BP310 Bandsaw
- Walrus Oil

Editor's Letter

Simple is not simple

When I read that Rolf Barfoed, the maker featured on this issue's cover, describes his aesthetic as 'visually simple, technically complex', I was intrigued.

Furniture of every age has had its own definition of simplicity. In its day, a 17th century Louis armoire might have sat at the lower end of the ornate spectrum, but that place would be lost today. In the 1800s, the exposed joinery of Arts & Crafts style furniture was used as a design element that spoke of honesty and a rejection of ornament. Nowadays, simplicity of form in contemporary furniture may have a pared back look which relies on engineered joinery that is anything but simple.

Making well crafted furniture on a commercial scale adds another level of complexity. Rolf is a career furniture maker, who after an apprenticeship, went on to work in high quality furniture making businesses and now owns and operates his own. He makes work of his own design and produces limited batches for other designers. The business of solid wood furniture cannot typically rely on economies of scale to exist, so in addition to asking Rolf about his design priorities I asked him how manages mostly labour intensive processes to produce quality furniture that still speaks of the handmade, see p.34.

Simply start

While creating pared back forms can be technically challenging, the start to gaining expertise can be as simple as picking up a tool. A confident, practised artist can sketch and paint portraits with a few strokes. Carol Russell shows how bold and smooth knife cuts can express character and attitude in her 'simple' bird carvings. For some inspiration, see her story on p.42.

COVID-19

The unstoppable virus is permeating so many aspects of our lives that it was bound to creep into this magazine.

If it hadn't been for Jackson Fairlie's extraordinary passion for woodwork and learning traditional skills, he may not have completed his course work in the USA before making a dash back home before the travel restrictions kicked in. His journey as a professional maker is only just beginning, but from p.78 you can read how getting himself to that point was anything but simple.

If it hadn't been for the devastation and isolation caused by the pandemic in northern Italy earlier this year, Vasko Sotirov would never have made his Lockdown Cabinet. This small drawer chest with angled panels, a secret drawer and locking mechanisms is a manifestation of one maker's emotional response to the times. In his article this issue, Vasko unlocks some of the complexities of its construction.

Maker of the Year awards

So far we've had an exciting response to our new awards. Well over 100 entries can be seen on our website and social media, and the good news is you still have time to enter! Awards valued at over \$15,000 will be presented over four categories, including Furniture, Bowls & Boxes, Art & Accessories and Student (all levels). Shortlisted entrants will be announced in our eNews and social media on November 4. This is your last chance to enter – September 13 is the deadline, and entry is via www.woodreview.com.au/moty

Stay safe,

Linda Nathan, Editor
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COVER:

Furniture designer and maker Rolf Barfoed in his
Canberra workshop.

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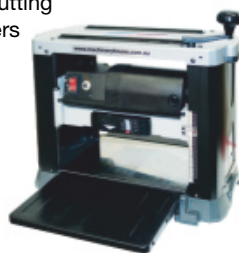
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WoodRiver Dado Set

Reviewed by Damion Fauser

New to the Australian market from WoodRiver is a stacked dado set for cutting grooves and dados on a tablesaw. At 200mm (8") in diameter and with a standard 5/8" arbor size, this set will be compatible with most 250mm tablesaws on the market.

The large 200mm diameter will give a higher circumferential tooth velocity and shallower tooth entry/exit in the cut, both of which will assist with yielding cleaner cuts than smaller 150mm (6") sets.

Made in Israel from quality components – German steel and premium Ceratizit carbide teeth, the set includes the two primary sawblades as well as a set of five robust chipper blades.

The tooth count and size on the primary blades is good, with each blade having 24 teeth and generous gullets for waste removal.

Tooth geometry has been well thought out also, with the primary blades having every sixth tooth as a raking tooth. Combined with the raking tooth profile on the chippers, this set yielded cuts with perfectly flat and smooth bottoms.

Common to all dado sets are the sharp little valleys from the points of the ATB teeth in the very corners of the cut, but on this set it was very much minimised, which is a credit to the tooth design and manufacturing on this tooling.

Also included in the box is a set of spacer shims for dialling in precise dimensions. In a very clever move, this set has been colour-coded for each shim thickness. I know with my own set of shims on my tooling, I need to measure them each time with calipers to verify their exact thickness, so this colour-coding is a fantastic idea. The shims are indexed on the included card with both metric and imperial thicknesses.

Don't let the prospect of conversions stress you out, simply work to workshop reality. By this I mean add chippers and shims to your approximate dimension, make a test cut and add/remove shims as required. Dress your mating stock accordingly to the final dado width and you're good to go.

The set is capable of cutting dados up to 24mm in width which is substantial for a set this size. As with any dado set be wary of the stress that deep and wide



cuts can place on your arbor, so multiple shallow passes are much preferred.

I ran a series of cuts in some particleboard, as well as some rip and crosscuts cuts in a piece of dense hardwood. All cuts were super clean, and I was particularly impressed with the tidiness of the cut in the particleboard, with no tearing or chipping evident.

Considering the quality of this set, it's extremely good value.

Review set supplied by Professional Woodwork Supplies, www.woodworksupplies.com.au

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

Top: Cleverly thought out and solidly made shims and chippers.

Above: Solid and clever tooth geometry yields clean cuts.



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PantoRouter

Reviewed by Kelly Parker

There are many choices available for creating a mortise and tenon joint. For years I have used a shop-made jig which was functional and flexible but a bit fussy to use. This recent acquisition of a PantoRouter has been a welcome shop upgrade. It not only allows me to quickly make perfectly fitting mortise and tenon joints but also cuts a host of other joints including dovetails, box joints and dowel joints.

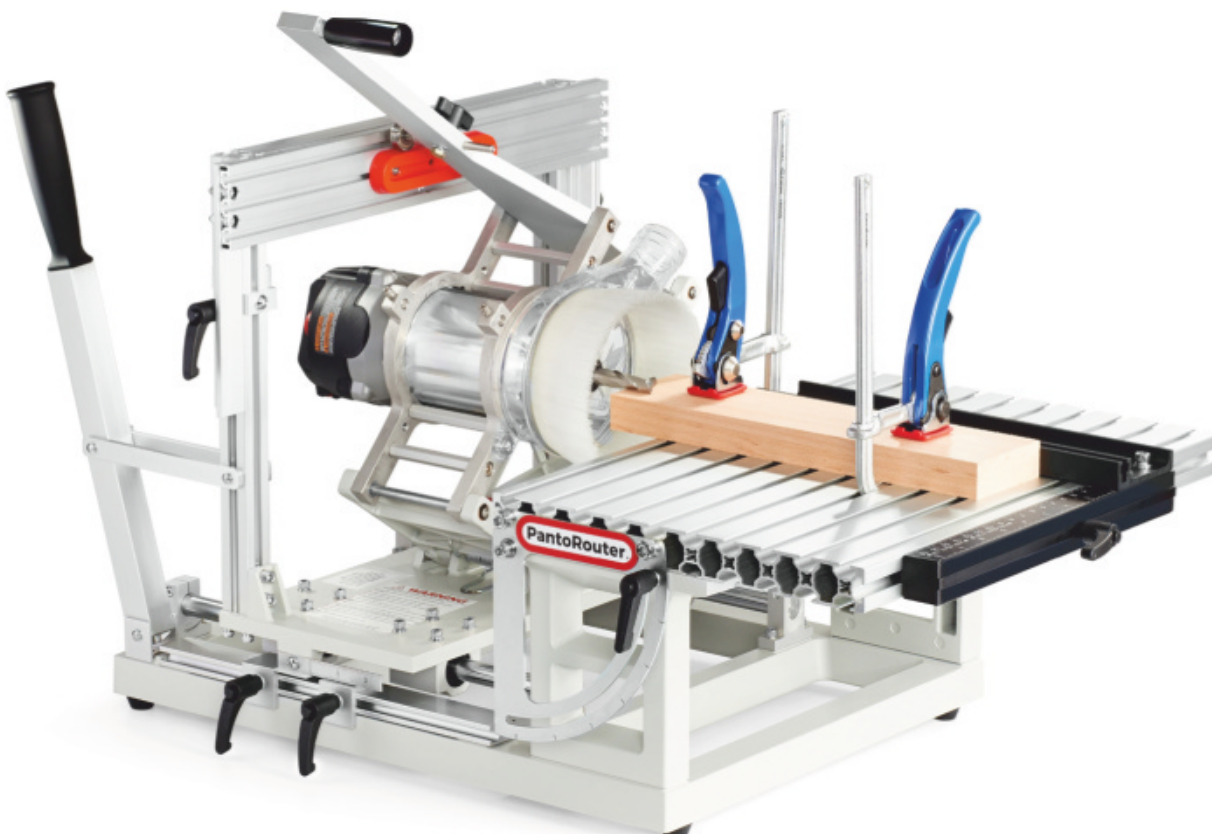
The PantoRouter has a horizontally-mounted router motor in a carriage on an articulating arm. This whole assembly runs on rails allowing for smooth, accurate control of the router in the X, Y and Z directions, while a guide bearing follows the inside or outside surface of a template.

The strength of the PantoRouter lies in its templates which allow you to cut a mortise and its corresponding tenon using the same set-up. The mortise is cut first with the guide bearing running 'trapped' in the cavity of the template. The tenon is then cut with the bearing running along the outside of the template which has a 10° taper.

By incrementally working the bearing down the template you will find the sweet spot on the template that gives the perfect fit. Once this set-up is done you can quickly cut all of the tenons. You can also use a lock collar on the guide bearing, enabling you to replicate this set-up quickly without the trial-and-error next time as you use the same guide bearing/bit combination. And once you understand how the templates work you can fabricate custom templates to create unique joinery.

Another feature that I particularly like is that everything about the tool is set up to register off centre lines. The templates mount to the centre line of the template holder, which in turn references off the centre of the router bit which is used to establish the centre line of the table.

There is also a quick-centring feature which allows you to put the joint in the centre of the component's thickness while centring scales make it easy to centre the part on the table width-wise. If you don't want the joint in the centre you can set up the tool using layout lines instead.



Above: The PantoRouter can make a range of woodworking joints.



Left: The kit includes templates for box joints, dovetails, triple mortise and tenons, dowels, bowties and diamonds, 'monster' mortise and tenon guide bearings and bits as well as standard bits, guide bearings, mortise and tenon templates and centring jigs.

Below left: The guide bearing runs in the template groove to cut mortises and on the outer tapered surface to cut the tenons. Once the sweet spot is established, the lock collar can be used to re-establish the same fit.

Below right: Close up to the split-shaft centring jig.



The PantoRouter also makes it easy to create angled joinery by using the auxiliary fence. If your component has a compound angle you can make use of the tilting table in combination with the auxiliary fence. It has an excellent clamping system and the large table allows me to easily mount jigs to hold curved workpieces. The tool also has superb dust pick-up.

The tool comes with 1/4" and 8mm collets and in the future 1/2" and 12mm collets will be available.

Overall, I find the PantoRouter to be precisely machined and highly accurate with thoughtfully considered features. The only drawback I can cite is the inability to easily create variable length mortises however I believe these and other upgrades are in the pipeline.

Learn more at www.pantorouter.com

Kelly Parker @kellyparker2017 is a furniture designer maker who lives in Kansas City, USA, see www.woodsongstudio.com

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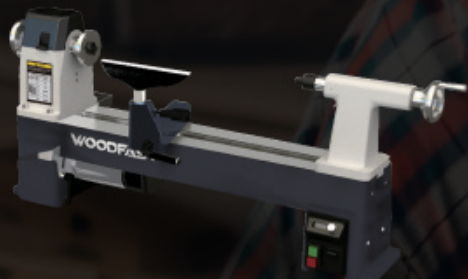
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HAFCO BP310 Bandsaw

Reviewed by Damion Fauser

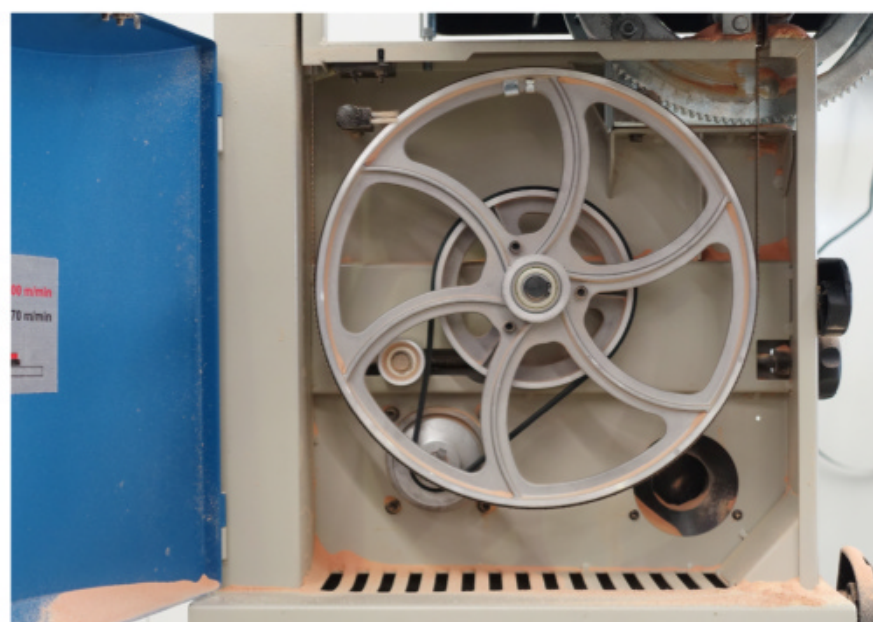
The middle size of a range of three saws, this machine has been designed and appointed to suit the home user, and considering the price range, it has some handy features. Supplied for testing with a Starrett 1/2", 6tpi blade, this machine required very little tuning to perform some clean and effortless cuts in hard and softwoods up to 75mm thick. The machine can accept a cut height of 165mm, but very careful blade selection would be advised in this case.

Top and bottom guide sets were European wheel-style ball bearing lateral guides and roller thrust bearings. Adjustment on the guides was not quite tool-less, with an allen key required for the lateral adjustment of the wheels.

All adjustments are easy to make, with a quick-release tension lever, hi-low rip fence on a rail with ruler, solid rack-and-pinion table tilt (to 45°), quick-release adjustment of the pulley for changing between the two available speeds (370 and 800 m/min), smooth and lockable post height adjustment and a lockable wheel for blade tracking.

There is a window to view the blade tension indicator, but I also would have liked to see a window on the side of the upper cabinet for viewing the upper wheel when setting the tracking.

Safety has been well thought out, with an emergency stop switch that is easy to see and reach as well as independent micro shut-off switches in both wheel housings to deactivate the motor when a cabinet door is open.



Top: Solid above and below guides that are easily adjustable.

Left: Upper housing showing tension indicator.

Above: Lower wheel housing showing dust port and collection tray.

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*'Dream Steamer' by Eliot Brand
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Situated at a good operating height on a steel stand, with a cast iron operating table of 480 x 390mm and weighing a mere 62kg, this machine won't take up too much space and is relatively easy to move around. The 0.75kW (1hp) single phase 10amp motor is perfectly adequate for the range of cuts this machine can make when matched with the correct blade.

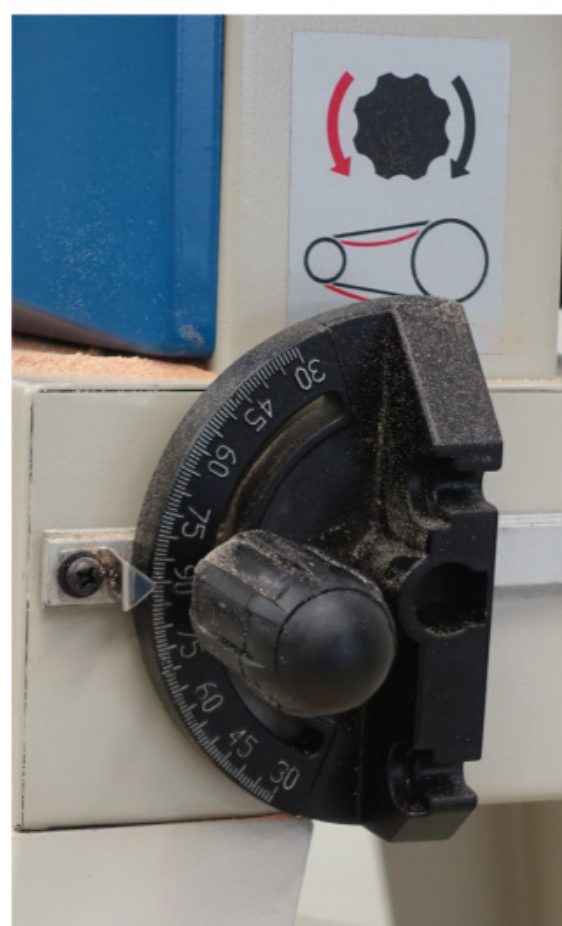
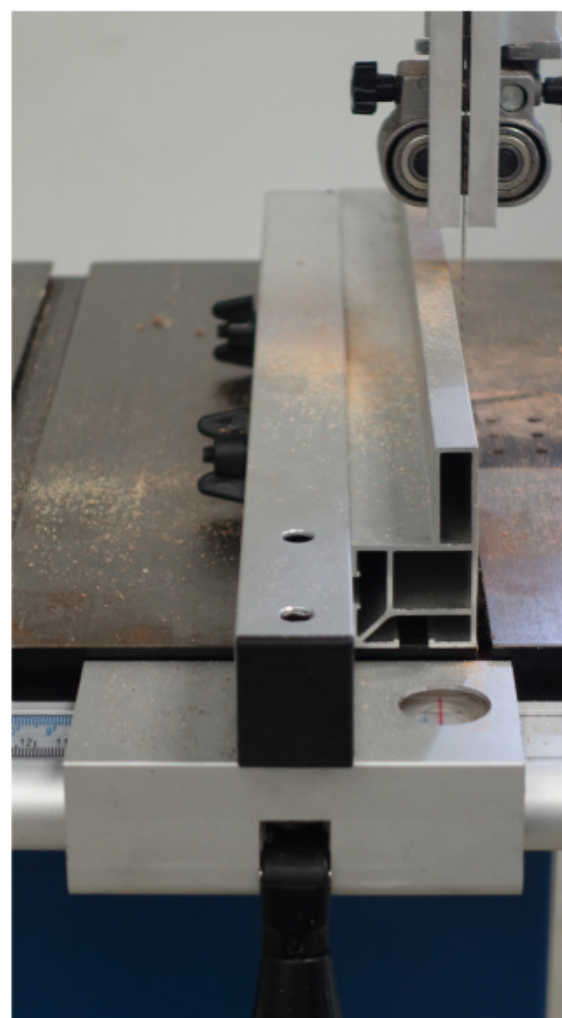
Some good design work has gone into this machine with its onboard storage for the included pushstick, mitre gauge and set of adjustment tools, and adjustable LED light.

The rear dust port has multiple diameter connection outlets and there is a handy removable dust collection tray below the bottom wheel housing.

This bandsaw is priced at \$792, with the smaller BP255 at \$539 and the larger BP360 at \$979. This range will suit the home user who is conscious of budget and space.

Available from Hare & Forbes Machinery House, www.machineryhouse.com.au

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



Clockwise from top right:
Reasonably solid hi-low extrusion fence.
Convenient on-board tool storage.
Dust port accepts multiple size hoses.
Handy dust collection tray in lower wheel housing.



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Walrus Oil

Reviewed by Richard Vaughan

I've used oil based finishes since the start of my career as a studio woodworker because I liked the appearance and because they are far easier to refurbish than polyurethane and lacquer finishes. There were very few to choose between 40 years ago but the range has steadily increased, and many products now tout their green credentials. Another has come to the Australian market from environmentally conscientious American manufacturer Walrus and they are emphatic that their products are made from totally safe natural ingredients.

One drawback with fully plant based ingredients is that they can take up to four weeks to fully polymerise. That's quite a wait before you can risk getting it wet. It is possible to speed up the curing process by adding a small amount of a natural solvent – look for citrus, eucalyptus or pine based. Mineral turpentine or 'turps' is a petroleum derivative. It will do the job but not in the green way that is the intention here.

Walrus Furniture Finish is an oil that is penetrating but not water resistant. For that you need to apply their wax, but I found that even spills of water, wine and coffee left for 30 minutes or so did affect the wood. Prompt cleaning up of accidents when in use would be necessary and periodic rewaxing would be a good practice.



The furniture finish is free flowing and almost transparent with a slight and pleasant hint of lime by way of smell. It is easy to apply. The Walrus website instructions show pouring it on, rubbing it in and wiping off excess. This is okay for table tops but not so much for many other surfaces which would require a brush or rag to apply. The instructions recommend allowing 24–48 hours before buffing it. The wax alone works nicely on bowls burnished on the lathe.

It does enhance wood with less than the obvious yellowing of most oils. The photo below shows my Tasmanian blackwood and jacaranda test pieces on which the oil was allowed to cure for four weeks before

waxing and testing. The bowl is jacaranda. On the bottom edge of each board is a strip sealed only with a water clear finish to give a comparison with the appearance of the oil finish.

The combination of Walrus Furniture Finish and Furniture Wax does give a nice look and feel but I would be inclined to reserve it for decorative items or pieces such as boxes that have less risk of spills than much furniture does.

Available from www.walrusoil.com and www.amazon.com.au

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



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◀ Slab and Save

Slabbing and milling your own wood is one way to save money while making the most of a resource that should never be wasted. Priced at \$3,495, Woodfast's resaw sawmill HB350A is a cost effective means to this end. It can handle logs up to 400mm diameter and 1.5 metres in length and comes standard with its own assemblies for fast dogging and positive locking. The log stays stationary while the saw head passes its length, slicing boards at the chosen height.

www.woodfast-group.com

Product news

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

For Square Holes ▶

Available from Hare & Forbes Machineryhouse, Scheppach's Chisa 7.0 mortising machine can drill square holes and is a compact unit requiring only 1200 x 770mm floor space. Built for serious use it has 25mm capacity in softwood and 20mm in hardwood, along with a generous 220mm vertical head stroke and 170 x 140mm table stroke. The 750 watt (1hp) 240 volt motor can power through tougher timbers while the quick-action handwheel permits precise workpiece location and an adjustable material length stop enables repeatability.

www.machineryhouse.com.au/W3465



◀ Small Scale Precision

If you need a small narrow plane then look no further than these beautiful detail rabbet planes from Veritas. Made from polished cast iron and brass they feature an O1 steel blade with a 45° cutting angle. Overall length is 76mm and five widths are available. Ideal for cleaning out grooves, adjusting a tenon shoulder and small work in general. Carbatec stock these at around \$136.

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Flexible Edge Sander ▶

Offering maximum flexibility thanks to its open design, Hammer's HS 950 oscillating edge sanding machine is built to sand larger workpieces. The cast iron worktable adjusts to 150mm via the handwheel, meaning the sanding belt can be used over the entire height. Together with the oscillation, the latter means sanding belt life is maximised. The sanding unit swivels from 90° to table level while an additional table caters for cylindrical sanding and is also height adjustable. A T-slot over the length of the table permits mounting of an accessory mitre fence. Available from Felder Group Australia.

www.felder-group-australia.com



◀ New Japanese Chisels

New to ProTooling's Sydney store are three ranges of Japanese chisels from Kanetomo, Nomikatsu and Tasai. Handcrafted by legendary blacksmith Akio Tasai of Niigata Japan, Wakizashi chisels are a compact and robust tool with a Damascus steel construction and ebony timber handle. Available singly or in ten-piece sets, these chisels are crafted from a specially formulated blue steel. The new chisels available from Kanetomo and Nomikatsu are predominantly crafted from white high carbon steel and HSS, and will complement existing joinery and fine woodworking tools on offer.

www.protooling.com.au

Comet Returns ▶

Nova's Comet II Lathe has been a familiar workshop fixture for many years. Available from Carbatec, the new Comet now has a new look and feel that brings it in line with the top-of-the-line Orion. There's a digital speed readout on the headstock for the electronic variable speed control, and the unit is said to be more appealing and user-friendly than ever.

www.carbatec.com.au



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◀ **Resin Colour Effects**

River and other resin pours are popular and just got a whole lot more colourful with the local availability of Eye Candy Pigments. No less than 30 colours, including 'colour shift', 'river/ocean table' and even some that glow in the dark will literally light up your work. The pigments are said to be compatible with any resin product and equally suited to woodworking, jewellery making and other craft pursuits. The range is exclusive to Carbatec. www.carbatec.com.au

Universal Carving Kit ▶

The Precision Carving System is the latest power carving innovation from Arbortech. This four-piece set includes a universal base that fits to Arbortech's own power carving unit, or to your own quality M14 angle grinder. Fit one of the three bits and you can carve, sand, detail and texture to a fine scale and even smaller radii. The new system includes a mini version of the Arbortech's ball gouge, as well as barrel cutter and drum sander attachments. www.arbortechtools.com



Handmade in Melbourne ▼

Unhappy with most retail hand saw offerings, Melbourne makers Mike Subritzky and Jim Anderson decided to make their own. The pair use 1075 American spring steel plate and 3mm cartridge brass for the backs of the dovetail and carcass saws they now produce to order in Melbourne. Premium saw handles are offered in a range of local and exotic specialty species, and with a customised fit. www.vintagetoolshop.com.au







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◀ Sharp Choices

Tormek sharpening gear aficionados now have even more choices. Stay true with the T-8 Original unit with its SuperGrind and leather honing wheels and accessories, or dare to design your own system. The new T-8 Custom comes with base accessories (AngleMaster, Universal Support, handbook, DVD) and you then choose the grinding wheel, honing wheel or accessories to suit your needs. Another new release is the CW-220 Composite Honing Wheel which comes with integrated polish so there's no need to add honing compound.

www.promac.com.au



Portable Safety ▲

Coming soon to Australia, TKS 80 SawStop 254mm tablesaw will offer SawStop safety technology within Festool's portable sawing unit. The new design allows a larger cut depth of up to 80mm and enables the sawing of various materials with the appropriate sawblades. When triggered, the sensor system reacts and shoots an aluminium wedge into the sawblade which then stops within five milliseconds.

www.festool.com.au



Mobility Plus ▲

New on the market, the Bora high clearance PM-3800 mobile base can get you and your gear smoothly from Point A to Point B in your woodworking space. Smoothly is the operative word, because the Bora base is designed to move machines and other heavy items over cracks, cords and uneven terrain. With a weight capacity of 680kg, the unit can adjust from 600 x 520mm up to 850 x 710mm.

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The Lockdown Cabinet

Making a piece with hidden secrets, subtle details and angled joinery became an expression of Vasko Sotirov's coronavirus-struck life.



Two months of lockdown. Sixty-four days at home away from my workshop, from my projects, from my job. The black veil of uncertainty that was obscuring my future gave me sleepless nights. All I could do was to sit there and fantasize about getting back. There was a never-ending sensation of feeling lost and of not knowing how to react.

A notepad and pencil helped me visualise and express my feelings. A few ideas about a new project were born. All were unusually harsh and restless. One of them got me moving. You know that moment when an idea fills your entire mind and you just can't stop thinking about it. I was creating a cabinet in my head.

A strange cabinet, one that was pushing me outside of my comfort zone. A bold design, with spiky shapes and an overall unfriendly appearance. A couple of drawers, maybe three, no pulls, no handles. Harsh materials and sharp corners. Heterogeneous carcass panels. However I made sure to have at least one familiar element so as not to get completely lost in this new adventure. Dovetailed drawers were my anchor.

The final design was born. A small cabinet crowned with hostile dovetails protruding from the top trying to mimic some barbed wire. The same one that was haunting me while forced to stay at home. Three drawers leaning backwards simulating a barricade. Side panels made from boards of different thicknesses, reminding me of boarded up doors. I guess the emotions were clear and easy to read.

Finally I was back in my workshop and in no time I started working on the piece. Let me tell you more about some of the details along with a few practical tips and tricks.

The right material

The first step is always to select the right material for the job. I like to rummage through all of the timber I keep in the shop, even small off-cuts, looking for inspiration. It's almost like love at first sight! When I see the right wood I just know it.

If I can't find anything that inspires me I'll go to a timber store armed with a small block plane and continue my search. This time I got lucky, I had a few quartersawn boards of iroko (*Milicia excelsa*) sitting in my workshop for almost a year and never knew what to use them for. Complex interlocking grain with open pores creating mesmerising



1



2

Main: Fitting the drawers. You can't understand how a piston fit drawer feels until you try it in person – it's pure satisfaction.

1. This piece was all about bold decisions. I made sure the selected species of timber would complement each other.
2. Wenge endgrain detail. The linear contrast is so striking and the way the pores are dancing around the grain is so incredible. This is all about love or hate.



3



4



5

3. Working with cardboard is fast and easy. I used it to define the final and precise shape for the panels and then replicated everything with the wood.
4. I used a grooving bit in my router to run these long mortises and then put in a few shopmade floating tenons. That helped with the alignment during the glue up.
5. Sandpaper is very handy at times. I make batches of these 6mm MDF sanding blocks and use them for stuff like chamfering inside corners.

patterns. Beautiful colouration ranging from golden yellows to warm browns and even pale greens. It was perfect.

Then I really wanted to use wenge (*Millettia laurentii*) for the drawers fronts. That's a wood I really really like when quartered and really really hate as soon as I start working it. In the end though the result is so rewarding that I keep on using it, no matter the countless times I swore it was the last time. Coarse texture, almost perfectly straight grain and one of the most beautiful endgrains out there. It all makes up for the utter nightmare it is to deal with.

Wenge blunts my tools like sandpaper and tends to splinter easily, compromising the crispness of my work. Oh and funny story, it's harder than my chisels. I must use at least a 35° bevel on them and sharpen an insane amount of times – to cut six half blind dovetails I had to sharpen all of my chisels a dozen times!

To the main chosen species I added two more, accessory ones to the bunch. My best curly maple (*Acer saccharum*) for the drawer sides and African padauk (*Pterocarpus soyauxii*) for the drawers bottoms and other accents here and there.

It's important to keep in mind that wood shifts its colour with age. For example padauk will tend to go reddish-brown with time so I try to prevent this as much as I can with UV protective finishes and hiding it inside the drawers.

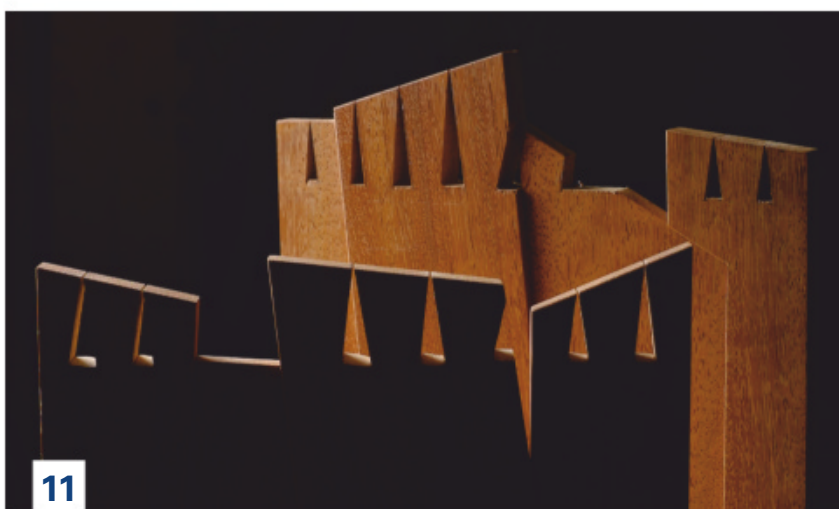
Prototypes and panels

The design for the carcass panels was so unusual for me that I had to make everything out of cardboard just to be able to visualise it better. I then used that in-scale prototype to transfer the single shapes onto the wooden boards. It was fun and satisfying. The boards were sized with a combination of a chisel, saw and a handplane on a shooting board



6. Layout for the dovetails was not as straightforward here as it is with square boards. The key is to have only one reference face for everything, reducing the risk of errors.
7. To trace the dovetails I had to flip my marker upside-down and use the baseline as a reference. Just be creative.
8. When sawing there's no way back so just commit to it. The more natural you are, the better the job you'll do.
9. I use a fretsaw to remove the bulk and then pare to the line with a chisel.
10. The moment you start to see your idea take shape is so satisfying.





One of the challenges I had to overcome was not being able to plane the panels flat after gluing them up. To avoid any slipping and misaligning during the glue up I used some thin floating tenons, a bit like the famous commercial solutions, but made by me. The whole cabinet is quite small and delicate and the sides thicknesses vary from 10 to 16mm so the tenons were only 3mm thick.

Before gluing everything together I chamfered edges that were easily accessible and applied shellac everywhere, except the glue surfaces of course. I'm always very careful but had to be even more so while basically working with finished parts.

Speaking of chamfering, I really only like one way of putting a thin and crisp bevel at a 45° angle between the two adjoining right angled faces. It has to be as thin as possible and its function is only to ease the sharp edge. It's only for a tactile sensation and not for aesthetics. This is my personal preference and you should follow yours.

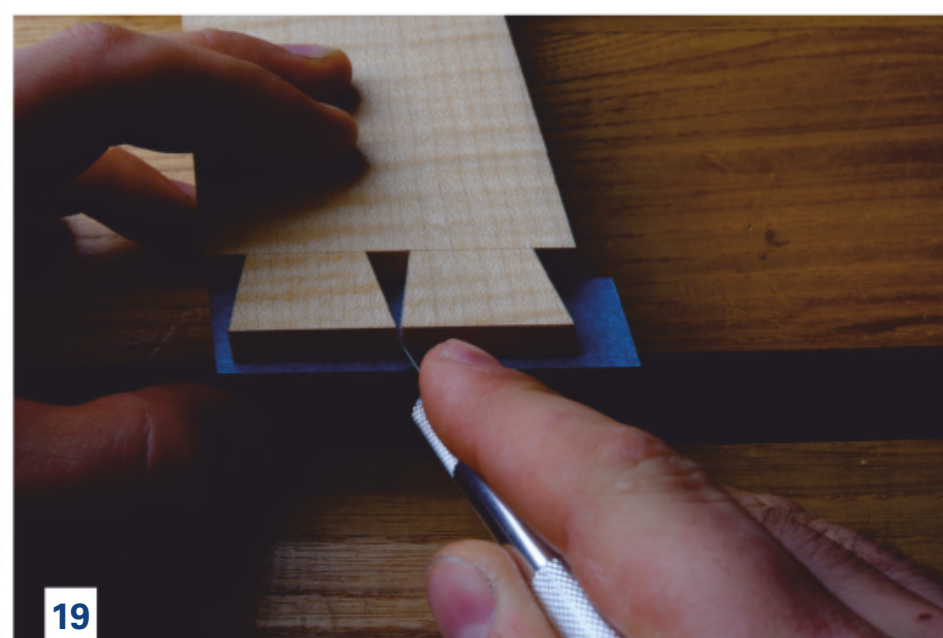
I achieve the desired result using a sharp block plane set to a very shallow cut or a little MDF block with some sandpaper glued onto it if the plane won't fit. It's important to glue the sandpaper because if you only hold it with your fingers it will tend to round over the edges.

Dovetails that differ

The dovetails of this project are probably the main protagonists. The pins and tails are not only proud, but also extend by differing amounts to create a distinguishing silhouette. Instead of having a fixed measurement for the tail spacing I wanted to follow my gut and determine that by eye. A simple fixture made out of MDF helped me secure the sides of the cabinet temporarily so I could have a complete vision of what was going on. A straightedge attached with double sided tape to the base line of the joinery gave me somewhere to reference my dovetail marker. The ratio on that was around 1:8.

Once marked, the joinery must be cut and that's the moment of truth. I used a Western style saw for the dovetails and here's a little tip. Even with a sharp saw the exit line is always a bit fuzzy, especially on timber with open pores. That's because a porous structure increases the risk of edge chipping more than a compact wood.

It's better to saw with the outside face orientated towards you. That's the show face and you don't want to ruin a piece with some ugly mistakes. If something chips off the back it's possible that once the joint is closed, you won't be able to see it any more.



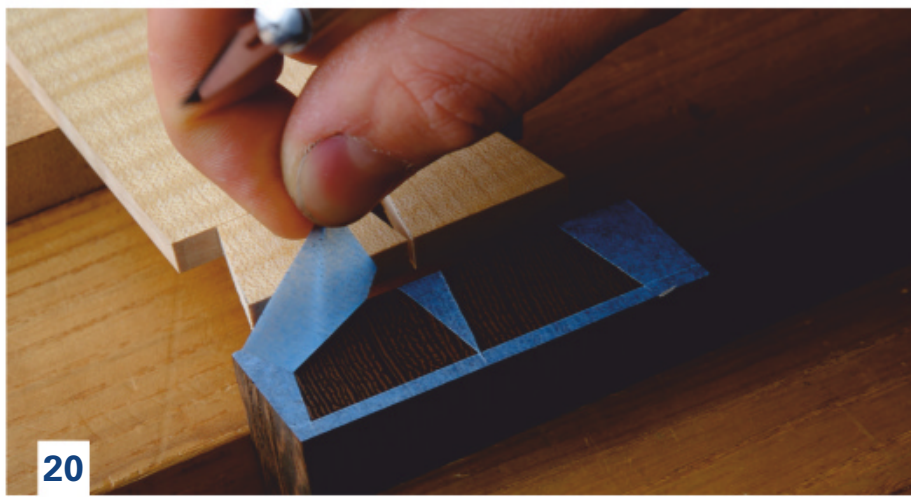
A good practice is to write down the sequence of operations and make sure not to mess up anything because a problem was not predicted. For example, if I forget to cut the grooves for the drawer bottom before I glue up the drawer, I'll have a bad time fixing my lacking of foresight.

In this case I had to remember to trim all the pins down to final length. I used a chisel for the task, but if I had thoughtlessly glued up the carcass before doing so, I would have had some big problems to deal with. The tight spacing between the pins and also the fact that they extend for differing amounts makes it almost impossible to use a handsaw, and chiseling unsupported material is like begging for huge trouble.

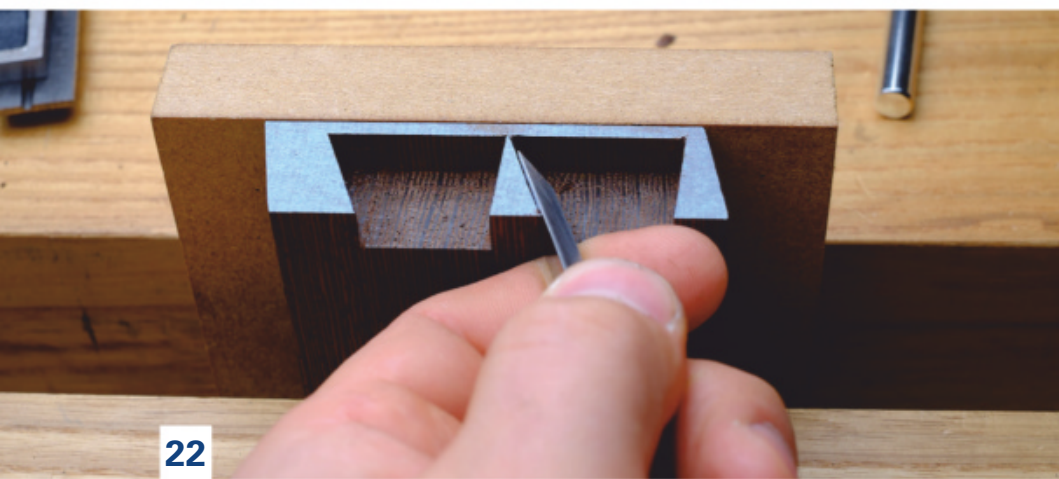
For a perfect fit

After the carcass glue up it was time for the real fun to begin, the drawers! Three of them. Since I wanted to make the fronts tilted inwards at around 10° I made some quick test pieces out of poplar. Doing so helped me determine the exact measurements and that of course prevented me from wasting expensive wenge wood.

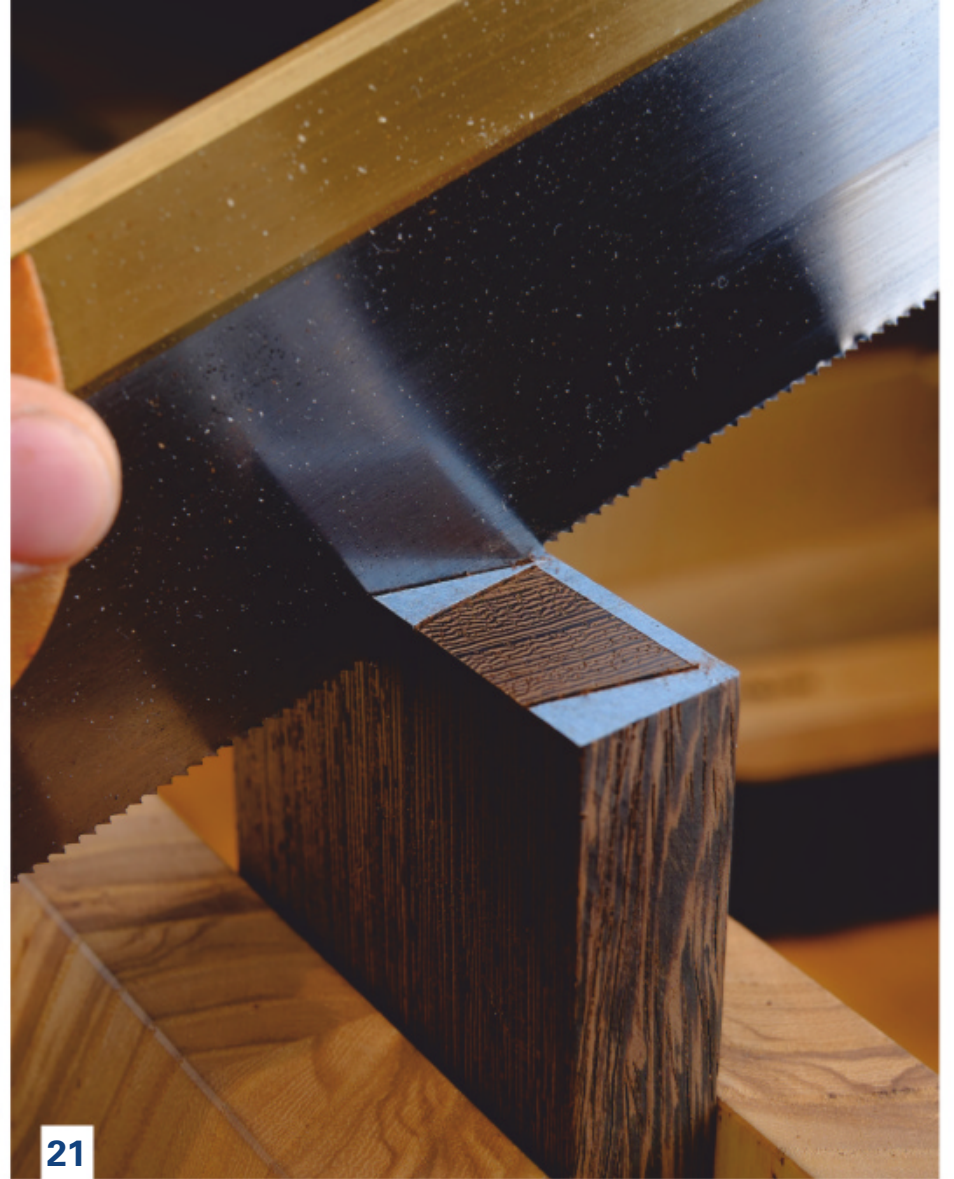
11. Woodworking is a very passionate and intimate process for me. I make sure to take time and admire some of its beauty.
12. The complete joinery for the carcass is done. Before gluing make sure it fits as it should by dry-fitting the whole thing.
13. All glued up and ready to have the drawers fitted. The most fun part for me.
14. The taper was determined with a bevel gauge set to 80° and a block plane. The tricky part here is to bring the piece to the desired angle and also maintain a specific height.
15. I use joinery not only as a structural element, but also as a decoration. I put a lot of thought into designing it.
16. Consistency is very important to me. I like working with real life measurements when possible.
17. A 1–2mm shoulder at the base of the tails will help you align the tail and pin boards transferring the layout. It gives me a positive stop that also aids squareness. I do it using a wide chisel, but a rebate plane works well too.
18. At the start I size the sides to fit the opening. After all the joinery is done I plane them down a bit to allow for seasonal expansion.



20



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23



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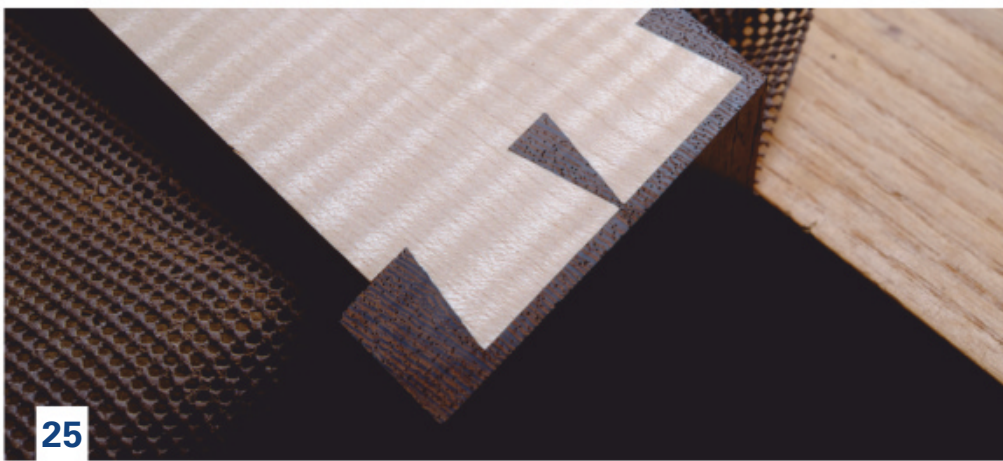
I used black tape on the endgrain of the poplar test fronts and tried a couple of different looks for the joinery. The dovetails would be inclined as well, so a sliding bevel square was essential. I used the test piece with the chosen joinery layout to set the sliding square to the correct angle while marking out the real parts.

I have a very straightforward approach to drawer construction that gives me perfect results every time. The secret is to size the front so that it fits snugly into the drawer opening, and the back so it can fit snugly into the back of the drawer opening.

I don't use the front to size my back because I make my carcass purposely just a tiny bit tapered, so the back is ideally around 0.5mm larger than the front. This allows a perfectly fitted drawer to stiffen just a hair when almost fully open, reminding the person to be careful and not to pull any further or the drawer will drop on the ground.

After all the drawer parts are sized properly I lay out and cut the joinery, leaving the sides proud. Not by much, half a millimetre is enough. After gluing up the drawer, it will not fit straight away as the sides have to be planed flush. That's the really delicate work that has to be done.

With a very sharp plane (it should always be that way but here it's critical), I take the lightest shavings that my plane can manage from the sides of the drawer. Then I plane the endgrain at the front and the back, and to avoid blowing out the fibres from the pins at the back, I give them a light chamfer.



Just a couple of shavings and I'll test again, repeating until I have a gorgeous piston fit drawer that slides like magic. Too much material removed and that fit is gone, not enough material removed and the drawer is a bit stiff. Oh and remember to leave vertical clearance that allows for seasonal movement.

The cabinet is quite small and delicate. It's 200mm wide by 200mm deep and 350mm tall. The three drawers are each 65mm high. It's all finished with a couple of thin layers of shellac.

It might look like a simple piece to make but there are a few technical challenges hidden along the road and not only that, all the drawers stay locked until a couple of playful secrets are discovered.

Subtle details like the ones mentioned matter the most for me, as well as thinking beyond the pure function. What I make represents me and my personality, and I want to be the best version of myself.

Photos: Vasko Sotirov



Vasko Sotirov @vaskosotirov is a passionate cabinetmaker based in northern Italy. Obsessed with details, he designs and creates delicate and unique pieces. Also a passionate portrait photographer, his major inspiration comes from people, their emotions and the intriguing relationships born between them. Using mostly manual tools, he is convinced that the hands are able to translate emotions into physical objects which have a purpose to exist beyond functionality. Learn more at www.vaskosotirov.com

19. Layout is critical. I rely on it to achieve a perfect joint. If it's off, my joinery will have gaps.
20. This tape trick is just so useful here. My eyes are good but seeing a knife line in wenge is very hard at times. And another little secret, just about any colour tape will work of course, so just use the one that you already have.
21. I don't try to saw to the line. Paring everything up with a chisel leaves a much nicer finish.
22. Concentration is key. A single moment can compromise long hours of hard work. Some mistakes are fixable, but I prefer not making any in the first place.
23. At this point I have to run the grooves for the bottoms. Always use the same reference point.
24. If you look closely enough you can see that the sides are just a hair proud at this point.
25. Take your time fitting the drawers. This task requires precision. If you've done all well, now you'll be rewarded. Beautiful and exciting half-blind dovetails with an incredible contrast.
26. This whole project is about bold decisions. These padauk bottoms felt so necessary.
27. In time padauk will tend to go reddish-brown so I try to prevent this with UV protective finishes and hiding it inside the drawers.
28. Another surprise element. A small secret drawer is released from underneath, and when positioned on top unlocks the three main drawers.



The Business of Solid Wood

An interview with Canberra maker Rolf Barfoed touches on his design and production imperatives, and the economics of making solid timber furniture on a commercial scale.

Rolf Barfoed is a Canberra based furniture designer and maker who heads up a team of cabinetmakers crafting furniture and bespoke commissions as well as manufacturing commercially for designers and brands. We spoke to Rolf about the business of woodworking and about the things that influence his own design practice.

'Visually simple and technically complex' is how you described a piece made for exhibition this year and this seems to describe the style of your other recent work. How do you define visually simple? Why do you pair it with complexity?

Many of my designs use simple geometric shapes such as rectangles and squares with arcs, tapers and extrusion profiles for detail. These are common, simple shapes in furniture. They're typical and easily produced with standard tools and machinery.

The rules of timber movement guide the design and craftsmanship decisions I make. With that I'm always looking to be original with the way that I work wood. This is the complexity part. Simple woodworking solutions are less likely to be original or innovative after all these centuries of exploration.

You referred to having an attitude of visual restraint in your work. Can you explain what you mean by that?

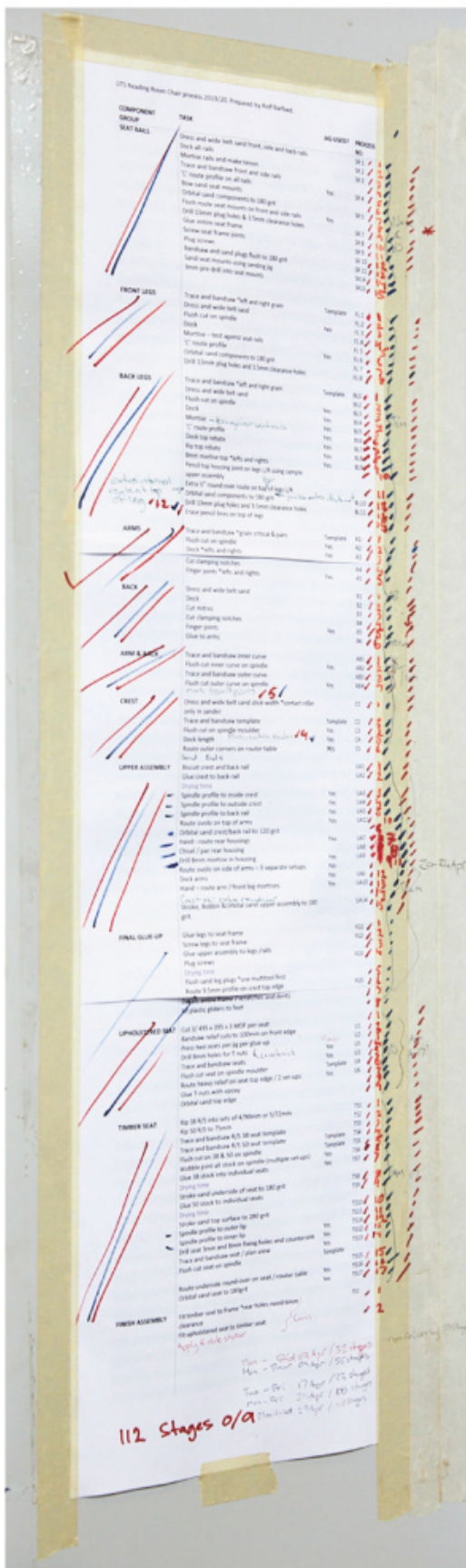
My early work echoed my training and the places I have worked at. It takes a few years to find your own style, your own methods and also priorities. By visually restrained I'm referring to the considered use of detailing. For example, I rarely combine species in my work except for small details like finger-pulls. The design narrative I follow (for now) doesn't see the need for historic decoration. The form and function and the manner of its construction is the point of interest.



Main: Rolf Barfoed sanding chair backs made for a batch of UTS Reading Room chairs designed by Adam Goodrum. The stroke sander is a favourite machine.

Left: *Clarke Bedside Cabinets*, Tasmanian oak, oil finished, designed and made by Rolf Barfoed.

Above: Rolf Barfoed's *Clarke* nesting tables, Tasmanian oak.



How would you define the aesthetic of both contemporary commercial furniture and studio furniture? Are there areas that overlap? Who do you mainly make for?

As a craftsman for other designers, when I'm given plans from a (non-maker) designer, I often have to figure out a way to build the furniture to achieve the end result as per the plans. Occasionally the plans have to be modified to suit our equipment. The designs are often naive to the rules of timber furniture making and/or no care is given to the feasibility of making it commercially. This can

be challenging and a lot of R&D is needed to bring the piece into production, but it can also lead to innovation in how we use our skills and tools. Our job is to figure out how to present timber to machines and tools. This is a great way to design original furniture and the ingenuity in these designs creates a curious aesthetic that a woodworker can usually see from a mile away. I'm often inspired by these designs.

When designing, as a maker, I find it almost impossible to ignore my knowledge of timber and how to work





it. It takes a huge effort to develop a concept that I don't know how to make. This can make it hard to be original. Designer/maker style is rooted in traditional skills and techniques (an existing framework).

Quality comes down to what the client is willing to pay for. This is not necessarily a design vs craft priority. Many studio furniture makers work to standards lower than those of my commercial clients.

Over half of our work is for other designers. We're happy to develop

prototypes, make bespoke designs and bring designs into small scale production.

Achieving visual simplicity is one thing, but time is money – how do you justify technical complexity in a commercial situation?

It's an ongoing challenge to balance complexity with experience, skill level and the expense of the business overheads. All team members are aware of the equation that makes up our overhead, so everyone is invested in their project and the importance of being productive.

Clockwise from opposite top: *Urban Wine Tables*, salvaged claret ash. The beveled top gives a minimalist look.

The team, left to right: Sam Ryrie (apprentice), Tim Bishell (cabinetmaker), Rolf Barfoed, Nathan Cummins (cabinetmaker), Vivien Clarke (assistant), Elliot Bastianon (assistant).

Rolf Barfoed's *Exo Desk* received a design award at AWR Studio Furniture 2018 and was '...designed around an awareness of material economy and modern fabrication methods.'

The Huon pine slab for this one-off commission was supplied by the client and married to a bent laminated base.

UTS Reading Room chair batch production schedule. At the start of each project build processes are listed along with target times.





I try to feature only one complex element in each design. That's enough to separate it from generic furniture and to challenge the craftsman.

Where did you train? Did you have other career inclinations?

I did a cabinetmaking apprenticeship with a small family business in Canberra. We made commercial work, timber furniture and did antique restoration. I was lucky to see such a wide variety of work in the otherwise kitchen manufacturing dominated industry. I attended the Canberra Institute of Technology (CIT) for three years through this period. This was an incredible time for me and like most woodworkers I was totally obsessed.

While training I also read *Wood Review* and *Fine Woodworking* which informed my move towards studio furniture rather than commercial cabinetmaking.

In 2009 I went to England on a scholarship via success in the national WorldSkills competition. There, I worked for Richard Williams in Beaconsfield. In 2010 I returned to my former job at Dunstone Design where I stayed for four years before establishing my own studio. I learned so much working at these two businesses.

I always wanted to be a woodworker when I was a kid. My parents empowered that. I had my own woodworking bench under the pergola with tools and off-cuts from the local window manufacturer to practise with.

Recently you moved into larger premises and took on staff? Was that a hard leap to make? How did you get started?

We were overdue to move into larger premises when we did. My first workshop would not have accommodated more than one maker. Canberra has a high population of good woodworkers. Of the 240



Opposite, from top:
Folded Trays with chevron corners in spotted gum, batch produced for gallery sale.

The *Barrington Tops Bookcase*, Australian red cedar, detail and full view images. Sculpted curves highlight the wood grain.

Above: Rolf works on one of the 112 steps listed for a recent commission of 260 chairs for UTS.

Left and below: Rolf Barfoed's *Round Table* in Australian red cedar features a resawn veneer top, a ring laminated rim and bridle joints.



cabinetmakers and joiners in the Canberra region I can name about ten that do solid timber work and I had a list of people who had shown interest in working for me over the years.

Are you still sharing space and equipment? Have their been other benefits to sharing?

I established my first workshop in 2014. It was 80m² and adjoined a 140m² share workshop (SixWiluna) which had four tenants. We outgrew the place way before I signed the lease to a 540m² workshop that we moved into in 2017.

Signing a big lease is nerve-racking but it was made easier knowing the rent would be shared between four tenants. The workshop has since reduced to my team plus two tenants. We still have loads of progress planned for the space.

In the workshop we come from a mix of backgrounds of apprenticeships, uni degrees and short courses at renowned woodworking schools. This has brought many different values and opinions together in the one place.



We've held a group exhibition annually with Design Canberra for the last four years. We behave more like colleagues than competing furniture makers.

Is working on a larger scale and running a more complex business taking you off the bench so to speak? How do you feel about that?

I work about 50 hours a week. I aim to be on the bench for 10 to 20 hours a week. All the other time vanishes into the ether. I prefer being on the bench but preparing work for the team is part of the bigger plan to have a less self-dependent business. I still do

most of the R&D for our production work. More and more the team are improving and leading projects.

Do you enjoy systems and managed production processes? I get the feeling there's some joy in that for you. How do you approach a large job?

For my own work I try to design according to the experience level of my team.

At the beginning of each project the craftspeople and I carefully predict and list the entire build process as well as considering allocated target

times. There are many ways to achieve the correct result. I want this to happen with as little risk and in the fastest manner possible. We always make a process as risk free as possible with machinery and jigs. Usually we can foresee trouble, however complex cabinets have undone us more than once.

I'm slowly developing a process and pricing spreadsheet for chairmaking, so that we can be as precise as possible when quoting. The team is very disciplined at recording time on each project we make. We've fully itemised the process for each chair we make.



Above: Jones Sideboard in American oak.

Right: Magazine Tables, American walnut.

Opposite from top: Bar Rochford Sideboard, blackwood.

'Visually simple, technically complex', the Lamina Wall Shelf in American walnut.



What are the biggest challenges you face in your business? Are they technical, personal or...?

Cash flow rules everything around me. Big workshop, big team, big overheads. We've had a backlog of work for a long time but we're nearing the end of that. We have about 100 hours of productive labour to sell each week.

I'm still finding my groove as an employer and teacher for my team. I'm learning to be as patient and available as possible while doing my load of the work as well.

Where are you going with all this? Where do you want to be in 5 or 10 years time? What are your aims for the business and for your team?

This is more than a job, but I do want to only work for five days a week, where my team and I have a good time, doing what we want to do and with each of us making a fair income with the opportunity for progress. The decision to expand and have a team is a way to grow, pass on skills and share the burden of the overheads.

I really enjoy small scale production furniture making and my idols in this space are PP Møbler, Carl Hansen and

Sons, and Ercol. They make high-end furniture for their own brands and for other designers. They also produce incredible craftspeople. A combination of production and bespoke work makes for a fun mix of modern and traditional craftsmanship.

Our existing lease expires in only a couple of years. I'd love to eventually own premises with a showroom and upgraded machinery, constantly developing new work and my own brand.

2020 has been wild – so far. First the bushfires, then a hailstorm (that wrote-off everyone's car at the workshop) and now the COVID-19 setback makes for a slightly unpredictable future. I hope that Australians can band together and we all get through this time intact.

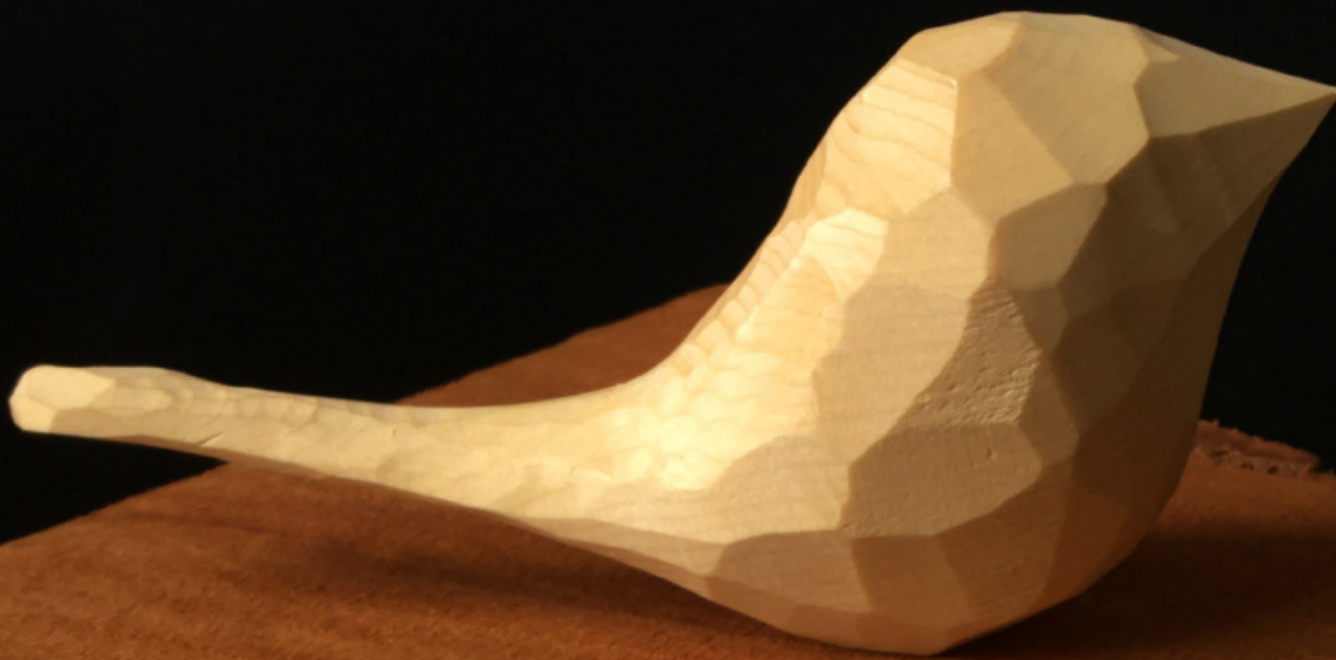
At the end of the day, what means the most to you about the things you design and make?

I'm still chasing the dream. Searching for my signature; a distinct cabinetmaker's aesthetic. My furniture should be innovative, useful, and easy to live with. Developing a recognisable style takes persistence and I'm working towards a bigger body of work.

Photos: Light Bulb Studio, ACT



Learn more about Rolf Barfoed at www.rolfbarfoed.com.au and Instagram @rolfbarfoed



A Bird in the Hand

Carol Russell shows how to whittle birds and
small hand held sculptures.

As a maker and teacher of utilitarian objects such as spoons and bowls, I was keen to venture into something more impressionistic. I wanted to make a small object for a friend in need of some comfort and thought a little bird sculpture that felt nice to hold, had smooth pleasing lines and was made from lovely timber might be just the thing. I enjoyed the process very much and these little birds have become a large part of my carving life (**photo 1**).

I wanted to make objects that were recognisable but abstract in form and could be held in the hand. They could be smooth or textured, painted or not. I wanted them to be quiet and considered and when given as a gift, were a small gesture that had meaning beyond the object itself. I was also looking for other projects to teach both adults and children that set them up to succeed and helped build confidence in using tools, sharpening and playing with shapes without being bound by functionality.

Your choice of wood

The timber used for the whittled birds is very much part of the story, the form can be influenced by the grain. I use simple shapes for more highly figured material and more complex shapes for plainer woods. The birds can make a great canvas for milk paint and other finishes such as the charring technique *shou sugi ban* (**photo 2**).

I am inclined to use Australian timbers mostly; it feels right to me. I really love to use white beech, Huon pine, King Billy pine, red cedar and Tasmanian blackwood. I think there are timbers we have an affinity with, these are mine. **Photo 3** shows a bird carved in Huon pine, while those in **photo 4** are made from white beech and red cedar.

I try to sketch my ideas as much as I can even though I'm not particularly good at drawing, preferring to work in three dimensions and draw on the piece as I carve. I find honing my observational skills by spending time watching birds and how they move has helped me find the basic shape and proportion I'm looking for. Modelling clay can be a really quick way to get a form, however it's the sharpness of the tool and the constraints of grain direction that will really determine the outcome.



Main: Knife finished bird in Huon pine by the author.

1. Carol Russell whittling birds in her Brisbane studio.
2. Made to be held, King Billy pine bird with *shou sugi ban* (charred and brushed) finish.

3. Made from a blank identical to the one used for the bird on p.42, this bird has a differently carved tail and a sanded finish.
4. The timber you choose to make the birds from can make a big difference to the mood of the finished piece.
5. Birds in a row. Carved by students in a class from a standard blank but with so many different personalities.
6. Templates of general bird shapes.
7. Marking out the template on the timber.
8. Cut out the profile using a bandsaw or handsaw such as a coping saw.
9. Rounding over all the square edges with a Mora #120 knife and tapering in the beak.



Capturing an essence

With my carving, I'm aiming at capturing the essence of the subject, whether it's a bird, cat, dog or pig. Animals have certain characteristics, it's less about being totally correct in your interpretation and more about capturing that tilt of the head or the set of the ears that portray so much of the animal's personality. This results in a fairly naive and I hope charming little object.

On a trip to Japan at the beginning of the year I saw several small creature carvings that spoke very loudly to the nature of animals and people. They were little more than small blocks with a few well-placed faceted cuts, but they spoke volumes.

Methods and means

Other than using a bandsaw or coping saw to cut a basic profile blank from a block of wood, my tool of choice is a whittling knife, usually a Mora #120. I like the length of the blade, not too short or too long, and with a fine tip for detail and a strong enough blade to remove larger sections. I also have some lovely little detail knives by Hape Kiddle which I love. I use a leather strop with honing compound on it to keep my knives nice and sharp. I strop my knife every half an hour or so depending on the hardness of the timber.



I use riffler files, scrapers and sandpaper for a smooth finish. If I want a faceted finish I just use the knife freshly honed to achieve fine finishing cuts that seal the fibres and leave the burnished facets. Making tiny finishing cuts is one of the most mesmerising activities, ask anyone addicted to whittling.

Because the birds are carved hand-held, I'd recommend a carving glove made of kevlar to protect the hand you hold the workpiece in and some carving tape wrapped around your knife hand thumb.

My best friend for bird images is *The Australian Bird Guide* published by CSIRO. It's very comprehensive as a reference book. There's loads on the internet of course and also several templates. A lovely book to get you started is *The Danish Art of Whittling Snitte* by Frank Egholm, it has a lot of templates if you don't want to draw your own. Even from the same template, lots of variations are possible (**photo 5**).

Carving a simple bird

Step 1: Draw a profile of the bird shape you want and create a template in paper or cardboard. I have a range of pre-made templates in wood that I use to trace around

(**photo 6**). Use a thick blank if you can, don't cut too much away with the bandsaw or coping saw (**photo 7**).

You want the form carved, not cut out, the blank is just the starting point. It's very hard to work with material that's too thin, you can't achieve that plump, rounded look (**photo 8**). I use 40–50mm thick timber for large birds and 35mm thick for smaller ones.

Step 2: When I'm carving the birds, I focus on removing all the square edges on the blank first (**photo 9**). I focus on the head and bringing it into the beak (**photo 10**), and then work my way down the body, removing all the waste material.

Be mindful of your direction of cut to avoid tearing out the grain. If you are getting chipping or tear-out, turn the blank around and go the other way (**photos 11, 12**). You start at the high point of a curve and go down the hill, when the curve starts to take you uphill again turn the blank around again. You'll be constantly changing your direction of cut and angling your knife to accommodate grain direction, that's the magic of whittling when you can read the grain and get beautiful smooth rolling shavings.

- 10, 11, 12.** Keep removing waste and taper down to the tail.
- 13** A twist of the head is an example of how birds show their character in an abstract way.
- 14.** Mark out and begin to carve in any detail such as the wings.
- 15.** Undercut to create plenty of shadow.
- 16.** Use rasps and sandpaper to create a smooth finish.
- 17.** Shellac and wax give a lovely smooth finish and highlight the grain.
- 18.** A box of buffed, chalk painted birds heading off to a new home.



Step 3: Once the bulk has gone I focus on refining the form, in particular the transition from the body to the head); I'm looking for some abstract character not something totally realistic (**photo 13**). A twist of the head in that quizzical way birds do is a good example of how they show their character. Sketch on the blank and mark what you want to take off first to give you some direction, you can shade an area and see how it might look.

Keep rounding and removing all the flat faces. Work with large facet cuts and then remove the high points between the facets to smooth and refine the surface – strop your knife often to avoid tearing the grain. If you want to create lines for the wings (**photo 14**), or more eye detail and you're not comfortable doing it with the knife, try a V-tool. A small set of lino cutting tools is also very helpful to have.

Thin out the tail and decide on the shape of the tip (**photo 15**). Broad, pointy, wedged – so many options. If you're not aiming for a specific bird you can carve what you like, looking for the line that pleases you most.

Step 4: When you've achieved the shape you like and your bird has developed a personality you're happy with you can start your finishing. If you want to smooth it all and sand to a fine finish, using riffler files or rasps is a good



first step before sandpaper to take away the high spots and refine the detail (**photo 16**).

Next work down through your grades of sandpaper, starting at about 120 grit up to a 400 or 600 grit. If you want a knife finish, hone your knife and go over the whole bird with fine shaving cuts to take away any tear-out. You can burnish by rubbing the surface of both a sanded finish and a knife finish with some of the shavings to create a shine (**photo 17**).

Step 5: Paint, wax, or oil. Choose the finish you like or have no finish at all and just let the natural wood speak for itself (**photo 18**).

Make another bird and another, and make one with a friend or a child or both. You'll develop a style of your own and be able to enjoy those little moments of peace that the gentle art of whittling brings. Make what pleases you and see where it takes you.

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



When to Sharpen

The why and the when can be just as important as the how, says Harry T. Morris.



Sharpening is of course a huge part of woodworking, much bigger than it initially seems. The more invested you become in woodworking, the more you are engulfed by the complexity of what is theoretically a simple concept.

Repeat performance

Learning to sharpen is futile without understanding what it means to be sharp. This was my main issue when I first watched someone sharpen a plane iron and then tried to sharpen my own. I was just repeating the motions I saw without fully appreciating what I was working towards.

The idea of ‘if I perform this action, I will get this result’, in hindsight, is almost primitive. It is like training a dog or a dolphin with a clicker; if they do well they get a click and quickly associate the click with that action and a reward, and thereafter repeat the action without understanding of why that action is good, only that it is.

You can stand at a sharpening stone for hours and hours doing what appears to be sharpening but without a fundamental understanding of what you are working towards and what it physically means to have a sharp edge. The edge may never become sharp; and if it does, you’ve got lucky.

What is sharp?

Sharpness is a very simple concept that took me a good while (and a very good teacher) to get my head around. All you need is two planes (not woodworking planes, a two dimensional surface), with as few surface imperfections as possible, meeting at an edge. And that is perfectly sharp.

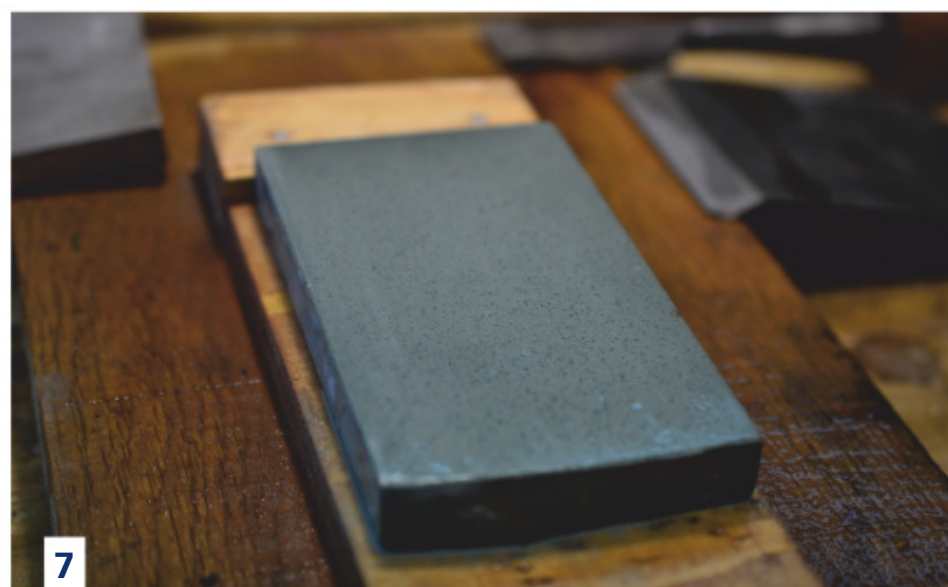
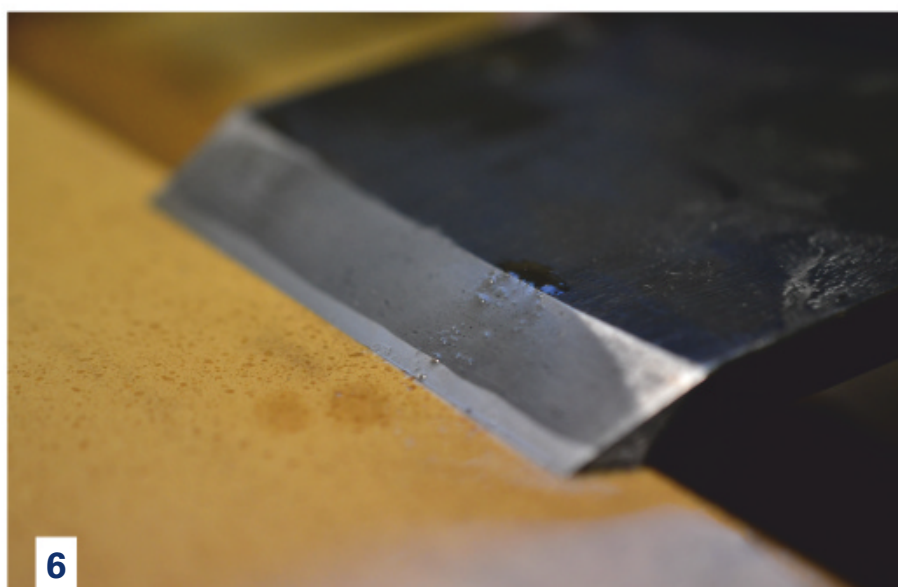
In reality, having this idea in mind helps to no end in getting closer to achieving it. I am not just making two faces shiny, or just abrading metal as a specific angle, I am creating two, smooth and intersecting planes in the shape that is most useful for the tool’s function (usually flat).

Understanding the fundamentals of every process is crucial to progress in learning and refining skills – as mentioned it is easy to become stuck repeating actions you believe to be the right ones. This may yield satisfactory results, but without truly understanding why you are doing what you are doing, there will always be a barrier to your progression.



Main: The author in his workshop, here flattening a waterstone on a diamond plate.

1. Flattening the back of a chisel on a steel lapping plate.
2. Working the bevel of the blade on a 1000 grit waterstone.
3. A light spray of water is enough to lubricate the stones.



Sharpening is not a barrier to entry of woodworking, firstly because people work with blunt tools, and good work can be done with sub par tools, but there is a point that will be reached that without the next level of understanding is impossible to progress past.

This was illustrated in a graph of skill level plotted against time that Tak Yoshino, a Japanese chairmaker, once described to me. He described how the relationship is not linear, there are times where your skill level jumps when you learn something new or have a revelation. Often before these times comes a period where your skill level plateaus, and leads you into a rut which clouds your ability to see your final skill level goal, but your goal will become visible again once a barrier is conquered. Understanding sharp is one of these ruts that need jumping over.

How often?

So I understand what sharp is and what I am aiming for when sharpening, but when should I be sharpening?

This question is both easy and difficult to answer. The short answer is now, as often as you can. But that's not too helpful, in reality maintaining tools well requires discipline.

What I have found works best is sharpening and caring for my tools as often as I can, in short sessions. Before studying woodworking in Japan I would use my tools until they did not function as they should and until I couldn't work efficiently any more. I would then sharpen them in bulk, which seemed to make sense to me.

After learning the true importance of a sharp tool to progress past that barrier, my process has now changed. Efficiency is of course an ongoing goal (especially a commercial workshop), and for me it was a false economy to try and work for as long as possible before sharpening, because the quality and enjoyment of the work suffered (even only slightly). I now find myself sharpening before I start a process, or even better, after every process.



4. The bevel is next flattened on a 3000 grit stone.
5. Moving to 6000 grit the back and bevel are again flattened.
6. The back of this Japanese kanna blade is first carefully flattened.
7. Day to day sharpening is on 5000 and 8000 grit stones – the 8000 is shown here.
8. Working the bevel on the 8000 grit stone.
9. The front of a sharpened kanna plane blade.



8

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The question is, is how small a process? After one component? One joint? I find that process to be fairly small, not quite as small as resharpening after one joint, but more like after one step in the project. If time is taken to sharpen precisely to begin with, then resharpening can be only a few passes on a fine stone.

Sharpening at the end of a day is great, I am ready to go first thing; but for me it is often difficult to find the energy at the end of a day. I sharpen at least one of my chisels or planes every day when mid-project. Often a few chisels at a time. This is only a couple of minutes on the stone, the main work – making the shape of the blade – has been done.

My process

My sharpening process has become quite simple. As is my collection of tools. For a new chisel or one I have not sharpened before I first work on the back of the blade; without this surface flat the chisel does not function as it should. Once you can rely on the back of a chisel being

flat it changes the potential level of precision of your work, everything becomes more predictable.

Flatten the back

I flatten the back of my blades on a steel lapping plate with 1000 grit abrasive powder and water on the surface (often just dried slurry from my 1000 grit stone).

Once the back is flat, and I have a consistent burr on the bevel side, I progress to my next stone, 1000 grit. I use Japanese waterstones because I like how quickly they cut, and find them much more satisfying to use than oilstones. On my 1000 grit stone I only work the bevel of the blade. Here I am achieving the same goal as the back; flat, and roll a consistent burr over to the back.

Flatten the face

For me, having this face flat is important, it makes the cut more predictable, and resharpening much easier. The same (theoretically) can be achieved with a hollow grind, but that's not how I have ever done it. I sharpen freehand,

10. The back of the sharpened kanna plane blade shows the hollow grind.
11. These stones and lapping plates comprise the author's sharpening set-up.



10



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moving the blade in short strokes, parallel to the edge, all over the stone. Once I have been over all areas of the stone I flatten the stone using a diamond plate, and repeat until the edge is consistent.

Honing

I have now made the shape of the blade and the remaining job is to hone, a faster task. I progress through 3000, 6000 and 8000 stones, using the same process – and on the finest stone also hone the back, being very careful at this point to keep the blade flat on the stone, and the stone flat. A dry stone can be used for an even finer polish.

Day to day sharpening usually only consists of returning to the 5000 and 8000 stones, once in a while re-making the shape of the blade on the more coarse stone. The beauty of having flat surfaces right to the edge with no micro bevel is the ease of maintenance. With a micro bevel I can never hit the same angle and end up increasing it until it is very steep and not very useful at all.

Honing guides are fantastic if they stay locked down, and are a great way to achieve reliable results. However I feel the muscle memory of freehand sharpening is an invaluable skill to obtain.

Objects as a by-product

I believe that the best way to learn fine woodworking is to consider the objects I make as a by-product of practising with the tools. If I have in my head that I am sharpening this plane iron to joint the edges of a tabletop, then I tend to rush through it or not do as good a job because my mind is not entirely focused – I need to be concerning myself with the edge of the iron and the stone, nothing more. Equally with almost every action, if I am making a saw cut I need not been thinking about what component I am cutting to length, rather that my cut is true and square, and my saw is kept sharp and clean.

If you find a way to gain this focus and mindset in your work, tell me how... It is of course a romanticised view on what are everyday things for a lot of us, and much easier said than done – but these are crucial steps to jumping those barriers to progression and realising why and how we got the good dolphin click.



Harry Morris is a UK furniture maker who favours the use of traditional hand tools and methods. In issue 106 he wrote about the making of a cabinet from recycled timber. Learn more at www.HTMorris.com and Instagram @HTMorrisFurniture



Small Branch Forms

There isn't any wood that cannot be put to use, says Andrew Potocnik as he shows how to create lidded containers from small branches.



Two views of a lidded bowl turned from a small branch of pear wood.

If you've found yourself with branches of a tree or a trunk that are too narrow to cut into slabs but too good to send to the firewood pile, this could be the project for you.

I'm the sort of person who, when offered free wood, cannot say no, even without knowing what I'll use it for. That's the position I found myself in recently when offered some pear wood, but this time I knew exactly, so it was simply a case of getting started.

Fortunately both ends of the 400mm long piece of wood had been sealed with wax some twenty or more years prior to being put aside to dry, so by the time it landed

in my lap it had seasoned perfectly and was ready for me to begin.

Trimming the ends to establish how much usable timber I had exposed some external cracking which needed to be taken into account in orienting wood (**photo 1**). Cracks develop as wood shrinks, especially if it is kept as a round log or branch. Cells that make up wood fibre collapse and shrink as they lose moisture, doing so at a far greater rate at the circumference of a log than along its length, and even more at the ends of wood. Sealing ends slows the escape of moisture and allows for more controlled shrinkage throughout the log reducing the likelihood of cracks.

Measuring across the diameter of each end from several angles gave me an indication of the true centre of the blank; however, when mounted between centres I could still move it until even proportions of wood would form the outer edge of this box.

Tenons cut with a parting tool at each end of the blank are needed for future holding of the lid and base, followed by a parting cut to separate the two segments (**photo 2**). Masking tape and a pencil mark create a registration point for future reference and alignment of top and base (**photo 3**) before separating the parts, in this case using a Japanese pull saw (**photo 4**).



Tenons cut previously now allowed for the wood to be gripped in a scroll chuck (**photo 5**). It's important to hold work firmly so it can be shaped effectively, but you also need to think ahead so evidence of how the work was held can be disguised or eliminated in the finished piece. You can see the crack I would need to eliminate later as the base of the box was shaped.

To achieve maximum volume in the box interior; I cut a lip on which the lid would sit. To do so I cut a shoulder that sits proud of the natural edged surface that is a key part of this design. A scraper was used to smooth this slightly curved surface, while a skew lined up with the shoulder cut a fine V where the

two surfaces intersect (**photo 6**). This ensured I could sand right up to the inner edge of the curved surface without touching the shoulder, which should not be sanded. This can distort the surface and prevent the lid from fitting neatly later on.

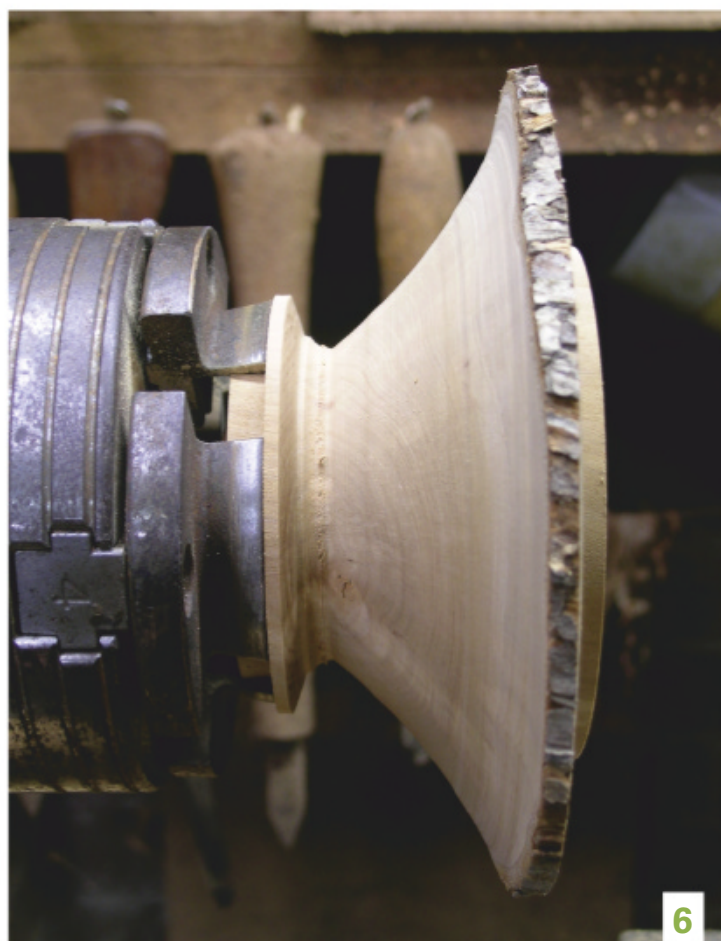
The underside of the box was trimmed down to a narrow outer edge of about 4mm sweeping down toward the base, which would later be refined to eliminate evidence of how the base was held during the turning process (**photo 7**). You'll notice the crack was removed, along with unwanted material.

Knowing how thin the walls could be, I hollowed the interior to a

sweeping curve with a minimum thickness of about 2mm (**photo 8**), ready for sanding and a finish of polyurethane. Prior to 'finishing', I soften sharp intersecting edges with 320 grit sandpaper, which takes away tactile sharpness but retains visual clarity.

A jam fit, or friction chuck was cut into a scrap of softwood fitted to a faceplate so the base of the box could be reversed and the base completed, eliminating evidence of how it was held in the making process (**photo 9**).

It is imperative that this type of chuck is tight enough to hold wood firmly, but it's best to use the



1. Trim the ends of branches to remove cracks and ascertain the amount of workable timber.
2. Create tenons at each end and establish where the parting cut will be made.
3. Tape and a pencil mark show where lid and base should align.
4. A fine Japanese pullsaw was used to separate lid and base.
5. Using a scroll chuck to hold the base tenon.
6. A skew lined up with the shoulder cut a fine V where it met the lip for the lid.
7. Leaving a 4mm collar of the branch exterior, the base was shaped to a sweeping curve.
8. Showing the interior hollowed. The walls are about 2mm thick.





9. A jam or friction fit chuck cut fitted into the faceplate held the reversed base to complete it.

10. It's a good idea to also use the tailstock for support.

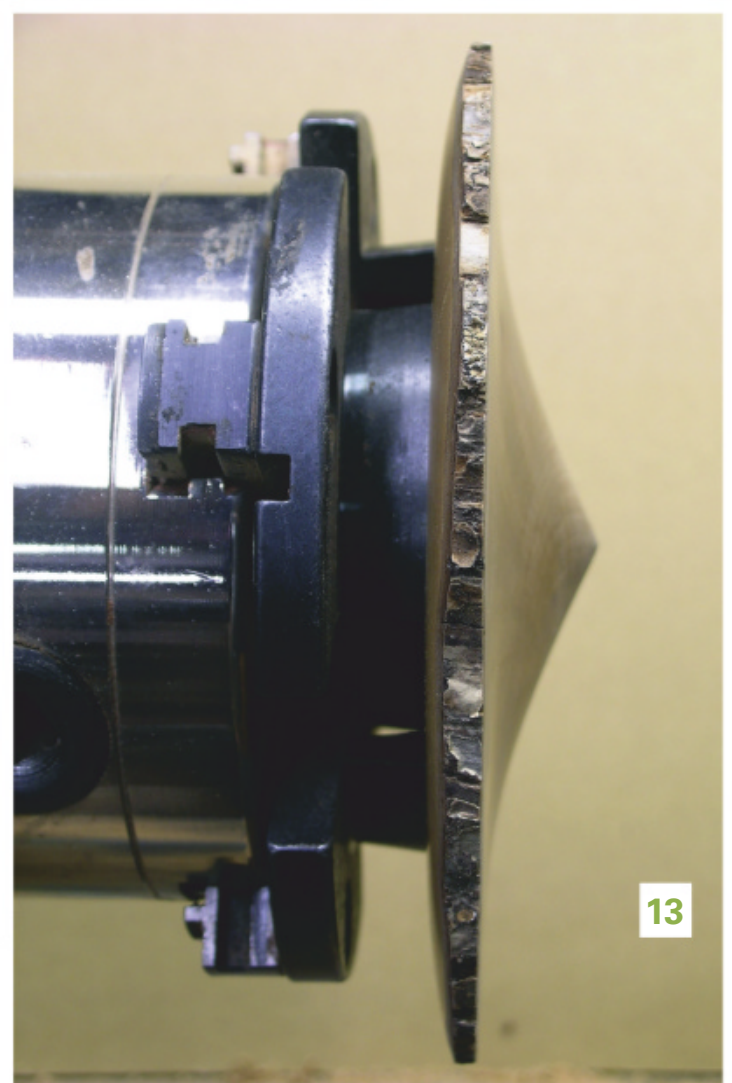
11. The finished base is sanded while on the lathe.

12. Using calipers to measure the recess that slides on top of the base.

13. A small V is cut to separate the meeting surfaces.

14. The lid exterior is shaped to a sweeping curve.

15. A selection of lidded boxes turned from branches of varying species and sizes.



tailstock for extra support while the bulk of unwanted material is removed (**photo 10**), before the base is finally shaped and sanded (**photo 11**). You will notice a shadow line between the base of the box and the outer form. This is a small V incision made with the long point of a parting tool so the intersection of surfaces stays neat as they are sanded.

Wood for the lid was held in a chuck by means of the previously cut tenon and trimmed to a smoothly flowing and gentle curve in preparation for an opening that would sit over the protruding lip of the base. Calipers were used to measure an accurately cut recess that would slide on top of the base (**photo 12**). The lid interior was hollowed and sanded through to 320 grit, and again a slight V

incision was cut to separate the meeting surfaces (**photo 13**).

Reversed onto the expanded jaws of a scroll chuck, the top of the lid was trimmed to a sweeping curve before being sanded smooth (**photo 14**). When sanding uneven edged forms it is important to keep fingers away from rough outer edges.

When it comes to finishes, I like one that is simple to apply, foolproof and doesn't create a thick surface coating, hence my preference for a wipe-on, wipe-off polyurethane. I prefer to work on one section at a time, wiping on liberally with a cloth and then removing excess material with another dry cloth. In case the finish becomes sticky and difficult to wipe off, simply wipe on more polyurethane to dissolve the sticky material before wiping back to a clean surface.

Whilst developing this box concept I've experimented with several timbers of varying sizes, finding that results vary, partly due to colours found in cross sections of wood, contrasts between sapwood and heartwood, and the overall outer shape of the trunk or branch you're working with (**photo 15**). It really comes down to what nature offers you, and for me, I'm now on the lookout for a fairly round burl of suitable size to see whether this design works with a highly figured piece of wood.

Photos: Andrew Potocnik



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





Waterfall Sideboard

Graham Sands works with colour and veneer to create a cabinet inspired by Danish design.



My partner Gabrielle and I both have fathers who were architects in the 'mid-century' and have lived in modernist houses and appreciated them along with the furniture of that era. For many years now we have been window shopping Danish mid-century sideboards.

A media and audio storage unit was required for our recently refurbished library/gallery/yoga room. None of built-in schemes I drew up really appealed so the idea of making a Danish mid-century style sideboard grew.

I envisioned the grain of the timber 'water falling' from the top over mitres

This page: Three views of the author's media cabinet with Fijian kauri carcass and waterfall Huon pine veneered doors.

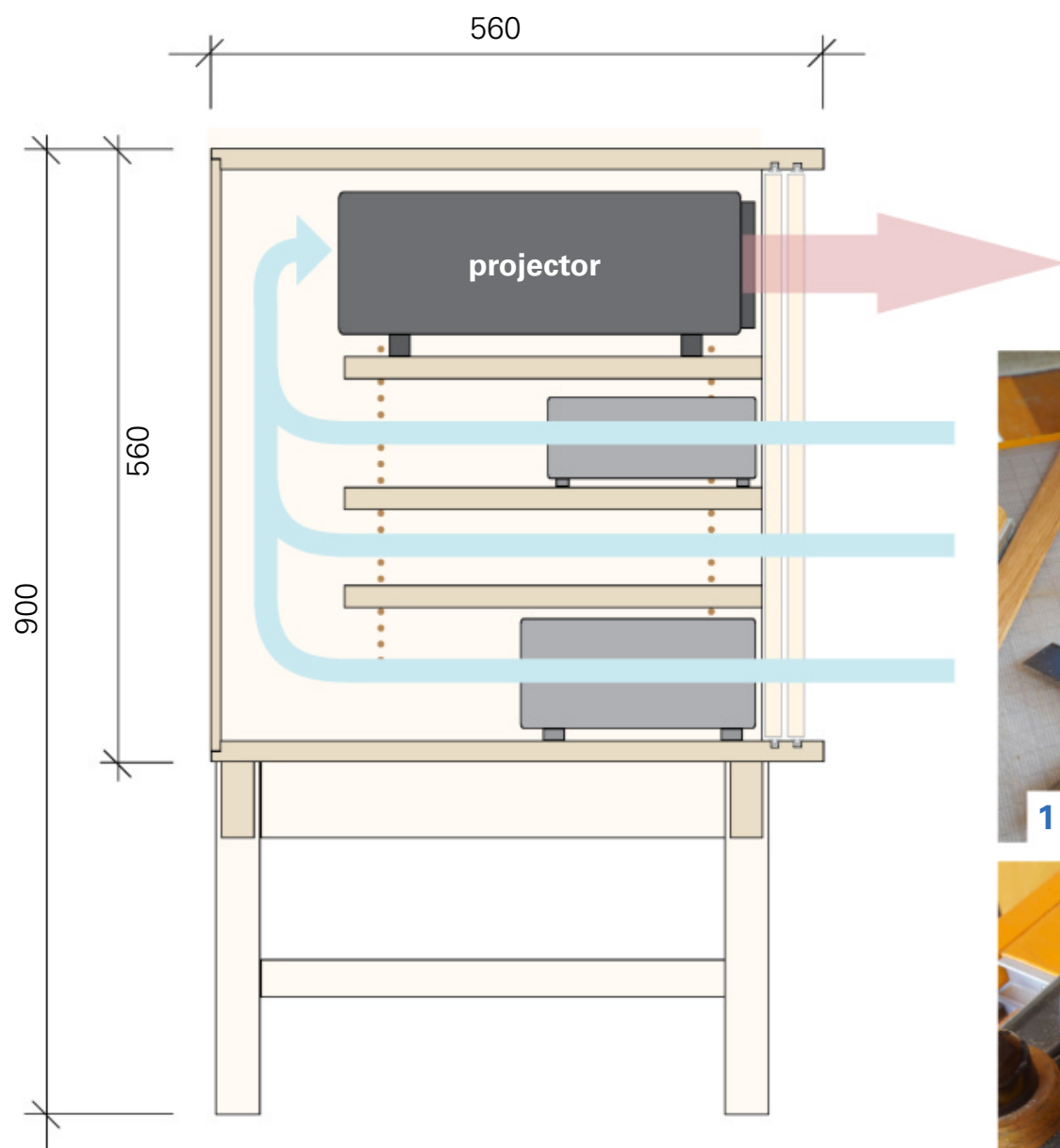


Fig.1 Media compartment section showing airflow (mm), not to scale.

down the sides and planned to use some of the Huon pine veneers I had for the sliding doors.

Sideboards are generally around 450mm deep, too small to house a projector requiring 100mm air space behind for ventilation resulting in a cabinet depth of 560mm. If I was to make one a suitable size, I wanted it to be of similar proportions to the Danish ones so the concept was for a 2400mm long sideboard that, in a large room, wouldn't be out of place.

The many virtual proposals I drew up on my computer didn't convince me that the proportions were like those of the Danish sideboards I had in mind, so I decided to make a scale model from balsa wood.



1. Cutting 2mm and 1mm sections for the maquette.
2. Using the Emco Unimat tablesaw attachment to cut tiny rebates for the sliding doors on the model.
3. Taping the rimu ensured the mitres for the model cabinet cut cleanly.
4. The wrap-around technique was used to glue the top and sides of the model.
5. The model was first made with four doors but later the design was modified for two with horizontal grain.



6



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7



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6. A new straightedge proved invaluable for accurately marking out.
7. Cutting the panel mitres on the track saw.
8. Biscuits were used to join the mitres and internal dividers.
9. Two passes with the router created 7mm rebates for the aluminium track.

Model making

At the art suppliers I discovered rimu especially for model making in similar sizes and forms to balsa. Harder than balsa, this was ideal and I would have liked to have made the full size version from rimu.

At 1:10 scale the model I made is 240 x 56 x 56mm and 90mm high with 2mm thick top and sides and 1mm thick doors. I have a small Emco Unimat lathe which has a sawing attachment with a 1.6mm kerf blade (**photo 1**) and used this to cut rebates for the sliding doors and back panel (**photo 2**).

My sliding mitre saw fitted with zero clearance supports cut the mitres perfectly after first taping the edges and back of the rimu (**photo 3**). The top and sides were assembled with the wrap-around technique using sticky tape and balsa cement (**photo 4**).

The model initially had four doors with vertical grain, like most sideboards I have seen (**photo 5**). Later I made the two door set with horizontal grain which represents the final design. This was more in keeping with my 'less is more' design intention, less destructive of the long Huon

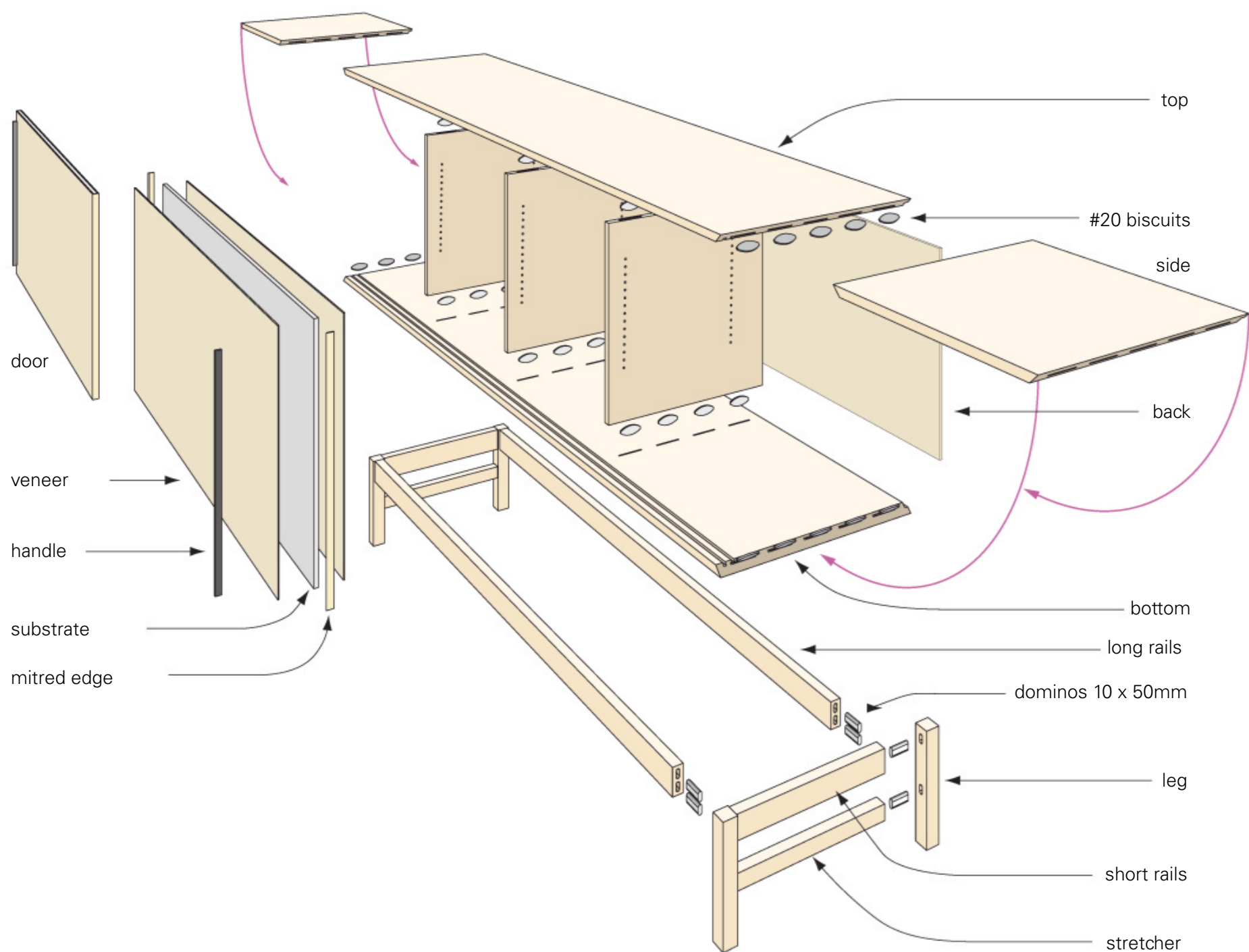


Fig.2 Carcase and base construction (mm), not to scale.

pine veneers I wanted to use, and less work. The model was an invaluable prototype and fun to make – I used to enjoy making model aeroplanes as a boy.

Waterfall grain pattern

Normally the carcass of a sideboard such as this would be made from veneered ply or particleboard with teak or rosewood veneer. For the grain to flow over the top and sides 3600mm lengths of veneer would have been required, so I chose to go with solid timber. I have used Fijian kauri on several projects as it is readily available and in this case it complemented the Huon pine. Four 3600mm lengths of 140 x 19mm were enough for the top and sides, and shorter lengths for the bottom and three divisions.

I bought a new 2400mm straightedge to help glue up the panels. This was done one board at a time, opposing the curvature of the boards to keep everything straight. The straightedge was also used to mark 90° cut-lines relative to the top length for the two top mitres (photo 6).

If I was keen, I could have used a Japanese saw to separate the top from the sides so minimal grain would

CUTTING LIST				
PART	QTY	LENGTH	WIDTH	THICKNESS
Top	1	2400	560	19
Sides	2	560	560	19
Dividers	2	483	522	19
Doors	2	1200	514	15
Handles	2	514	12	5
Base				
Legs	4	330	42	42
Rails	2	1720	70	32
Rails	2	400	70	32
Stretchers	2	400	42	32



10. The dividers were glued to the top one at a time while it was upside down before gluing the bottom panel on.
11. Clamping cauls with sandpaper attached were used to apply even pressure to the mitred carcass corners.
12. The cauls along with six clamps brought the mitres tightly together.
13. After the final arrangement was determined, the veneers were jointed and glued together.
14. Showing how the placement of mitred edges for the doors was determined.

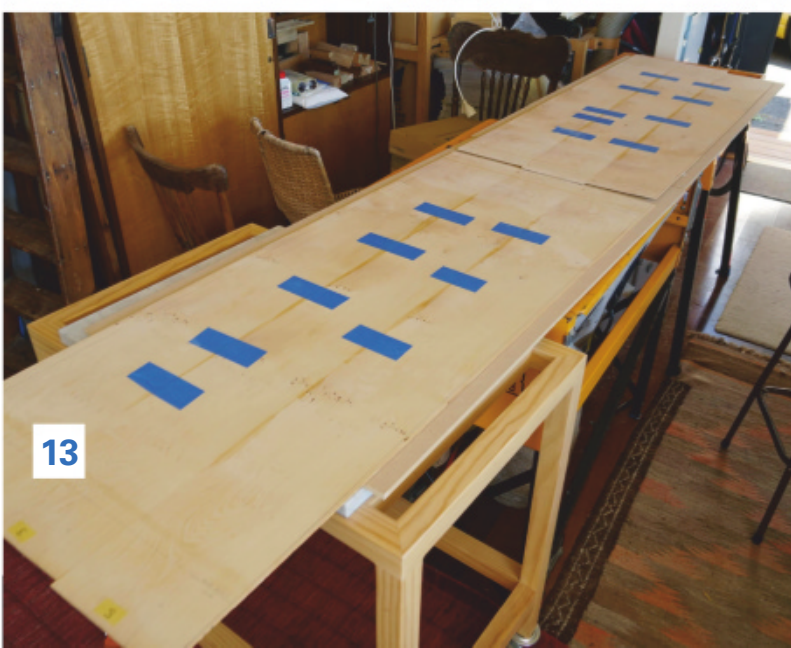


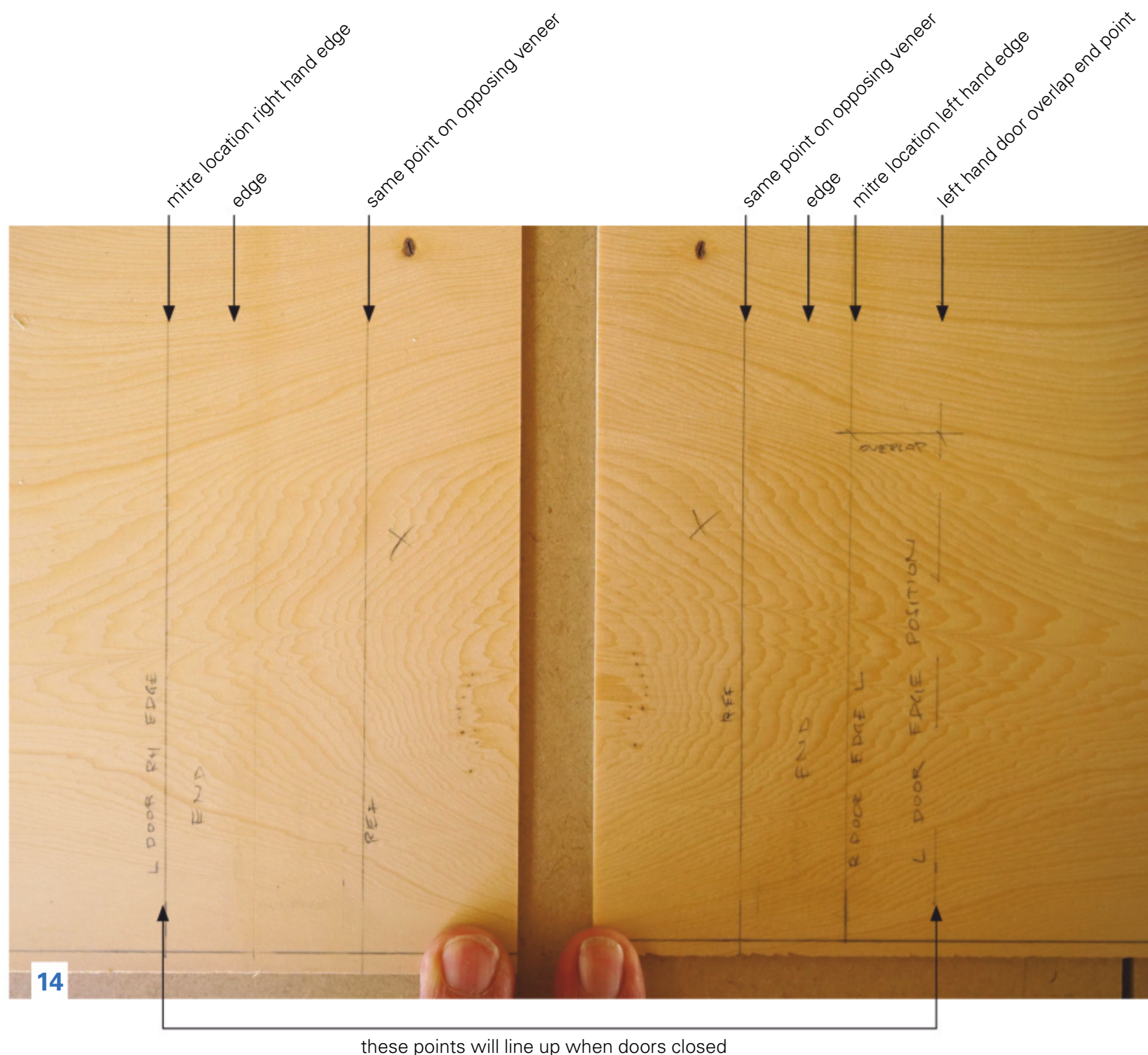
be lost, however my track saw gave a clean straight edge losing only 2.5mm. The mitres were also cut with the track saw after a test joint using off-cuts allowed me to make fine adjustments to the blade angle to achieve an exact 90° joint (**photo 7**). Great care was taken to avoid any twisting, which would jeopardise the doors running smoothly.

Mitre joinery and sliding door tracks

The mitre joints and the internal vertical divider joints were made using size 20 biscuits. My biscuit joiner is quite good for this as it references to the apex of the mitre joint, although I'm sure joiners which reference to the inside will work just as well (**photo 8**).

The sliding doors I have seen while browsing sideboards use proprietary track systems rather than just rebates so the top and bottom were accordingly routed for tracks. Two passes each with fine adjustment achieved the 7mm wide rebates required for Hettich Slideline aluminium track (**photo 9**). A 9 x 9mm rebate was also routed for a 9mm plywood back panel with a cable access port to be screw fixed.





Carcase joinery and glue-up

The inside of the two sides and the three internal vertical dividers had 5mm diameter holes drilled for shelf supports at 15mm vertical centres for the projector and audio equipment compartment, and 20mm for the others.

The dividers were then glued in one at a time upside down to the top. The joints were masked so glue didn't squeeze out into the corners, which is difficult to clean up. The bottom was then glued to the three divisions (**photo 10**).

For the mitred corners I made clamping cauls with sandpaper glued on each face in order to apply pressure at 90° to the centre of the mitre joint. The joints were held apart with clamps in spreader mode whilst I also clamped the dividers so as not to stress their newly made joints (**photo 11**). The cauls worked brilliantly, it was great to see the mitre come tightly together with pressure from the row of six clamps (**photo 12**).

The new 2400mm straightedge kept the top and bottom of the cabinet front within a 1mm vertical tolerance for the

sliding doors which each travel 1200mm. The support frame was made from kauri using 10 x 50mm dominos (**fig.2**).

Before the doors could be made the tracks needed to be fitted, and that was next done after finish was applied.

Veneering the doors

After much deliberation while sliding, flipping and rotating, I decided to slipmatch sequential pairs of veneers vertically to bookmatch the doors. The veneers couldn't be bookmatched vertically because there were only three per door (uneven amount).

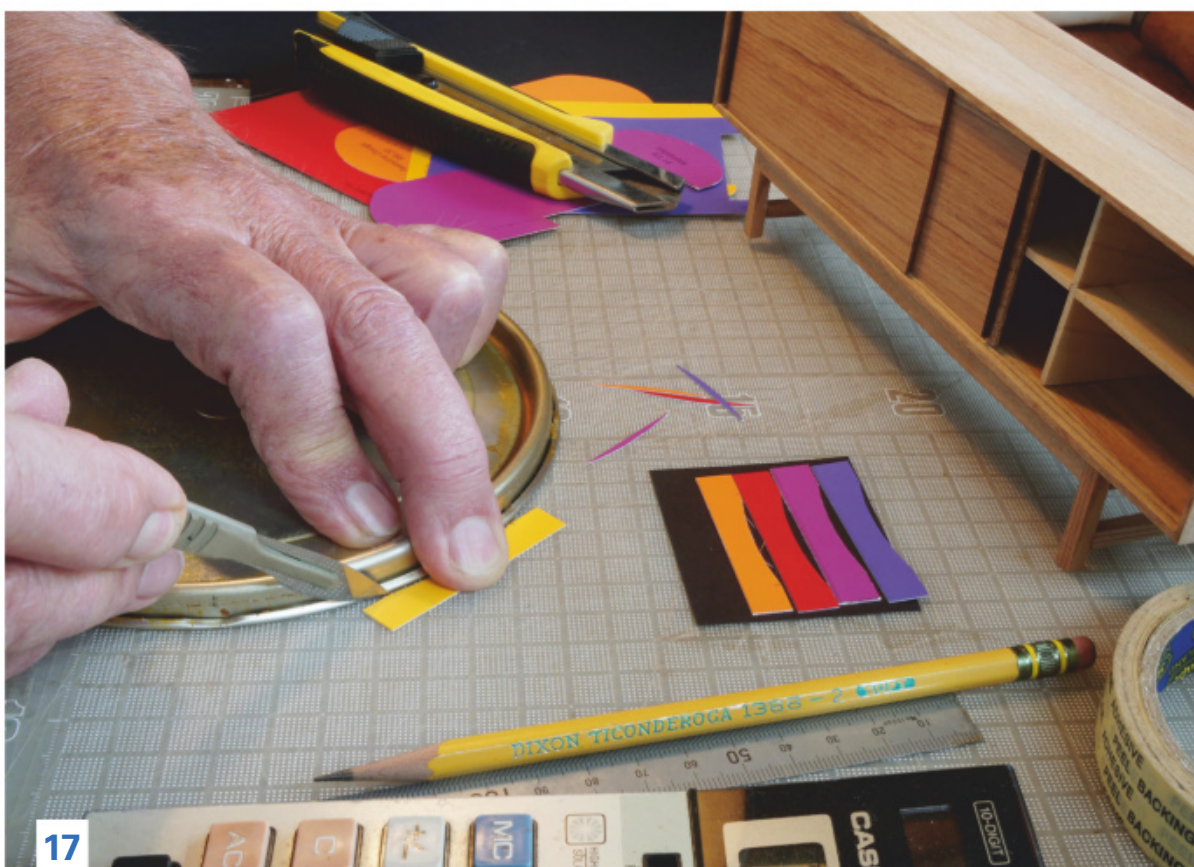
After determining the door sizes the three veneers were trimmed to size, then jointed and glue applied to edges before pulling them together with tape (**photo 13**).

Horizontal waterfall

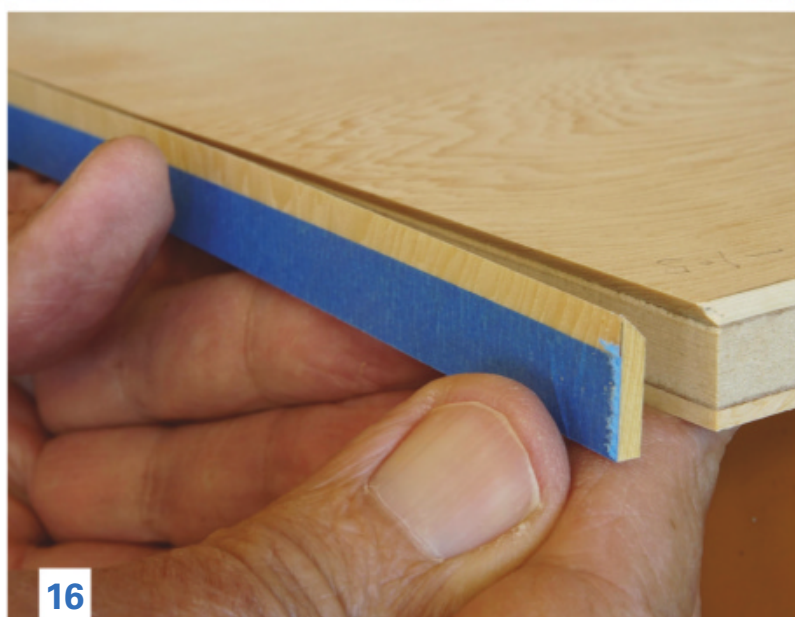
I didn't want to use vertical edge strips on the door sides as this would visually interrupt the bookmatch and detract from the doors being a unitary panel within the surrounding mitred carcass. Instead the veneers were mitred and wrapped around the end of each door which meant trimming off the portions to be mitred before pressing.



15



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15. The doors were trimmed to final size before sawing the mitres through the door face veneers.
16. Fitting the mitred edge strips – the tape helped to prevent them breaking.
17. Mocking up the model drawer fronts to test the Finn Juhl inspired colour wheel idea. An old varnish tin lid was used to map the arc.
18. Keith Wallace's colour matched finish on the final project was superb.
19. For the drawer front routing jig the arcs were first scribed with a metre long beam compass. You could also use wire, a nail and pencil.
20. Sandpaper was glued to the arc off-cut to smooth the template guide surface.
21. With toggle clamps holding the workpiece, a bearing guided bit was used to shape the drawer pulls on the router table.
22. Showing the drawer runners with one side fitted. The eccentrically mounted dowels at the rear are adjustable stops.

The tricky part was calculating where to cut the veneers for mitres at the door overlap so the 'spine' of the bookmatch was at the right end of the left door (**photo 14**). The clearer grain pattern would go at the overlap and the other ends were then marked. The edge pieces to be mitred were taped to prevent breaking, then sawn off and carefully set aside.

The 3mm veneers were then pressed on 9mm MDF with a similar veneer on the back. I used epoxy resin and the press I made for my coffee table in AWR#95.

The doors were trimmed to final size before cutting the mitres through the veneers only (**photo 15**). The doors were then turned over and the track saw used again to rebate under the mitre for the thickness of the mitred edge piece (**photo 16**). The door handles are 5 x 12mm lengths of ebony screwed on from behind.

Finn Juhl inspiration

One of the leading figures in the creation of Danish design in the 1940s was Finn Juhl, introducing Danish



Modern to the world. His sideboard of 1955 featured drawer fronts using a portion of the 'colour wheel' with cut-away pulls. Midway through making the sideboard I modified my model using a similar approach (**photo 17**).

Keith Wallace does my finishing and recommended using MDF and fine sanding the edges. By matching the colours to paint charts the finish he produced on the final project was superb (**photo 18**).

A metre long beam compass was used to scribe an arc on the drawer front template but you could also use wire a nail and pencil (**photo 19**). The template was bandsawn and the off-cut used as a sanding form to smooth the template arc surface for the bearing guided router bit to follow (**photo 20**).

Next came the process I have often seen in woodworking magazines and always wanted to try, making a jig with toggle clamps for use on the router table (**photo 21**). The MDF fronts were trimmed close to the line before routing smooth and the edges then rounded over with a 3mm radius router bit.

The drawers were an after-thought, so I used Blum Tandembox sides and runners. These could be easily installed in a compartment originally intended for an adjustable shelf (**photo 22**). More importantly the drawer fronts are detachable (for colour paint) and can be finely adjusted vertically and horizontally after installation. I can replace them at any time with kauri if I desire. The drawer bases and backs (and shelves) are 16mm custom kauri veneered plywood with solid kauri edge strips fitted with biscuits.

Time spent well

The end result was worth all the model making and time spent arranging veneers. Likewise adding a splash of colour to the interior has given us a lot of pleasure – every time the doors are slid it's like opening a new packet of coloured artist's pastels.

Photos and illustrations: Graham Sands



Graham Sands is illustrator for Australian Wood Review and lives in Titirangi, New Zealand. Email gsands@iinet.net.au

A product of CNC technology and plywood, the *Reading Tree* now stands five and a half metres tall in the new Ipswich City Council Library at Rosewood.
 Photo: Aimee Catt

Opposite: Scale prototypes were initially made to test proof of concept.
 Photo: Aimee Catt



The Reading Tree

For Paul Mitchell, a commission to build a sculptural tree was an intense process of digital and CNC technology that involved long hours and developing new skills. Story by Ben Dutton.



A five and a half metre tall timber tree growing inside a public building was the vision of the architects for the new Ipswich City Council Community Library in Rosewood. Having recently been introduced to the possibilities of CNC routing by a guru in the hills of picturesque Maleny in the Sunshine Coast hinterland, designer and maker Paul Mitchell didn't want to pass up the opportunity to work on such a unique sculptural project.

'I had been using CNC technology to streamline some of the production processes for my custom furniture work when this project came along,' said Paul. 'I was captivated by the organic shapes and the scale of the

tree and knew it was something that could take my making skills to the next level.'

Growing up Paul was fond of drawing and painting, and as a qualified carpenter who worked on everything from Queenslanders to military bases, the jobs he enjoyed most were those where he was afforded the time to get things done right and work on the finer architectural details to a standard that he was proud of. Creative architectural details captured his imagination and led to an ongoing appreciation of furniture, architecture and design.

Looking for a change of scenery, Paul discovered a furniture design

course on offer at the University of Tasmania and enrolled without a second thought. He and his girlfriend loved the adventure of the move to Launceston and took advantage of the great outdoors, bushwalking, camping, motorbike riding and relished the opportunity to visit the myriad of art and woodwork galleries, historic sites, restaurants and pubs.

On his return to the mainland, Paul initially toiled in his home workshop on the Sunshine Coast, then, as he built a clientele who appreciated his custom furniture and shop fittings, he was able to lease space in an industrial shed that he shared with an experienced boat builder and joiner.

THE NUMBERS	
Thickness of each plywood layer	40.5mm
Mass of each sheet of plywood	70kg
Plywood sheets used	35
Plywood layers high	131
Total number pieces	612
Total mass of tree	1500kg
CAD and CAM computer work	200–300hrs
Prototyping	2 weeks
CNC routing	4 weeks
Assembling layers	2 weeks
Blending, shaping and sanding	4 weeks
Installation	2 weeks

Over time he was able to do less carpentry work and more of the solid timber furniture work that he was passionate about.

After winning the design and build contract for *The Reading Tree*, excitement turned to mild panic as Paul felt the weight of responsibility of bringing the architects' concept to life. Having been given a concept sketch to work from, hundreds of hours of CAD modelling and CAM work ensued. Already quite well versed in the use of some 3D modelling software, Paul was forced to further develop his skills.

'With what was quite a tight timeline for a project of this size, I didn't want to leave myself short of time for the making, so it was essential that I got stuck into designing and engineering the sculpture before 3D modelling. Once I was able to secure a custom order of 40mm thick plywood for the job, I had get to work on some scale prototypes to test proof of concept before I went any further.

'This also enabled me to trial router bits, feed speeds and appropriate depth of passes in this new material. I ended up having to construct a number of scale models to test manufacturing processes and fabrication techniques



until I was satisfied with how I would do things, because up until that point it was all theoretical.'

An engineer was engaged to approve Paul's design for the structural elements of the tree. The upper limbs had to have a skeleton running inside them and other custom fabricated steel components. With a deadline promised and his reputation on the line, Paul worked long nights on his computer and days CNC machining. He broke the tree up into 20 smaller components. For his own sanity, each module was colour coded on his virtual model so he could keep track of what was going where. As time wore on, he fell into a

Right and below:

Tree modules were glued, screwed and bolted together in the workshop. With a deadline promised and his reputation on the line, Paul worked long nights on his computer and days CNC machining.

Photos: Borys Daniljchenko



Right: The upper limbs have a skeleton running inside along with other custom fabricated steel components. Round plywood suspended ceiling panels represent the tree's foliage on the finished installation. Photo: Aimee Catt

Below: Paul Mitchell with the completed *Reading Tree*, a milestone in his making life. Photo: Aimee Catt



steady rhythm of routing during the days and drawing and toolpathing the next day's work at night.

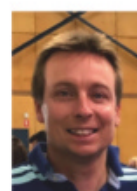
'During prototyping I was only routing three to four sheets of plywood per week, and soon realised this was not going to be fast enough to meet the deadline,' said Paul. 'Switching to new software optimised the toolpathing which significantly sped up the CNC routing process. But this change coincided with Christmas which meant I had to spend a lot of hours learning how to use the software when I would much rather have been spending time with my family. That being said, it was a valuable exercise because using the new toolpathing software I was able to increase my output to around two sheets of plywood per day.'

Tree modules were glued, screwed and bolted together in the workshop. Weeks of back-breaking sanding took place on the exterior of the trunk and limbs as well as in the internal cavern inside the trunk. Paul had to experiment with a variety of carving and sanding tools to suit various parts of the tree and needed to call in extra help with the mammoth task of sanding this almighty creation.

The corner of the library where *The Reading Tree* was to live was envisioned as a space where librarians or visiting authors could read stories aloud to young children or where children could grab a book and read on the 'grass' under the tree and within the trunk. Paul's young children tested the tree trunk space and for a while thought they were the owners of the coolest cubby in Australia...but unfortunately there were tears when it left the workshop!

Once on site, assembly was done by Paul and a carpenter friend by hand until the tree reached a height of 2.7m, after which a small crane was brought in to help finish the job. The sculpture was completed with the round plywood suspended ceiling panels representing the tree's foliage and green carpet for grass. The final product is a remarkable achievement that will be enjoyed by the public of Rosewood and surrounding suburbs for decades to come.

Learn more about Paul Mitchell
@farfarfurniture at www.farfar.com.au



Ben Dutton is a High School Industrial Technology and Design Teacher on the Sunshine Coast, Qld. Email Ben at bendutton81@yahoo.com



Square By Hand

There are many ways to square an edge – Charles Mak looks at methods with hand tools.

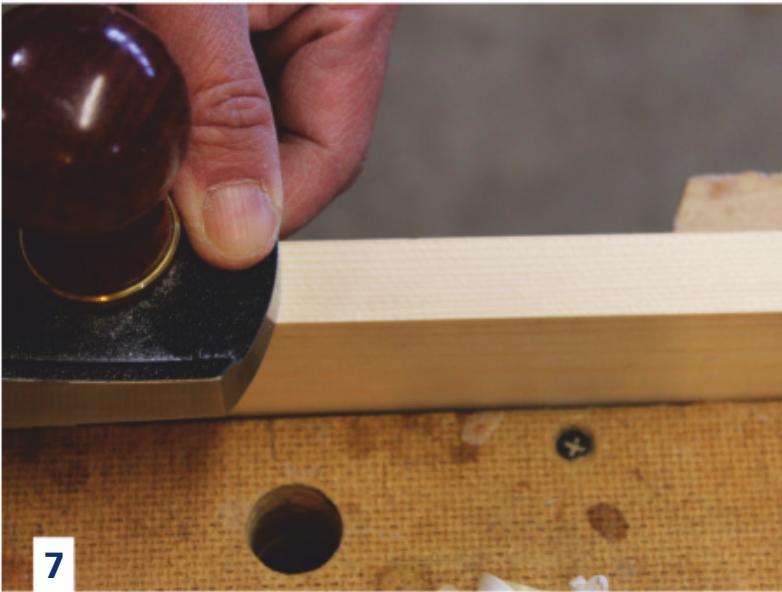
Even if you usually joint edges with a machine – be it a jointer or a tablesaw – you may still want to learn how to do it with a plane. For instance, when the workpiece is too small for a machine, knowing how to true an edge by hand can mean using a safer tool for the job. Furthermore, machined edges often carry marks that need to be removed. Saw marks

are easy to remove with just a pass or two of a plane while keeping the edge square – provided you know the trick.

Some plane users rely on using a fence with their handplanes to achieve a squared edge. Here we'll look at squaring an edge freehand as well as three other edge truing methods that complement the freehand approach.

Main: The blade must be straight across with no camber, and set parallel to the mouth of the plane before use.

1. For smaller work, a block plane offers better balance and control.
2. Mark out the high areas by sighting down at the gap, if any, underneath the square.
3. Run a pencil line to delineate the high areas to be flattened.



4. Move the plane over to the high side, aligning the cutting edge with the pencil line (mouth opened for clarity).

5. Keep the plane aligned, using the forefinger under the sole like a fence.

6. The width of the shaving shows how on track you are.

7. On the final stroke,
- centre the plane with the thumb pressing down in the middle and make a full width, full length pass.

8. A full width shaving of uniform thickness shows the edge is ready.

9. A shopmade rebated L-fence used with a push block turns a handplane into a manual jointing machine.



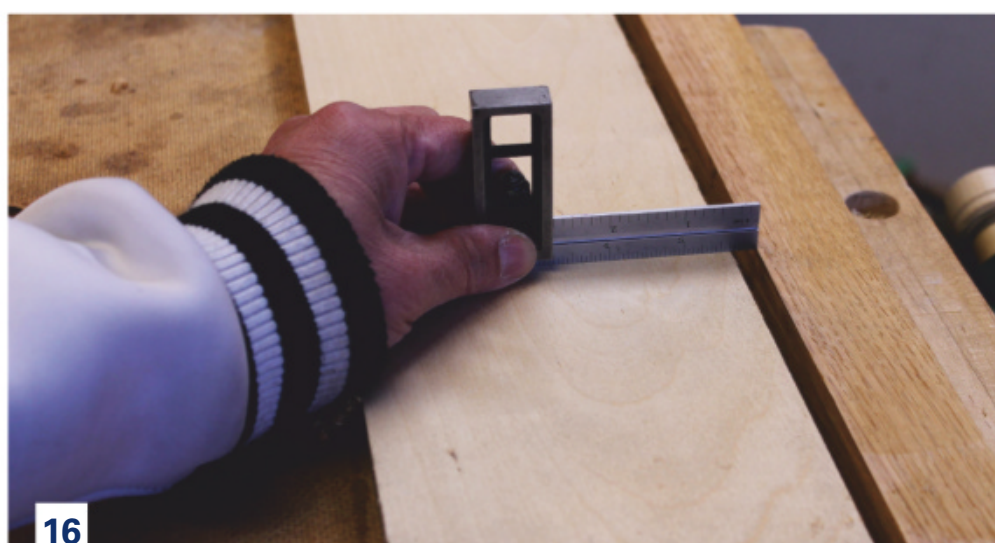
Essential to mastering all the techniques is your choice of planes and blades. As a start, for straight and end grain, I prefer a low angle plane for its lower centre of gravity. To handle reverse grain I use a low angle plane with a blade honed at a much higher angle (38° or higher). Apart from the type of plane, size also matters. For example, I would pick a low angle jack for working long or wide edges, but a block plane for small work (**photo 1**).

Regardless of the plane chosen, the blade must be straight across with no camber, and set parallel to the plane's mouth before use. Finally, always set the plane for fine cuts when truing stock.

Truing by hand

If you are truing and removing machine marks at the same time, make a few passes until the marks are gone. Then check the squareness on the edge at three points or more along the edge. At each point, mark out the high area from the edge (**photo 2**). Then run a pencil line to set out the high side to be levelled off (**photo 3**).

Do not try to tilt the plane in an attempt to shave off the high side as it will most likely create a second facet on the edge. Instead, position the plane blade on the high side as guided by the pencil line, and make a pass or two to take thin shavings off of the edge (**photos 4, 5**). Check the edge from front



10. The notched fence, with a magnet installed flush on the inside face for ease of mounting, can be mounted on either side of the plane.
11. Use a stick to keep the work tight to the fence as the work is pushed across the blade.
12. Checking the benchtop and fixed vice jaw are perpendicular.
13. Use a flat and straight board that is longer than the work as a spacer.
14. The reference side is to be clamped facing the inner jaw in the vice.
15. Use the spacer to position the work in the vice for a slight projection.
16. Check the whole length of the work sits a hair proud of the spacer.

to back for square, and repeat the light passes on the high side as necessary until the edge is squared (**photo 6**). In the last step, make a final pass for a full-width, full length shaving (**photos 7, 8**).

This freehand method can be used to true stock up to the width of the blade. However, for enormous workpieces such as a solid door, or for tiny pieces too small to hold in a vice, alternatives are available.

Planing small work

When a piece is too tiny for truing by hand, the solution is to bring the work to the tool. This can be done by pushing the small work against a plane's blade while the plane is held upside down in the vice. To do so safely, an L-shaped fence (a rebated block as long as the plane) and a push block are used (**photo 9**).

First, attach the fence to the plane and clamp the plane in the vice. With the reference side of the work facing the fence, use the pushblock to carry the work across the blade (**photos 10, 11**). Since the work is small, a few passes should be enough to bring the edge square.

Squaring using the vice

If the fixed jaw of your vice is square to the bench top, you can true edges on the vice. I came across this unusual method illustrated by Australian woodworker and teacher Greg Miller.



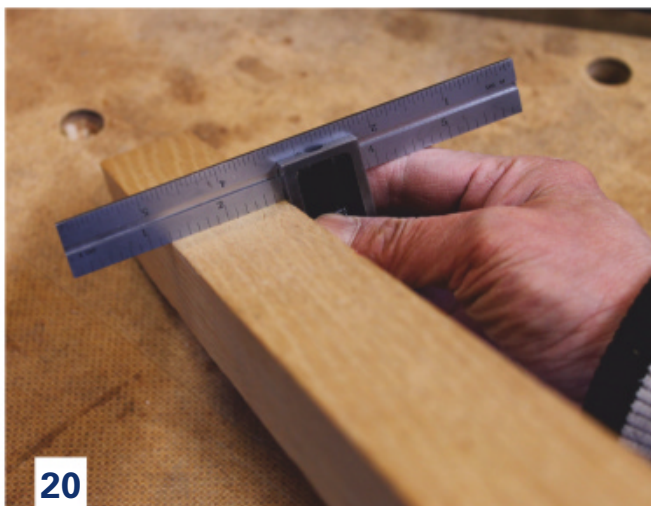
17



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17. Secure the spacer on the bench, about half an inch to an inch from the work.
18. Plane with the grain, keeping the cutting edge on the work, and away from the spacer.
19. The tail of the plane maintains its contact with the spacer throughout the process.
20. When you can't see any light underneath the blade over several spots on the edge, you are close enough.
21. A rebated hold-down board allows you to shoot small and narrow pieces safely.
22. The hold-down board is rebated on four sides to handle both short and long work.

First, make sure that the inner jaw of your vice is at a right angle to the top of the bench (**photo 12**). Get a flat board to be used as a spacer and mark out the reference side of the workpiece (**photos 13, 14**). With the workpiece held just a hair proud of the spacer, clamp the work in the vice (**photos 15, 16, 17**).

To true the edge, rest the tail of the plane on the spacer, and angle the plane slightly to make passes on the stock (**photos 18, 19**). With the tail of the plane riding on the spacer at all times, keep on planing until the plane stops making shavings. Verify the edge for square at several points on the edge (**photo 20**).

I find this method particularly useful for quickly truing short to medium length pieces.

Jointing by shooting

Unknown to many woodworkers, the shooting board is an ideal fixture for truing long grain edges on small or shorter pieces. To overcome the safety concerns, the small work is held using a rebated hold-down board instead of a bare hand (**photo 21**). The rectangular block has rebates of varying thicknesses cut on its four sides, catering to thin as well as thick pieces (**photo 22**).

What about work that is too long or too big for a typical shooting board? In a previous article (Mid-Century Dining Table, AWR#105), I shared the trick of turning my workbench into a mega-sized shooting board by raising the plank up from the surface. To succeed, this method

relies on a flat top, and that the spacers are equally thick, so the plane cuts the work at 90°.

Truing by hand is a skill that can be mastered by both hand tool enthusiasts and machine woodworkers alike. Armed with these techniques, you can reach for your plane and square an edge without any exasperation. And, you can now turn a rippled edge into a smooth edge that is straight and square – an enduring mark of craftsmanship in itself.

Photos: Charles Mak



Charles Mak lives in Alberta, Canada, enjoys writing articles, teaching workshops and woodworking in his shop.

Email: thecanadianwoodworker@gmail.com

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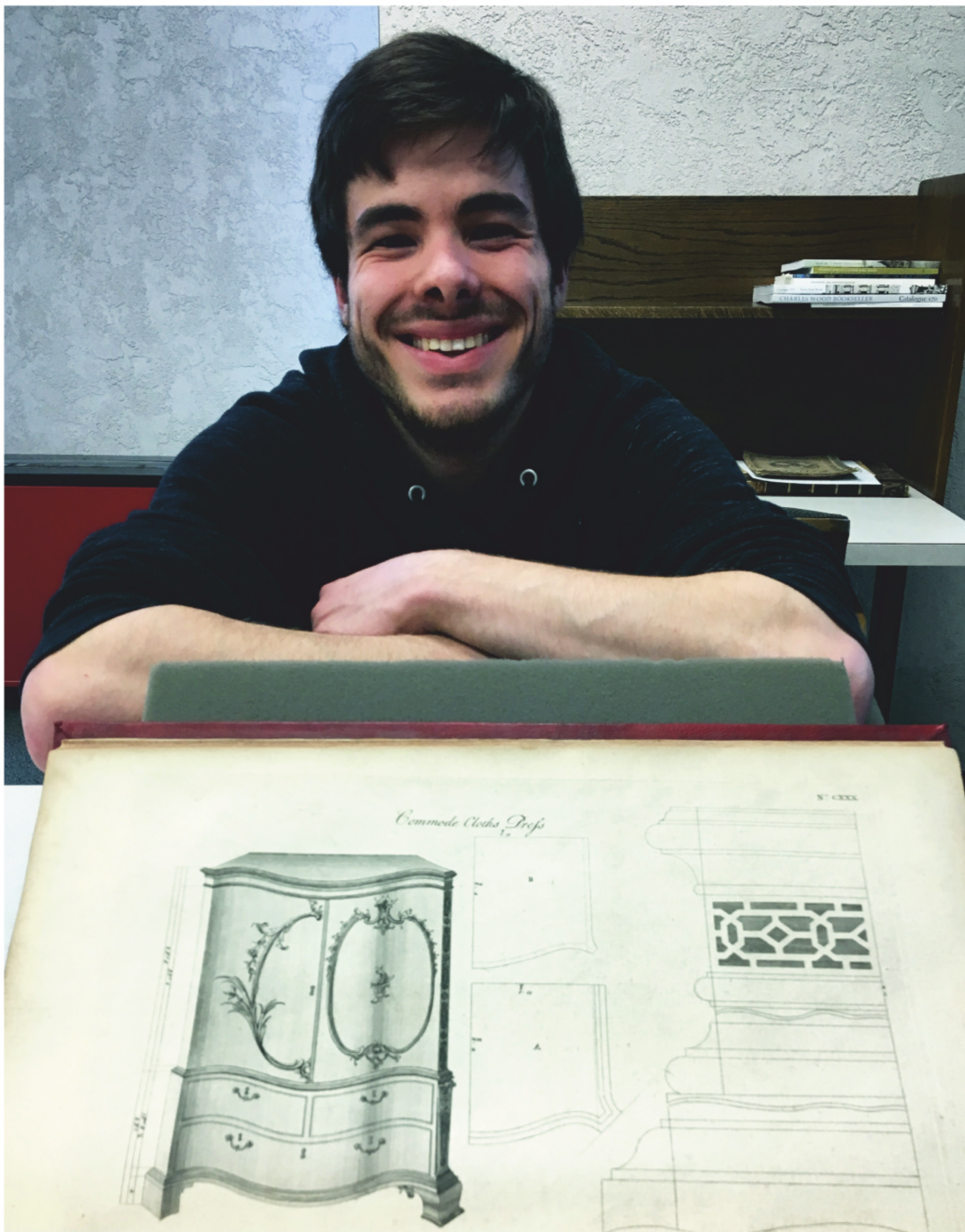
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The Journey

Years of dedication and discipline have driven a passion to learn traditional furniture making techniques. Story by Jackson Fairlie.





Main: Jackson Fairlie with a plate from Thomas Chippendale's *The Gentleman and Cabinet-Maker's Directory*, a book which inspired the case piece he made at NBSS.

This page: Students were taught handcarving and required to make different variations of cabriole legs. Clockwise from top left: ball and claw and trifid cabriole legs carved from Honduran mahogany. Marking out leg to pedestal joinery. In-progress drop-leaf table in birdseye maple with splayed cabriole legs, compound angled mortise and tenon joinery, finger joints and eventually a rule joint to hinge the leaves and increase the size of the table. Knee shell carving, also in mahogany.

Well, the day had finally arrived – orientation day. Two days after arriving in Boston, Massachusetts I walked into the North Bennet Street School and met my fellow classmates and the instructors whom I'd heard so much about. In awe of my surroundings I walked around the cabinet and furniture making program department and gazed at the furniture around me. Going around the room introducing ourselves I realised I was standing side by side with my four instructors and felt starstruck.

Orientation day ended at noon but I stuck around for a few more hours to soak it all in, and of course tried to strike up a conversation with the instructors in the office – not much conversation though, as I could barely get a word out of my mouth. I couldn't wait to get stuck into the first day of school.

Where it all began

My interest in woodworking began when I was 12 and helping a family friend who was a carpenter. I soon had an interest in making things and spent two years teaching myself woodwork

before joining the Melbourne Guild of Fine Woodworking in 2012. Every Saturday morning my parents would drive me there, and that's where I fell in love with furniture making.

At that time the machines were bigger than I was, which was daunting, but with guidance from the school's director, Alastair Boell, I learned how to correctly use them in a safe manner. After a few years I began to do some casual work at the school, sharpening all the hand planes, chisels and different cutting edge tools. I call this my 'wax on, wax off' period. It was during this



time that I decided I wanted to pursue furniture making as a career and attend North Bennet Street School.

Making it happen

Attending NBSS is a fully self funded activity costing approximately US\$60,000 on a visa that doesn't allow you to work, and I had to show up front that I had all tuition and living expenses. This certainly boosted my necessity to work so I completed VCE by distance education so I could work and save. Once I finished VCE I took on a full time position at the Guild, but even with saving everything I earned I was still going to fall short by about \$10,000. To make this up I ran a crowdfunding campaign and will be forever grateful to my family, friends, the Guild and all the

Left and above: In-progress and final images of the toolbox made at NBSS. 'Made from cherry, maple and poplar the toolbox was an exercise in handcutting dovetails, and by the end of it I felt very competent in my ability to do so.'

Below: 'Learning how to draft has enabled me to problem solve a whole lot better.' Shown here, sketches and plan for a pie crust tray.



**From left:**

Techniques explored in making this walnut demilune table included making a bricked and veneered apron and turned and reeded legs, as well as a bridle joint.

This French polished mahogany tilt-top tea table in the Queen Anne style was Jackson's first project undertaken at NBSS.

contributors of the campaign. At age 20, I was ready to go.

The NBSS experience

The first semester at the school was highly structured as we learned the fundamentals of furniture making (drafting, sharpening, wood technology), which eventually led to the first project, a Shaker nightstand. In the semesters that followed we could choose our own projects.

During my time at NBSS I kept a fairly strict routine. Waking at 5:30am allowed me to catch the train for an hour long commute to Boston. On the train I'd write out a plan for the day – what I needed to get done, what I'd like to improve on, and any questions I had for my instructors.

Arriving at school I would go to my bench, clean up my workspace and do an hour of sharpening before class began at 8am. Once class started I continued from where I had left off from the previous day.

In the two years I was there I made a total of 12 pieces which covered an array of techniques. My goal was not to make the biggest and grandest piece of furniture the world has ever seen, but to learn as many skills and techniques as possible. Each project had its own challenges along the way.

Class time was my opportunity to learn from some of the best furniture makers in all of America. I would constantly ask for their feedback about what I was making, how they would do it, and how I could improve.

Most students left after class finished at 3pm but I always stayed back until I got kicked out at lock-up. At home I quickly ate dinner and then documented everything I had learnt that day on my laptop. This is one thing I carried on right through till the end in order to retain the knowledge of all the amazing things I was learning in an intense two year period of study. All day, every day I took photos of the techniques and steps for each project I made.

One of the weekly highlights was the Lance Lecture. Every Thursday, instructor Lance Patterson would roll out the old school projector with his slides and give us a lecture on anything woodworking related. One week it could be 16th, 17th or 18th century style furniture, on another it could be wood technology or even clock making. Lance was thoroughly inspiring.

The Cabinet and Furniture Making program ran five days a week, but luckily for me the school building was open most of the academic year. I spent most weekends at the school doing bench work or anything that didn't involve the use of power tools as the machine room was always locked then. Occasionally I would go to see a Red Sox game or have a cannoli or pizza in the Italian North End or even go to the movies. I'm sure some people thought I was crazy for being at the school so much, but I wanted to make the most of it.

Right: This serpentine cabinet is the author's interpretation of the Chippendale sketch he is shown with on p.78. It has inset coopered doors, a curved drawer front and ogee bracket feet; features which allowed him to explore techniques he wanted to learn.

Below: Jackson Fairlie with the unfinished cabinet.

Bottom: 'I loved living in Boston...the city, its architecture, and the snow was amazing.'



Life lessons

Living in another country by myself also taught me a lot of life lessons. I rented a room in a house in the ocean side suburb of Winthrop. It was the first time I really had to become resourceful at making a budget stretch, learning to cook and talk my way through situations that I would not have necessarily had to deal with back home. There were moments of frustration as I put a lot of pressure on myself with my own expectations, but I loved living in Boston. I loved the city, its architecture, and the snow was amazing.

COVID-19

As it turned out, the extra hours I put in meant that by December 2019 I had completed the course requirements. I had planned to spend the last semester learning other skills and techniques – and then COVID-19 happened. In March 2020, six weeks into my last semester, the school had to close with an uncertain future date to resume.

Returning home early to Melbourne to start my career was the most difficult decision I had to make. I packed up my suitcases with tools and boarded the next flight out to Melbourne, but unfortunately left all my projects at school. NBSS has allowed me to graduate as a result of having completed my work, however there was no graduation day, nor any farewells...not the ending I had envisioned.

So...what's next?

In Melbourne I have now set up my workshop in order to make fine furniture and am excited to start this new phase of my life. I've returned with new skills and knowledge of furniture construction and joinery. Learning how to draft has enabled me to explode a piece of furniture in my mind and problem solve a whole lot better. I have a greater understanding of timber and its properties which is vital for designing and constructing furniture. My goal from this point forward is to use 18th century furniture making techniques and incorporate them into contemporary furniture designs and thus preserve the art of fine furniture making in this modern day society.

Photos: Jackson Fairlie

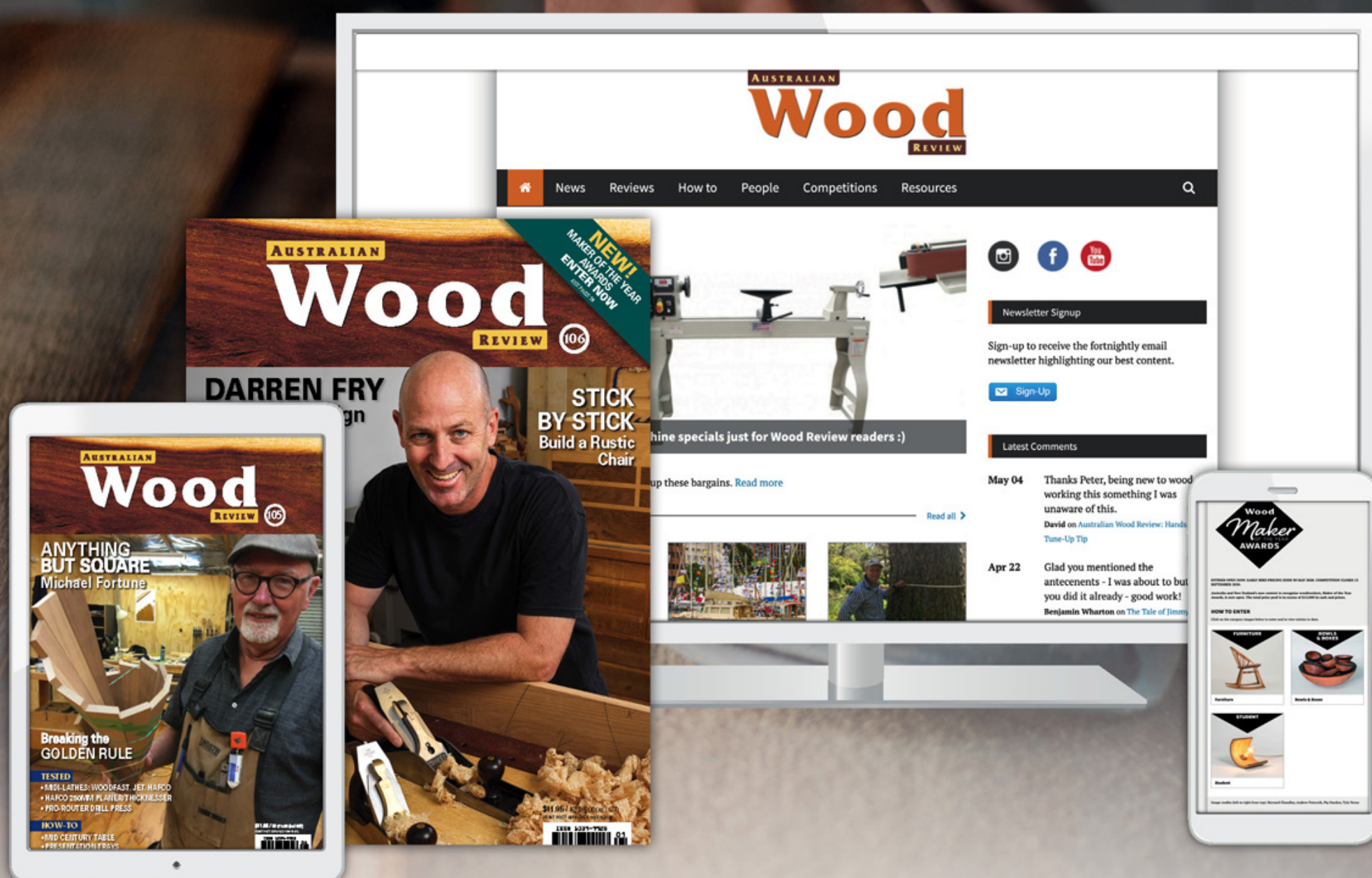
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